Development of Potentially Avoidable Readmission and Functional Outcome SNF Quality Measures

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Final Report

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I. INTRODUCTION

For the 2014 Report to Congress, the Medicare Payment Advisory Commission (MedPAC) identified two objectives pertaining to the Skilled Nursing Facility quality measures. These included: 1) Refine the existing SNF readmission to hospital measures such that they are based on a more specific definition of potentially avoidable conditions; and 2) Develop a SNF functional change measure that is sensitive to the types of functional changes achieved by the SNF population.

MedPAC began reporting potentially avoidable rehospitalization rates in 2004. Since that time, prompted in part by the Hospital Readmission Reduction Act and other care transition initiatives, increased attention has been paid to identifying potentially preventable causes of readmission to hospital from various settings. While none of these efforts focused specifically on the Medicare SNF population, increased public scrutiny of the SNF measures have revealed several ways that the measures can be improved. These modifications include: using only primary diagnosis from the hospital readmission to identify potentially avoidable readmissions, rather than either primary or secondary diagnoses; excluding readmissions that might create incentives to not hospitalize a SNF resident for elective or beneficial care; and including other types of readmissions from the literature that are potentially preventable in the SNF population.

Last year's readmission measure update included refining the risk-adjustment methodology based on the MDS 3.0, and development of the 30-day post SNF discharge readmission measure to assess SNF discharge transition quality. In this report, the methods and results are provided for calculating both the during SNF readmission measure and the 30-day post SNF discharge readmission measure based on modified definitions for potentially avoidable readmissions, with refined risk adjustment pertinent to these enhanced measures. As in the past, the risk-adjusted community discharge rate is presented in addition to the readmission measures.

Various functional change metrics have previously been developed for post-acute residents; however, these have frequently required data that are not currently collected in SNFs, and were not designed specifically for the types of residents and care provided in SNFs. The functional outcome measures described in this work were designed to assess functional change for all SNF admissions using the functional items contained in MDS assessments. These measures differ significantly from those tested for the CARE demo, for example, that require collection of additional longitudinal functional data to assess outcomes across post-acute settings (Gage, et al, 2011). The measures described herein were specifically designed to be sensitive to changes in function that are typical during SNF stays. Thus, both an improvement measure and a measure of maintaining function were developed. Of particular importance, was developing a method to adjust for differences in functional outcome potential among SNF residents and between facilities.

The analyses included in this report were conducted on Medicare SNF stays that occurred in FY 2011 and FY 2012. The Medicare-covered stays were determined by the Medicare claims files and include beneficiaries in the fee-for-service program who utilized the Medicare SNF benefit from 10/1/2010 to 9/30/2012. Medicare beneficiaries who were enrolled in a

managed care organization at any point in a fiscal year were excluded because managed care organizations are not required to submit inpatient claims. To provide accountability for all of a resident's SNF stays in a particular year, the most fine-grained level of analysis was the resident stay; thus, a resident could have multiple SNF stays in a particular fiscal year. Stays were excluded if the SNF resident died during the stay. As detailed in the methods sections of the report, the SNF outcome measures required a minimum number of eligible stays for the facility-level measures to be calculated.

For the more than 1.8 million stays included in each fiscal year, SNF residents were predominantly female, aged 75 years or older, self-designated as white, and widowed (Table 1). The average Barthel Index score of 36, a measure of function in which the norm for community residence is about 60, is consistent with an institutionalized and highly impaired population. SNF resident disability is further indicated by the use of a walker by the resident in two out of three SNF stays.

II. METHODS AND RESULTS

1. Potentially Avoidable Readmission and Community Discharge Methods

1.1. SNF Quality Measure Definitions

A total of three SNF quality measures were calculated separately for each facility using available FY 2011 and FY 2012 data. Each facility's observed and expected rates for the fiscal year were based upon stay-level information that was aggregated to the facility level. For each measure, a raw rate was calculated for all Medicare SNF stays, then an observed facility rate was calculated, and finally a risk-adjusted facility rate for each of the three outcomes was calculated for eligible facilities (Abt Associates, 2004; Min, et al, 2011). Eligibility was based upon a minimum number of SNF stays in a facility during a fiscal year, excluding residents who died during the time window for each quality measure. The specific definitions of the three quality measures were:

1.1.1. <u>Community Discharge</u>: Rate of community discharge at the end of the Medicare SNF stay, within 100 days of SNF admission. Community discharge was defined as direct discharge from the SNF to a community setting, with or without home health care, and without readmission to hospital within the 100-day period. This measure reflects a positive outcome because at the end of a SNF stay, the Medicare beneficiary does not become a long-term nursing home resident in either the same or different nursing facility. Instead, community locations include a private home or residential care facility (e.g., assisted living) that offers greater independence. Risk-adjusted rates were based upon a Medical Comorbidity Index, the presence of a Cognitive Condition, the presence of a Mental Health Condition, the resident's Average Barthel Score, the resident's use of a walker, whether the resident has shortness of breath when sitting at rest, and the presence of surgical wounds. A minimum annual sample size of 25 SNF stays in a facility was found to be necessary for stability of this measure (Donelan-McCall, et al, 2006).

1.1.2. <u>Potentially Avoidable Readmission During SNF stay</u>: Rate of direct SNF-to-hospital readmission among a nursing facility's SNF residents, within 100 days of SNF admission, with a hospital discharge primary diagnosis of one of thirteen potentially avoidable conditions. These thirteen conditions include: electrolyte imbalance, congestive heart failure, respiratory illness, sepsis, urinary tract and kidney infections, hypoglycemia and diabetic complications, anticoagulant complications, fractures and musculoskeletal injuries, adverse drug reactions, acute delirium, cellulitis / wound infection, pressure ulcers, and blood pressure management. Readmission rates during the SNF stay were risk adjusted for a Medical Comorbidity Index, the resident's average Barthel Score, the resident's use of a walker, whether the resident has shortness of breath while sitting at rest, and the presence of a fever. A minimum annual sample size of 25 SNF stays in a facility was also found to be necessary for stability of this measure.

1.1.3. <u>30-Day Post SNF Discharge Potentially Avoidable Readmission</u>: Rate of hospital readmission within 30 days of SNF discharge with a hospital discharge primary diagnosis of

one of the same thirteen potentially avoidable conditions. Readmission rates in this post-discharge period were risk adjusted for a Medical Comorbidity Index, the presence of an Arthritis Condition, the resident's Average Barthel Score, whether the resident had shortness of breath when sitting at rest, the presence of surgical wounds, and Age Less than 65 years. A minimum annual sample size of 20 SNF stays in a facility was found to be necessary for stability of this measure (Kramer, et al, 2013).

1.2 SNF Quality Measure Development

In contrast to prior MedPAC reports that used both the primary and secondary diagnoses for the hospital stay, the hospital readmission measures used this year relied on only the primary diagnosis at hospital discharge, with two exceptions described below. The rationale for shifting away from using the primary and secondary diagnoses is that several of the potentially avoidable hospitalizations focus on the management of chronic conditions, and should be considered a "potentially avoidable" hospitalization only when the SNF's inability to manage the condition was the cause of readmission. Upon a systematic study of primary and secondary readmission diagnoses, we found that when the secondary diagnosis was a chronic condition it was often associated with a primary diagnosis that was not necessarily preventable. Hence, the previous hospital readmission outcome measure that focused on five potentially avoidable conditions using both primary and secondary diagnoses may have overestimated facility and industry-wide readmission rates for potentially avoidable conditions.

Another modification from previous MedPAC readmission measures is an expansion of the list of potentially avoidable conditions. The five conditions that served as the basis for the previous quality measure have been retained, but an additional eight conditions were included this year. The final list (Table 2) was developed through a review of available literature on hospital readmissions, ambulatory care sensitive conditions, and potentially avoidable hospitalizations for long-term care (Halfon, et al, 2006; Horwitz, et al, 2011; Intrator, et al, 2004). No literature was found that defined potentially avoidable or preventable readmissions specifically for the Medicare SNF population. The available studies included a review of readmission rates for all hospital discharges (Jencks, Williams, and Coleman, 2009) or admissions to a hospital for nursing home residents that included both long- and short-stay residents. None of these were comparable to the SNF potentially avoidable readmission rate. However, the lists of conditions included in some of the papers provided definitions of diagnostic groups for which we believe cases were applicable to defining potentially avoidable hospitalizations among SNF residents. These were adopted and modified as deemed appropriate (Appendices A, B, and C).

We exclude hospitalizations from our readmission definition that were likely to be planned, such as inpatient chemotherapy and radiation therapy. While certain readmissions are potentially avoidable for long-stay nursing home residents with chronic conditions, such as anemia or angina, readmission from post-acute care for these problems are as likely to be a result of the hospital care as the SNF care. Hence, these hospital readmissions were not included in the list of potentially avoidable conditions attributable to the SNF.

Two of the conditions included in the potentially avoidable readmission measures were defined using selected information in addition to the primary diagnosis for hospital readmission. First, problems with management of anticoagulation leading to readmission were identified with a combination of the MDS item indicating that a resident was actively receiving anticoagulant therapy and a hospital discharge diagnosis of an embolism (cerebral or pulmonary) or a cerebral hemorrhage. About one in four SNF admissions were being anti-coagulated in FY 2012, resulting in a widespread challenge to prevent these adverse events. However, the monitoring required to avoid such complications is a reasonable expectation of SNFs.

Second, we were concerned that hospital coding of acute delirium might be highly variable across facilities, which is problematic for an accurate capture of a potentially avoidable hospitalization. A SNF resident with delirium that also had underlying dementia may have delirium listed as a secondary diagnosis and the organic brain disease causing the dementia listed as the primary. Hence, for this scenario we identified a potentially avoidable hospital readmission in which delirium was listed as a secondary diagnosis as long as the primary diagnosis was some form of dementia. We did not include other situations with dementia as the primary diagnosis because dementia may be coded as the primary cause of hospitalization among residents suffering from chronic organic brain syndromes-- diseases where hospitalizations are likely to be unavoidable. Delirium, however, is an acute problem that can be avoided or managed in a SNF regardless of underlying dementia, so we classified hospital readmissions with a primary diagnosis of delirium as potentially avoidable.

1.3. Stay-Level Covariates

In order to generate a facility-level risk-adjusted rate, we employed each SNF resident's characteristics from MDS assessments during the resident's stay to calibrate a stay-level expected probability for each of the three outcome measures. Subsequently, we aggregated the stay-level expected probabilities to the facility level by averaging the probabilities for all eligible stays in the fiscal year, and then calculated a facility-level risk-adjusted rate for each outcome measure.

1.3.1. Comorbidity Index and Condition indicators

At the stay level, each resident's active diagnoses, gleaned from items in MDS 3.0 Section I, were used to construct a Medical Comorbidity Index, an Arthritis Condition indicator, a Cognitive Condition indicator, and a Mental Health Condition indicator. The MDS items for the comorbidity indices and the condition indicators are listed in Tables 3 and 5. The covariates each have an associated outcome-specific weight, developed through stay-level logistic regression models, which correspond to the log odds of an outcome. The comorbidity index is a stay-specific measure that is a composite of active diagnoses that were present during the stay, while the conditions are binary indictors signifying the presence of at least one of the contributing diagnoses during the stay. Additional details of the Medical Comorbidity Indices are available in Table 7.

1.3.2. Other Covariates

Other MDS-based resident characteristics were evaluated for inclusion as covariates in the logistic regression models for readmission and community discharge. Among demographic characteristics, race and gender were not important risk factors, while age (resident less than 65 years old) was statistically significant as a risk adjuster for the 30-day post SNF discharge readmission measure. In addition to the medical comorbidity index and the condition indicators, the final group of covariates used in at least one of the stay-level outcome models for risk adjustment included the average Barthel index, the resident's use of a walker during the SNF stay, whether the resident had shortness of breath at rest, the presence of a fever during the SNF stay, the presence of surgical wounds, and whether the resident was less than 65 years of age.

1.4. Resident Exclusions and Facility Eligibility

The exclusions and facility eligibility criteria that were used in last year's MedPAC report to generate stay-level and facility-level measures were carried over from last year. Medicare beneficiaries who were enrolled in a managed care organization at any point in the year were excluded because managed care organizations are not required to submit inpatient claims. SNF residents who died in the SNF before day 100 of the stay were also excluded from the outcome measures, unless the SNF resident was rehospitalized at the end of the stay and died within one day of discharge. Residents who were readmitted to a hospital during the SNF stay were excluded from the 30-day post SNF discharge readmission measure. For the 30-day post SNF discharge readmission measure, all stays in which the resident was readmitted during the SNF stay, or died during either the SNF stay or within 30 days of SNF discharge were excluded. Both community discharge and potentially avoidable hospital readmission during the SNF stay outcome measures required a minimum of 25 stays for the measure to be calculated at the facility level. In contrast, one of the eligibility criteria for inclusion in the facility-level outcome measure was a minimum of 20 stays for the 30-day post SNF discharge readmission rate (Kramer A, et al, 2013). Last, one eligibility criterion that is new to this year's report is the exclusion of SNF stays in a swing-bed.

1.5. Facility-Level Regressions

Each of the facility-level outcome measures was regressed on a set of independent variables to facilitate inferences about the characteristics associated with facility performance. We employed a pooled data set that contained all of the facility-level data for FY 2011 and FY 2012. Covariates for each of the models included hospital-based (as opposed to freestanding), owned by a for-profit company (as opposed to a not-for-profit company), owned by a government agency (as opposed to a not-for-profit company), located in an urban setting (as opposed to a rural setting), facility size less than 50 certified beds (as opposed to 50 or more certified beds), and state-specific indicator variables (the reference group was the state with the lowest beta coefficient in each model). For the models of the 30-day post SNF discharge readmission rate, we controlled for the post-SNF discharge location, distinguishing between a community setting without home health services (the reference group), a community setting

with home health, or a nursing home as a non-SNF resident. In addition, we developed additional regression models for sensitivity analysis that included staffing levels in the nursing facility. These included nurse staffing levels (RN hours per resident day, LPN/LVN hours per resident day, and CNA hours per resident day), and physical therapy staffing levels (PT hours per resident day) that are reported to CMS at the time of the annual survey. To assess change over time, we included an indicator variable for fiscal year 2012, leaving FY 2011 as the reference group. We also included an indicator for facilities that were eligible in FY 2011 only, and another indicator for facilities that were eligible in FY 2012 only.

2. Potentially Avoidable Readmission and Community Discharge Results

2.1 Outcome Measures

2.1.1. Stay Level

Table 2 lists the thirteen separate condition categories that were included in the potentially avoidable readmission measures, and provides the share of all-cause hospital readmissions represented by each condition and by the thirteen conditions. Overall, sepsis, respiratory illnesses, and problems related to congestive heart failure were the most prevalent reasons for potentially avoidable readmissions in FY 2012. Potentially avoidable readmissions comprised 47.3% of all hospital readmissions that occurred during the SNF stay in FY 2012, which is close to the 55% proportion reported by Walker, et al (2009) in their study of all nursing home residents from Ontario, Canada. This result was higher than the median proportion (27.1%) of readmissions deemed avoidable in a systematic review of hospital readmission studies, though it is important to note that the studies included in the review included those conducted in community settings for which the readmission rates would likely be lower (van Walraven, et al, 2011).

Tables 3, 4, and 5 provide descriptive information about the Medicare SNF population and the stay-level measures that were used in creating facility-level outcome measures. Table 3 provides a list of MDS-based active diagnoses for the Medicare SNF population in FY2012. Anemia (34.6%), depression (35.8%), heart failure (25.0%), and respiratory illnesses (26.9%) such as asthma and chronic obstructive pulmonary disease were present in more than a quarter of SNF residents. Pooling related illnesses, the Mental Health Conditions indicator, which included Anxiety Disorder, Depression, Manic Depression, Psychotic Disorder, and Schizophrenia, was present in nearly half (47.0%) of SNF residents, while a Cognitive Conditions indictor, which included Alzheimer's Disease and Non-Alzheimer's Dementia, was also prevalent (25.9%). An Arthritis Conditions indicator was present in nearly a quarter (24.2%) of SNF residents.

Table 4 provides information on resident characteristics based upon the SNF beneficiaries' location immediately following the SNF discharge. Excluding those SNF residents who died or were discharged directly to a hospital, most frequently SNF residents were discharged to a community setting rather than to a nursing home (70.7%). However, nearly two-thirds of these residents received home health services in the 30 days following discharge (45.7% of all SNF discharges). When comparing discharge locations, Tables 4 and 5 reveal several differences in SNF beneficiaries' demographic characteristics and health conditions. Older,

unmarried, and more functionally impaired and frail SNF discharges went to long-term nursing home care. Cognitive conditions, mental health conditions, as well as most medical conditions, were substantially more prevalent in discharges to long-term nursing home care.

Table 6 demonstrates that medical conditions and functional characteristics were differentially associated with outcomes across discharge locations, suggesting the need for location-specific risk models to determine expected values. The risk models for community discharge and during SNF readmission were predictive of these outcomes based on model fit statistics (c-index = 0.74). The models for predicting readmission 30 days post SNF discharge were acceptable but not as strong given the potential for intervening changes in status (c-indices = 0.61, 0.65, and 0.68). Table 7 identifies the weights that were used in the Medical Comorbidity Index.

2.1.2. Facility Level

Table 8 provides average SNF quality measures in FYs 2011 and 2012. While FY 2011 numbers were reported in the previous contractor report (Kramer, et al, 2013) and the 2013 MedPAC report, the FY 2011 rates have been updated based on of the refined definition for potentially avoidable readmissions, and the updated risk adjustment models. Averaging across all eligible facilities, the risk-adjusted potentially avoidable readmission rate during the SNF stay was 11.7% in FY 2012, down from an average of 12.5% in FY 2011. The average risk-adjusted 30-day post SNF discharge potentially avoidable readmission rate in FY 2012 was 5.8%, compared to 5.9% in FY 2011. The risk-adjusted combined during and 30-day post SNF discharge potentially avoidable readmission rate in FY 2012 was 14.9%, while in FY 2011 it was 15.6%. The average risk-adjusted community discharge rate in FY 2012 was 30.6%, up from 28.8% across eligible facilities in FY 2011. Table 9 shows the variation across eligible facilities for these three outcome measures in FY 2012.

2.1.3. Regression Analyses

Pooling FY 2011 and FY 2012 data, we regressed the risk-adjusted outcome measures on facility and geographic characteristics to understand the effect of facility characteristics on quality (Tables 10, 11, 12, 13, 14, and 15). The adjusted r-squared values for the community discharge rate and the during SNF potentially avoidable readmission rate models were reasonably good (0.204 and 0.132, respectively), but facility characteristics were not very predictive of the 30-day post SNF discharge potentially avoidable readmission rate (r-squared of 0.040) because potentially avoidable readmission after SNF discharge is dependent on care following discharge as well as the SNF discharge transition. Compared to freestanding facilities, hospital-based facilities had community discharge rates that were higher by 4.8 percentage points and potentially avoidable readmission rates during the SNF stay that were lower by 2.8 percentage points. Not-for-profit facilities had moderately higher community discharge rates (by 1.2 percentage points) and lower potentially avoidable readmission rates (by 1.2 percentage points) than for-profit facilities. Compared to urban facilities, rural SNFs had lower community discharge rates (by 2.2 percentage points) and similar potentially avoidable readmission rates. Small facilities had higher community discharge rates (by 4.1 percentage points) than facilities with at least 50 certified beds, and a 0.7 percentage point lower potentially avoidable readmission rate during the SNF stay.

Staffing levels were general positively associated with the various risk-adjusted outcomes and lent support for the validity of these outcome measures as indicators of SNF quality. For example, after risk adjustment the facilities with more physical therapy staff hours per resident day had significantly higher rates (beta coefficient=0.167) of community discharge. These higher physical therapy staffing levels may reflect a stronger rehabilitation orientation that was associated with a 17 % increase in community discharge rates per average hour of PT. Similarly, after risk adjustment the facilities with more RN hours per resident day and CNA hours per resident day had lower rates of potentially avoidable readmissions. This association supports the validity of the refined potentially avoidable readmission rate.

With respect to changes over time, rates of community discharge improved from FY2011 to FY2012, increasing by 1.7 percentage points on average after controlling for facility-level and geographic characteristics. Potentially avoidable readmission rates also improved over time, decreasing 0.8 percentage points during the SNF stay, but only 0.1 percentage point on average in the 30 days post SNF discharge.

3. Functional Change Methods

3.1 Selection of MDS Assessments for Functional Outcome Assessment

The first issue that needed to be decided was the optimal MDS assessments to use for calculating functional outcomes. We evaluated the following options:
1) Selecting the MDS assessments for each stay based on the type of PPS assessment (e.g. 5-day, 14-day, etc.);
2) Identifying a fixed time period and finding the assessments that most closely coincided with that interval; or
3) Using the first and last assessment for each SNF stay.

The last option was chosen for two reasons. First, the first assessment was completed on day 7 or 8 in 79% of the stays (64% on day 8), with only about 4 % exceeding day 8, rendering the baseline at a similar point in most SNF stays. Second, selection of any specific subsequent assessment type (e.g. 14 day, discharge) or selecting a fixed time interval led to substantial non-random attrition that would bias the outcome results.

The resulting median interval from the first to last assessment was 17 days, with half of the intervals greater than 7 days and less than 37 days. This variability in the time between the first and last assessment was due largely to variability in the length of SNF stays. Using the last assessment for a stay makes the implicit assumption that if a SNF resident was discharged to the community or long-term nursing home care or hospital (deaths were excluded), then he/she achieved the optimal functional level that the SNF could provide for that stay. While length of stay is important from a cost perspective, quality measures for SNF care should focus on achieving the optimal outcome for the resident during a stay, as is the case for the SNF readmission and community discharge measures as well as acute care quality measures.

3.2 Selection of ADL items and Scales for Functional Outcome Assessment

A series of stay-level descriptive analyses of FY 2011 MDS data pertaining to about 1.6 million qualifying stays were conducted to select the ADLs and scales for measuring functional outcomes. These analyses excluded stays during which the beneficiary died (n=81,209; 4.2 %) because functional change is not an appropriate outcome in these stays. Also excluded, when calculating changes, were the stays without two assessments (n=256,275; 13.7%), resulting largely from the lack of a discharge assessment when SNF beneficiaries were discharged.

Three ADLs were selected for functional outcome measurement based on both conceptual and empirical grounds: Bed Mobility, Transfer, and Walk in Room (referred to as Ambulation). From a conceptual perspective, these three ADLs are hierarchical, representing a progression from being immobilized in bed, to transferring out of bed, to walking in the room (Katz, et al, 1963). At least one of these functions should be affected by recovery during most SNF stays, except for those residents recovering exclusively from speech and cognitive losses. The ADL Support Provided scale for these three items was chosen because it is more tangible and objective (e.g. One person assist), requiring less judgment. The ADL

Support Provided scales are also less central to RUGs reimbursement, which is based primarily on the Self-performance scales (CMS et al, 2009), so they are less subject to payment bias.

Empirically, these ADL items demonstrated higher rates of change than most of the other ADL items, which was critical in that even these three ADLs each exhibited no change in about two-thirds of stays. However, residents were independent on the first assessment in only 5% or fewer of stays for each of these ADLs, so there was not a large ceiling effect. Across all stays, 43% exhibited improvement in one or more ADLs, 26% in two or more ADLs, and 14% in all three ADLs. With 9% declining in one of the three ADLs, 48% had no measureable change between admission and discharge in all three ADLs. As mentioned earlier, for some SNF stays, maintaining function is the important outcome.

The ADL scales were recoded in two ways. First, the scales were reversed such that greater independence was denoted by higher values. Thus, good functional outcomes resulted in a positive difference from the first to last assessment. Second, the value "8" representing the activity was not performed was recoded to the most dependent level. This contrasts with the recoding for RUGs, in which the "8" is recoded to be the same as independent because from a resource perspective both an independent resident and one that cannot perform an activity require no services, whereas from an outcome perspective these are opposite ends of the scale. Thus the resultant 5-point scale for each of the three mobility ADLs was the following:
1- ADL activity did not occur
2- Two person assist
3- One person assist
4- Set-up help only
5- Independent

3.3 Functional Measure Definitions

3.3.1 Stay-Level Measures

In summary, the above analysis led to the following decisions:
- The first and last MDS assessments were selected to define the outcome interval;
- Three ADL items were selected to measure the change in mobility: Bed Mobility, Transfer, and Walk in Room (referred to as Ambulation); and
- The Support scales were chosen and adapted to measure functional change.

For each SNF stay, two measures as defined below were then created for each of these three ADL items. This yielded six different stay-level functional outcome measures (2 measures each for the 3 functions).

No Decline-Either improved or maintained functional status in the Support Scale between the first assessment and the last assessment for the SNF stay (the opposite of decline, which would be a negative outcome where higher values would have been worse). Stays that began at the lowest level in the scale for each ADL were excluded from that ADL measure, because these individuals could not possibly decline in a measureable way.

Improvement-Improved in the Support Scale between the first assessment and the last assessment during the SNF stay. Stays that began at the highest level in the scale for each ADL were excluded from that ADL measure because they could not possibly improve in a measurable way.

The reason for collapsing the stay-level measures into dichotomous indicators of improvement or decline was that, for the most part, observed changes were one level in the ADL scale. For example, 75% of stays with improved bed mobility were an increase of one level and 88% of stays with declining function were a decline of one level. For transferring, 79% of stays with improved function and 91 % of stays with functional decline changed just one level. For ambulation there was somewhat wider dispersion but still 42% and 44% of improvement and decline during the stay, respectively, changed one level. Conceptually, given that the ADL scales are not designed as interval scales, dichotomizing them into improvement or decline makes fewer assumptions about linearity. However, the extent of improvement was captured to some extent if during a stay a beneficiary improved so much in one activity that they also improved in another of the three functions.

3.3.2 Facility-level Measures

The facility-level rates with no decline and with improvement were determined for each of the three mobility ADLs. To ensure measure stability, a minimum of 25 SNF stays was required during the fiscal year excluding any stays ending in deaths. Additionally, composite facility-level measures were then created for no decline and improvement. The No Decline composite was defined at the stay level as maintaining or improving function in all three of the individual ADLs during the stay. Decline occurred in less than 5% of stays for each ADL, with some overlap among ADLs, such that 91% of stays had no decline between the first and last stay.

Some stays resulted in improvement in just one of the three ADLs because the first assessment was at the ceiling for one or more of the ADLs. Alternatively, because mobility improvement is hierarchical, with individuals progressing from bed mobility to transferring to ambulation, some stays resulted in improvement in all three functions over the course of the SNF stay. To differentiate between improvements occurring in just one ADL vs. multiple ADLs, the facility rates of improvement were averaged across the three ADLs to determine the facility improvement rate. Thus the facility measures were defined as follows:

Rate of No Decline in Mobility ADLs: Percentage of stays where there was no decline in any of the three ADLs (Bed Mobility, Transfer, and Ambulation) between first and last assessments.

Rate of Improvement in Mobility ADLs: Average of improvement percentages (rates) for the individual measures of improvement in Bed Mobility, Transfer, and Ambulation between first and last assessments.

3.4 Risk Adjustment Method

3.4.1 Expected Rate Calculation

To take into consideration differences in potential to improve for each measure, Functional Outcome Groups (FOGs) were defined based on a combination of the resident's baseline function, and the potential to improve in function. Rehabilitation potential was characterized by ability to perform the eating and dressing ADLs on the baseline MDS, using the Self-performance scale. The reason for using these ADLs is that they reflect cognitive functioning as it applies to ADLs and capture the range of the functional hierarchy from eating, which is one of the more basic functions, to dressing, which is one of the most advanced functions (Katz et al, 1963). The reason for using Self-performance for these scales was that baseline self-performance was considerably more variable than support because most individuals in SNFs received one-person assist for performing these ADLs. The variation was in the type of assistance they received, which is captured in the self-performance scale. The MDS lacks a uniform measure of cognition across both interviewable and non-interviewable residents so a direct measure of cognition is not available for all residents.

Stratification into FOGs was used to determine expected rates for the purpose of risk adjustment. Residents were first classified using the first assessment for each stay into categories of baseline function (e.g. Ultra High Mobility, Very High Mobility, Moderately Low Mobility). This classification does not parallel the RUGs categories for therapy use; rather, it represents the level of baseline function on the three functional measures (bed mobility, transferring, and ambulation). These baseline functional categories were then further classified based on rehabilitation potential using the eating and dressing ADL scales. For the purpose of classifying beneficiaries into a FOG based on the first assessment, the initial 5-point Support scales and 7-point Self-performance scales were collapsed into three levels, with each level representing a minimum of 6% of the stays (Appendix E). These three-level scales were then used to define the FOGs in the following order based on factor analysis: Bed Mobility, Transfer, Ambulation, Eating, and Dressing (Appendix F). Ultimately, a minimum group size for a FOG was set at 1% of the SNF stays so that no FOG would be too small.

The validity of the classification was tested in several ways. First, across all stays the rate of improvement was determined for each FOG for all three mobility ADLs. One would expect that the percentage of stays exhibiting improvement would increase as rehabilitation potential improved based on the eating and dressing ADL. Second, the variance explained in the outcome measures by the FOGs was assessed using linear regression, and the impact of adding comorbidities to the model was also determined. Third, the variability across facilities in the mix of stays with each FOG was assessed. The expectation was that some facilities with low functioning and low rehabilitation potential individuals may have none of the higher functioning groups, while other facilities might have few of the lower functioning groups, whereas others might have a mixture.

In the end, 22 FOGs were specified. The average rate of all No Decline and Improvement measures was calculated for each FOG across all stays in FY2011, independent of facility. These values provided the expected rate for each stay with baseline function in each FOG. The expected rate for a facility was the sum of the expected rates for all stays divided by the number of stays in the fiscal year.

3.4.2 Risk-adjusted rate calculation

The SNF quality measures are facility-level measures that correspond to each facility's ratio of observed to expected rates of no decline or improvement for a given fiscal year multiplied by the national rate. The national, observed, and expected rates were logarithmically transformed to manage outliers caused by highly variable estimates for SNFs with low volumes.

A test of validity of the risk-adjusted facility rates was also conducted. The association between these functional outcomes and average physical therapy and nursing staff hours per resident day were assessed using these risk-adjusted facility rates. We hypothesized that physical therapy hours per resident day would be associated with improved functional outcomes, and to a lesser extent CNA hours per resident day would be associated with no decline in function.

4. Functional Change Results

4.1 Validity of the Functional Outcome Groups

Table 16 provides information on the average outcome rates for all eligible stays in FY 2011, which ultimately were used as expected rates. Baseline function according to the three mobility ADLs is represented by the category name (e.g. Ultra High, Moderately High, Ultra Low). Within these categories the letters (e.g. Ultra High Mobility A, Ultra High Mobility B) represent the rehabilitation potential groups from highest rehabilitation potential to lowest. The baseline functional category classifies resident stays into categories that are homogenous with respect to baseline mobility status to control for facility differences in the functional level of their SNF admissions. The rehabilitation potential groups further break down the categories according to expected outcomes.

The first test of the classification validity was to determine if groups that were expected to have greater rehabilitation potential, defined based on the eating and dressing ADLs, generally demonstrated more positive functional outcomes. The results of average improvement rates for all stays within each baseline functional category monotonously progressed in general confirming that the groups do predict rehabilitation potential. For example, Ultra High Mobility A had rates of Bed Mobility No Decline of 90.1% and Bed Mobility Improvement of 28.8% whereas Ultra High Mobility B had rates of 85.4% and 16.3%, respectively. Similar progressions are apparent for the other categories across the rehabilitation potential groups, particularly for the improvement measures where there was greater variation across stays.

Overall, across all stays, 44% of the variation in Bed Mobility status, 39% of the variation in Transfer status, and 39 % of the variation in Ambulation status on the last assessment were explained by the 22 FOGs. The addition of diagnoses in the models had minimal effects on r-square values: an extra 1% explained from 39 diagnoses for Bed Mobility; extra 2% from 39 diagnoses for Transfer; and extra 3% from 44 diagnoses for Ambulation. The c-indices for discriminative power for the six stay-level individual ADL functional change outcomes were 0.71 for Bed Mobility Improvement, 0.70 for Transfer Improvement, 0.62 for Ambulation Improvement; and 0.83, 0.70, 0.63 for the No Decline measures, respectively.

Table 17 provides the facility distribution of the percentage of SNF admissions in each one of the FOGs based on their baseline assessment. SNF stays occurred for residents with a wide range of baseline function from those who had difficulty mobilizing in bed to those who could ambulate in their room. On average, over one-third of facility SNF stays, were for residents in the baseline functional category, Ultra Low Mobility, which means that they were significantly impaired in bed mobility. The next most prevalent category was Moderately High Mobility, with a moderate degree of Bed Mobility impairment, Transfer Impairment, and Ambulation impairment, which included an average of another 29% of facility stays. Most importantly, variability in the mix of groups was apparent ranging from a minimum of 0% for some facilities to maximums up to 95% capturing the variability across facilities in baseline function and rehabilitation potential.

Thus, the FOGs offer a classification system based on both baseline function and rehabilitation potential that explains variation in rehabilitation outcome measures. In addition, they capture the variability that exists in SNF case mix so that facilities treating more dependent residents with worse potential will have their functional outcomes assessed relative to expected rates for such beneficiaries. Facilities treating beneficiaries with higher potential will be assessed relative to expected rates for these beneficiaries, minimizing the incentive for admitting SNF residents with greater potential for improvement.

4.2. Facility-Level Functional Outcome Rates

Table 18 provides average SNF Functional Outcome Measures in FYs 2011 and 2012. Improvement and No Decline composite rates reflect the differences in the way they were calculated. The Improvement composite is a weighted average of the three individual facility improvement measures for each facility so the composite values are similar to the values for the three measures, which were all around 28%. However, the No Decline composite that was calculated at the stay level denotes the rate at which stays did not exhibit decline in *any* of the three mobility ADLs. Thus, the No Decline composite rate was lower than the rate for any of the three individual No Decline ADL measures.

As shown in Table 19, there was substantial variation in the facility composite rates with a 10-percentage point interquartile range in the No Decline composite measure, and a 14-percentage point interquartile range in the Improvement composite measure. Maximums in both cases were 100%, although the measures reflect relative quality and facilities should not be expected to achieve 100%, similar to not expecting 0% readmission rates or 100% community discharge rates.

Across all eligible facilities, the risk-adjusted average rate of Improvement in Mobility ADLs was 27.4% in FY2012, compared to an average of 27.1% in FY2011. The average risk-adjusted No Decline in Mobility rate in FY2012 was 88.9%, compared to 88.7% in FY2011. Improvement and No Decline rates for each of the three ADL components (Bed Mobility, Transfer, and Ambulation) in the composite functional outcome measures also were stable between FY2011 and FY2012.

4.3 Association Between Functional Outcomes and both Facility Characteristics and Staffing

Tables 20 and 21 show the relationship between facility characteristics and the No Decline composite measure for FY 2011. While government and for-profit facilities had modestly lower rates of No Decline, smaller facilities had 2.5 percentage points higher rates of No Decline and substantial geographic variation existed for No Decline in function. Providing validation for the No Decline in mobility measure, positive associations were found with facility staffing levels. A 1.2 percentage-point improvement in the No Decline rate was found per CNA hour per resident day and a 2.8 percentage point improvement in the No Decline rate was found per Physical Therapy hour per resident day. One would hypothesize that greater involvement of both CNAs and PTs should reduce the rate of functional decline.

Tables 22 and 23 show the relationship between facility characteristics and the Improvement composite measure in FY 2011. Hospital-based facilities had a 3.2 percentage point lower rate of Mobility ADL improvement than freestanding providers, suggesting that the shorter more intensive stays did not result in the same amount of functional recovery by the time SNF beneficiaries were discharged. Again, government and for-profit facilities had modestly lower rates of improvement, and smaller facilities had modestly higher rates of improvement after controlling for the substantial geographic effects.

Providing validation for the Improvement in Mobility ADLs composite measure, an even stronger association was found with physical therapy staffing hours (6.9 percentage points per physical therapy hours per resident day). CNA hours per resident day were more modestly associated with functional improvement than No Decline measures (0.7 percentage points per hour per resident day), which is not surprising since they probably play a bigger role in providing range of motion and restorative care to prevent decline than they do in providing rehabilitation for mobility improvement that is more dependent on the skills of a PT.

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Section III
Report Tables

TABLE 1: Resident Characteristics, FY2012[1]

Demographics

Female	62.5%
Age at End of First SNF Stay (Years)	79.2
Age, Less Than 65 Years	9.7%
Age, 65 to Less Than 75 Years	21.1%
Age, 75 to Less Than 85 Years	34.5%
Age, 85 Years or Greater	34.7%
Never Married	11.5%
Married	32.5%
Widowed	43.8%
Separated	1.2%
Divorced	11.0%
Race/Ethnicity: White	84.1%
Race/Ethnicity: African American	10.3%
Race/Ethnicity: Hispanic	3.8%
Race/Ethnicity: Other	1.8%

Selected Functional and Other

Average Barthel Index, 0(Bad) to 90(Good)	36.3
Uses Walker	63.5%
Shortness of Breath When Sitting at Rest	10.0%
Fever	5.4%
Surgical Wounds	29.7%

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[1] Includes 1,855,377 SNF stays. Excludes SNF stays ending in death (N=75,381, 3.9%).

Table 2:   Conditions and Rates for Potentially Avoidable Readmission, FY2012[1]

Condition	ICD-9 Codes	Notes	% of All Cause
CHF (Congestive Heart Failure)	428.xx; 518.4	We omit the hypertensive heart (and renal) disease codes that Walker, et al (2009) include.	7.0%
Electrolyte Imbalance / dehydration	276.xx	Compared to most other researchers who have restricted this potentially avoidable readmission to one dehydration code (276.5), we have included electrolyte and acid-base balance because they are manageable in the SNF environment.	1.8%
Respiratory illnesses and bronchitis (e.g., pneumonia, influenza, and pneumonitis due to inhalation of food or vomitus)	466.xx; 480.xx – 487.x; 491.xx; 492.xx; 493.xx; 494.xx; 496.xx; 507.0	We have added several of the COPD codes related to bronchitis because without the secondary diagnoses, if a respiratory infection triggers COPD, we may not capture the infection without these codes. It is generally agreed that bronchitis hospitalizations are potentially avoidable. We have elected to retain the influenza and pneumonitis codes and not restrict just to pneumonia like other authors. Last, we included several of the asthma related conditions for these should be manageable in the SNF.	11.3%
Sepsis (septicemia)	038.xx; 0031.xx; 0545.xx	We exclude 0223.xx that Walker, et al (2009) include.	14.2%
Urinary Tract and Kidney Infections (cystitis, urethritis, urethral stricture)	590.xx; 595.0; 595.1; 595.2; 595.4; 595.89; 595.9; 597.0; 598.0x; 599.0	We have excluded the less specific inflammatory prostate diagnosis code from our prior list.	3.8%
Hypoglycemia and diabetic complications	250.1-250.3; 250.8; 250.9; 250.0; 251.0; 251.1; 251.2; 790.29	We include ketoacidosis, hyperosmolar coma, diabetes with specified complications, and diabetes without specified complications under a single category.	0.9%

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[1]   Includes 1,836,189 SNF stays. Excludes SNF stays ending in death (N=75,381, 3.9%) and additionally excludes SNF stays with MDS indicated chemotherapy and/or radiation therapy (N=19,188, 1.0%).

Table 2: Conditions and Rates for Potentially Avoidable Readmission, FY2012[1]

Condition	ICD-9 Codes	Notes	% of All Cause
Anticoagulant complications	451.xx; 453.xx; or MDS indicator for anticoagulant therapy and one of the following ICD9 codes in the readmission primary diagnosis: (415.1; 430.xx-432.xx; 434.xx-435.xx; 850.xx-854.xx)	We include cerebral hemorrhage occurring when a resident is anticoagulated according to the MDS (this suggests that the International Normalized Ratio is not being adequately monitored). We also include readmission of anticoagulated residents for thromboembolic stroke that should be prevented with sufficient anticoagulation.	1.3%
Fractures and Musculoskeletal	800.xx-854.xx or 910.xx-929.xx or	Fractures and musculoskeletal injuries likely from a fall.	3.0%
Adverse Drug Reaction	960.xx-979.xx	Adverse drug or medication reactions.	0.2%
Delirium	290.3; 290.41; 290.81; 293.0; 293.1; 297.xx; 298.xx or (294.xx, 296.xx, 331.xx and secondary DX from first list above)	We include several delirium codes that represent acute delirium.	0.7%
Cellulitis / Wound Infection	681.xx; 682.xx; 683.xx; 686.xx	To include SNF residents whose wounds or skin lesions get infected, we include several wound infection/cellulitis codes.	1.1%
Pressure Ulcers	707.xx	We include these because the facility should be able to manage pressure ulcers without hospitalization among all residents.	0.6%
Blood Pressure Management	401.0; 401.9; 402.0; 402.1; 402.9; 403.0; 403.1; 403.9; 404.0; 404.1; 404.9; 458.0; 458.1; 458.21; 458.29; 458.8; 458.9	We include both hypertension and hypotension	1.4%
		Total	47.3%

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[1] Includes 1,836,189 SNF stays. Excludes SNF stays ending in death (N=75,381, 3.9%) and additionally excludes SNF stays with MDS indicated chemotherapy and/or radiation therapy (N=19,188, 1.0%).

TABLE 3: Prevalence of MDS Diagnoses During SNF Stay, FY2012[1]

Item	Active Diagnoses	
Medical Comorbidity Index Conditions		
I0200	Anemia (e.g., aplastic, iron deficiency, pernicious, and sickle cell)	34.6%
I0600	Heart Failure (e.g., congestive heart failure and pulmonary edema)	25.0%
I1550	Neurogenic Bladder	1.5%
I1700	Multidrug-Resistant Organism	3.5%
I2000	Pneumonia	13.2%
I2100	Septicemia	2.6%
I2300	Urinary Tract Infection (Last 30 Days)	23.0%
I2900	Diabetes Mellitus (e.g., diabetic retinopathy, nephropathy, and neuropathy)	35.3%
I4500	Cerebrovascular Accident, Transient Ischemic Attack, or Stroke	13.5%
I4900	Hemiplegia or Hemiparesis	5.1%
I5100	Quadriplegia	0.2%
I5400	Seizure Disorder or Epilepsy	6.2%
I6200	Asthma, Chronic Obstructive Pulmonary Disease, or Chronic Lung Disease	26.9%
I6300	Respiratory Failure	3.3%
Arthritis Conditions		**24.2%**
I3700	Arthritis (e.g., degenerative joint disease, osteoarthritis, and rheumatoid)	19.5%
I3800	Osteoporosis	8.6%
Cognitive Conditions		**25.9%**
I4200	Alzheimer's Disease	5.9%
I4800	Non-Alzheimer's Dementia (e.g. Lewy body dementia or Parkinson's)	22.7%
Mental Health Conditions		**47.0%**
I5700	Anxiety Disorder	21.9%
I5800	Depression (other than bipolar)	35.8%
I5900	Manic Depression (bipolar disease)	2.8%
I5950	Psychotic Disorder (other than schizophrenia)	5.0%
I6000	Schizophrenia (e.g. schizoaffective and schizophreniform disorders)	2.3%

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[1] Includes 1,855,377 SNF stays. Excludes SNF stays ending in death (N=75,381, 3.9%).

TABLE 4:   Resident Characteristics for SNF Discharge Locations, FY2012[1]

	SNF Discharge Stays[1]	30 Days Post SNF Discharge Location		
		Nursing Home	Home Health	Community or Other
Number of Stays	1,345,904	393,308	616,812	335,784
Percent of Stays	100.0%	29.3%	45.7%	25.0%
Demographics				
Female	64.8%	64.5%	66.8%	61.3%
Age (Years), End of First SNF Stay	79.2	80.2	79.5	77.3
Age, Less Than 65 Years	9.6%	10.6%	7.9%	11.5%
Age, 65 to Less Than 75 Years	21.4%	17.2%	21.4%	26.2%
Age, 75 to Less Than 85 Years	34.7%	31.1%	37.0%	34.6%
Age, 85 Years or Greater	34.3%	41.0%	33.7%	27.6%
Never Married	11.3%	15.1%	9.1%	10.9%
Married	32.3%	22.8%	35.3%	37.5%
Widowed	44.3%	48.4%	44.6%	39.2%
Separated	1.1%	1.4%	1.0%	1.1%
Divorced	11.0%	12.2%	10.0%	11.4%
White	85.3%	80.7%	86.6%	88.1%
African American	9.4%	12.5%	8.7%	7.3%
Hispanic	3.6%	4.7%	3.2%	2.9%
Other	1.7%	2.1%	1.5%	1.7%
Characteristics				
Average Barthel Index, 0 to 90	39.9	29.6	42.2	47.3
Uses Walker	69.2%	52.0%	77.6%	74.0%
Shortness of Breath at Rest	6.6%	8.4%	5.9%	5.8%
Fever	3.7%	4.6%	3.2%	3.5%
Surgical Wounds	32.4%	16.3%	39.0%	39.2%

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[1] Includes 1,345,904 SNF stays. Excludes SNF stays ending in death (N=75,381, 3.9%), deaths 30 days post SNF discharge (N=76,770, 4.1%), and readmissions during the SNF stay (N=432,703, 23.3%).

TABLE 5:   Prevalence of MDS Diagnoses for SNF Discharge Locations, FY2012[1]

	SNF Discharge Stays[1]	30 Days Post SNF Discharge Location		
		Nursing Home	Home Health	Community or Other
Number of Stays	1,345,904	393,308	616,812	335,784
Percent of Stays	100.0%	29.3%	45.7%	25.0%
Item Active Diagnoses				
Medical Comorbidity Index				
I0200 Anemia	33.2%	35.7%	32.9%	30.6%
I0600 Heart Failure	22.5%	26.1%	21.8%	19.4%
I1550 Neurogenic Bladder	1.5%	2.4%	1.1%	0.9%
I1700 Multidrug-Resistant Organism	3.0%	3.7%	2.8%	2.6%
I2000 Pneumonia	11.7%	14.6%	10.6%	10.2%
I2100 Septicemia	2.3%	2.8%	2.0%	2.1%
I2300 Urinary Tract Infection	22.4%	28.9%	21.0%	17.4%
I2900 Diabetes	33.4%	35.2%	33.4%	31.5%
I4500 Stroke	12.9%	18.4%	11.2%	9.5%
I4900 Hemiplegia or Hemiparesis	4.7%	8.2%	3.6%	2.8%
I5100 Quadriplegia	0.2%	0.5%	0.1%	0.1%
I5400 Seizure Disorder or Epilepsy	6.0%	9.2%	4.6%	4.8%
I6200 Asthma	25.4%	26.2%	25.2%	24.6%
I6300 Respiratory Failure	2.5%	3.0%	2.3%	2.2%
Arthritis Conditions	27.3%	23.4%	29.8%	27.4%
I3700 Arthritis	22.0%	18.2%	24.1%	22.7%
I3800 Osteoporosis	9.7%	9.6%	10.3%	8.6%
Cognitive Conditions	25.2%	45.6%	17.4%	15.4%
I4200 Alzheimer's Disease	5.9%	12.2%	3.4%	3.2%
I4800 Non-Alzheimer's Dementia	22.0%	39.7%	15.4%	13.5%
Mental Health Conditions	46.6%	59.5%	41.6%	40.5%
I5700 Anxiety Disorder	21.7%	26.6%	19.8%	19.4%
I5800 Depression (other than bipolar)	35.8%	46.8%	31.8%	30.3%
I5900 Manic Depression	2.9%	4.3%	2.1%	2.6%
I5950 Psychotic Disorder	4.7%	10.4%	2.3%	2.6%
I6000 Schizophrenia	2.3%	5.0%	0.9%	1.5%

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[1] Includes 1,345,904 SNF stays. Excludes SNF stays ending in death (N=75,381, 3.9%), deaths 30 days post SNF discharge (N=76,770, 4.1%), and readmissions during the SNF stay (N=432,703, 23.3%).

TABLE 6: Risk Models for During SNF Stay and 30-Day Post SNF Discharge Outcomes, FY2011 and FY2012

Model Covariates	During SNF Stay At 100 Days		Potentially Avoidable Readmission 30 Days Post SNF Discharge		
	Community Discharge	Potentially Avoidable Readmission	Nursing Home	Home Health	Community or Other
Intercept	-1.409	-0.174	0.489	0.155	0.026
Medical Comorbidity Index[1]	0.536	0.512	1.119	0.835	0.773
Arthritis Condition			-0.244		
Cognitive Condition	-0.415				
Mental Health Condition	-0.301				
Average Barthel Index	0.023	-0.025	-0.006	-0.010	-0.010
Uses Walker	0.665	-0.439			
Shortness of Breath When Sitting at Rest	-0.632	0.905	0.246		
Fever		0.812			
Surgical Wounds	0.636			-0.552	-0.811
Age Less Than 65 Years					0.323
c-index	0.74	0.74	0.61	0.65	0.68

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[1] Medical Comorbidity Index models are provided in Table 7

TABLE 7: Medical Comorbidity Index Models for During SNF Stay and 30-Day Post SNF Discharge Outcomes

	During SNF Stay at 100 Days				30 Day Post SNF Discharge Potentially Avoidable Readmission					
	Community Discharge		Potentially Avoidable Readmission		From Nursing Home (Long-term care)		From Community with Home Health Care		From Community without Home Health Care	
Model Covariates	FY 2011	FY 2012	FY 2011	FY 2012	FY 2011	FY 2012	FY 2011	FY 2012	FY 2011	FY 2012
Intercept	0.061	0.127	-2.546	-2.599	-3.058	-3.101	-3.255	-3.280	-3.282	-3.290
I0200: Anemia	-0.113	-0.131	0.081	0.092	-0.013	0.008	0.036	0.054	0.044	0.052
I0600: Heart Failure	-0.439	-0.436	0.449	0.435	0.267	0.223	0.546	0.550	0.566	0.567
I1550: Neurogenic Bladder	-0.423	-0.456	0.087	0.136	0.100	0.091	0.198	0.190	0.359	0.329
I1700: Multidrug-Resistant Organism	-0.340	-0.351	0.235	0.224	0.269	0.245	0.265	0.287	0.291	0.307
I2000: Pneumonia	-0.366	-0.344	0.482	0.454	0.138	0.158	0.323	0.320	0.321	0.328
I2100: Septicemia	-0.301	-0.286	0.354	0.337	0.217	0.137	0.178	0.180	0.196	0.122
I2300: Urinary Tract Infection	-0.295	-0.291	0.149	0.149	0.004	0.032	0.240	0.263	0.317	0.347
I2900: Diabetes Mellitus	-0.200	-0.218	0.227	0.242	0.200	0.213	0.235	0.227	0.268	0.311
I4500: Stroke	-0.292	-0.280	0.132	0.107	-0.082	-0.062	0.066	0.044	0.103	0.119
I4900: Hemiplegia / Hemiparesis	-0.356	-0.391	0.135	0.119	-0.092	-0.069	-0.054	0.005	0.128	-0.027
I5100: Quadriplegia	-0.898	-1.026	0.508	0.576	0.357	0.340	0.290	0.492	0.546	0.503
I5400: Seizure Disorder / Epilepsy	-0.483	-0.498	0.104	0.109	0.020	0.017	0.106	0.170	0.222	0.236
I6200: Asthma / COPD	-0.170	-0.165	0.256	0.230	0.281	0.274	0.407	0.413	0.467	0.442
I6300: Respiratory Failure	-0.382	-0.370	0.511	0.524	0.215	0.273	0.204	0.174	0.139	0.096
c-index	0.61	0.61	0.63	0.62	0.57	0.57	0.62	0.63	0.64	0.64

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Note: Grayed out estimates have p-values > .05 .

TABLE 8: **Average Facility Outcome Measure Rates During SNF Stay and 30 Days Post SNF Discharge**

Outcome Measure	Rate	
During SNF Stay[1]	FY 2011	FY 2012
Community Discharge		
Observed	33.4%	34.9%
Risk Adjusted	28.8%	30.6%
Potentially Avoidable Readmission		
Observed	12.5%	11.7%
Risk Adjusted	12.5%	11.7%
30-Day Post SNF Discharge Potentially Avoidable Readmission[2]		
Observed	6.0%	5.9%
Risk Adjusted	5.9%	5.8%
Combined During and 30-Day Post SNF Discharge Potentially Avoidable Readmission[1]		
Observed	17.0%	16.2%
Risk Adjusted	15.6%	14.9%

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[1] Includes SNFs with 25 or more SNF stays excluding deaths during the SNF stay (Fiscal Year 2011 N=12,944, Fiscal Year 2012 N=12,911).

[2] Includes SNFs with 20 or more SNF stays excluding deaths during the SNF stay, 30 days post SNF discharge stay, and readmissions during the SNF stay (Fiscal Year 2011 N=12,549, Fiscal Year 2012 N=12,615).

TABLE 9: SNF Variation in Risk-Adjusted Outcome Measures, FY 2012

All SNFs	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
Community Discharge Rate at 100 Days[1]	12,911	30.6%	0.0%	15.7%	23.3%	31.3%	38.4%	43.9%	70.8%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days[1]	12,911	11.7%	0.0%	5.7%	8.4%	11.4%	14.7%	18.1%	43.2%
30-Day Post SNF Discharge Potentially Avoidable Readmission Rate[2]	12,615	5.8%	0.0%	1.9%	3.7%	5.5%	7.7%	10.0%	28.3%

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[1] Includes SNFs with 25 or more SNF stays excluding SNF stays ending in death.

[2] Includes SNFs with 20 or more SNF stays excluding all deaths during and 30 days post SNF discharge and all readmissions during the SNF stay.

Table 10: Association Between Community Discharge Rate and Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.159	<.0001
FACILITY ELIGIBLE BOTH 2011/2012	Referent	-
FACIILTY ELIGIBLE 2012 ONLY	-0.061	<.0001
FACILITY ELIGIBLE 2011 ONLY	-0.081	<.0001
DIFFERENCE BETWEEN 2011 AND 2012	0.017	<.0001
HOSPITAL-BASED INDICATOR	0.048	<.0001
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	-0.012	<.0001
GOVERNMENT OWNERSHIP	-0.051	<.0001
POS URBAN INDICATOR	0.022	<.0001
LESS THAN 50 CERTIFIED BEDS	0.041	<.0001
UT(46)-UTAH	0.226	<.0001
AK(02)-ALASKA	0.223	<.0001
HI(12)-HAWAII	0.218	<.0001
OR(38)-OREGON	0.216	<.0001
ID(13)-IDAHO	0.196	<.0001
AZ(03)-ARIZONA	0.192	<.0001
MT(27)-MONTANA	0.189	<.0001
WA(50)-WASHINGTON	0.183	<.0001
NV(29)-NEVADA	0.176	<.0001
VT(47)-VERMONT	0.175	<.0001
ME(20)-MAINE	0.174	<.0001
CO(06)-COLORADO	0.169	<.0001
VA(49)-VIRGINIA	0.163	<.0001
MD(21)-MARYLAND	0.163	<.0001
DE(08)-DELAWARE	0.155	<.0001
NH(30)-NEW HAMPSHIRE	0.154	<.0001
FL(10)-FLORIDA	0.153	<.0001
NM(32)-NEW MEXICO	0.149	<.0001
AL(01)-ALABAMA	0.149	<.0001
SC(42)-SOUTH CAROLINA	0.149	<.0001
NC(34)-NORTH CAROLINA	0.148	<.0001
MI(23)-MICHIGAN	0.145	<.0001
MN(24)-MINNESOTA	0.144	<.0001
TN(44)-TENNESSEE	0.140	<.0001
OH(36)-OHIO	0.139	<.0001
NJ(31)-NEW JERSEY	0.137	<.0001
WI(52)-WISCONSIN	0.135	<.0001
MA(22)-MASSACHUSETTS	0.134	<.0001
IN(15)-INDIANA	0.127	<.0001
CT(07)-CONNECTICUT	0.127	<.0001
CA(05)-CALIFORNIA	0.124	<.0001
PA(39)-PENNSYLVANIA	0.121	<.0001
DC(09)-DISTRICT OF COLUMBIA	0.120	<.0001
WV(51)-WEST VIRGINIA	0.116	<.0001
WY(53)-WYOMING	0.115	<.0001

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,841).

(Continued)
Table 10: Association Between Community Discharge Rate and Facility Characteristics[1]

Variable	Coefficient	p-value
GA(11)-GEORGIA	0.109	<.0001
NY(33)-NEW YORK	0.108	<.0001
KY(18)-KENTUCKY	0.106	<.0001
MS(25)-MISSISSIPPI	0.104	<.0001
TX(45)-TEXAS	0.094	<.0001
OK(37)-OKLAHOMA	0.091	<.0001
NE(28)-NEBRASKA	0.089	<.0001
RI(41)-RHODE ISLAND	0.086	<.0001
KS(17)-KANSAS	0.084	<.0001
IA(16)-IOWA	0.073	<.0001
MO(26)-MISSOURI	0.072	<.0001
SD(43)-SOUTH DAKOTA	0.071	<.0001
IL(14)-ILLINOIS	0.068	<.0001
AR(04)-ARKANSAS	0.048	<.0001
ND(35)-NORTH DAKOTA	0.006	0.5948
LA(19)-LOUISIANA	Referent	-

Adjusted R^2 = 0.204

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,841).

Table 11: Association Between Community Discharge Rate and Staffing Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.111	<.0001
FACILITY ELIGIBLE BOTH 2011/2012	Referent	-
FACIILTY ELIGIBLE 2012 ONLY	-0.054	<.0001
FACILITY ELIGIBLE 2011 ONLY	-0.067	<.0001
DIFFERENCE BETWEEN 2011 AND 2012	0.017	<.0001
HOSPITAL-BASED INDICATOR	-0.013	0.0004
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	-0.009	<.0001
GOVERNMENT OWNERSHIP	-0.045	<.0001
POS URBAN INDICATOR	0.012	<.0001
CNA STAFF HOURS/RESIDENT DAY	0.007	<.0001
LPN STAFF HOURS/RESIDENT DAY	0.009	<.0001
RN STAFF HOURS/RESIDENT DAY	0.027	<.0001
PHYSICAL THERAPY STAFF HRS/RES DAY	0.167	<.0001
HI(12)-HAWAII	0.221	<.0001
AK(02)-ALASKA	0.208	<.0001
OR(38)-OREGON	0.189	<.0001
UT(46)-UTAH	0.184	<.0001
ID(13)-IDAHO	0.181	<.0001
MT(27)-MONTANA	0.176	<.0001
AZ(03)-ARIZONA	0.168	<.0001
VT(47)-VERMONT	0.164	<.0001
WA(50)-WASHINGTON	0.164	<.0001
VA(49)-VIRGINIA	0.159	<.0001
ME(20)-MAINE	0.158	<.0001
MD(21)-MARYLAND	0.153	<.0001
NV(29)-NEVADA	0.152	<.0001
AL(01)-ALABAMA	0.151	<.0001
NM(32)-NEW MEXICO	0.151	<.0001
CO(06)-COLORADO	0.149	<.0001
SC(42)-SOUTH CAROLINA	0.145	<.0001
DE(08)-DELAWARE	0.143	<.0001
NC(34)-NORTH CAROLINA	0.143	<.0001
FL(10)-FLORIDA	0.142	<.0001
NH(30)-NEW HAMPSHIRE	0.139	<.0001
MN(24)-MINNESOTA	0.139	<.0001
MI(23)-MICHIGAN	0.138	<.0001
OH(36)-OHIO	0.138	<.0001
TN(44)-TENNESSEE	0.137	<.0001
MA(22)-MASSACHUSETTS	0.127	<.0001
WI(52)-WISCONSIN	0.126	<.0001
NJ(31)-NEW JERSEY	0.120	<.0001
IN(15)-INDIANA	0.119	<.0001
WV(51)-WEST VIRGINIA	0.119	<.0001
GA(11)-GEORGIA	0.118	<.0001
CT(07)-CONNECTICUT	0.117	<.0001

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,135).

(Continued)

Table 11: Association Between Community Discharge Rate and Staffing Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
PA(39)-PENNSYLVANIA	0.115	<.0001
NY(33)-NEW YORK	0.113	<.0001
CA(05)-CALIFORNIA	0.111	<.0001
DC(09)-DISTRICT OF COLUMBIA	0.108	<.0001
WY(53)-WYOMING	0.103	<.0001
OK(37)-OKLAHOMA	0.100	<.0001
KY(18)-KENTUCKY	0.099	<.0001
MS(25)-MISSISSIPPI	0.098	<.0001
TX(45)-TEXAS	0.094	<.0001
RI(41)-RHODE ISLAND	0.088	<.0001
KS(17)-KANSAS	0.084	<.0001
NE(28)-NEBRASKA	0.077	<.0001
SD(43)-SOUTH DAKOTA	0.076	<.0001
IA(16)-IOWA	0.076	<.0001
MO(26)-MISSOURI	0.072	<.0001
IL(14)-ILLINOIS	0.060	<.0001
AR(04)-ARKANSAS	0.048	<.0001
LA(19)-LOUISIANA	0.006	0.5982
ND(35)-NORTH DAKOTA	Referent	-

Adjusted R^2 = 0.271

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,135).

Table 12: Association Between Readmission Rate for Potentially Avoidable Conditions During SNF Stay and Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.079	<.0001
FACILITY ELIGIBLE BOTH 2011/2012	Referent	-
FACIILTY ELIGIBLE 2012 ONLY	-0.003	0.2172
FACILITY ELIGIBLE 2011 ONLY	0.001	0.7976
DIFFERENCE BETWEEN 2011 AND 2012	-0.008	<.0001
HOSPITAL-BASED INDICATOR	-0.028	<.0001
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	0.012	<.0001
GOVERNMENT OWNERSHIP	-0.005	0.0069
LESS THAN 50 CERTIFIED BEDS	-0.007	<.0001
AK(02)-ALASKA	Referent	-
UT(46)-UTAH	0.001	0.9517
HI(12)-HAWAII	0.002	0.9093
MT(27)-MONTANA	0.006	0.7494
ID(13)-IDAHO	0.007	0.6879
DC(09)-DISTRICT OF COLUMBIA	0.012	0.5139
CO(06)-COLORADO	0.013	0.4584
WA(50)-WASHINGTON	0.017	0.3097
AL(01)-ALABAMA	0.018	0.2827
OR(38)-OREGON	0.019	0.2803
MA(22)-MASSACHUSETTS	0.019	0.2549
WI(52)-WISCONSIN	0.023	0.1688
MN(24)-MINNESOTA	0.023	0.1694
ND(35)-NORTH DAKOTA	0.023	0.1809
VT(47)-VERMONT	0.024	0.1767
ME(20)-MAINE	0.025	0.1536
NH(30)-NEW HAMPSHIRE	0.026	0.1345
AZ(03)-ARIZONA	0.029	0.0931
MD(21)-MARYLAND	0.031	0.0639
GA(11)-GEORGIA	0.032	0.0612
WY(53)-WYOMING	0.032	0.0804
SD(43)-SOUTH DAKOTA	0.032	0.0642
OH(36)-OHIO	0.033	0.0538
WV(51)-WEST VIRGINIA	0.033	0.0568
PA(39)-PENNSYLVANIA	0.033	0.0484
NM(32)-NEW MEXICO	0.034	0.0520
SC(42)-SOUTH CAROLINA	0.034	0.0437
VA(49)-VIRGINIA	0.036	0.0360
CT(07)-CONNECTICUT	0.036	0.0343
DE(08)-DELAWARE	0.036	0.0414
NV(29)-NEVADA	0.037	0.0349
IA(16)-IOWA	0.038	0.0241
CA(05)-CALIFORNIA	0.040	0.0176
NC(34)-NORTH CAROLINA	0.040	0.0179

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,841).

(Continued)
Table 12: Association Between Readmission Rate for Potentially Avoidable Conditions During SNF Stay and Facility Characteristics[1]

Variable	Coefficient	p-value
AR(04)-ARKANSAS	0.041	0.0164
NY(33)-NEW YORK	0.041	0.0147
FL(10)-FLORIDA	0.042	0.0137
NJ(31)-NEW JERSEY	0.042	0.0137
NE(28)-NEBRASKA	0.042	0.0139
TN(44)-TENNESSEE	0.042	0.0128
RI(41)-RHODE ISLAND	0.042	0.0146
MI(23)-MICHIGAN	0.043	0.0107
TX(45)-TEXAS	0.044	0.0086
KS(17)-KANSAS	0.048	0.0049
MS(25)-MISSISSIPPI	0.050	0.0031
IN(15)-INDIANA	0.051	0.0024
KY(18)-KENTUCKY	0.052	0.0021
MO(26)-MISSOURI	0.058	0.0006
OK(37)-OKLAHOMA	0.067	<.0001
IL(14)-ILLINOIS	0.071	<.0001
LA(19)-LOUISIANA	0.090	<.0001

Adjusted R^2 = 0.132

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,841).

Table 13: Association Between Readmission Rate for Potentially Avoidable Conditions During SNF Stay and Staffing, Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.092	<.0001
FACILITY ELIGIBLE BOTH 2011/2012	Referent	-
FACIILTY ELIGIBLE 2012 ONLY	-0.003	0.1499
FACILITY ELIGIBLE 2011 ONLY	-0.001	0.7694
DIFFERENCE BETWEEN 2011 AND 2012	-0.008	<.0001
HOSPITAL-BASED INDICATOR	-0.023	<.0001
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	0.010	<.0001
GOVERNMENT OWNERSHIP	-0.004	0.0115
LESS THAN 50 CERTIFIED BEDS	-0.004	0.0028
CNA STAFF HOURS/RESIDENT DAY	-0.004	<.0001
LPN STAFF HOURS/RESIDENT DAY	0.004	<.0001
RN STAFF HOURS/RESIDENT DAY	-0.004	<.0001
HI(12)-HAWAII	Referent	-
UT(46)-UTAH	0.003	0.6757
MT(27)-MONTANA	0.005	0.5914
ID(13)-IDAHO	0.006	0.4320
DC(09)-DISTRICT OF COLUMBIA	0.009	0.3948
AK(02)-ALASKA	0.010	0.6230
CO(06)-COLORADO	0.012	0.1114
AL(01)-ALABAMA	0.015	0.0360
MA(22)-MASSACHUSETTS	0.017	0.0155
WA(50)-WASHINGTON	0.017	0.0160
OR(38)-OREGON	0.020	0.0089
MN(24)-MINNESOTA	0.021	0.0035
WI(52)-WISCONSIN	0.023	0.0013
VT(47)-VERMONT	0.023	0.0127
ND(35)-NORTH DAKOTA	0.023	0.0057
GA(11)-GEORGIA	0.025	0.0004
NH(30)-NEW HAMPSHIRE	0.026	0.0010
AZ(03)-ARIZONA	0.027	0.0002
ME(20)-MAINE	0.028	0.0003
WV(51)-WEST VIRGINIA	0.028	0.0002
MD(21)-MARYLAND	0.028	<.0001
OH(36)-OHIO	0.029	<.0001
PA(39)-PENNSYLVANIA	0.030	<.0001
SC(42)-SOUTH CAROLINA	0.030	<.0001
WY(53)-WYOMING	0.031	0.0026
SD(43)-SOUTH DAKOTA	0.031	0.0002
VA(49)-VIRGINIA	0.031	<.0001
NM(32)-NEW MEXICO	0.031	0.0001
DE(08)-DELAWARE	0.033	0.0002
CT(07)-CONNECTICUT	0.033	<.0001
NV(29)-NEVADA	0.035	<.0001

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,139).

(Continued)

Table 13: Association Between Readmission Rate for Potentially Avoidable Conditions During SNF Stay and Staffing, Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
IA(16)-IOWA	0.036	<.0001
NY(33)-NEW YORK	0.037	<.0001
NC(34)-NORTH CAROLINA	0.037	<.0001
TN(44)-TENNESSEE	0.038	<.0001
AR(04)-ARKANSAS	0.038	<.0001
CA(05)-CALIFORNIA	0.039	<.0001
NJ(31)-NEW JERSEY	0.039	<.0001
FL(10)-FLORIDA	0.040	<.0001
TX(45)-TEXAS	0.040	<.0001
NE(28)-NEBRASKA	0.040	<.0001
MI(23)-MICHIGAN	0.041	<.0001
RI(41)-RHODE ISLAND	0.043	<.0001
IN(15)-INDIANA	0.047	<.0001
MS(25)-MISSISSIPPI	0.047	<.0001
KS(17)-KANSAS	0.048	<.0001
KY(18)-KENTUCKY	0.050	<.0001
MO(26)-MISSOURI	0.056	<.0001
OK(37)-OKLAHOMA	0.064	<.0001
IL(14)-ILLINOIS	0.069	<.0001
LA(19)-LOUISIANA	0.086	<.0001

Adjusted R^2 = 0.132

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,139).

Table 14: Association Between Potentially Avoidable Readmission Rates 30 Days Post SNF Discharge and Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.030	0.0101
FACILITY ELIGIBLE BOTH 2011/2012	Referent	-
FACIILTY ELIGIBLE 2012 ONLY	-0.001	0.3832
FACILITY ELIGIBLE 2011 ONLY	0.001	0.6194
DIFFERENCE BETWEEN 2011 AND 2012	-0.001	0.0293
HOSPITAL-BASED INDICATOR	0.004	<.0001
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	0.004	<.0001
GOVERNMENT OWNERSHIP	0.000	0.6875
POS URBAN INDICATOR	0.001	0.0192
TO COMMUNITY LOCATION	Referent	-
TO NURSING HOME LOCATION	0.014	<.0001
TO HOME HEALTH LOCATION	0.007	0.0022
AK(02)-ALASKA	Referent	-
UT(46)-UTAH	0.000	0.9760
HI(12)-HAWAII	0.002	0.8990
MT(27)-MONTANA	0.002	0.8952
SD(43)-SOUTH DAKOTA	0.002	0.8618
ID(13)-IDAHO	0.002	0.8549
WI(52)-WISCONSIN	0.005	0.6704
WY(53)-WYOMING	0.006	0.6382
OR(38)-OREGON	0.006	0.6061
NH(30)-NEW HAMPSHIRE	0.007	0.5409
WA(50)-WASHINGTON	0.007	0.5287
CO(06)-COLORADO	0.008	0.5178
DC(09)-DISTRICT OF COLUMBIA	0.008	0.5350
NE(28)-NEBRASKA	0.009	0.4710
ND(35)-NORTH DAKOTA	0.009	0.4459
VT(47)-VERMONT	0.010	0.4363
IA(16)-IOWA	0.011	0.3680
KS(17)-KANSAS	0.012	0.3117
RI(41)-RHODE ISLAND	0.012	0.3066
CT(07)-CONNECTICUT	0.013	0.2747
NY(33)-NEW YORK	0.013	0.2706
MN(24)-MINNESOTA	0.013	0.2713
IN(15)-INDIANA	0.014	0.2507
AL(01)-ALABAMA	0.014	0.2472
SC(42)-SOUTH CAROLINA	0.014	0.2416
NC(34)-NORTH CAROLINA	0.014	0.2222
ME(20)-MAINE	0.015	0.2126
VA(49)-VIRGINIA	0.015	0.2048
MA(22)-MASSACHUSETTS	0.015	0.1996
PA(39)-PENNSYLVANIA	0.016	0.1862
OH(36)-OHIO	0.016	0.1794
NM(32)-NEW MEXICO	0.016	0.1912

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,150).

(Continued)

Table 14: Association Between Potentially Avoidable Readmission Rates 30 Days Post SNF Discharge and Facility Characteristics[1]

Variable	Coefficient	p-value
DE(08)-DELAWARE	0.016	0.1892
MI(23)-MICHIGAN	0.016	0.1642
GA(11)-GEORGIA	0.017	0.1530
TN(44)-TENNESSEE	0.018	0.1214
NV(29)-NEVADA	0.018	0.1361
MO(26)-MISSOURI	0.019	0.1083
CA(05)-CALIFORNIA	0.019	0.1058
FL(10)-FLORIDA	0.019	0.0991
OK(37)-OKLAHOMA	0.020	0.0966
IL(14)-ILLINOIS	0.021	0.0793
AZ(03)-ARIZONA	0.021	0.0769
MS(25)-MISSISSIPPI	0.021	0.0737
MD(21)-MARYLAND	0.022	0.0664
KY(18)-KENTUCKY	0.022	0.0644
NJ(31)-NEW JERSEY	0.022	0.0632
TX(45)-TEXAS	0.022	0.0598
WV(51)-WEST VIRGINIA	0.023	0.0597
AR(04)-ARKANSAS	0.029	0.0137
LA(19)-LOUISIANA	0.034	0.0046

Adjusted R^2 = 0.040

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[1] All eligible SNFs for FYs 2011 and 2012 (N=25,150).

Table 15: Association Between Potentially Avoidable Readmission Rate 30 Days Post SNF Discharge and Staffing, Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.033	<.0001
FACILITY ELIGIBLE BOTH 2011/2012	Referent	-
FACIILTY ELIGIBLE 2012 ONLY	-0.001	0.3537
FACILITY ELIGIBLE 2011 ONLY	0.000	0.9158
DIFFERENCE BETWEEN 2011 AND 2012	-0.001	0.0173
HOSPITAL-BASED INDICATOR	0.003	0.0036
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	0.004	<.0001
GOVERNMENT OWNERSHIP	0.000	0.6909
POS URBAN INDICATOR	0.001	0.0231
TO COMMUNITY LOCATION	Referent	-
TO NURSING HOME LOCATION	0.015	<.0001
TO HOME HEALTH LOCATION	0.008	0.0012
CNA STAFF HOURS/RESIDENT DAY	-0.001	0.0078
LPN STAFF HOURS/RESIDENT DAY	0.002	0.0005
UT(46)-UTAH	Referent	-
MT(27)-MONTANA	0.000	0.9503
ID(13)-IDAHO	0.001	0.8582
HI(12)-HAWAII	0.001	0.8638
SD(43)-SOUTH DAKOTA	0.001	0.8283
WY(53)-WYOMING	0.002	0.7622
WI(52)-WISCONSIN	0.004	0.2536
OR(38)-OREGON	0.005	0.1754
NH(30)-NEW HAMPSHIRE	0.005	0.1897
CO(06)-COLORADO	0.006	0.1059
DC(09)-DISTRICT OF COLUMBIA	0.006	0.3912
WA(50)-WASHINGTON	0.006	0.0779
NE(28)-NEBRASKA	0.006	0.0820
ND(35)-NORTH DAKOTA	0.007	0.1317
AK(02)-ALASKA	0.008	0.5799
VT(47)-VERMONT	0.008	0.1081
IA(16)-IOWA	0.009	0.0092
KS(17)-KANSAS	0.010	0.0040
NY(33)-NEW YORK	0.010	0.0007
CT(07)-CONNECTICUT	0.010	0.0015
IN(15)-INDIANA	0.011	0.0005
MN(24)-MINNESOTA	0.011	0.0010
AL(01)-ALABAMA	0.011	0.0007
SC(42)-SOUTH CAROLINA	0.011	0.0009
RI(41)-RHODE ISLAND	0.012	0.0032
VA(49)-VIRGINIA	0.012	0.0002
NC(34)-NORTH CAROLINA	0.012	0.0001
MA(22)-MASSACHUSETTS	0.013	<.0001

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[1] All eligible SNFs for FYs 2011 and 2012 (N=24,476).

(Continued)

Table 15: Association Between Potentially Avoidable Readmission Rate 30 Days Post SNF Discharge and Staffing, Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
PA(39)-PENNSYLVANIA	0.013	<.0001
OH(36)-OHIO	0.013	<.0001
DE(08)-DELAWARE	0.014	0.0056
NM(32)-NEW MEXICO	0.014	0.0014
GA(11)-GEORGIA	0.014	<.0001
MI(23)-MICHIGAN	0.014	<.0001
ME(20)-MAINE	0.014	0.0002
TN(44)-TENNESSEE	0.015	<.0001
NV(29)-NEVADA	0.017	0.0004
CA(05)-CALIFORNIA	0.017	<.0001
MO(26)-MISSOURI	0.017	<.0001
FL(10)-FLORIDA	0.017	<.0001
OK(37)-OKLAHOMA	0.018	<.0001
MS(25)-MISSISSIPPI	0.019	<.0001
AZ(03)-ARIZONA	0.019	<.0001
IL(14)-ILLINOIS	0.019	<.0001
MD(21)-MARYLAND	0.019	<.0001
WV(51)-WEST VIRGINIA	0.020	<.0001
KY(18)-KENTUCKY	0.020	<.0001
TX(45)-TEXAS	0.020	<.0001
NJ(31)-NEW JERSEY	0.020	<.0001
AR(04)-ARKANSAS	0.027	<.0001
LA(19)-LOUISIANA	0.030	<.0001

Adjusted R^2 = 0.040

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[1] All eligible SNFs for FYs 2011 and 2012 (N=24,476).

TABLE 16: Average Mobility Functional Outcome Rates by Functional Outcome Group[1]

	Bed Mobility		Transfer		Ambulation	
	No Decline	Improvement	No Decline	Improvement	No Decline	Improvement
Functional Outcome Group[2]	N=1,637,254	N=1,554,508	N=1,625,561	N=1,593,910	N=971,070	N=1,575,889
Ultra High Mobility A (UHA)	90.1%	28.8%	90.7%	36.3%	90.7%	28.8%
Ultra High Mobility B (UHB)	85.4%	16.3%	87.4%	23.3%	88.0%	17.2%
Very High Mobility A (VHA)	83.0%	20.9%	94.6%	36.8%	97.0%	40.9%
Moderately High Mobility A (MHA)	98.1%	36.6%	97.7%	32.3%	95.9%	34.4%
Moderately High Mobility B (MHB)	96.5%	25.3%	96.7%	21.7%	95.2%	26.5%
Moderately High Mobility C (MHC)	97.5%	27.3%	96.8%	24.4%	95.0%	28.2%
Moderately High Mobility D (MHD)	95.1%	16.0%	95.2%	13.5%	94.2%	18.7%
Moderately High Mobility E (MHE)	96.3%	19.7%	95.8%	17.9%	94.6%	22.0%
Moderately High Mobility F (MHF)	93.0%	9.4%	92.2%	7.4%	91.0%	11.2%
Moderately Low Mobility A (MLA)	97.1%	30.1%	96.3%	24.7%	95.2%	46.2%
Moderately Low Mobility B (MLB)	94.8%	17.3%	92.9%	13.2%	93.0%	42.8%
Moderately Low Mobility C (MLC)	94.2%	13.7%	92.4%	10.3%	92.8%	42.2%
Moderately Low Mobility D (MLD)	90.4%	4.8%	84.9%	3.3%	89.8%	27.1%
Very Low Mobility A (VLA)	89.9%	15.4%	99.7%	60.2%	91.9%	31.4%
Very Low Mobility B (VLB)	87.3%	9.0%	99.7%	57.6%	89.9%	27.7%
Very Low Mobility C (VLC)	83.1%	3.9%	99.6%	44.6%	85.8%	19.7%
Very Low Mobility D (VLD)	83.2%	1.1%	98.3%	21.9%	77.8%	8.1%
Ultra Low Mobility A (ULA)	100.0%	62.7%	97.3%	45.5%	95.1%	34.2%
Ultra Low Mobility B (ULB)	100.0%	50.0%	97.9%	43.7%	92.4%	32.5%
Ultra Low Mobility C (ULC)	100.0%	47.9%	97.7%	41.3%	90.2%	30.3%
Ultra Low Mobility D (ULD)	100.0%	33.7%	97.7%	29.6%	85.0%	22.4%
Ultra Low Mobility E (ULE)	100.0%	16.8%	96.9%	12.9%	76.6%	8.3%

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[1] Includes SNF stays for FY 2011 excluding SNF stays ending in death.
[2] Baseline function, according to the three mobility ADLs, is represented by the group name (e.g. Ultra High, Moderately High). Within these groups the letters (A,B, C …) represent the rehabilitation potential categories from highest rehabilitation potential to lowest.

TABLE 17: SNF Variation in Distribution of Functional Outcome Groups[1]

Functional Outcome Group[2]	Mean	Minimum	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	Maximum
Ultra High Mobility A (UHA)	4.8%	0.0%	0.0%	0.0%	2.4%	6.9%	13.0%	63.2%
Ultra High Mobility B (UHB)	2.0%	0.0%	0.0%	0.0%	0.5%	2.3%	5.8%	94.4%
Very High Mobility A (VHA)	4.9%	0.0%	0.0%	0.5%	2.5%	6.6%	12.8%	68.5%
Moderately High Mobility A (MHA)	7.3%	0.0%	0.0%	1.0%	4.7%	10.7%	17.9%	77.0%
Moderately High Mobility B (MHB)	6.6%	0.0%	0.0%	0.0%	3.6%	9.7%	17.4%	84.6%
Moderately High Mobility C (MHC)	5.1%	0.0%	0.0%	0.3%	2.7%	7.4%	13.8%	60.0%
Moderately High Mobility D (MHD)	6.0%	0.0%	0.0%	1.1%	3.6%	8.5%	15.3%	65.6%
Moderately High Mobility E (MHE)	1.1%	0.0%	0.0%	0.0%	0.0%	1.4%	3.1%	47.6%
Moderately High Mobility F (MHF)	2.9%	0.0%	0.0%	0.0%	1.7%	3.7%	7.3%	58.2%
Moderately Low Mobility A (MLA)	1.1%	0.0%	0.0%	0.0%	0.0%	1.3%	3.2%	29.3%
Moderately Low Mobility B (MLB)	2.8%	0.0%	0.0%	0.0%	1.0%	3.7%	8.5%	63.7%
Moderately Low Mobility C (MLC)	3.5%	0.0%	0.0%	0.0%	1.5%	4.6%	9.7%	52.9%
Moderately Low Mobility D (MLD)	3.2%	0.0%	0.0%	0.0%	1.4%	4.2%	8.9%	56.0%
Very Low Mobility A (VLA)	2.8%	0.0%	0.0%	0.0%	1.5%	4.1%	7.8%	57.8%
Very Low Mobility B (VLB)	2.8%	0.0%	0.0%	0.0%	1.8%	4.0%	7.0%	55.2%
Very Low Mobility C (VLC)	2.5%	0.0%	0.0%	0.0%	1.5%	3.5%	6.5%	58.2%
Very Low Mobility D (VLD)	1.7%	0.0%	0.0%	0.0%	0.0%	1.7%	5.2%	94.7%
Ultra Low Mobility A (ULA)	1.1%	0.0%	0.0%	0.0%	0.0%	1.1%	3.2%	41.4%
Ultra Low Mobility B (ULB)	8.1%	0.0%	0.0%	0.4%	4.2%	11.8%	22.3%	78.6%
Ultra Low Mobility C (ULC)	10.6%	0.0%	0.0%	2.3%	6.8%	15.2%	25.9%	95.2%
Ultra Low Mobility D (ULD)	11.7%	0.0%	0.9%	3.6%	8.7%	16.4%	25.7%	93.0%
Ultra Low Mobility E (ULE)	5.5%	0.0%	0.0%	1.1%	3.3%	7.6%	13.6%	78.4%

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[1] Includes 12,506 SNFs with 25 or more SNF stays for FY 2011 excluding SNF stays ending in death based on a total of 1,819,288 contributing stays.

[2] Baseline function, according to the three mobility ADLs, is represented by the group name (e.g. Ultra High, Moderately High). Within these groups the letters (A,B, C …) represent the rehabilitation potential categories from highest rehabilitation potential to lowest.

TABLE 18:   Average SNF Functional Outcome Rates for Mobility ADLs

Outcome Measure	Rate	
	FY2011[1]	FY2012[2]
Bed Mobility Improvement		
Observed	28.0%	26.2%
Risk Adjusted	28.0%	28.2%
Bed Mobility No Decline		
Observed	95.3%	95.0%
Risk Adjusted	94.2%	94.3%
Transfer Improvement		
Observed	28.7%	27.0%
Risk Adjusted	27.4%	27.9%
Transfer No Decline		
Observed	95.7%	95.3%
Risk Adjusted	95.1%	95.3%
Ambulate Improvement		
Observed	27.3%	25.5%
Risk Adjusted	26.5%	26.7%
Ambulate No Decline		
Observed	91.5%	90.4%
Risk Adjusted	91.8%	91.5%
Average Rate of Improvement in Mobility ADLs		
Observed	28.0%	26.2%
Risk Adjusted	27.1%	27.4%
No Decline in Mobility Rate		
Observed	89.6%	88.7%
Risk Adjusted	88.7%	88.9%

[1] Includes 12,944 SNFs with 25 or more SNF stays excluding SNF stays ending in death.
[2] Includes 12,911 SNFs with 25 or more SNF stays excluding SNF stays ending in death.

TABLE 19: SNF Variation in Risk-Adjusted Functional Outcome Measures, FY2011

All SNFs[1]	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
No Decline in Mobility Rate	88.7%	50.2%	79.1%	84.5%	89.8%	94.0%	96.7%	100.0%
Average Rate of Improvement in Mobility ADLs	27.1%	0.0%	14.1%	19.7%	26.1%	33.6%	41.4%	100.0%

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[1] Includes 12,944 SNFs with 25 or more SNF stays excluding SNF stays ending in death.

Table 20: Association Between No Decline in Mobility Rate and Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.824	<.0001
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	-0.011	<.0001
GOVERNMENT OWNERSHIP	-0.010	0.0015
LESS THAN 50 CERTIFIED BEDS	0.025	<.0001
CA(05)-CALIFORNIA	0.108	<.0001
NJ(31)-NEW JERSEY	0.106	<.0001
OR(38)-OREGON	0.106	<.0001
OK(37)-OKLAHOMA	0.100	<.0001
RI(41)-RHODE ISLAND	0.096	<.0001
DC(09)-DISTRICT OF COLUMBIA	0.096	<.0001
NY(33)-NEW YORK	0.094	<.0001
AL(01)-ALABAMA	0.093	<.0001
MT(27)-MONTANA	0.093	<.0001
IA(16)-IOWA	0.090	<.0001
FL(10)-FLORIDA	0.090	<.0001
HI(12)-HAWAII	0.089	<.0001
IL(14)-ILLINOIS	0.089	<.0001
UT(46)-UTAH	0.087	<.0001
AZ(03)-ARIZONA	0.086	<.0001
NM(32)-NEW MEXICO	0.085	<.0001
MI(23)-MICHIGAN	0.082	<.0001
MO(26)-MISSOURI	0.082	<.0001
WI(52)-WISCONSIN	0.082	<.0001
ID(13)-IDAHO	0.080	<.0001
CT(07)-CONNECTICUT	0.077	<.0001
AK(02)-ALASKA	0.077	0.0166
KS(17)-KANSAS	0.076	<.0001
WA(50)-WASHINGTON	0.075	<.0001
OH(36)-OHIO	0.074	<.0001
MD(21)-MARYLAND	0.073	<.0001
SC(42)-SOUTH CAROLINA	0.072	<.0001
GA(11)-GEORGIA	0.064	<.0001
MN(24)-MINNESOTA	0.063	<.0001
AR(04)-ARKANSAS	0.063	<.0001
MA(22)-MASSACHUSETTS	0.062	<.0001
DE(08)-DELAWARE	0.062	<.0001
NE(28)-NEBRASKA	0.061	<.0001
TN(44)-TENNESSEE	0.059	<.0001
CO(06)-COLORADO	0.058	<.0001
WY(53)-WYOMING	0.058	<.0001
VA(49)-VIRGINIA	0.057	<.0001
NH(30)-NEW HAMPSHIRE	0.052	<.0001
MS(25)-MISSISSIPPI	0.046	<.0001
TX(45)-TEXAS	0.046	<.0001

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[1] All eligible SNFs for FY 2011 (N=12,938).

(Continued)
Table 20: Association Between No Decline in Mobility Rate and Facility Characteristics[1]

Variable	Coefficient	p-value
LA(19)-LOUISIANA	0.042	<.0001
ME(20)-MAINE	0.040	<.0001
IN(15)-INDIANA	0.038	<.0001
VT(47)-VERMONT	0.035	0.0042
NC(34)-NORTH CAROLINA	0.033	<.0001
SD(43)-SOUTH DAKOTA	0.033	0.0002
NV(29)-NEVADA	0.032	0.0019
KY(18)-KENTUCKY	0.031	<.0001
ND(35)-NORTH DAKOTA	0.023	0.0242
WV(51)-WEST VIRGINIA	0.021	0.0017
PA(39)-PENNSYLVANIA	Referent	-

Adjusted R^2 = 0.165

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[1] All eligible SNFs for FY 2011 (N=12,938).

Table 21: Association Between No Decline in Mobility Rate and Staffing, Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.792	<.0001
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	-0.007	<.0001
GOVERNMENT OWNERSHIP	-0.011	0.0008
LESS THAN 50 CERTIFIED BEDS	0.020	<.0001
CNA STAFF HOURS /RESIDENT DAY	0.012	<.0001
PHYSICAL THERAPY STAFF HRS /RES DAY	0.028	<.0001
NJ(31)-NEW JERSEY	0.104	<.0001
CA(05)-CALIFORNIA	0.102	<.0001
OK(37)-OKLAHOMA	0.098	<.0001
RI(41)-RHODE ISLAND	0.094	<.0001
NY(33)-NEW YORK	0.094	<.0001
OR(38)-OREGON	0.092	<.0001
HI(12)-HAWAII	0.092	<.0001
IA(16)-IOWA	0.091	<.0001
DC(09)-DISTRICT OF COLUMBIA	0.090	<.0001
AL(01)-ALABAMA	0.089	<.0001
IL(14)-ILLINOIS	0.088	<.0001
MT(27)-MONTANA	0.088	<.0001
NM(32)-NEW MEXICO	0.083	<.0001
FL(10)-FLORIDA	0.082	<.0001
AZ(03)-ARIZONA	0.080	<.0001
WI(52)-WISCONSIN	0.079	<.0001
MI(23)-MICHIGAN	0.078	<.0001
MO(26)-MISSOURI	0.078	<.0001
CT(07)-CONNECTICUT	0.075	<.0001
UT(46)-UTAH	0.074	<.0001
OH(36)-OHIO	0.074	<.0001
AK(02)-ALASKA	0.074	0.0458
ID(13)-IDAHO	0.073	<.0001
KS(17)-KANSAS	0.071	<.0001
MD(21)-MARYLAND	0.070	<.0001
WA(50)-WASHINGTON	0.070	<.0001
SC(42)-SOUTH CAROLINA	0.067	<.0001
GA(11)-GEORGIA	0.065	<.0001
WY(53)-WYOMING	0.064	<.0001
MN(24)-MINNESOTA	0.062	<.0001
MA(22)-MASSACHUSETTS	0.059	<.0001
DE(08)-DELAWARE	0.059	<.0001
NE(28)-NEBRASKA	0.059	<.0001
TN(44)-TENNESSEE	0.058	<.0001
AR(04)-ARKANSAS	0.056	<.0001
VA(49)-VIRGINIA	0.056	<.0001
CO(06)-COLORADO	0.056	<.0001
NH(30)-NEW HAMPSHIRE	0.051	<.0001

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[1] All eligible SNFs for FY 2011 (N=12,551).

(Continued)

Table 21: Association Between No Decline in Mobility Rate and Staffing, Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
TX(45)-TEXAS	0.044	<.0001
MS(25)-MISSISSIPPI	0.044	<.0001
LA(19)-LOUISIANA	0.043	<.0001
IN(15)-INDIANA	0.037	<.0001
SD(43)-SOUTH DAKOTA	0.034	<.0001
VT(47)-VERMONT	0.031	0.0108
NV(29)-NEVADA	0.030	0.0046
ME(20)-MAINE	0.029	<.0001
NC(34)-NORTH CAROLINA	0.029	<.0001
KY(18)-KENTUCKY	0.028	<.0001
WV(51)-WEST VIRGINIA	0.021	0.0020
ND(35)-NORTH DAKOTA	0.019	0.0610
PA(39)-PENNSYLVANIA	Referent	-

Adjusted R^2 = 0.177

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[1] All eligible SNFs for FY 2011 (N=12,551).

Table 22: Association Between Average Rate of Improvement in Mobility ADLs and Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.234	<.0001
HOSPITAL-BASED INDICATOR	-0.032	<.0001
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	-0.021	<.0001
GOVERNMENT OWNERSHIP	-0.017	0.0008
POS URBAN INDICATOR	-0.014	<.0001
LESS THAN 50 CERTIFIED BEDS	0.017	<.0001
AK(02)-ALASKA	0.175	0.0005
WY(53)-WYOMING	0.156	<.0001
ID(13)-IDAHO	0.155	<.0001
MT(27)-MONTANA	0.155	<.0001
UT(46)-UTAH	0.150	<.0001
WI(52)-WISCONSIN	0.149	<.0001
OR(38)-OREGON	0.143	<.0001
SD(43)-SOUTH DAKOTA	0.141	<.0001
NH(30)-NEW HAMPSHIRE	0.134	<.0001
MN(24)-MINNESOTA	0.133	<.0001
WA(50)-WASHINGTON	0.132	<.0001
NE(28)-NEBRASKA	0.122	<.0001
CO(06)-COLORADO	0.120	<.0001
IA(16)-IOWA	0.111	<.0001
AZ(03)-ARIZONA	0.110	<.0001
VT(47)-VERMONT	0.110	<.0001
RI(41)-RHODE ISLAND	0.108	<.0001
ND(35)-NORTH DAKOTA	0.103	<.0001
DE(08)-DELAWARE	0.103	<.0001
MI(23)-MICHIGAN	0.103	<.0001
ME(20)-MAINE	0.096	<.0001
KS(17)-KANSAS	0.092	<.0001
CT(07)-CONNECTICUT	0.091	<.0001
IN(15)-INDIANA	0.088	<.0001
NY(33)-NEW YORK	0.080	<.0001
OH(36)-OHIO	0.074	<.0001
NV(29)-NEVADA	0.072	<.0001
CA(05)-CALIFORNIA	0.070	<.0001
MO(26)-MISSOURI	0.070	<.0001
FL(10)-FLORIDA	0.069	<.0001
MD(21)-MARYLAND	0.069	<.0001
VA(49)-VIRGINIA	0.065	<.0001
NM(32)-NEW MEXICO	0.063	<.0001
NJ(31)-NEW JERSEY	0.062	<.0001
IL(14)-ILLINOIS	0.056	<.0001
NC(34)-NORTH CAROLINA	0.046	<.0001
SC(42)-SOUTH CAROLINA	0.040	<.0001
HI(12)-HAWAII	0.039	0.0470

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[1] All eligible SNFs for FY 2011 (N=12,938).

(Continued)

Table 22: Association Between Average Rate of Improvement in Mobility ADLs and Facility Characteristics[1]

Variable	Coefficient	p-value
TN(44)-TENNESSEE	0.037	<.0001
OK(37)-OKLAHOMA	0.027	0.0046
PA(39)-PENNSYLVANIA	0.026	0.0003
DC(09)-DISTRICT OF COLUMBIA	0.026	0.3230
WV(51)-WEST VIRGINIA	0.022	0.0574
GA(11)-GEORGIA	0.021	0.0151
AL(01)-ALABAMA	0.018	0.0544
AR(04)-ARKANSAS	0.017	0.0655
TX(45)-TEXAS	0.016	0.0268
MS(25)-MISSISSIPPI	0.012	0.2271
MA(22)-MASSACHUSETTS	0.011	0.1673
LA(19)-LOUISIANA	0.002	0.8276
KY(18)-KENTUCKY	Referent	-

Adjusted R^2 = 0.147

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[1] All eligible SNFs for FY 2011 (N=12,938).

Table 23: Association Between Average Rate of Improvement in Mobility ADLs and Staffing, Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
INTERCEPT	0.223	<.0001
HOSPITAL-BASED INDICATOR	-0.036	<.0001
NON-PROFIT OWNERSHIP	Referent	-
FOR PROFIT OWNERSHIP	-0.019	<.0001
GOVERNMENT OWNERSHIP	-0.016	0.0015
POS URBAN INDICATOR	-0.016	<.0001
LESS THAN 50 CERTIFIED BEDS	0.012	0.0028
CNA STAFF HOURS /RESIDENT DAY	0.007	<.0001
LPN STAFF HOURS /RESIDENT DAY	-0.012	<.0001
PHYSICAL THERAPY STAFF HRS /RES DAY	0.069	<.0001
AK(02)-ALASKA	0.209	0.0003
WY(53)-WYOMING	0.156	<.0001
ID(13)-IDAHO	0.148	<.0001
MT(27)-MONTANA	0.144	<.0001
WI(52)-WISCONSIN	0.141	<.0001
SD(43)-SOUTH DAKOTA	0.135	<.0001
MN(24)-MINNESOTA	0.130	<.0001
NH(30)-NEW HAMPSHIRE	0.127	<.0001
OR(38)-OREGON	0.126	<.0001
WA(50)-WASHINGTON	0.124	<.0001
NE(28)-NEBRASKA	0.120	<.0001
UT(46)-UTAH	0.119	<.0001
CO(06)-COLORADO	0.114	<.0001
IA(16)-IOWA	0.112	<.0001
DE(08)-DELAWARE	0.104	<.0001
VT(47)-VERMONT	0.103	<.0001
AZ(03)-ARIZONA	0.103	<.0001
RI(41)-RHODE ISLAND	0.099	<.0001
ND(35)-NORTH DAKOTA	0.098	<.0001
MI(23)-MICHIGAN	0.097	<.0001
IN(15)-INDIANA	0.088	<.0001
CT(07)-CONNECTICUT	0.087	<.0001
KS(17)-KANSAS	0.087	<.0001
ME(20)-MAINE	0.083	<.0001
NY(33)-NEW YORK	0.079	<.0001
OH(36)-OHIO	0.075	<.0001
MO(26)-MISSOURI	0.067	<.0001
NV(29)-NEVADA	0.065	0.0001
FL(10)-FLORIDA	0.064	<.0001
MD(21)-MARYLAND	0.063	<.0001
VA(49)-VIRGINIA	0.063	<.0001
CA(05)-CALIFORNIA	0.063	<.0001
NJ(31)-NEW JERSEY	0.054	<.0001

[1] All eligible SNFs for FY 2011 (N=12,551).

(Continued)

Table 23: Association Between Average Rate of Improvement in Mobility ADLs and Staffing, Controlling for Facility Characteristics[1]

Variable	Coefficient	p-value
NM(32)-NEW MEXICO	0.053	0.0003
IL(14)-ILLINOIS	0.050	<.0001
NC(34)-NORTH CAROLINA	0.041	<.0001
SC(42)-SOUTH CAROLINA	0.036	0.0003
TN(44)-TENNESSEE	0.035	<.0001
OK(37)-OKLAHOMA	0.031	0.0017
HI(12)-HAWAII	0.030	0.1526
WV(51)-WEST VIRGINIA	0.024	0.0396
PA(39)-PENNSYLVANIA	0.024	0.0013
GA(11)-GEORGIA	0.021	0.0140
DC(09)-DISTRICT OF COLUMBIA	0.020	0.4400
AL(01)-ALABAMA	0.020	0.0366
TX(45)-TEXAS	0.015	0.0339
AR(04)-ARKANSAS	0.014	0.1495
MS(25)-MISSISSIPPI	0.013	0.2110
MA(22)-MASSACHUSETTS	0.009	0.2494
LA(19)-LOUISIANA	0.004	0.6497
KY(18)-KENTUCKY	Referent	-

Adjusted R^2 = 0.158

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[1] All eligible SNFs for FY 2011 (N=12,551).

Section IV
Appendices

Appendix A: ICD-9 Codes for Five Potentially Avoidable Conditions by Source

Condition	ICD-9 Codes Used in 2013 MedPAC Report	ICD-9 Codes Used by Other Researchers
Dehydration (Electrolyte Imbalance)	276.xx	Restricted to 276.5[1,2] Included acute renal failure 584.5-584.9[3]
CHF (Congestive Heart Failure)	398.91; 428.xx	Restricted to 428.xx; 518.4; 402.xx; 404.xx[1] or 428.xx; 518.4[2] Included 398.91, 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93[3]
Respiratory illnesses (acute bronchitis, pneumonia, influenza, and pneumonitis due to inhalation of food or vomitus)	466.0; 480.xx – 487.x; 507.0	COPD included 466.xx; 491.xx; 492.xx; 494.xx; 496.xx[1,2] Pneumonia included 486.xx; 481.xx; 482.2; 482.3; 482.9; 483.xx[1] or 468.xx; 481.xx; 482.2; 482.3; 482.9; 483.xx[2] or 480.xx; 481.xx; 482.0; 482.1; 482.2; 482.3; 482.4; 482.9; 483.xx; 485.xx; 486.xx; 507.xx[3]
Sepsis (septicemia)	038.xx	Included 0031.xx; 0223.xx; 0545.xx[1]
Urinary Tract and Kidney Infections (cystitis, urethritis, urethral stricture and inflammatory prostate)	590.xx; 595.0; 595.1; 595.2; 595.4; 595.89; 595.9; 597.0; 598.0x; 599.0; 601.x	Restricted to 590.xx; 599.0; 599.9[1,2]or 590.0; 590.1; 590.2; 590.3; 590.8; 590.9; 595.0; 595.1; 595.2; 595.4; 595.89; 595.9; 597.0; 598.00; 598.01; 599.0; 601.xx[3]

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[1] Walker JD, Teare GF, Hogan DB, Lewis S, Maxwell CJ (2009). "Identifying Potentially Avoidable Hospital Admissions from Canadian Long-Term Care Facilities." Medical Care, 47(2): 250-254.
[2] Carter MW (2003). "Factors Associated with Ambulatory Care-Sensitive Hospitalizations among Nursing Home Residents." Journal of Aging and Health, 15 (2):295-331.
[3] Spector WD, Limcangco R, Williams C, Rhodes W, Hurd D (2013). "Potentially Avoidable Hospitalizations for Elderly Long-stay Residents in Nursing Homes." Medical Care, 51(8): 673-681.

Appendix B: Conditions Considered and Included in New SNF Potentially Avoidable Readmission Measures

Condition	ICD-9 Codes	Decision
Conditions Identified by Prevalence in Medicare Claims		
Hypoglycemia	251.0; 251.1; 251.2	Included
GI bleed for those on anticoagulant therapy	578.9 + MDS indicates anticoagulant therapy	Excluded
Head bleed for those on anticoagulant therapy	430.xx-432.xx and 850.xx-854.xx + MDS indicates anticoagulant therapy	Included
Fracture following a fall	800.xx – 829.xx; (E880-E888 and either 800.xx-904.xx, 910.xx-929.xx, or 950.xx)	Included
Delirium	290.3; 290.41; 292.81; 293.1	Included
Cellulitis	681.x; 682.x; 683.x; 686.x	Included
Other wound infection		Included
Conditions from LTQA[1]		
Asthma	493.xx	Included
COPD	466.xx; 491.xx; 492.xx; 494.xx; 496.xx	Included
Gastroenteritis	558.9; 009.0; 009.1; 588.8	Excluded
Hypertension	401.0; 401.9; 402.0; 402.1; 402.9	Included
Severe ear, nose, or throat infection	382.xx; 462.xx; 463.xx; 465.xx; 472.1	Excluded
Other Conditions identified by Carter (2003)[2]		
Immunization preventable conditions	033.xx; 037.xx; 390.xx; 391.xx; 320.0	Excluded
Congenital Syphilis	090.xx	Excluded
Grand mal seizures	345.xx; 780.3	Excluded
Tuberculosis	011.xx-018.xx	Excluded
Angina	411.1; 411.8; 413.xx	Excluded
Diabetes with ketoacidosis/hyperosmolar coma	250.1-250.3	Included
Diabetes with specified manifestations	250.8; 250.9	Included
Diabetes without specified complications	250.0	Included
Iron deficiency anemia	280.1; 280.8; 280.9	Excluded
Nutritional deficiency	260.xx-262.xx; 268.0; 268.1	Excluded
Failure to thrive	783.4	Excluded
Pelvic inflammatory disease	614.xx	Excluded
Dental conditions	521.xx-523.xx; 525.xx; 528.xx	Excluded

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[1] Long Term Quality Alliance (LTQA) (2012). Improving Care Transitions: How Quality Improvement Organizations and Innovative Communities Can Work Together to Reduce Hospitalizations Among At-Risk Populations. (Long Term Quality Alliance: Washington, DC).

[2] Carter MW (2003). "Factors Associated with Ambulatory Care-Sensitive Hospitalizations among Nursing Home Residents." Journal of Aging and Health, 15 (2):295-331.

Appendix C: Estimates of Potentially Avoidable Readmissions / Hospitalizations for Different Settings

Author(s)	Sample Description	Rate(s)
Mor, Intrator, Feng, Grabowski (2010). Health Affairs 29(1): 57-64	All Medicare inpatient episodes from 2000-2006 that included a SNF stay	The post-SNF hospital readmission rate within 30 days ranged from 18.2% in 2000 to 23.5% in 2006.
Walker, Teare, Hogan, Lewis, Maxwell (2009). Medical Care 47(2): 250-254.	All hospitalizations among nursing home residents living in Ontario, Canada between 4/1/1997 and 3/31/2002.	Fifty-five percent (55%) of hospitalizations were classified as potentially avoidable. Among the potentially avoidable, 40% "were based on the condition being the most responsible diagnosis". CHF, diabetes, and pneumonia were the three most prevalent potentially avoidable hospitalizations.
Carter (2003). Journal of Aging and Health 15(2): 295-331.	1991 to 1993 Medicaid files from all Massachusetts nursing homes.	Roughly eleven percent (11.2%) of hospitalizations were classified as potentially-avoidable. Hypertension, dementia, and diabetes were the most prevalent primary diagnoses for admission. Note, bacterial pneumonia and CHF were excluded.
Halfon, Eggli, Pretre-Rohrbach, et al (2006). Medical Care 44(11): 972-981.	All Swiss residents who had an inpatient stay in Swiss hospitals during 2000. Eligibility criteria included non-elective surgeries, and non-newborns, and data quality at the hospital.	Over five percent (5.1%) of the readmissions were classified as potentially-avoidable. Relapse or worsening of a previously-known condition was the primary cause (50.1%) of the readmission, with complications of surgical care (16.7%), drug-related adverse events (9.5%), and premature discharge (5.4%) being the other leading factors.
Jencks, Williams, and Coleman (2009). New England Journal of Medicine 360(14): 1418-1428.	All Medicare beneficiaries in the fee-for-service program 2003-2004.	Nearly twenty percent (19.6%) of beneficiaries were rehospitalized in 30 days. The authors estimate that 10% of these readmissions were planned.

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(Continued)

Appendix C: Estimates of Potentially Avoidable Readmissions / Hospitalizations for Different Settings

Author(s)	Sample Description	Rate(s)
Horwitz, Partovian, Lin, et al (2011). CMS Report on Hospital-Wide (All-Condition) 30 day Risk Standardized Readmission Measure.	All Medicare Beneficiaries 65 years and older in the fee-for-service program in 2008 that did not go to a PPS-exempt cancer hospital, a non-Federal short-stay acute care hospital, or critical access hospital.	Approximately seventeen percent (16.9%) of readmissions within 30 days were unplanned. Researchers excluded hospitalizations based on a list of procedures that are potentially-planned, including insertion/replacement/removal of a pacemaker or defibrillator, angioplasty, hip replacement, amputation of a lower extremity, colorectal resection, duct exploration, and maintenance chemotherapy.
Spector, Limcangco, Williams, et al (2013). Medical Care 51(8): 673-681.	Researchers included only a cohort of residents who recently became a long-stay nursing home resident (90+ days). They utilized the NH Stay file that includes 10% of certified nursing homes in 2006-2008, and includes both short and long-stay residents.	Thirty-seven percent of long-stay nursing home residents had a hospitalization during the study period. Of the hospitalizations, 60% were potentially avoidable, including 27% based on ambulatory care sensitive conditions (ACSC), and 33% based upon additional nursing home avoidable conditions (ANHACs). UTIs, pneumonia, and CHF were the main reasons for readmission. Among the ANHACs, septicemia, aspiration and viral pneumonia, and injuries were the leading causes (comprising 65%) of readmission.

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APPENDIX D: Stratified Analysis of Risk-Adjusted Potentially Avoidable Readmissions and Community Discharge Measures, FY2012

Freestanding SNFs	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
Community Discharge Rate at 100 Days [1]	12,297	30.2%	0.0%	15.5%	23.1%	31.0%	38.0%	43.6%	70.8%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	12,297	11.9%	0.0%	6.0%	8.6%	11.6%	14.8%	18.3%	43.2%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	11,997	5.8%	0.0%	1.9%	3.7%	5.5%	7.7%	10.0%	28.3%
Hospital-Based SNFs									
Community Discharge Rate at 100 Days [1]	613	36.8%	0.0%	23.6%	31.4%	37.7%	43.4%	49.0%	67.0%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	613	8.1%	0.0%	3.4%	5.5%	7.8%	10.3%	13.5%	23.7%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	617	5.8%	0.0%	1.9%	4.0%	5.6%	7.5%	9.4%	18.3%

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[1] Includes SNFs with 25 or more SNF stays excluding SNF stays ending in death.
[2] Includes SNFs with 20 or more SNF stays excluding all deaths during and 30 days post SNF discharge and all readmissions during the SNF stay.

APPENDIX D: Stratified Analysis of Risk-Adjusted Potentially Avoidable Readmissions and Community Discharge Measures, FY2012

Freestanding

For Profit SNFs	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
Community Discharge Rate at 100 Days [1]	9,224	30.1%	0.0%	15.3%	22.8%	30.8%	37.9%	43.4%	70.8%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	9,224	12.3%	0.0%	6.5%	9.0%	11.9%	15.1%	18.5%	43.2%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	8,972	6.0%	0.0%	2.1%	3.8%	5.7%	7.8%	10.2%	28.3%
Non-Profit SNFs									
Community Discharge Rate at 100 Days [1]	2,654	31.6%	0.0%	17.3%	24.6%	32.3%	38.8%	44.5%	65.7%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	2,654	10.8%	0.0%	4.8%	7.4%	10.4%	13.7%	17.3%	33.7%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	2,618	5.4%	0.0%	1.3%	3.4%	5.1%	7.2%	9.5%	22.5%
Government SNFs									
Community Discharge Rate at 100 Days [1]	419	25.6%	0.0%	10.2%	18.2%	26.4%	33.8%	39.6%	53.2%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	419	11.0%	0.0%	4.7%	7.6%	10.8%	14.0%	17.9%	30.2%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	407	5.4%	0.0%	0.0%	3.2%	5.0%	7.5%	9.9%	24.7%

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[1] Includes SNFs with 25 or more SNF stays excluding SNF stays ending in death.
[2] Includes SNFs with 20 or more SNF stays excluding all deaths during and 30 days post SNF discharge and all readmissions during the SNF stay.

APPENDIX D: Stratified Analysis of Risk-Adjusted Potentially Avoidable Readmissions and Community Discharge
Measures, FY2012

Freestanding

Urban SNFs	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
Community Discharge Rate at 100 Days [1]	9,108	31.2%	0.0%	16.2%	24.2%	32.2%	39.0%	44.4%	70.8%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	9,108	11.9%	0.0%	6.2%	8.7%	11.6%	14.7%	17.8%	43.2%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	8,942	5.9%	0.0%	2.2%	3.8%	5.6%	7.6%	9.9%	27.1%
Rural SNFs									
Community Discharge Rate at 100 Days [1]	3,189	27.5%	0.0%	13.9%	20.6%	27.9%	34.5%	40.4%	60.2%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	3,189	12.1%	0.0%	5.3%	8.2%	11.6%	15.4%	19.4%	42.3%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	3,055	5.7%	0.0%	0.0%	3.2%	5.3%	7.9%	10.6%	28.3%

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[1] Includes SNFs with 25 or more SNF stays excluding SNF stays ending in death.
[2] Includes SNFs with 20 or more SNF stays excluding all deaths during and 30 days post SNF discharge and all readmissions during the SNF stay.

APPENDIX D: Stratified Analysis of Risk-Adjusted Potentially Avoidable Readmissions and Community Discharge Measures, FY2012

Hospital-Based

For Profit SNFs	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
Community Discharge Rate at 100 Days [1]	98	38.1%	9.4%	21.6%	31.9%	38.6%	45.2%	51.8%	67.0%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	98	8.6%	0.0%	4.3%	5.8%	8.2%	11.0%	14.8%	23.7%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	96	5.9%	0.0%	2.0%	3.8%	5.9%	7.8%	9.7%	18.0%
Non-Profit SNFs									
Community Discharge Rate at 100 Days [1]	429	37.5%	0.0%	26.0%	32.7%	38.1%	43.6%	48.5%	64.9%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	429	8.0%	0.0%	3.2%	5.5%	7.8%	10.1%	13.6%	23.7%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	433	5.8%	0.0%	2.2%	4.2%	5.7%	7.4%	9.3%	18.3%
Government SNFs									
Community Discharge Rate at 100 Days [1]	86	32.1%	0.0%	10.7%	23.4%	33.8%	42.1%	46.9%	55.2%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	86	8.0%	0.0%	3.6%	5.2%	7.5%	10.8%	12.7%	18.6%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	88	5.3%	0.0%	0.0%	3.7%	5.3%	7.9%	9.3%	15.2%

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[1] Includes SNFs with 25 or more SNF stays excluding SNF stays ending in death.
[2] Includes SNFs with 20 or more SNF stays excluding all deaths during and 30 days post SNF discharge and all readmissions during the SNF stay.

APPENDIX D: Stratified Analysis of Risk-Adjusted Potentially Avoidable Readmissions and Community Discharge Measures, FY2012

Hospital-Based

Urban SNFs

	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
Community Discharge Rate at 100 Days [1]	386	38.8%	6.0%	27.7%	33.3%	39.6%	45.0%	50.2%	67.0%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	386	8.1%	0.0%	3.7%	5.7%	7.8%	10.3%	12.6%	23.7%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	385	5.8%	0.0%	2.7%	4.1%	5.6%	7.3%	9.1%	18.0%

Rural SNFs

	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
Community Discharge Rate at 100 Days [1]	227	33.4%	0.0%	18.8%	27.2%	34.9%	41.0%	46.0%	56.1%
Readmission Rate for Potentially Avoidable Diagnoses at 100 Days [1]	227	8.1%	0.0%	3.0%	5.1%	7.8%	10.6%	14.6%	18.8%
Post SNF Discharge Potentially Avoidable Readmission Rate Within 30 Days [2]	232	5.7%	0.0%	0.0%	3.8%	5.5%	7.8%	9.7%	18.3%

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[1] Includes SNFs with 25 or more SNF stays excluding SNF stays ending in death.
[2] Includes SNFs with 20 or more SNF stays excluding all deaths during and 30 day post SNF discharge and all readmissions during the SNF stay.

Bed Mobility (G0110A2)

Detail Description	ADL Text Category	ADL Numeric Category	% of Stays N= 1,913,264	Five Numeric Category	% of Stays N= 1,913,264	Three Numeric Category	% of Stays N= 1,913,264
No setup or physical help from staff	Independent	0	5.2%	5	5.2%	3	9.3%
Setup help only	Supervision	1	4.1%	4	4.1%		
One person physical assist	Limited Assistance	2	51.2%	3	51.2%	2	51.2%
Two+ persons physical assist	Extensive Assistance	3	39.5%	2	39.5%	1	39.5%
ADL activity itself did not occur or family and/or non-facility staff provided care 100% of the time for that activity over the entire 7-day period	No Activity	8	0.0%	1	0.0%		

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Transfer (G0110B2)

Detail Description	ADL Text Category	ADL Numeric Category	% of Stays N= 1,913,282	Five Numeric Category	% of Stays N= 1,913,282	Three Numeric Category	% of Stays N= 1,913,282
No setup or physical help from staff	Independent	0	2.8%	5	2.8%	3	6.1%
Setup help only	Supervision	1	3.3%	4	3.3%		
One person physical assist	Limited Assistance	2	50.9%	3	50.9%	2	50.9%
Two+ persons physical assist	Extensive Assistance	3	41.8%	2	41.8%		
ADL activity itself did not occur or family and/or non-facility staff provided care 100% of the time for that activity over the entire 7-day period	No Activity	8	1.1%	1	1.1%	1	42.9%

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Ambulate (Walk in Room, G0110C2)

Detail Description	ADL Text Category	ADL Numeric Category	% of Stays N= 1,910,286	Five Numeric Category	% of Stays N= 1,910,286	Three Numeric Category	% of Stays N= 1,910,286
No setup or physical help from staff	Independent	0	3.6%	5	3.6%	3	8.7%
Setup help only	Supervision	1	5.0%	4	5.0%		
One person physical assist	Limited Assistance	2	44.2%	3	44.2%	2	44.2%
Two+ persons physical assist	Extensive Assistance	3	5.4%	2	5.4%		
ADL activity itself did not occur or family and/or non-facility staff provided care 100% of the time for that activity over the entire 7-day period	No Activity	8	41.8%	1	41.8%	1	47.2%

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Eating (G0110H1)

Detail Description	ADL Text Category	ADL Numeric Category	% of Stays N= 1,913,126	Five Numeric Category	% of Stays N= 1,913,126	Three Numeric Category	% of Stays N= 1,913,126
No help or staff oversight at any time	Independent	0	38.2%	5	38.2%	3	38.2%
Oversight, encouragement or cueing	Supervision	1	31.4%	4	31.4%	2	31.4%
Resident highly involved in activity. Staff provided guided maneuvering.	Limited Assistance	2	11.9%	3	11.9%	1	30.4%
Resident involved in activity. Staff provided weight-bearing support	Extensive Assistance	3	10.8%	2	11.2%		
Activity did occur but only once or twice	Minimal Activity	7	0.4%				
Full staff performance every time during entire 7-day period	Total Dependence	4	7.0%	1	7.3%		
Activity did not occur or family and/or non-facility staff provided care 100% of the time for that activity over the entire 7-day period	No Activity	8	0.3%				

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Dressing (G0110G1)

Detail Description	ADL Text Category	ADL Numeric Category	% of Stays N= 1,911,678	Five Numeric Category	% of Stays N= 1,911,678	Three Numeric Category	% of Stays N= 1,911,678
No help or staff oversight at any time	Independent	0	2.7%	5	2.7%		
Oversight, encouragement or cueing	Supervision	1	4.2%	4	4.2%	3	27.8%
Resident highly involved in activity. Staff provided guided maneuvering.	Limited Assistance	2	20.9%	3	20.9%		
Resident involved in activity. Staff provide weight-bearing support	Extensive Assistance	3	61.4%	2	61.6%	2	61.6%
Activity did occur but only once or twice	Minimal Activity	7	0.2%				
Full staff performance every time during entire 7-day period	Total Dependence	4	10.5%	1	10.7%	1	10.7%
Activity did not occur or family and/or non-facility staff provided care 100% of the time for that activity over the entire 7-day period	No Activity	8	0.2%				

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APPENDIX F: Functional Outcome Group (FOG) Specifications

Functional Outcome Group	Bed Mobility	Transfer	Ambulation	Eating	Dressing
Ultra High Mobility A (UHA)	3[1]	-	3	3	-
Ultra High Mobility B (UHB)	3	-	3	1 or 2	-
Very High Mobility A (VHA)	3	-	1 or 2	-	-
Moderately High Mobility A (MHA)	2	2 or 3	2 or 3	3	3
Moderately High Mobility B (MHB)	2	2 or 3	2 or 3	3	1 or 2
Moderately High Mobility C (MHC)	2	2 or 3	2 or 3	2	3
Moderately High Mobility D (MHD)	2	2 or 3	2 or 3	2	1 or 2
Moderately High Mobility E (MHE)	2	2 or 3	2 or 3	1	3
Moderately High Mobility F (MHF)	2	2 or 3	2 or 3	1	1 or 2
Moderately Low Mobility A (MLA)	2	2 or 3	1	3	3
Moderately Low Mobility B (MLB)	2	2 or 3	1	3	1 or 2
Moderately Low Mobility C (MLC)	2	2 or 3	1	2	-
Moderately Low Mobility D (MLD)	2	2 or 3	1	1	-
Very Low Mobility A (VLA)	2	1	-	3	-
Very Low Mobility B (VLB)	2	1	-	2	-
Very Low Mobility C (VLC)	2	1	-	1	2 or 3
Very Low Mobility D (VLD)	2	1	-	1	1
Ultra Low Mobility A (ULA)	1	-	-	3	3
Ultra Low Mobility B (ULB)	1	-	-	3	1 or 2
Ultra Low Mobility C (ULC)	1	-	-	2	-
Ultra Low Mobility D (ULD)	1	-	-	1	2 or 3
Ultra Low Mobility E (ULE)	1	-	-	1	1

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[1] See Appendix E for three numeric category mapping. Dash (-) indicates that ADL not used to define the functional outcome group

APPENDIX G: Stratified Analysis of Risk-Adjusted Functional Outcome Measures, FY2011

Freestanding SNFs[1]	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
No Decline in Mobility Rate	12,290	88.6%	50.2%	79.0%	84.4%	89.7%	93.9%	96.7%	100.0%
Average Rate of Improvement in Mobility ADLs	12,290	27.2%	0.0%	14.3%	19.8%	26.2%	33.7%	41.3%	100.0%
Hospital-Based SNFs[1]									
No Decline in Mobility Rate	654	90.4%	60.8%	81.6%	86.7%	92.0%	94.9%	97.1%	100.0%
Average Rate of Improvement in Mobility ADLs	654	26.0%	0.0%	10.6%	17.2%	24.9%	32.6%	42.6%	85.3%

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[1] Includes SNFs with 25 or more SNF stays excluding SNF stays ending in death.

Freestanding

For Profit SNFs[1]	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
No Decline in Mobility Rate	9,229	88.4%	50.2%	78.6%	84.1%	89.5%	93.8%	96.7%	100.0%
Average Rate of Improvement in Mobility ADLs	9,229	26.4%	0.0%	13.9%	19.3%	25.5%	32.6%	39.8%	100.0%

Non-Profit SNFs[1]

	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
No Decline in Mobility Rate	2,682	89.4%	56.5%	80.5%	85.8%	90.4%	94.2%	96.7%	100.0%
Average Rate of Improvement in Mobility ADLs	2,682	29.7%	0.0%	16.0%	21.6%	28.6%	36.8%	45.0%	74.8%

Government SNFs[1]

	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
No Decline in Mobility Rate	379	87.9%	53.5%	77.4%	83.5%	89.3%	93.6%	96.6%	100.0%
Average Rate of Improvement in Mobility ADLs	379	28.1%	3.9%	14.7%	20.4%	26.3%	35.2%	43.6%	60.8%

Urban SNFs[1]

	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
No Decline in Mobility Rate	9,089	88.9%	50.2%	79.4%	84.8%	89.9%	94.1%	96.8%	100.0%
Average Rate of Improvement in Mobility ADLs	9,089	26.8%	0.0%	14.3%	19.7%	25.9%	33.1%	40.5%	100.0%

Rural SNFs[1]

	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
No Decline in Mobility Rate	3,201	87.8%	55.7%	77.7%	83.3%	88.9%	93.2%	96.3%	100.0%
Average Rate of Improvement in Mobility ADLs	3,201	28.1%	0.0%	14.2%	20.1%	27.0%	35.2%	43.1%	80.5%

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[1] Includes SNFs with 25 or more SNF stays excluding SNF stays ending in death.

Hospital-Based

For Profit SNFs[1]	N	Mean	Min	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	Max
No Decline in Mobility Rate	104	90.7%	72.1%	82.8%	87.1%	92.0%	95.0%	96.8%	100.0%
Average Rate of Improvement in Mobility ADLs	104	25.5%	0.0%	9.5%	17.0%	23.5%	29.9%	42.4%	62.2%
Non-Profit SNFs[1]									
No Decline in Mobility Rate	456	90.2%	60.8%	81.5%	86.5%	92.0%	94.8%	97.1%	100.0%
Average Rate of Improvement in Mobility ADLs	456	25.9%	0.0%	10.6%	17.1%	24.1%	32.8%	42.8%	85.3%
Government SNFs[1]									
No Decline in Mobility Rate	94	90.6%	71.1%	81.6%	86.6%	92.1%	95.7%	97.4%	100.0%
Average Rate of Improvement in Mobility ADLs	94	27.5%	3.0%	14.0%	19.6%	27.1%	32.9%	42.5%	58.4%
Urban SNFs[1]									
No Decline in Mobility Rate	405	91.1%	64.7%	82.6%	87.9%	92.6%	94.9%	97.2%	100.0%
Average Rate of Improvement in Mobility ADLs	405	24.9%	0.0%	9.6%	16.5%	23.2%	31.0%	41.4%	85.3%
Rural SNFs[1]									
No Decline in Mobility Rate	249	89.2%	60.8%	80.6%	84.9%	90.4%	94.6%	97.1%	100.0%
Average Rate of Improvement in Mobility ADLs	249	27.9%	0.0%	12.0%	19.3%	26.9%	36.0%	44.9%	71.0%

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[1] Includes SNFs with 25 or more SNF stays excluding SNF stays ending in death.