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PLANNING AND EVALUATION

**OFFICE OF BEHAVIORAL HEALTH,
DISABILITY, AND AGING POLICY**

Resident and Facility Factors Associated with High Risk of Discharge from Nursing Facilities, 2012-2017: Final Report

Prepared for
the Office of the Assistant Secretary for Planning and Evaluation (ASPE)
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by
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Office of the Assistant Secretary for Planning and Evaluation

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RESIDENT AND FACILITY FACTORS ASSOCIATED WITH HIGH RISK OF DISCHARGE FROM NURSING FACILITIES, 2012-2017: FINAL REPORT

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Acronyms

The following acronyms are mentioned in this report and/or appendices.

ABS	Aggressive Behavioral Scale
ADL	Activity of Daily Living
CMS	Centers for Medicare & Medicaid Services
COVID-19	Novel Coronavirus
CY	Calendar Year
ED	Emergency Department
FFS	Fee-For-Service
FID	Facility-Initiated Discharge
ID/DD	Intellectual Disabilities/Developmental Disabilities
MBSF	Master Beneficiary Summary File
MDS	Minimum Data Set
NF	Nursing Facility
OIG	Office of the Inspector General
POS	Provider of Services
PPS	Prospective Payment System
PTSD	Post-Traumatic Stress Disorder
SNF	Skilled Nursing Facility

Executive Summary

Key Takeaways

- This study identified the following risk factors for live discharges from nursing facilities: severe behavioral symptoms; impairments requiring more staff time; transitions to Medicaid eligibility; and psychiatric and mood disorders.
- Risk factors were consistent across years but varied in presence and strength by state and facility type. Residents with risk factors were more likely to be discharged from for-profit, government and chain facilities than non-profit and non-chain facilities.
- There were high rates of acute care use and mortality among residents discharged live from nursing facilities. Rates of post-discharge acute care use were higher among residents with risk factors than residents without risk factors.

ES.1 Background

People can be discharged from nursing homes for many reasons. Discharges may be a positive outcome and reflect an individual's choice. In other cases, discharges may be at the direction of the facility and against the will of the resident. There are strict rules about when involuntary facility-initiated discharges (FIDs) are allowed. Under federal law, involuntary FIDs are legal only if they are triggered by one of six reasons: the FID is necessary for the resident's welfare and the resident's needs cannot be met in the facility; the resident no longer needs nursing home care; the safety of other residents is endangered due to the clinical or behavioral status of the resident; the health of others in the facility would be endangered; the resident fails to pay; or, the facility closes (CMS, 2017a). FIDs are unlawful otherwise. The Office of the Inspector General (OIG) is currently investigating the extent to which state survey agencies investigated and took enforcement actions against nursing homes for inappropriate involuntary transfers and discharges (OIG, 2019). FIDs can be unsafe and traumatic for the residents involved and may result in higher costs of care, raising concerns to the public and to Medicare and Medicaid programs, which are the primary sources of payment. In the last few years, news media and Ombudsman programs report that FIDs may be increasing in frequency and as of 2018, were the leading cause of complaints for nursing home residents (Verdana & Pear, 2018). Recently, there has been heightened concern about the rise of FIDs amid the COVID-19 pandemic (Silver-Greenberg & Harris, 2020).

This study builds on a recent review of available literature (Lepore, Zepeda & Yuen, 2018), which identified the following characteristics as placing residents at higher risk of potentially unlawful FIDs: transition to Medicaid payor status; Alzheimer's or other dementia diagnoses; behavioral symptoms; and impairments that require more staff time (e.g.,

severe functional dependencies and bowel or urinary incontinence). This study was designed to increase understanding of FIDs and their impacts on nursing home residents. It identifies resident characteristics related to increased risk of live discharges and how these relationships vary across time, states, and facility types. It also presents findings on the relationship between live discharges of residents with risk factors and post-discharge outcomes.

ES.2 Methods

We could not observe FIDs directly with available data. Instead, this study focused on live discharges of nursing facility residents with characteristics that were found to be indicative of FIDs. This study defines both risk factors for FIDs, which were suggested in the literature and empirically supported in this study, and general risk factors, which were found in our study to be associated with higher rates of live discharges. We refer to both collectively as risk factors for live discharge hereafter. Our study population includes residents receiving either nursing facility or Skilled Nursing Facility (SNF) care in United States nursing homes, nationwide, from 2012 to 2017. We primarily studied nursing facility residents as there were no identifiable risk factors among SNF residents.

First, we provided empirical evidence for risk factors by comparing the prevalence of resident characteristics, such as behavior, health and Medicaid eligibility, between residents discharged live¹ and not discharged, using the Minimum Data Set (MDS) resident assessments linked with Medicare enrollment data and claims from the Master Beneficiary Summary File (MBSF). Resident characteristics were considered risk factors if they were conditions customarily required to be treated in a nursing home and were found in our research to be more prevalent among residents discharged live than residents not discharged. Next, we investigated risk factors among nursing facility residents further by analyzing their prevalence across years, states and facility types. Lastly, we compared post-discharge outcomes, primarily hospitalizations and outpatient acute care visits, of nursing facility residents discharged live with and without risk factors.

We did not find any resident characteristics among SNF residents that were more prevalent among residents discharged live than those not discharged. Thus, we did not empirically identify any risk factors for live discharge among SNF residents or conduct any further analyses with SNF residents. The lack of empirical findings among SNF residents is likely because of the nature of short-term SNF care, which has the primary goal of rehabilitating and returning resident to the community, resulting in an overwhelming large number of appropriate live discharges.

¹ We considered residents to be discharged live if: (1) they were discharged live according to their discharge assessment; and (2) they did not return to the same facility within 30 days.

ES.3 Results

Risk Factors for Live Discharges among Nursing Facility Residents. Behavioral symptoms, impairments requiring more staff time, and transitions to Medicaid eligibility were found to be more prevalent in residents discharged live than those not discharged. However, impairments were only more prevalent among residents discharged live when increasing in severity. These risk factors were also identified in the literature as risk factors for FIDs. New diagnoses of psychiatric and mood disorders (e.g., schizophrenia and manic depression) were not previously identified in the literature, but were also more prevalent in residents discharged live than those not discharged. The same risk factors for live discharge were identified across years.

Risk Factors for Live Discharges by State and Facility Type. For each risk factor identified at the national-level, there was some variation across states – for example, in several states the prevalence of risk factors among residents discharged live was lower than among residents who were not discharged. We also found that the differences in the prevalence of risk factors between residents discharged live and those not discharged varied by facility type. Compared to non-profit facilities, for-profit and government facilities had a higher prevalence of risk factors among residents discharged live, relative to residents remaining in the facility. Likewise, rural facilities and facilities that were part of a chain had a higher relative prevalence of risk factors among residents discharged live than urban and non-chain facilities, respectively. Lastly, residents discharged live from terminated facilities had lower prevalence of risk factors than residents discharged live from active facilities.

Post-discharge Outcomes for Nursing Facility Residents. We observed high rates of acute care use, defined as hospitalizations, emergency department visits and observation stays, and mortality among residents discharged live from nursing facilities. Overall, 53% of all residents discharged live experienced acute care, and 36% of all residents died within 30 days of nursing facility discharge. However, rates of acute care use were higher among residents discharged live with risk factors for live discharge than residents discharged live without these risk factors. Furthermore, we found the majority of residents discharged live went directly from the nursing facility to the hospital or emergency department, with a smaller percentage of them going briefly to the community or another non-acute care setting before using acute care. This pattern was most pronounced among residents discharged live with risk factors for live discharge.

ES.4 Discussion and Conclusion

This study identified several resident characteristics associated with a higher risk of live discharges from nursing facilities. Behavioral symptoms, impairments requiring more staff time, transitions to Medicaid eligibility and psychiatric and mood disorders all increased the risk of live discharge, especially when these conditions newly developed or worsened in the past year. Our study found that the prevalence of these risk factors for live discharge varied

across states and facility types. For-profit, government and chain facilities were more likely to discharge residents with risk factors than non-profit and non-chain facilities. Lastly, we also found that residents discharged live with these risk factors, particularly severe behavioral symptoms and impairments requiring more staff time, experienced higher rates of acute care than residents discharged live without these risk factors, partially because these risk factors are associated with worse health overall.

We note that although the live discharges of residents with the risk factors identified in this research may be legal, our goal was to identify patterns in live discharges that indicate higher risk of FIDs in order to gain insight into the prevalence and appropriateness of FIDs. As such, these findings are intended to serve as a foundation for continued discussion and analyses and to inform strategies and policies for reducing potentially inappropriate FIDs.

Further research would be needed to discern unlawful FIDs from legal discharges. Additional recommendations for future research include examining the discharge locations of residents and the impact of state policies, facility closures, and the COVID-19 pandemic on FIDs.

1. Background and Purpose

People can be discharged from nursing homes for many reasons. Discharges may be a positive outcome and reflect an individual's choice. In some cases, however, discharges may be at the direction of the facility and potentially involuntary and inappropriate. When FIDs from nursing homes are involuntary and against the will of the resident, the discharge may be unsafe and traumatic for the residents involved and may result in higher costs of care, raising concerns to the public and to Medicare and Medicaid programs (CMS, 2017a). FIDs continue to be one of the most frequent complaints made to State Long-Term Care Ombudsman Programs, with over 14,000 complaints about improper eviction or inadequate discharge planning in 2017 (Roberts, 2019). Furthermore, FIDs may be increasing in frequency in recent years (Verdana & Pear, 2018).

There is also concern that the COVID-19 pandemic has exacerbated FIDs, with over 6,400 involuntary discharges during the pandemic reported as of the end of June 2020 (Silver-Greenberg & Harris, 2020). One state reported a 30% increase in complaints of evictions from March 2020 to July 2020 of the pandemic (Serres, 2020). This has led the Task Force on Aging and Families to call for a prohibition on evictions from nursing homes during the pandemic (Task Force on Aging and Families, 2020).

FIDs have also caught the attention of federal courts, with an appeals court recently ruling that federal law requires California to act against nursing homes who discharge patients to hospitals and then inappropriately refuse to readmit them (Egelko, 2019). The OIG is investigating the extent to which state survey agencies investigated and took enforcement actions against nursing homes for inappropriate involuntary transfers and discharges, using complaint data from the National Ombudsman Reporting System from 2011 through 2016 (OIG, 2019). The Centers for Medicare & Medicaid Services (CMS) has also established an initiative to prevent FIDs that violate federal regulations (CMS, 2017a).

Under federal regulations, all nursing home residents have a right to remain in the facility and can only be legally discharged involuntary for a few reasons. Legal FIDs are defined as those triggered by one of six reasons: the FID is necessary for the resident's welfare and the resident's needs cannot be met in the facility; the resident no longer needs nursing home care; the safety of other residents is endangered due to the clinical or behavioral status of the resident; the health of others in the facility would be endangered; the resident fails to pay; or, the facility closes (CMS, 2017a). FIDs not triggered by these six reasons are deemed unlawful. In practice, however, it is often difficult to identify inappropriate or unlawful FIDs. The National Ombudsman Reporting System only collects data on improper evictions in cases of complaints, and no data on evictions is collected through nursing home assessments or CMS's Online Survey Certification and Reporting System. As a result, there is a lack of systematic studies to assess the nature, prevalence, trend, and contributing factors of FIDs at the national level. However, a recent review of prior research (Lepore,

Zepeda & Yuen, 2018) identified several characteristics that place residents at higher risk of potentially unlawful FIDs, including: transition to Medicaid payor status; Alzheimer's or other dementia diagnoses; behavioral symptoms; and impairments that require more staff time (e.g., severe functional dependencies, or bowel or urinary incontinence).

Building on and extending previous this work (Lepore, Zepeda, & Yuen 2018), we had two objectives in this study to help further understanding of FIDs and their impacts on nursing home residents. First, we sought to identify resident characteristics related to higher risk of live discharge and determine how these relationships vary across time, states, and facility types. Second, we sought to determine how live discharges of residents with risk factors relate to resident outcomes post-discharge. To accomplish these objectives, we addressed the following three primary research questions:

1. Nationally, what are the characteristics of residents who are discharged live from nursing facilities, compared to residents who remain in the facility? What percentage of residents who are discharged live demonstrate risk factors for live discharge, relative to the percentage among residents who remain in the facility? How have such risk factors for live discharge changed over time?
2. What are the differences in characteristics among residents discharged live across all states and types of facility (e.g., for-profit vs. non-profit; chain vs. non-chain)?
3. Do post-discharge outcomes (e.g., risk of death, worsening health condition leading to hospitalization or emergency department visits) differ among residents discharged live with and without risk factors for live discharge?

The methods used to address these research questions are summarized in Section 2, and a full discussion is presented in **Appendix B**. The analyses focus on live discharges of residents with risk factors for live discharges, as the available national data do not support direct observation of FIDs. While such discharges are not perfect approximations of FIDs, they provide insight into the patterns of FIDs and outcomes of residents experiencing FIDs.

2. Methods

2.1 Data Sources

This research used secondary data from multiple sources. The MDS Version 3.0 provided longitudinal information on nursing home residents' demographic and health characteristics. The MBSF provided information about Medicaid eligibility status for each resident who was a Medicare beneficiary, mortality data, and data on hospitalization and outpatient acute care use from fee-for-service (FFS) Medicare claims. Facility-level data came from the Provider of Services (POS) files, which contain information about facility characteristics. A single, resident-level analytic file including all variables of interest was created by merging stay-level MDS data with corresponding MBSF data for each resident and POS data for the facility at which the stay occurred. Data from calendar years (CYs) 2012-2017 were used in this analysis.

2.2 Study Population

The study population included all nursing home residents receiving either nursing facility or SNF care in United States nursing homes from 2012 to 2017. Each year was examined separately and included residents with at least one stay during the year. Details about the definition of nursing facility and SNF care and stay construction can be found in **Appendix A**.

2.3 Statistical Analyses

Identifying FIDs. The available data sources do not contain information that identifies whether a discharge is facility-initiated, or whether it is voluntary or involuntary. Such information would only be attained through medical record review. Because of the lack of observed data on actual FIDs, our analyses relied on identifying discharges with resident characteristics that are conditions which a nursing facility is required to treat under federal regulations and which are indicative of FIDs. Prior to beginning the statistical analysis, the project team conducted a thorough literature review to understand what factors were likely to be associated with FIDs. The following are a list of factors suggested in the literature as associated with FIDs:

- Transition to Medicaid payor status.
- Alzheimer's or other dementia diagnoses.
- Behavioral symptoms.
- Impairments requiring more staff time (e.g., severe functional dependencies, bowel or urinary incontinence, or cognitive impairment).

The team also included additional resident characteristics as general risk factors (i.e., psychiatric and mood disorders) not identified in the literature but which were found in our

study to be associated with higher rates of live discharges. We refer to both collectively as *risk factors for live discharge* hereafter.

Identifying Risk Factors. We compared the characteristics of residents discharged live and residents not discharged, nationwide, in 2017. First, we compared the characteristics at end of stay, defined as the most recent status according to either the discharge assessment or the last available assessment (in the case of residents not discharged). We also compared changes, either onset or worsening, in resident characteristics over the past year. These changes may indicate an improper discharge if the nursing home should be able to meet the changing care needs (e.g., if a health condition appears which is customarily required to be treated in a nursing home). We defined risk factors for live discharges as characteristics which were customarily required to be treated in nursing homes and were more prevalent among residents discharged live than residents not discharged. Below is a list of risk factors for live discharge and a list of additional characteristics examined in analyses which were not identified as risk factors because they were less prevalent among residents discharged live than residents not discharged. Asterisks indicate whether the risk factor was identified in literature, analyses, or both, with a single asterisk (*) indicating "identified in literature and analyses" and double asterisks (**) indicating "not identified in literature but identified in analyses."

Risk Factors for Live Discharge:

- Transition to Medicaid eligibility (over last 3 months, 6 months, or year). *
- Severe behavioral symptoms at end of stay and changes in behavioral symptoms to severe over past year (physical, verbal, other disruptive, or when aggregated across behavioral types). *
- Psychiatric and mood disorders at end of stay: manic depression (bipolar disorder) and post-traumatic stress disorder (PTSD). **
- New diagnoses of psychiatric and mood disorders over the past year: anxiety, depression, bipolar disorder, psychotic disorder (other than schizophrenia), schizophrenia, PTSD. **
- Total dependency in activities of daily living (ADLs) at end of stay and changes to total dependency over the past year. *
- Changes in urinary and bowel incontinence to severe over past year. *
- Increases in the severity of cognitive function over the past year. *

Characteristics Examined but not Risk Factors for Live Discharge:

- Full Medicaid eligibility at end of stay. *
- Alzheimer's disease and non-Alzheimer's dementia, at end of stay and new diagnoses over the past year. *
- Psychiatric and mood disorder at end of stay: anxiety, depression, psychotic disorder (other than schizophrenia) and schizophrenia.
- Severe urinary and bowel incontinence at end of stay. *
- Mood distress, at end of stay and increases in the severity over the past year.
- Severe suicidal thoughts at end of stay and changes in suicidal thoughts to severe over the past year.
- Dependencies for ADL (other than total dependency), at end of stay and increases in the severity over the past year. *

- Moderate and severe cognitive impairment at end of stay. *
- Significant change assessment in last 2 months.

Because we did not find any characteristics among SNF residents that were more prevalent among residents discharged live than residents not discharged, we did not empirically identify any risk factors for live discharges among SNF residents. All subsequent analyses were limited to nursing facility residents.

Analyses of risk factors and outcomes. We determined variation in risk factors for live discharge across time by comparing the differences in the prevalence of risk factors among residents discharged live and among residents not discharged, from 2012 to 2017. We also compared the differences in the prevalence of risk factors across states and facility types in 2017. We focused on 2017 as the latest year of data as risk factors were consistent across years. Lastly, we analyzed differences in the post-discharge outcomes of residents with and without risk factors for live discharge by comparing their hospitalization and outpatient acute care rates. This analysis focuses on 2016 as the latest year of data with sufficient subsequent data for identifying outcomes. **Appendix B** provides a more comprehensive description of our study methods.

3. Findings

3.1 Nationally, what are the characteristics of residents who are discharged live from nursing facilities, compared to residents who remain in the facility? What percentage of residents who are discharged live demonstrate risk factors for live discharge relative to the percentage among residents who remain in the facility? How have such risk factors for live discharges changed over time?

3.1.1 Characteristics of Nursing Facility Residents in 2017

Of the nursing facility population (1,345,105 residents) in 2017, 16.62% of residents² (223,522) were discharged live at some point during the year, and 65.85% of residents (885,788) were not discharged by the end of 2017³ (**Appendix C, Table C-1**). We found several characteristics to be more prevalent among residents discharged live from nursing facilities than among residents remaining in facility. These characteristics include: (a) severe behavioral symptoms; (b) psychiatric and mood disorders; (c) impairments requiring more staff time; and (d) transitions to Medicare eligibility. Each characteristic was examined two ways: (1) at end of stay, defined as the most recent status recorded on either the discharge assessment or the latest assessment; and (2) as changes over the past year.

Severe Behavioral Symptoms

Key Takeaway

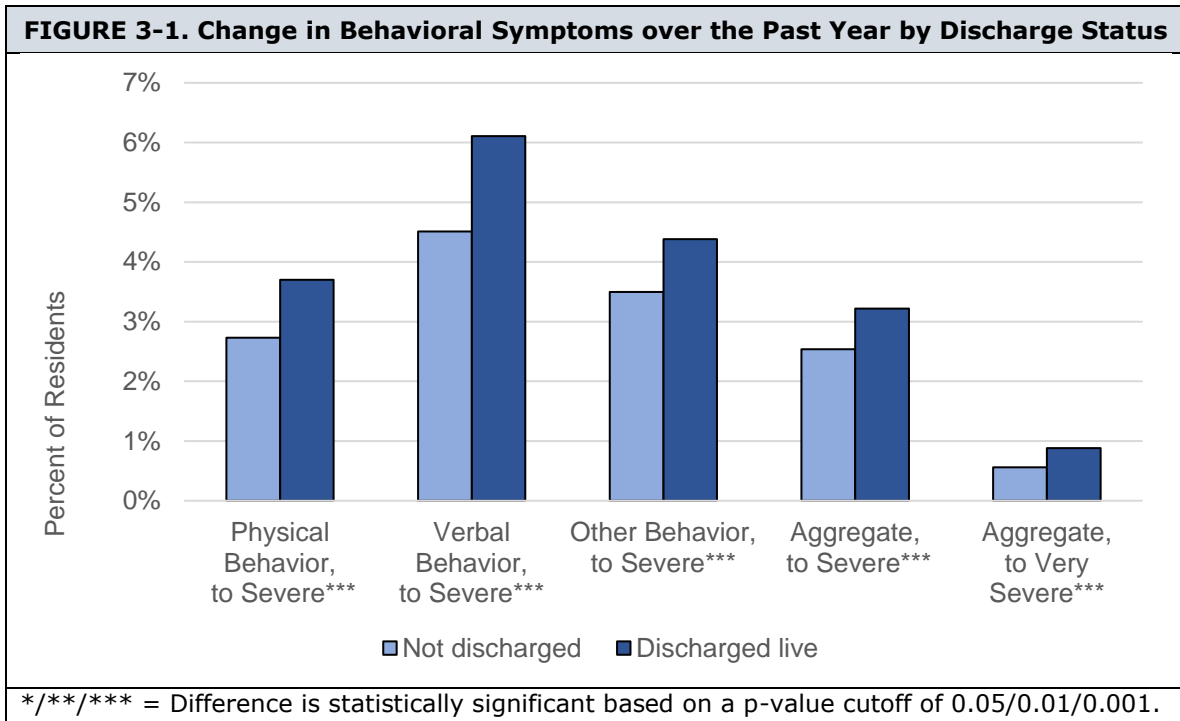
- Severe behavioral symptoms at end of stay were more prevalent among residents discharged live than not discharged, for each behavioral symptom type individually (verbal, physical or other disruptive) and when aggregated across behavioral types. Changes to severe behavioral symptoms over the past year were also more prevalent.

Severe behavioral symptoms at the end of stay, were more prevalent among residents discharged live than among residents not discharged. This pattern was consistent across different types of behavioral symptoms, including physical behavior, verbal behavior, and other disruptive behaviors (e.g., disrobing in public or throwing food). The difference in prevalence was largest for severe verbal behavior, with a prevalence of 8.61% among residents discharged live, compared to 7.26% among residents not discharged (**Appendix C, Figure C-1**). Severe and very severe behavioral symptoms aggregated across behavior types were similarly more prevalent among residents discharged live. In

² In 2017, the vast majority (95.55%) of the residents had only one stay. To ease the presentation of results below, we simply refer to stays as residents.

³ The rest of residents died during the year while in a nursing facility and were not included in the analysis.

addition, changes to more severe behavioral symptoms over the past year were more frequent among residents discharged live. As shown in **Figure 3-1**, this pattern was seen for all behavioral types and for behavioral symptoms aggregated across behavioral types. Overall, the differences in prevalence between residents discharged live and those not discharged were more pronounced when observing increases in the severity of behavioral symptoms over the past year than when looking only at the presence of these behavioral symptoms at the end of stay, without regard to when these symptoms first developed. These findings were statistically significant ($p < 0.001$).



Psychiatric and Mood Disorders

Key Takeaway

- Only manic depression and PTSD at end of stay were more prevalent among residents discharged live than those not discharged. New diagnoses of all psychiatric and mood disorders over the past year were more prevalent among residents discharged live.

Of all psychiatric and mood disorders examined at end of stay, only manic depression (bipolar disorder) and PTSD were more prevalent among residents discharged live than those not discharged. Of residents discharged live, 7.28% had a bipolar disorder and 1.16% had PTSD at end of stay, compared to 6.37% and 0.84% of residents not discharged, respectively (**Appendix C, Table C-1**). However, for all psychiatric and mood disorders,

new diagnoses in the past year were more prevalent among residents discharged live than those not discharged (**Table 3-1**). These findings were statistically significant ($p < 0.001$).

Table 3-1. Percent of Residents with New Diagnoses of Psychiatric and Mood Disorders in the Past Year by Discharge Status						
Discharge Status	New Diagnosis in Past Year, %					
	Bipolar***	PTSD***	Anxiety***	Depression***	Psychotic***	Schizophrenia***
Not discharged	1.10	0.16	6.52	7.78	2.74	1.32
Discharged live	1.77	0.28	8.04	9.15	2.88	1.62

*/**/*** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001.

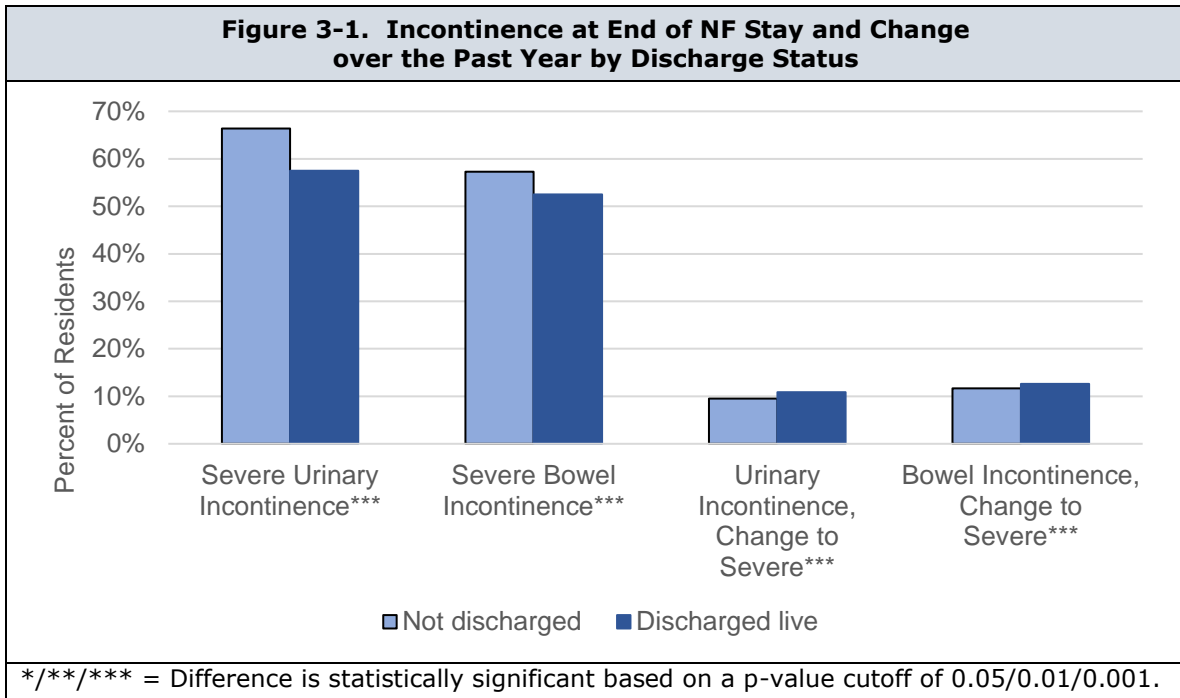
Impairments Requiring More Staff Time

Key Takeaway

- Impairments requiring more staff time were more prevalent among residents discharged live than those not discharged, but only when these impairments increased in severity over the past year. For ADLs, only the most severe level of dependency was more prevalent among residents discharged live.

Impairments requiring more staff time such as urinary or bowel incontinence, cognitive impairments and functional dependencies were more prevalent among residents discharged live than those not discharged, but only when these impairments increased in severity over the past year. As shown in **Figure 3-2**, severe urinary or bowel incontinence at end of stay was less prevalent among residents discharged live than those not discharged, while increases in the severity of urinary or bowel incontinence from none or mild to severe were slightly more prevalent among residents discharged live ($p < 0.001$).

Likewise, moderate and severe cognitive impairments at the end of stay were less prevalent among residents discharged live than those not discharged, but there were greater increases in the severity of cognitive impairments over the past year among residents discharged live than those not discharged ($p < 0.001$) (**Appendix C, Table C-1**).



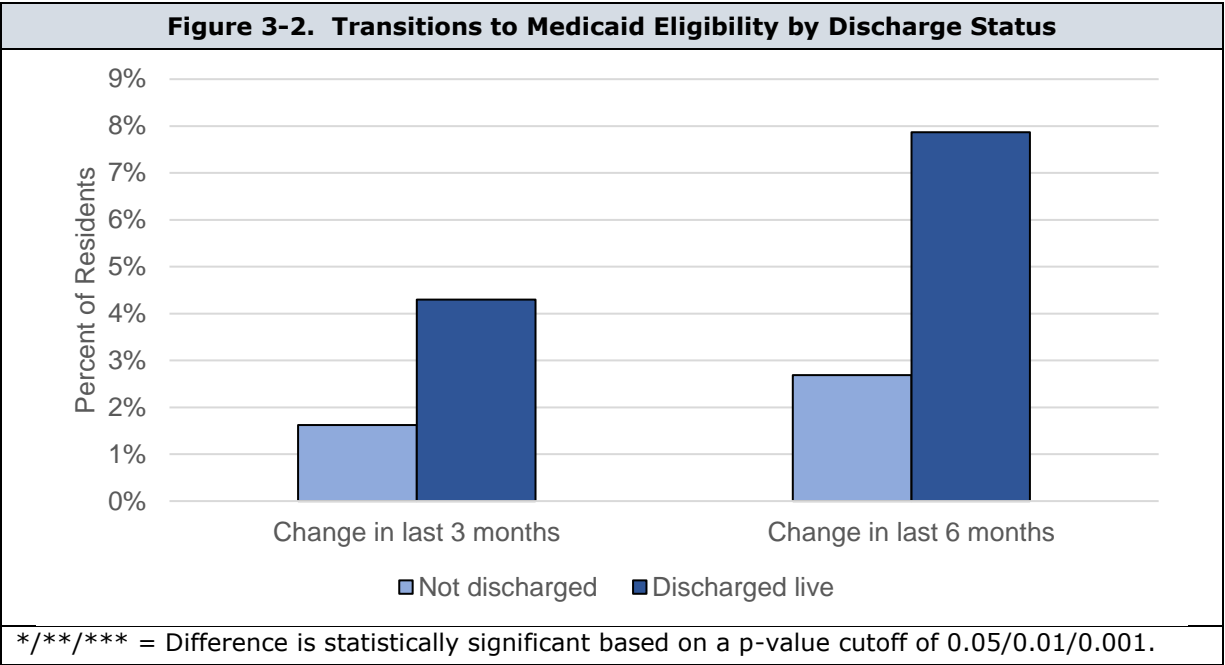
On average, residents who were discharged live were less dependent in ADLs than those who were not discharged. However, the most severe level of ADL dependency (total dependency on or rare or no occurrence of each ADL) was more prevalent among residents discharged live than those not discharged (5.26% compared to 4.82%). Changes to the most severe level of dependency were also more frequent among live discharges: 2.48% of residents discharged live had declined to the most severe level of ADL dependency over the past year, compared to 1.81% of residents not discharged. These findings were statistically significant ($p < 0.001$). (**Appendix C, Figure C-2**).

Transitions to Medicare Eligibility

Key Takeaway

- Transition to Medicaid eligibility over the 3 months and 6 months prior to discharge was more prevalent among residents discharged live than those not discharged.

Lastly, transitions to Medicaid eligibility, but not Medicaid eligibility at end of stay, were more prevalent among residents discharged live than residents not discharged. As Medicaid is the primary payor for nursing facility care, 73.51% of residents who were discharged live had Medicaid eligibility compared to 84.90% of residents not discharged (**Appendix C, Table C-1**). However, a higher percent of residents discharged live than residents not discharged had transitioned to Medicaid eligibility over both the 3 months and 6 months prior to discharge, as shown in **Figure 3-3**. These findings were statistically significant ($p < 0.001$).



Summary

Key Takeaways

- Several characteristics found in the literature to be risk factors for FIDs were not identified as risk factors for live discharge in this study.
- The characteristics found in this study to be risk factors for live discharge include behavioral symptoms, psychiatric and mood disorders, impairments requiring more staff time, and transitions to Medicaid eligibility.

We also evaluated the following risk factors based on findings from the literature: Alzheimer’s disease and other dementias, suicidal thoughts, mood distress, and having a significant change assessment in the last 2 months. However, each of these characteristics had a lower prevalence among residents discharged live than among residents not discharged and thus were not considered further.

Based on these analyses, the following characteristics meet the definition of risk factors for live discharge set forth in *Section 2*: behavioral symptoms, psychiatric and mood disorders, impairments requiring more staff time, and transitions to Medicaid eligibility. These risk factors were the focus of subsequent analyses.

The analysis results for the full list of characteristics examined and additional years are included in **Appendix C**.

3.1.2 Characteristics of Residents Discharged Live from Nursing Facilities Over Time

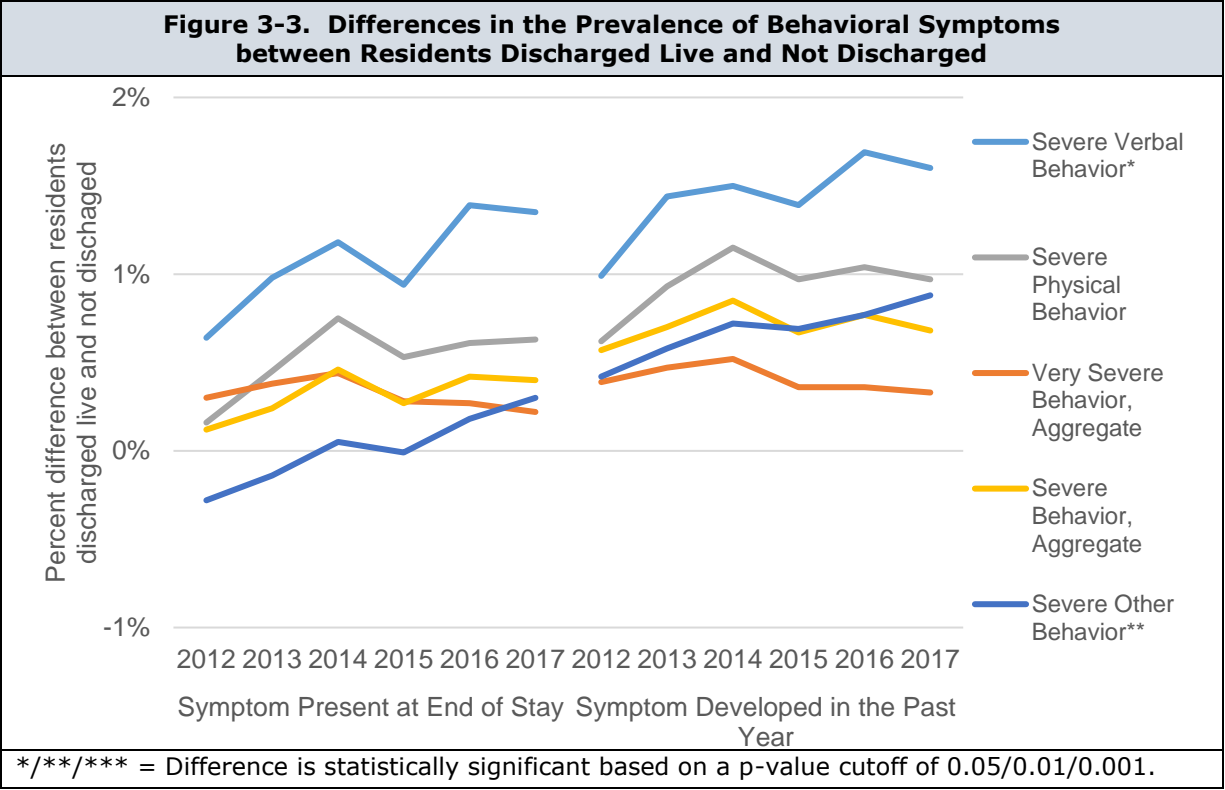
Key Takeaways

- The number of residents discharged live was stable over time. The same risk factors were observed across years.
- The difference in prevalence between residents discharged live and not discharged widened for severe behavioral symptoms and most psychiatric and mood disorders and was stable for other risk factors

The number of residents discharged live from nursing facility care remained largely stable over time, from 16.27% (223,182) in 2012 to 16.62% (223,522) in 2017. The number of residents who were not discharged and remained in nursing facility care at the end of the year decreased from 67.18% (921,487) in 2012 to 65.85% (885,788) in 2017 (**Appendix C, Table C-1**).⁴ The majority of risk factors for live discharge decreased in prevalence or remained largely stable across years for both residents discharged live and those not discharged. There were some exceptions which increased in prevalence for both groups, including transitions to Medicaid eligibility, select psychiatric and mood disorders, and bowel incontinence.

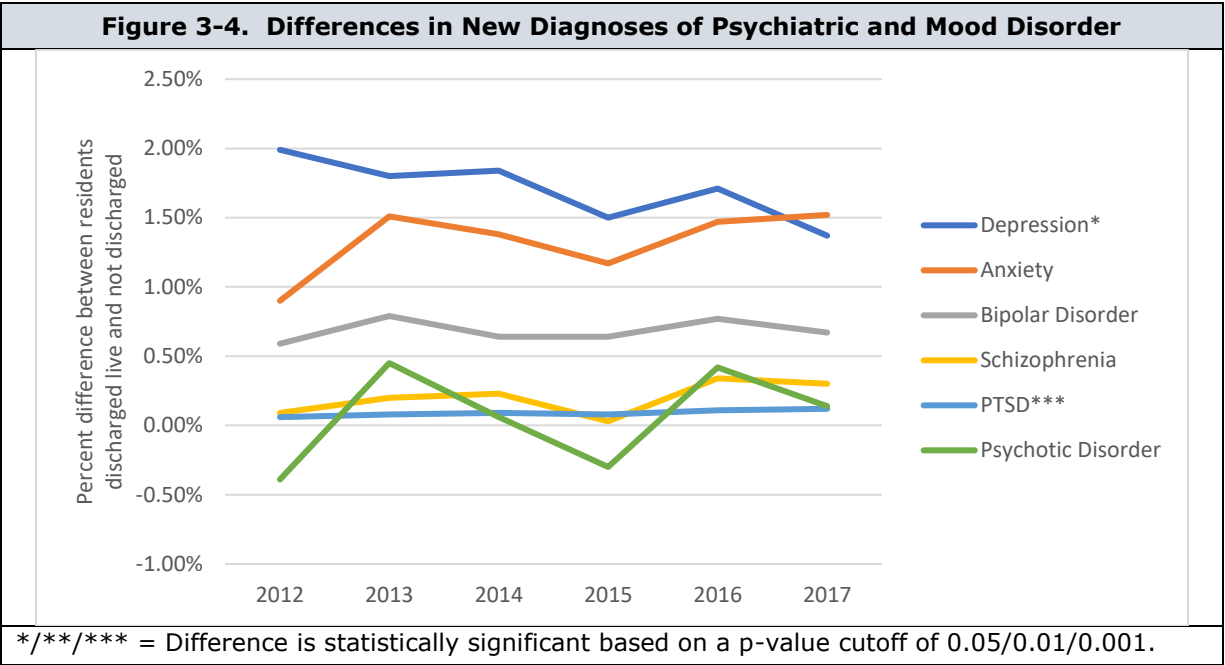
The differences in the prevalence of risk factors between residents discharged live and those not discharged were compared across years. As shown in **Figure 3-4**, severe behavioral symptoms and changes to more severe behavioral symptoms were more prevalent among residents discharged live across years (as indicated by positive differences in prevalence). The exception was severe behavioral symptoms, "other", at end of stay, which was only more prevalent among residents discharged live after 2015, as indicated by negative differences prior to then. The differences in the prevalence of most behavior symptoms between residents discharged live and those not discharged widened. However, these trends were only significant for risk factors related to verbal behavior ($p < 0.05$) and other disruptive behavior ($p < 0.01$). Only very severe behavior symptoms aggregated across behavioral types had a narrowing difference in prevalence ($p > 0.05$).

⁴ The rest of the residents died during the year while in a nursing facility.



Consistent with findings in Section 3.1.1, only bipolar disorder and PTSD at the end of stay were more prevalent among residents discharged live than those not discharged across years. The differences in the prevalence of bipolar disorder and PTSD at end of stay widened over time ($p > 0.05$ and $p < 0.01$, respectively) (**Appendix C, Figure C-3**). Additionally, as shown in **Figure 3-5**, new diagnoses of the majority of psychiatric and mood disorders examined were more prevalent among residents discharged live than those not discharged across years. The exception was new diagnoses of psychotic disorders, which were less prevalent among residents discharged live for some years. Overall, the differences in the prevalence of new diagnoses of psychiatric and mood disorders widened from 2012 to 2017, with only the trend in PTSD being significant ($p < 0.01$). The difference in the prevalence of depression narrowed ($p < 0.05$)

Also consistent with findings in Section 3.1.1, urinary or bowel incontinence at the end of nursing facility stay was less prevalent among residents discharged live than those not discharged across years. Changes to severe urinary or bowel incontinence were more prevalent across years, and the differences in the prevalence of changes to severe urinary and bowel incontinence were relatively stable across time ($p > 0.05$) (**Appendix C, Figure C-4**).

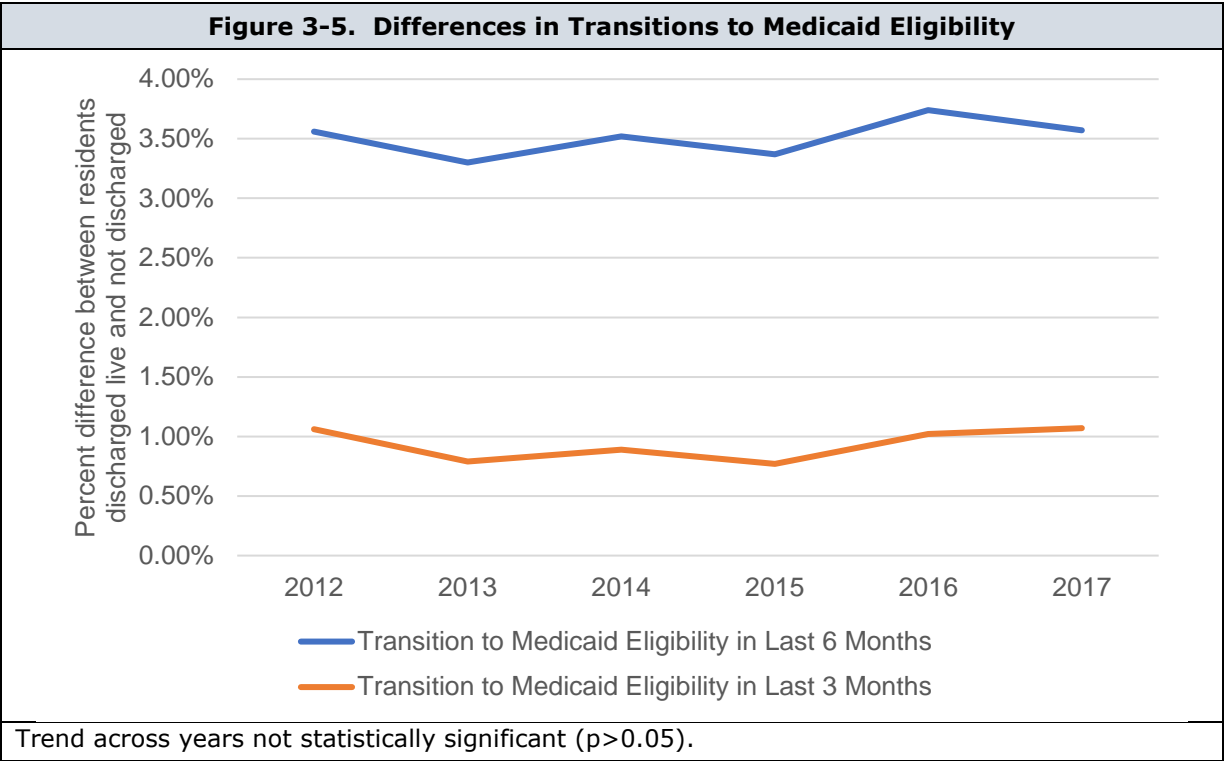


The most severe level of dependency for ADL and a change to the most severe level of dependency was more prevalent among residents discharged live than residents not discharged across years. The differences in the prevalence of the most severe level of dependency at the end of stay and changes to most severe level of dependency narrowed across years ($p < 0.05$ and $p < 0.01$, respectively). (**Appendix C, Figure C-5**).

The difference in the prevalence of increases in the severity of cognitive impairment was largely stable across years ($p > 0.05$) (**Appendix C, Table C-3**).

Lastly, transitions to Medicaid eligibility in either the last 3 months or 6 months was more prevalent among residents discharged live than those not discharged for all years (**Figure 3-6**). The differences in the prevalence of transitions to Medicaid eligibility over the last 3 months and 6 months were largely stable over time ($p > 0.05$).

Full results can be found in **Appendix C**.



3.2 What Are the Differences in Characteristics Among Residents Discharged Live Across All States and Types of Facility?

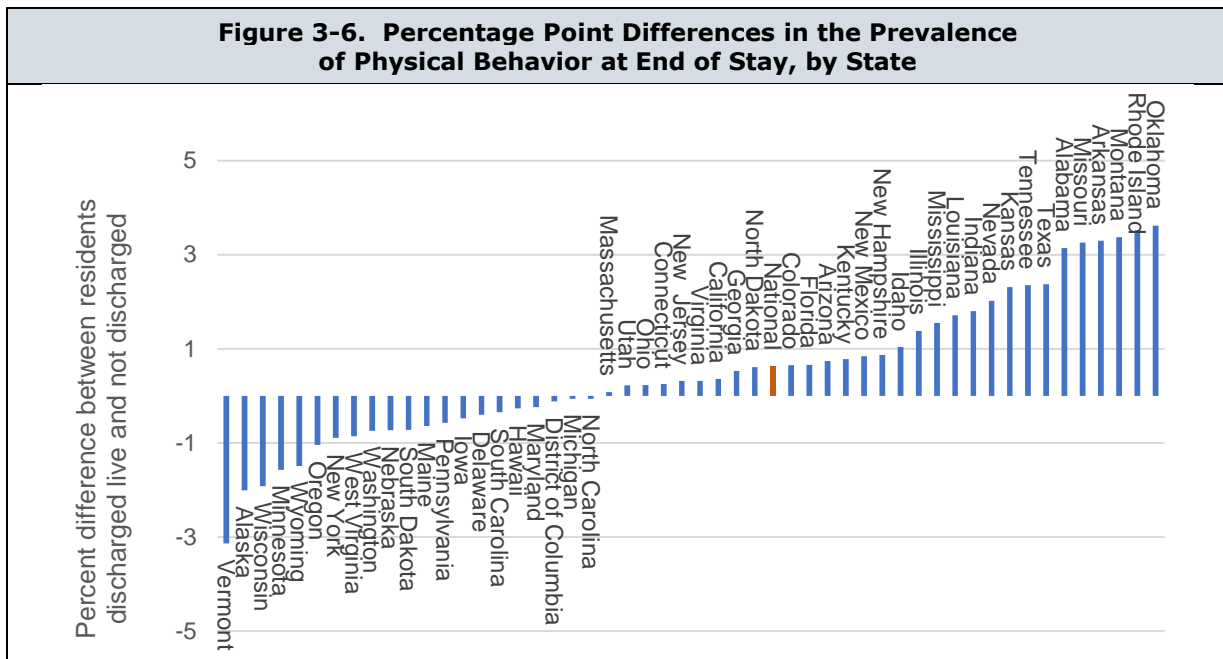
3.2.1 Differences Across States

Key Takeaways

- Risk factors for live discharge varied across states.
- For example, severe physical behavior at the end of stay places residents at a higher risk of discharge nationally and in 30 states, with a concentration in the southern states; however, in 20 states and the District of Columbia (D.C.), severe physical behavior at end of stay places residents at lower risk of live discharge.

We found large variation in risk factors for live discharge across states. As an example, **Figure 3-7** below shows the difference in the prevalence of one risk factor between residents discharged live and those not discharged across states. Severe physical behavior at end of stay is more prevalent among residents discharged live than those not discharged at the national level and also in 30 states (with clusters in the Southwest and the lower Southeast), as indicated by positive differences in prevalence, suggesting physical behavior is a risk factor for live discharge in these states. It is less prevalent among residents discharged live than those not discharged in 20 states and D.C. (with a slight cluster in the upper Midwest), as indicated by the negative differences in prevalence. For example, as shown in Figure 3 7, in Oklahoma a resident with severe physical behavioral issues would be

more likely to be discharged live than a resident without severe physical behavioral issues, whereas in Vermont a resident with severe physical behavioral issues would be less likely to be discharged live.



For all the risk factors, some states showed negative differences in prevalence, indicating that in those states, residents with those risk factors would be less likely to be discharged live than residents without those risk factors. Some risk factors were more consistent than others. For example, the differences in the prevalence of new diagnoses of anxiety were positive in all but four states. Additionally, characteristics with negative differences in prevalence at the national level had positive differences in prevalence in many states. For example, anxiety at end of stay had positive difference in prevalence in 13 states. Geographic clusters in presence or absence of risk factors varied by the risk factor examined. Full results can be found in **Tables D-1** through **D-3**.

3.2.2 Differences by Facility Types

Key Takeaways

- For-profit facilities and government facilities were more likely than non-profit facilities to discharge live residents with risk factors, for the majority of risk factors. Non-profit facilities were only most likely to discharge residents with very severe behavioral symptoms aggregated across behavioral types.
- Rural facilities were more likely to discharge live residents with risk factors than urban facilities, for the majority of risk factors. Urban facilities were only more likely to discharge residents with increases in the severity of cognitive impairments.
- Facilities that were part of a chain were more likely to discharge live residents with risk factors than facilities that were not part of a chain, for the majority of risk factors. Non-chain facilities were only most likely to discharge residents with impairments requiring more staff time.
- Mid-size and small facilities were more likely to discharge live residents with risk factors than large facilities for the majority of risk factors. Large facilities were only most likely to discharge residents with select psychiatric and mood disorders.
- Facilities with two or more ownership changes or one ownership change were more likely than facilities with no ownership changes to discharge residents with risk factors, for most risk factors. Facilities with no ownership changes were only most likely to discharge residents with select psychiatric and mood disorders.

Most risk factors were present across all facility types, as evidenced by positive differences in prevalence between residents discharged live and those not discharged. However, some facility types had larger differences in the prevalence of certain risk factors between resident discharged live and those not discharged, indicating these facility types were more likely to discharge residents with those risk factors.

Profit status. For-profit and government facilities were more likely than non-profit facilities to discharge residents with risk factors, as indicated by having larger differences in the prevalence of risk factors between residents discharged live and those not discharged. Out of the three profit statuses, for-profit facilities were most likely to discharge live residents with most behavior-related risk factors. Government facilities were most likely out of the three profit statuses to discharge live residents with most psychiatric and mood disorders-related risk factors and with changes in impairments requiring more staff time (incontinence, functional dependency and cognitive function). However, government facilities had negative differences in the prevalence of several types of behavioral symptoms, at end of stay, indicating they were less likely to discharge live residents with these severe behavioral symptoms than those without these severe behavioral symptoms. Non-profit facilities were only most likely of the three profit statuses to discharge live residents for a few risk factors, primarily those related to very severe behavioral symptoms

aggregated across behavioral types. Lastly, as shown in **Table 3-2**, government facilities were most likely to discharge live residents with transitions to Medicaid eligibility in the last 3 months, while for-profit facilities were most likely to discharge live residents with transitions to Medicaid eligibility in the last 6 months (as indicated by the largest differences in prevalence). (**Appendix D, Table D-4**).

Table 3-2. Percentage Point Differences in the Prevalence of Transitions to Medicaid Eligibility by Facility Profit Status			
	For-profit	Non-profit	Government
Transitions to Medicaid eligibility in last 3 months	1.12	0.87	1.35
Transitions to Medicaid eligibility in last 6 months	3.84	3.02	2.60

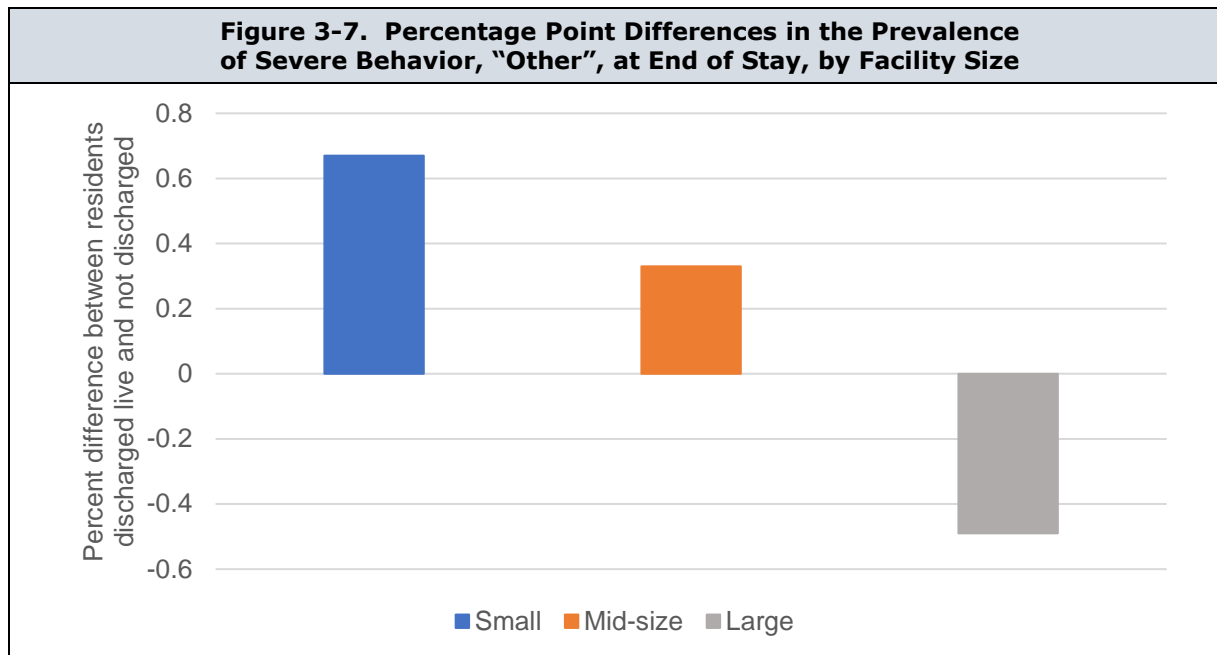
Urban/rural. Rural facilities were more likely than urban facilities to discharge residents with risk factors, displaying larger differences in prevalence of most risk factors. For example, the prevalence of severe verbal behaviors was 1.96 percentage points higher among residents discharged live than residents not discharged in rural facilities, compared to 1.27 percentage points higher in urban facilities. Urban facilities were only more likely than rural facilities to discharge live residents with transitions to Medicaid eligibility over the last 3 months and 6 months and new diagnoses of bipolar disorder and schizophrenia. Urban facilities had a negative difference in the prevalence of increases in the severity of cognitive impairments, indicating they were less likely to discharge live residents with cognitive impairments than without cognitive impairments. (**Appendix D, Table D-5**).

Chain status. Facilities that were part of a chain were more likely to discharge live residents with risk factors than facilities that were not part of a chain. The exception was residents with impairments requiring more staff time, who were more likely to be discharged live in non-chain facilities. (**Appendix D, Table D-6**).

Facility size. Small facilities (less than 100 beds) and mid-size facilities (101-200 beds) were more likely than large facilities (over 200 beds) to discharge live residents with risk factors. Small facilities were most likely to discharge residents with behavior-related risk factors and new diagnoses of anxiety, psychotic disorders and PTSD, compared to larger facilities. Mid-size facilities were most likely to discharge live residents with transitions to Medicaid eligibility in the past 3 months and 6 months and impairments requiring more staff time, compared to smaller and larger facilities. Lastly, large facilities were more likely to discharge live residents with new diagnoses of depression, bipolar disorder and schizophrenia than smaller facilities. Large facilities also had some negative differences in the prevalence of risk factors, primarily among behavioral symptoms at end of stay. For example, as shown **Figure 3-8**, large facilities had a difference in prevalence of severe behavior, "other",⁵ at the end of stay of -0.49 percentage points compared to 0.67

⁵ Severe behavior, "other", are disruptive behaviors outside of physical/verbal behavior (e.g., disrobing in public or throwing food)

percentage points among small facilities and 0.33 percentage points among mid-size facilities. This means that large facilities were less likely to discharge live residents with behavioral symptoms than residents without behavioral symptoms while mid-size and small facilities were more likely (**Appendix D, Table D-7**).



Ownership changes. Facilities with two or more ownership changes and 1-2 ownership changes were more likely to discharge live residents with risk factors than facilities with no ownership changes. Facilities with two or more ownership changes were most likely to discharge live residents with behavior-related risk factors and new diagnoses of anxiety, bipolar disorder and PTSD, compared to facilities with fewer ownership changes. Facilities with one to two ownership changes were most likely to discharge live residents with the remaining behavioral-related risk factors, and facilities with no ownership change were most likely to discharge live residents with new diagnoses of depression and schizophrenia, out of all ownership change counts. The association between number of ownership changes and likelihood of discharging live residents with impairments requiring more staff time depended on the impairment. (**Appendix D, Table D-8**).

3.2.3 Discharges from Terminated Facilities

Key Takeaway

- Only a small percent of residents were discharged live from terminated facilities. Residents discharged live from terminated facilities had lower prevalence of risk factors than residents discharged live from active facilities.

The nature of discharges from terminated facilities differs from that of active facilities. Nursing facility termination indicates a nursing facility has lost its Medicare and/or Medicaid certification, requiring it to discharge all Medicare and Medicare-Medicaid dually eligible residents. Nursing facilities may continue to care for a portion of residents after the scheduled termination date (e.g., if they are private pay or Medicaid only, depending on the certification lost). For the purposes of this study, live discharges from terminated facilities were considered unrelated to an individual's condition since they were discharged due to facility reasons and not for patient reasons. From 2012 to 2017, between 0.68% and 1.21% of residents were discharged live from a terminated facility each year. The majority of these residents, between 75% and 90%, were discharged live on or before the termination date. The remaining residents were discharged live after the termination date (**Table D-9**).

Because terminated facilities discharge all Medicare residents, discharge of a resident with a risk factor does not indicate potential inappropriateness. Compared to residents discharged live from active facilities, residents discharged live from terminated facilities, either before or after the termination date, had lower prevalence for the majority of risk factors. For example, 9.79% of residents discharged live from terminated facilities had schizophrenia at the end of stay, compared to 12.81% of residents discharged live from active facilities ($p < 0.001$). There were some exceptions, such as some types of behavioral symptoms at end of stay, which were more prevalent among residents discharged live from terminated facilities than residents discharged live from active facilities. Not all these results were statistically significant. The higher prevalence of most risk factors among residents discharged live may indicate potentially inappropriate live discharges among active facilities. However, there could also be other explanations such as differences in the populations served by terminated and active facilities, which are beyond the scope of this study (**Appendix D, Table D-10**).

3.3 Do Post-discharge Outcomes Differ Among Residents Discharged Live With and Without Risk Factors for Live Discharge?

3.3.1 Acute Care Use

We define "acute care" as hospitalizations, emergency department visits and observation stays, with emergency department and observation stays collectively referred to as "outpatient acute care".⁶ In 2016, 52.79% of residents experienced acute care within 30 days of nursing facility discharge. Specifically, 44.33% of residents were hospitalized, and 15.40% had an outpatient acute care visit within 30 days of discharge, with a small percentage having both a hospitalization and an unrelated emergency department visit within 30 days. The majority of acute care episodes happened immediately after nursing

⁶ Emergency department visits and observation stays are grouped as only a very small proportion of residents had observation stays and these stays are typically billed with emergency department visits.

facility discharge: 86.9% of hospitalizations and 56.6% of outpatient acute care visits occurred either on the day of nursing facility discharge or the following day. Overall, 43.13% of all residents discharged live went directly from the nursing facility to an acute care setting (hospital or emergency department), while 9.66% of residents went first to a community or other non-acute setting (such as a different nursing facility) and then experienced acute care within 2-30 days of discharge. The remaining residents experienced no acute care or acute care after 30 days. (**Appendix E, Table E-1**).

Based on this study's definition of live discharge, residents discharged live did not return to their original nursing facility within 30 days of discharge. However, they may have been transferred to a second nursing facility, either directly or after their acute care ended. For more discussion on discharge location, see **Section 3.3.3**.

In the remainder of this section, we describe the acute care use of residents with risk factors. One caveat is that we cannot determine the cause of acute care use, such as whether it was the result of an inappropriate discharge. Some of these risk factors, particularly severe behavioral symptoms and impairments requiring more staff time, may indicate declining overall health of a resident and increased the risk of acute care. Thus, higher acute care use in these populations partially reflects appropriate discharging of residents to hospitals when the nursing facilities can no longer meet their needs.

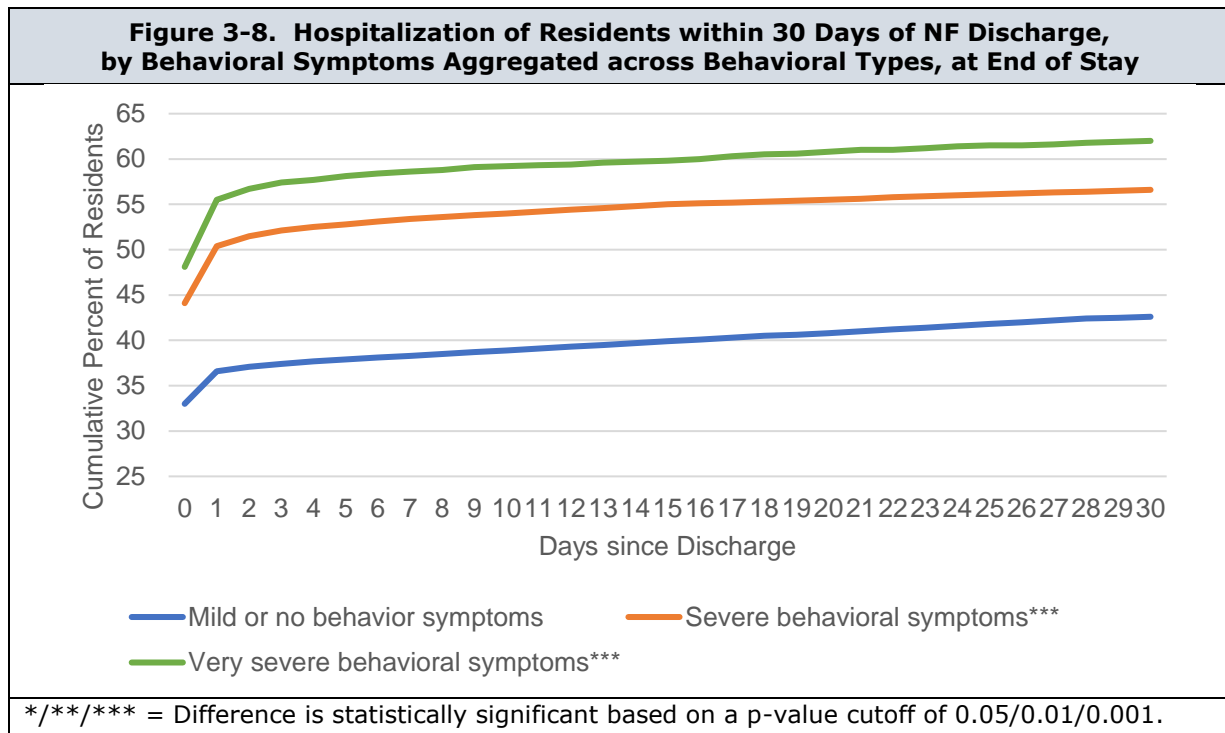
Residents with Severe Behavioral Symptoms

Key Takeaways

- Residents discharged live with behavior-related risk factors had higher rates of acute care than residents discharged live without behavior-related risk factors, and differences in acute care rates were relatively large.
- Most residents discharged live with behavior-related risk factors who experienced acute care went to acute care directly after discharge.

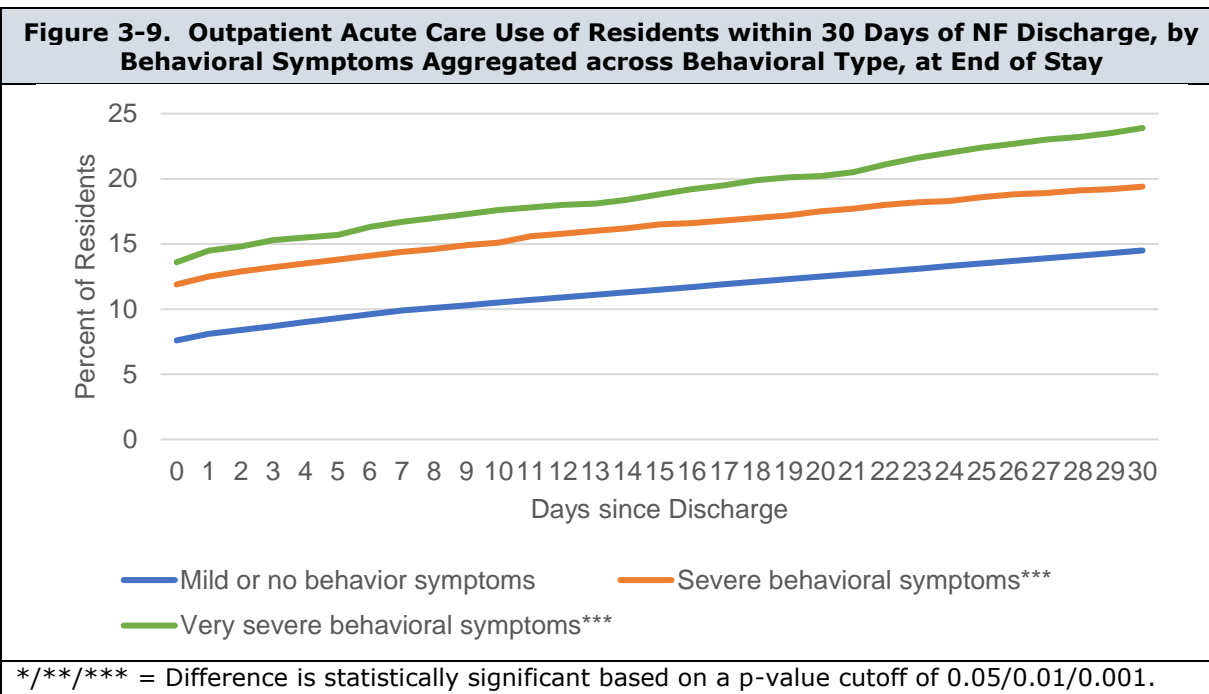
Residents with behavioral risk factors had much higher rates of hospitalization within 30 days of nursing facility discharge, compared to residents without such factors. Between 54.40% and 61.38% of residents with severe behavioral symptoms at end of stay were hospitalized, with residents with severe verbal behavior having the lowest rates and residents with very severe behavior symptoms, aggregated across behavior types, having the highest. In contrast, residents without severe behavioral symptoms consistently had hospitalization rates around 43%. Similar differences were observed between the hospitalization rates of residents with and without changes to more severe behavioral symptoms. As an example, we use a representative graph to illustrate post-discharge hospitalization patterns by one behavior risk factor for live discharge. As shown in **Figure 3-9**, hospitalization rates increased with increasing severity of behavioral symptoms aggregated across behavioral types, at end of stay, and the majority of hospitalizations

happened directly after discharge. Specifically, as shown by the green line in *Figure 3-9*, 55.5% out of 61.38% of residents with very severe behavior symptoms aggregated across behavioral types, at end of stay, were hospitalized on the day of discharge or the following day (Days 0 and 1), compared to 5.88% out of 61.38% hospitalized between days 2 and 30 post-discharge (Days 2-30). We see a similar trend for residents with severe aggregated behavioral symptoms (orange line in *Figure 3-9*) and none or mild behavioral aggregated symptoms (blue line in *Figure 3-9*), but the pattern is less pronounced as severity decreases. In general, among residents with behavioral symptoms at end of stay and with changes to severe behavior symptoms who were hospitalized within 30 days of nursing facility discharge, roughly 90% of them were hospitalized within one day of discharge, regardless of the type of behavioral symptoms. (**Appendix E, Table E-2**). These findings were statistically significant ($p < 0.001$).



Residents with behavioral symptoms also had higher outpatient acute care use. For example, as shown in **Figure 3-10**, rates of outpatient acute care visits were highest for residents with severe and very severe behavior symptoms aggregated across behavior type, at end of stay, compared to residents with mild or no aggregated behavioral symptoms. Outpatient acute care use was highest immediately after discharge but was more evenly distributed across the 30 days post-discharge than hospitalizations. For example, 62% of all outpatient acute care use for residents with very severe behavioral symptoms aggregated across behavioral types, at end of stay, occurred on the same day as discharge or the following day, compared to almost 90% of hospitalizations. Similar differences in outpatient rates were observed between residents with and without severe behavioral symptoms by

individual behavioral type and with and without changes to more severe behavioral symptoms (**Appendix E, Table E-2**). These findings were statistically significant ($p < 0.001$).



Residents with Psychotic and Mood Disorders

Key Takeaway

- Residents discharged live with most psychiatric and mood disorders had higher rates of acute care than residents discharged live without these disorders, and the majority of acute care happened directly after hospitalizations. However, the differences in acute care rates, particularly outpatient acute care, were relatively small.

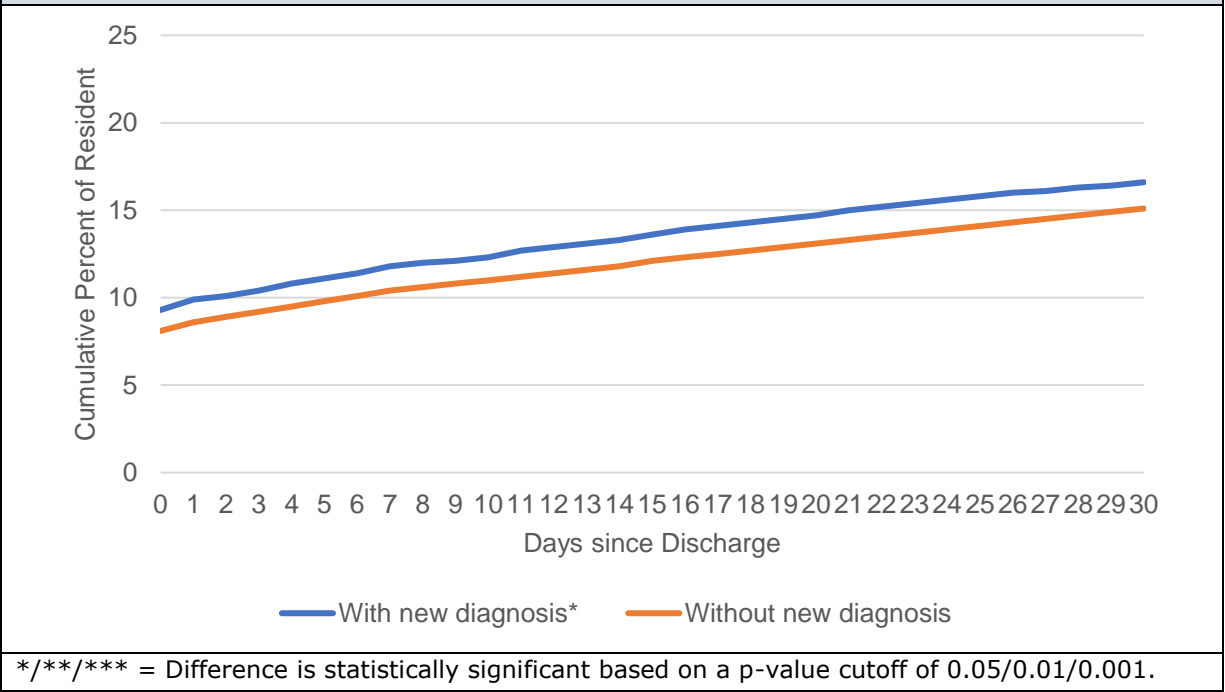
Residents with most psychotic and mood disorders had higher hospitalization rates than residents without these disorders. The exception was residents with PTSD at end of stay and new diagnoses of PTSD, who had lower rates of hospitalization than residents without PTSD. **Table 3-3** shows the hospitalization rates among residents with and without psychotic and mood disorders. The largest positive difference (6.95%) was observed between residents with and without psychotic disorders at end of stay and the smallest positive difference (0.82%) was observed between residents with and without new diagnoses of depression. As in the case of residents with behavioral symptoms, the majority of hospitalizations happened on the day of discharge or the day following discharge. These findings were statistically significant ($p < 0.001$).

Table 3-3. Hospitalization of Residents within 30 Days of NF Discharge, by Psychiatric and Mood Disorder						
	Bipolar***	PTSD***	Anxiety***	Depression***	Psychotic***	Schizophrenia***
Diagnoses at end of stay	47.86	29.17	46.45	45.58	50.58	48.65
No diagnosis at end of stay	44.07	44.46	43.34	43.04	43.63	43.92
New diagnosis	49.69	28.10	46.89	44.71	49.29	49.30
No new diagnosis	44.18	42.73	43.96	44.06	43.93	44.23

*/**/** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001.

Residents with psychotic and mood disorders also had higher outpatient acute care use than residents without these diagnoses. For new diagnoses, outpatient acute care visits ranged from 13.69% among residents with PTSD to 18.11% among residents with bipolar disorders (**Appendix E, Table E-2**). In contrast, residents without a given new diagnosis mostly had an outpatient acute care use rate around 15%. This finding was only statistically significant for new diagnoses of anxiety ($p < 0.01$), bipolar disorder ($p < 0.01$) and psychotic disorders ($p < 0.05$). As an example, we use a representative graph to illustrate post-discharge outpatient patterns by one disorder. As shown in **Figure 3-11**, the differences in outpatient acute care use rates between residents with and without psychiatric and mood disorders were small (less than 2% by day 30 post-discharge for most diagnoses). PTSD at the end of stay and new diagnoses of PTSD were unique in that the cumulative outpatient acute care rate for residents with PTSD was lower than that of residents without PTSD for more than two weeks post-discharge but similar or higher by the end of 30 days ($p > 0.05$).

Figure 3-10. Outpatient Acute Care Use of Residents with and without New Diagnoses of Psychotic Disorder

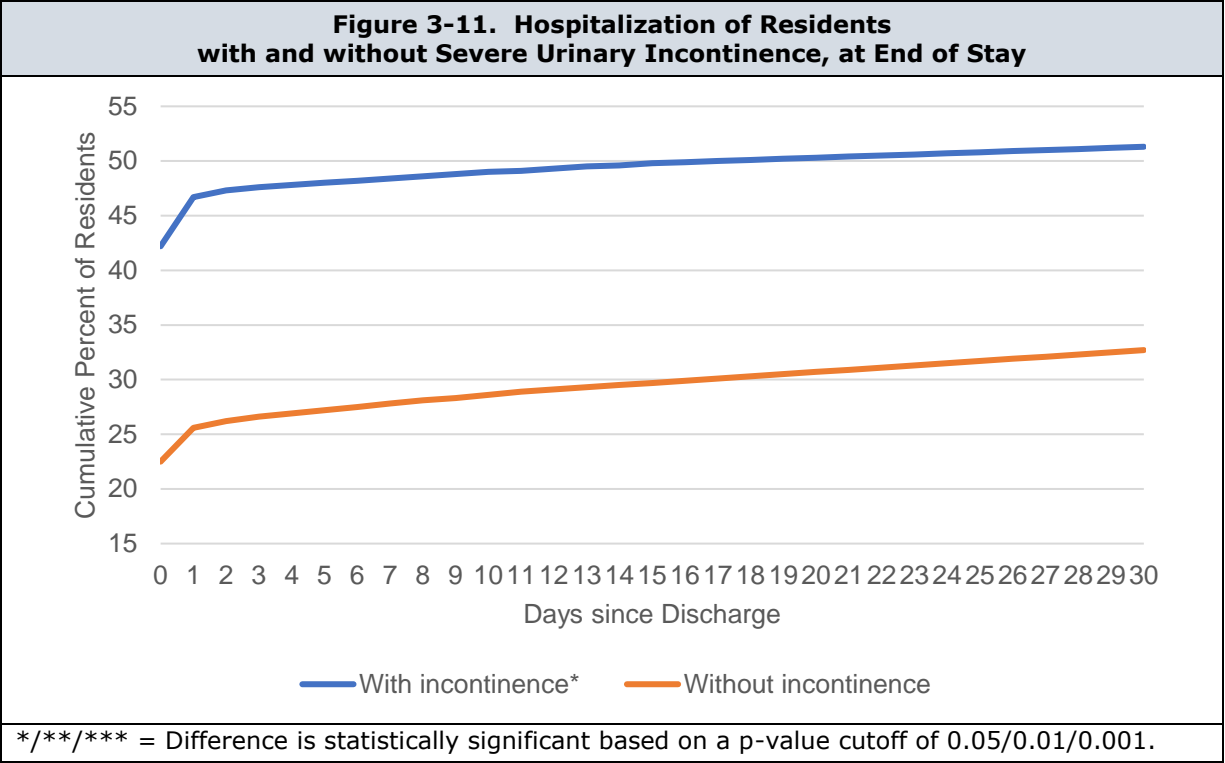


Residents with Impairments Requiring More Staff Time

Key Takeaways

- Residents discharged live with impairment-related risk factors had higher hospitalization rates than residents discharged live without these risk factors. Most hospitalizations happened directly after discharge.
- Residents with changes to severe incontinence and cognitive impairments had higher outpatient acute care rates and residents with changes to the most severe level of ADL dependency had lower outpatient acute care rates, compared to residents without changes in impairments.

Residents with incontinence at end of stay had higher hospitalization rates than residents without these impairments, with relatively large differences. As shown in **Figure 3-12** below, hospitalization rates were much higher for residents with severe urinary incontinence at end of stay than for residents without urinary incontinence (51.60% compared to 32.84%, $p < 0.001$). Most hospitalizations happened directly after discharge. Hospitalization rates for residents with severe bowel incontinence were similarly higher than residents without bowel incontinence ($p < 0.001$).



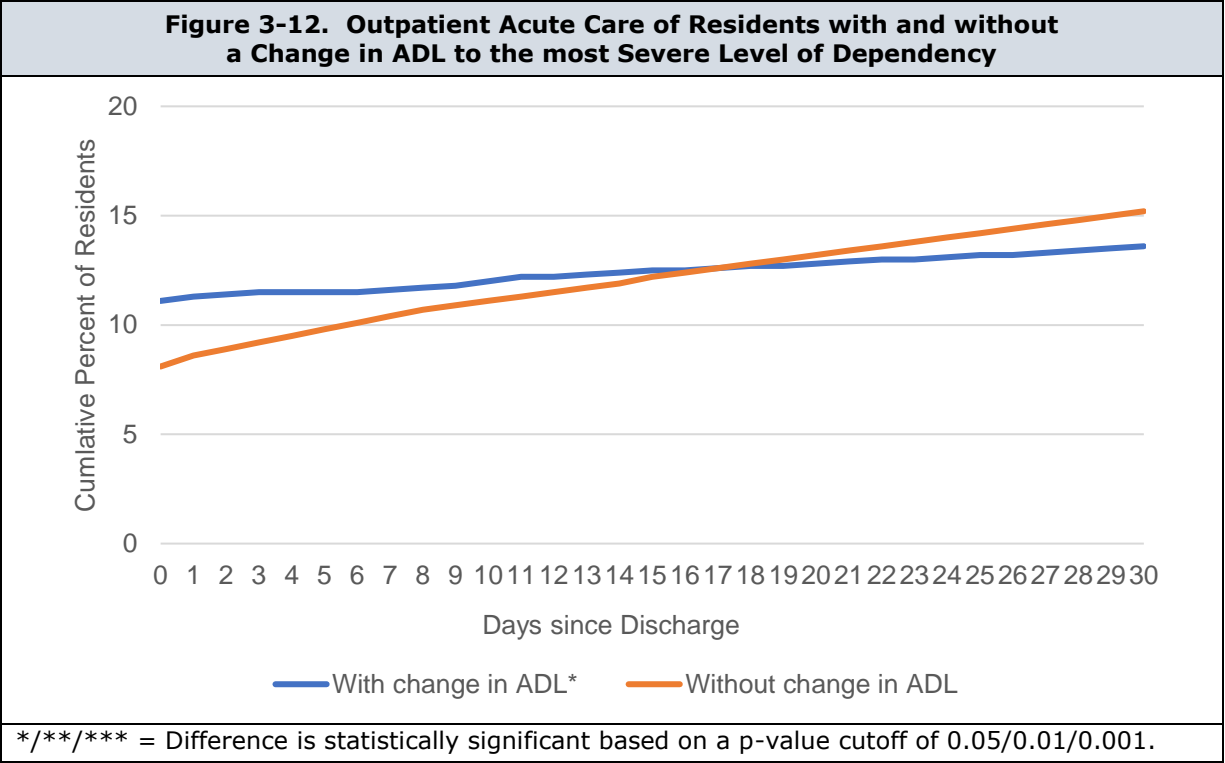
Residents with changes to severe impairments also had higher hospitalization rates than residents without changes to severe impairments ($p < 0.001$). However, there were smaller differences in hospitalization rates between residents with and without changes to severe impairment than residents with and without impairments at end of stay, as shown in **Table 3-4**.

Table 3-4. Hospitalization of Residents within 30 Days of NF Discharge, by Change to Severe Impairments, Percent

	Impairment			Cognitive Impairment***
	Incontinence		Most Severe Level of ADL Dependency***	
	Urinary***	Bowel***		
With Change	51.30	52.08	58.39	54.45
Without Change	44.63	44.46	43.88	42.43

*/**/** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001.

In contrast, residents with urinary and bowel incontinence at end of stay and changes to the most severe level of dependency for ADL had lower 30-day outpatient acute care use rates than residents without these impairments ($p < 0.001$). A representative graph (**Figure 3-13**) is shown below.



Residents with changes to severe urinary and bowel continence and cognitive impairments had higher outpatient acute rates across all 30 days than residents without these changes in impairments ($p < 0.001$) (**Appendix E, Table E-3**).

Residents with Transition to Medicaid Eligibility

Key Takeaway

- Residents who with risk factors related to transition to Medicaid eligibility had higher hospitalization rates and lower outpatient acute care use than residents without these risk factors.

Lastly, as shown in **Table 3-5**, residents who transitioned to Medicaid eligibility in the last 3 months and 6 months had higher hospitalization rates ($p < 0.001$) but lower outpatient acute care use than residents who did not transition to Medicaid eligibility; only outpatient acute care findings for transition to Medicaid eligibility in the last 6 months were statistically significant ($p < 0.05$). In contrast, residents with Medicaid eligibility at the end of stay had lower hospitalization rates but higher outpatient rates than residents who did not have Medicaid eligibility ($p < 0.001$).

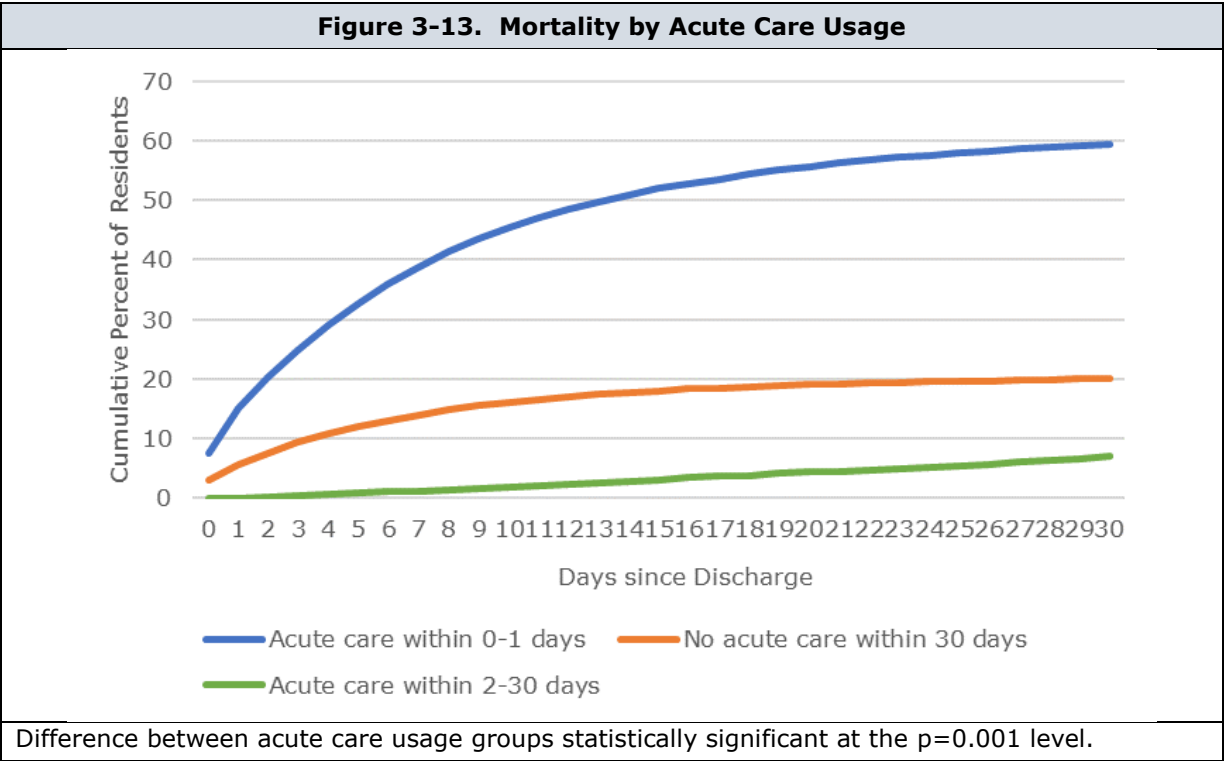
Table 3-5. Hospitalization and Outpatient Acute Care of Residents within 30 Days of NF Discharge, by Medicaid Eligibility Status				
		Percent, %		
		Medicaid Eligibility at End of Stay	Transitions to Medicaid Eligibility in Last	
			3 Months	6 Months
Hospitalization	With Characteristic	47.86***	37.57***	36.36***
	Without Characteristic	35.50	44.89	45.39
Outpatient Acute Care	With Characteristic	16.01***	15.17	14.72*
	Without Characteristic	13.93	15.52	15.56

*/**/** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001.

3.3.2 Mortality

Of all residents discharged live from nursing facilities, 35.68% died within 30 days. As with acute care use, mortality is not unexpected based on the age and health conditions of residents and does not necessarily reflect inappropriate discharges. A discharge to a hospital followed by death may be appropriate, for example, if a resident is experiencing a health crisis that cannot be treated in the nursing facility. Likewise, a resident might be discharged to the community followed by death because they prefer to receive hospice care or die in a home setting.

As shown in the **Figure 3-14**, mortality rates varied by the timeframe of acute care use. Residents who had acute care on the day of discharge or the following day had a 30-day mortality rate of 59.42%, comprising 72% of all deaths within 30 days of residents discharged live. Residents with no acute care within 30 days had the next highest mortality rate at 19.94% and constituted 26% of all deaths within 30 days. Lastly, resident who were discharged live to community and experienced acute care 2-30 days after discharge had a mortality rate of 6.64%, making up only 2% of deaths within 30 days. For both residents who had immediate acute care and residents who had no acute care in 30 days, most deaths occurred in the days immediately following discharge. 15.1% of residents with immediate acute care and 5.7% of residents with no acute care in 30 days died within one day of discharge, equivalent to approximately a quarter of deaths in their respective groups. 45.5% of residents with immediate acute care and 16.1% of residents with no acute care died within 10 days, equivalent to over three-fourths of death in their respective groups. In contrast, the deaths were spread out over 30 days for residents who received acute care within 2-30 days of discharge.



3.3.3 Analysis of Discharge Location

Key Takeaways

- Behavior-related risk factors and psychiatric and mood disorders were most prevalent among residents discharged live to psychiatric hospitals.
- Residents with changes in impairments were most prevalent among residents discharged to acute care, other nursing facilities and psychiatric hospitals.

We examined MDS data to gain further insight into the discharge location of residents. We found that 44.29% of all residents were discharged live to acute care hospitals, which is similar to the 43.13% of hospitalizations found using claims data.⁷ Of all residents discharged live, 34.24% were discharged live to community,⁸ 17.06% to another nursing facility, 1.87% to a psychiatric hospital, and 2.54% to other locations such as an inpatient rehabilitation facility, intellectual disabilities/developmental disabilities (ID/DD) facility, hospice, and long-term care hospital.

Severe behavioral symptoms at end of nursing facility stay and changes to more severe behavioral symptoms, for all behavioral types and when aggregated across behavioral

⁷ This discrepancy is to be expected due to differences in methodology and acute care definition. The MDS discharge location is also considered to be less accurate than claims data and should be considered supplementary.

⁸ Community indicates places of permanent residence (e.g., private homes, assisted living facilities and group homes).

types, were most prevalent among nursing facility residents discharged live to psychiatric hospitals. For example, 54.3% of residents who were discharged live to a psychiatric hospital had severe verbal behavioral symptoms at the end of their nursing facility stay, compared to 10.3% or less among residents discharged live to any other settings. Likewise, psychiatric and mood disorders at end of nursing facility stay and new diagnoses of psychiatric and mood disorders were highest among nursing facility residents who were discharged live to psychiatric hospitals.

Severe urinary or bowel incontinence at end of nursing facility stay was most prevalent among residents discharged live to an acute care hospital, followed by residents discharged live to another nursing facility. Changes to severe urinary incontinence was most prevalent among residents discharged live to psychiatric hospitals while changes to severe bowel incontinence was most prevalent among residents discharged live to acute care hospitals.

Severe cognitive impairments were most prevalent among residents discharged live to acute care hospitals. Residents whose cognitive impairment score worsened by one point (on a three-point scale) had the highest prevalence among residents discharged live to acute care hospitals while residents whose cognitive impairment score worsened by two points had the highest prevalence among residents discharged live to psychiatric hospitals.

Full results are presented in **Table E-3**.

3.3.4 Outcome of Residents Discharged Live from Terminated Facilities

Key Takeaway

- Residents discharged live from terminated facilities had lower acute care use and mortality than residents discharged live from active facilities.

Residents discharged live from terminated facilities had lower acute care use and mortality than residents discharged live from active facilities. Specifically, 17.6% of residents discharged live from terminated facilities on or before the termination date and 24.4% discharged live after termination date⁹ experienced acute care within 30 days of discharge, compared to 53.0% of residents discharged live from active facilities (**Appendix E, Figure E-1**). The higher acute care use rate among residents discharged live from active facilities may be partially attributed to their higher prevalence of risk factors associated with live discharges, relative to residents discharged live from terminated facilities. Residents discharged live from terminated facilities also have lower mortality rates than residents discharged live from active facilities. When comparing residents who had acute care on the day of discharge or the following day, 33.4% of residents from terminated facilities who

⁹ After losing Medicare and/or Medicaid certification, a facility may continue to care for private pay and/or Medicaid residents (depending on the certifications lost). Some of these residents discharged live later in the year, after termination date.

were discharged live on or before the termination date and 26.0% of residents who were discharged live after the termination date died within 30 days of discharge, compared to 60% of residents discharged live from active facilities.

4. Discussion

4.1 Summary of Findings

4.1.1 Identification of Risk Factors

Our analysis provides empirical evidence for literature-suggested risk factors for FIDs and identifies several additional general risk factors for live discharge by comparing the prevalence of resident characteristics between residents discharged live and not discharged. We then investigated these risk factors further by analyzing their prevalence across states and facility types. Lastly, we examined the outcomes of residents discharged live from nursing facilities with and without risk factors.

We found several risk factors that may increase the risk of live discharges. We observed that severe behavioral symptoms at the end of nursing facility stay may be a risk factor for live discharges. Verbal behavior appears to be the strongest risk factor for live discharges among all types of behavioral symptoms, as indicated by verbal behavior having the largest differences in prevalence between residents discharged live and residents not discharged. Severe and very severe behavior aggregated across behavioral types and changes to more severe behavioral symptoms over the past year may also increase the risk of live discharges.

Although not indicated as potential risk factors for FIDs in the literature, our findings also observed that psychiatric and mood disorders may increase the likelihood of live discharge. Our results suggest that new diagnoses of psychiatric and mood disorders may be stronger risk factors for live discharges than pre-existing diagnoses.

Our analyses show that impairments requiring more staff time such as urinary and bowel incontinence, severe functional dependencies and cognitive impairment are also associated with higher rates of live discharge but only when these conditions changed from a less severe to more severe state. For example, urinary and bowel incontinence in themselves may not be a risk factor for live discharge; the majority of residents have these conditions and most nursing facilities should be capable of managing these conditions as part of standard care.

We observed a higher percentage of residents with Medicaid eligibility among residents not discharged than among residents discharged live. This could be because with residents with Medicaid eligibility are sicker overall, requiring nursing facility care, and many of them are being cared for by nursing facilities. However, we see a higher prevalence of residents transitioning to Medicaid eligibility in the last 3 months and 6 months among residents discharged live than among those not discharged. This indicates that transitioning to Medicaid eligibility may put residents at higher risk for live discharges.

Additional characteristics such as Alzheimer’s disease and other dementias were identified in the literature as risk factors for FIDs but not found in our analyses to be more prevalent among residents discharged live.

We found the same risk factors for live discharge among nursing facility residents across years with few exceptions. We showed that the majority of differences in the prevalence of behavioral symptoms and new diagnoses of psychiatric and mood disorders between nursing facility residents discharged live and those not discharged widened from 2012 to 2017. The differences in the prevalence of other risk factors, such as changes to more severe incontinence and transitions to Medicaid eligibility, were relatively stable over time.

4.1.2 Variation of Risk Factors Across State and Facility Types

There was large variation across states in the differences in the prevalence of risk factors between residents discharged live and residents not discharged. For each risk factor, several states also showed lower prevalence among residents discharged live than residents not discharged, suggesting the particular resident characteristic is not a risk factor for live discharge in those states. Other states showed higher prevalence on characteristics such as severe incontinence at end of stay, which were not risk factors at the national level, suggesting additional characteristics may appear as risk factors for live discharges at the state level.

We similarly found large variation across types of nursing facilities. For-profit and government facilities had larger differences in the prevalence of most risk factors between residents discharged live and those not discharged than non-profit facilities. Rural facilities and facilities that were part of a chain had larger differences in the prevalence of most risk factors than urban and non-chain facilities, respectively. For other facility characteristics, such as size and ownership changes, the relative size of the differences in prevalence varied by risk factor and facility type.

Residents discharged live from terminated facilities had lower prevalence of most risk factors associated with live discharges, compared to residents in active facilities. Since terminated facilities must discharge all residents and active facilities only discharge some residents, this finding may indicate differences in discharge patterns based on resident characteristics in active facilities.

4.1.3 Outcomes of Nursing Facility Residents After Discharge

We observed high rates of acute care use and mortality among residents discharged live. Acute care usage and mortality are to be expected in the nursing facility population due to the age and health conditions of residents. Overall, out of all residents discharged live, 52.79% of residents experienced acute care and 35.68% of residents died within 30 days of nursing facility discharge. 43.13% of all residents discharged live, equivalent to 82% of all residents experiencing acute care within 30 days, went directly from the nursing facility to

the hospital and had a mortality rate at 59.42% within 30 days. These rates partially reflect nursing facilities appropriately discharging residents to the hospital because they are having a health crisis and require higher levels of care. An additional 9.66% of all residents discharged live went to the community or a non-acute care setting followed by acute care within 2-30 days and had a 6.64% mortality rate within 30 days.

We found that acute care use, both hospitalizations and outpatient acute care visits, was higher for residents discharged live with a risk factor associated with live discharges than residents discharged live without these risk factors. These patterns are to be expected as many risk factors are associated with declining health and increased risk of acute care. The differences in hospitalization rates between residents with and without severe behavioral symptoms and residents with and without changes to severe impairments were positive and relatively large, which suggests residents with these risk factors are likely to have negative outcomes post-discharge. Residents with and without new diagnoses of psychiatric and mood disorders had higher rates of hospitalization than residents without these disorders but differences in rates were relatively small. These results are not surprising as severe behavioral symptoms and changes to severe impairment are more likely to be indicative of health crisis than psychiatric and mood disorders, resulting in more appropriate discharges to hospitals. We found that the majority of hospitalizations of residents with risk factors happened on the day of discharge or the day following; this pattern was present but less pronounced among residents discharged live without risk factors. Furthermore, outpatient acute care use rates were also higher among residents with risk factors. However, the differences in outpatient acute care use rates between residents with and without risk factors were less pronounced than the differences in hospitalization rates.

4.1.4 Insights into FIDs

Some discharges of residents displaying risk factors for live discharge may reflect nursing facilities discharging residents appropriately, either because the facilities cannot meet their increased care needs or because families and residents prefer to move. However, media has raised concern that some discharges may reflect nursing facilities avoiding the increased burden of meeting the care needs of these residents, which would be inappropriate (Bernard & Pears, 2018). Although we cannot directly define such live discharges as “FIDs” or determine whether they were appropriate, we nonetheless can use the risk factors for live discharge identified in this study to gain insights into the nature of such discharges. We explored how discharge patterns for certain conditions (or risk factors) could inform concerns that have been raised about live discharges. For example, we observed associations between live discharges and conditions that should be commonly treated in nursing facilities, such as severe verbal behavior or severe other disruptive behavior. We note that while there was an association between discharges and severe physical behavior, discharges associated with this risk factor may be appropriate in certain circumstances. For

the same reason, live discharges of residents with psychiatric and mood disorders should be carefully evaluated.

We also examined the discharge location of residents discharged live with risk factors. Discharge of a resident with a new diagnosis of a psychiatric or mood disorder or severe behavioral symptoms may be appropriate if the facility cannot meet the resident's new care needs, and the resident is discharged live to a psychiatric hospital or other settings more equipped to care for residents with these conditions. Our analyses of discharge location showed that both residents with new diagnoses of psychiatric or mood disorders and severe behavioral symptoms are most prevalent among residents discharged live to psychiatric hospitals. However, our analyses also showed that residents with psychiatric or mood disorders and severe behavioral symptoms are among those discharged live to community. Overall, 1.87% of all nursing facility residents who are discharged live are discharged to psychiatric hospitals, which is lower than the prevalence of new diagnoses of psychiatric or mood disorders and severe behavioral symptoms among residents discharged live. These findings raise some concerns related to live discharges of residents with these risk factors. One potential cause is the shortage of psychiatric beds, the number of which have decreased almost 97% as of 2016 from its highest levels in 1955 (Treatment Advocacy Center).

Likewise, residents who recently transitioned to Medicaid eligibility may be more likely to experience live discharges from nursing facilities. Since facilities typically receive lower payments for Medicaid residents than for non-Medicaid residents, they may have a financial incentive to discharge Medicaid residents (Bernard & Pears, 2018). For example, a recent news article found that financial incentives may be influencing nursing home behavior: it discovered that Medicaid residents were less likely to be admitted to highly ranked nursing homes in New York and noted a resident who was denied a long-term bed by her nursing home after switching to Medicaid (Michel & McAndrew, 2019). Thus, we should pay particular attention to the discharges of these residents.

We likewise acknowledge that differences in the prevalence of risk factors among states and facility types do not necessarily indicate certain states or facility types have more inappropriate discharges than others. Nursing facility discharges at the state level are impacted by a wide range of state-specific policies that may impact the likelihood of live discharges of residents with risk factors. Similarly, the appropriateness of discharges of residents with risk factors by a facility type may be determined by resources in the surrounding community. For example, the higher prevalence of discharges of residents with a psychiatric or mood disorder from facilities of a given type may be the result of that facility type having greater access to psychiatric hospitals. However, our insight into the association between discharges of residents with risk factors and states and facility types can suggest which discharges may warrant further inspection. For example, careful attention should be given to discharges of residents with certain risk factors in for-profit or

chain facilities. Furthermore, these findings may help target future investigations of live discharges that could possibly be indicative of inappropriate FIDs. State-specific analyses of live discharges may want to focus on the characteristics which appear as risk factors for live discharges in that state.

Lastly, our analysis indicates that residents with risk factors consistently have higher rates of hospitalization and mortality post-discharge. These outcomes may either be the result of appropriate discharges or negative consequences of inappropriate discharges, with certain combinations of resident characteristics and outcomes being more problematic than others. For example, a discharge of a resident with severe impairments followed shortly by death may be appropriate if it reflects the patient's preference to die in a hospital or at home. In contrast, the discharge of someone with psychiatric and mood disorders to the community who requires acute care shortly thereafter may indicate discharge to a location with insufficient support. Our study found a large percentage of residents being discharged live directly to acute care hospitals. These patterns have been questioned by prior research and news outlets as potentially attributable to nursing facilities sending residents to acute care settings and refusing to readmit them, a practice referred to as patient dumping which was recently ruled upon in federal courts (Egelko, 2019). Likewise, residents going to the community and then acute care may reflect inappropriate discharges to community without appropriate discharge planning.

4.2 Policy Implications

Our findings have several implications for policy. There has been increased attention recently on the extent to which state survey agencies have been able to investigate inappropriate FIDs (OIG, 2019). Our findings can aid the efforts of identifying discharges that may raise concern. Our research identified behavioral symptoms, new psychiatric and mood diagnoses, transitions to Medicaid eligibility and impairments requiring more staff time as the conditions with the highest risk for live discharges. An additional finding was that the changes in resident characteristics may be stronger indicators of risk for live discharges than characteristics at the time of discharge. Our research also found differences in discharge patterns by facility type, which also deserves more attention.

CMS is also encouraging states to pursue projects funded by the Civil Money Penalty Reinvestment Projects Assistance aimed at preventing FIDs that violate federal regulations (CMS, 2018). This research may help inform the design and targeting of these projects. For example, our state-level analysis compares discharge patterns across all states.

Second, our analysis indicates residents with risk factors experienced higher rates of hospitalization and outpatient acute care use, with the caveat that these outcomes could reflect overall worse health among residents with risk factors. These findings provide additional information to inform discussions about how to improve post-discharge outcomes.

We found that, while most residents went directly to acute care, a significant portion of residents were discharged live to the community and required acute care shortly thereafter. This may indicate lack of appropriate support in the discharge location and a need for better discharge planning.

Lastly, as a policy consideration, it may be helpful to refine discharge items on the MDS assessment to indicate whether a discharge was facility- or resident-initiated, and whether it was involuntary. An MDS assessment item including these additional elements would help assess whether the live discharge of residents displaying risk factors was appropriate and provide another level of protection for this vulnerable population. Such MDS items would also support monitoring of this issue and augment future research.

4.3 Limitations

MDS data contains several limitations which must be considered when interpreting our findings. It does not indicate whether a discharge was initiated by the resident or facility and whether a discharge was voluntary or involuntary. Because of these limitations, we could not ascertain whether live discharges were facility-initiated or determine their appropriateness. As a result, we could not determine the number of potentially inappropriate FIDs among nursing facility residents. Instead, our research focused on describing the discharge patterns of residents displaying risk factors for live discharge. By describing these discharge patterns, our research seeks to aid understanding of nursing facility discharges in general and guide future discussion and research of FIDs.

To enhance the knowledge base on FIDs, future research should focus on the discharge locations of residents with risk factors for live discharge. Additional research should also examine the impacts of state policies, facility closures and the COVID-19 pandemic on FIDs.

References

- Centers for Medicare & Medicaid Services (CMS). (2017a). An initiative to address facility-initiated discharges that violate federal regulations. Available at: <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/Survey-and-Cert-Letter-18-08.pdf>.
- Centers for Medicare & Medicaid Services (CMS). (2017b). State operations manual, appendix PP. Guidance to surveyors for long-term care facilities. Available at: https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdf.
- Egelko, B. (2019). Court reinstates suits by patients nursing homes refused to readmit. *San Francisco Chronicle*. Available at: <https://www.sfchronicle.com/news/article/Federal-court-reinstates-suits-by-patients-14106558.php?psid=dnUOj>.
- Lepore, M.J., Yuen, P.K., & Zepeda, S. (2019). Nursing home facility-initiated involuntary discharge. *Journal of Gerontological Nursing*, 45(8), 23-31.
- Lepore, M.J., Zepeda, S., & Yuen, P. (2018). Facility-initiated involuntary discharges (FIDs): Final environmental scan.
- Michel, L., & McAndrew, M. (2019). New York's top nursing homes less likely to admit poor. *Buffalo New*. Available at: <https://buffalonews.com/2019/07/14/new-yorks-top-nursing-homes-less-likely-to-admit-poor-than-worst-homes-data-shows/>.
- Office of Inspector General (OIG). (2019). Involuntary transfer and discharge in nursing homes. *OIG*. Available at: <https://oig.hhs.gov/reports-and-publications/workplan/summary/wp-summary-0000331.asp>.
- Roberts, L. (2019) New data highlights the long-term care ombudsman program's legacy of service. *Administration for Community Living*. Available at: <https://acl.gov/news-and-events/acl-blog/new-data-highlights-long-term-care-ombudsman-programs-legacy-service>.
- Serres, C. (2020). Complaints of eviction in senior care homes up nearly 30% during pandemic. *Star Tribune*. Available at: <https://www.startribune.com/complaints-of-evictions-in-minn-senior-care-homes-up-nearly-30-during-pandemic/571609422/?refresh=true>.
- Silver-Greenburg, J., & Harris, A.J (2020). 'They just dumped him like trash': Nursing homes evict vulnerable residents. *New York Times*. Available at: <https://www.nytimes.com/2020/06/21/business/nursing-homes-evictions-discharges-coronavirus.html>.
- Task Force on Aging and Families. (2020). U.S. House Democratic Caucus Task Force on Aging and Families LTR to HHS CMS to stop nursing home evictions.

Treatment Advocacy Center. Psychiatric bed shortages. *Treatment Advocacy Center*. Available at: <https://www.treatmentadvocacycenter.org/key-issues/bed-shortages>.

Verdana, T.S., & Pear, R. (2018). Complaints about nursing home evictions rise, and regulators take note. *New York Times*. Available at: <https://www.nytimes.com/2018/02/22/business/nursing-home-eviction-regulators.html>.

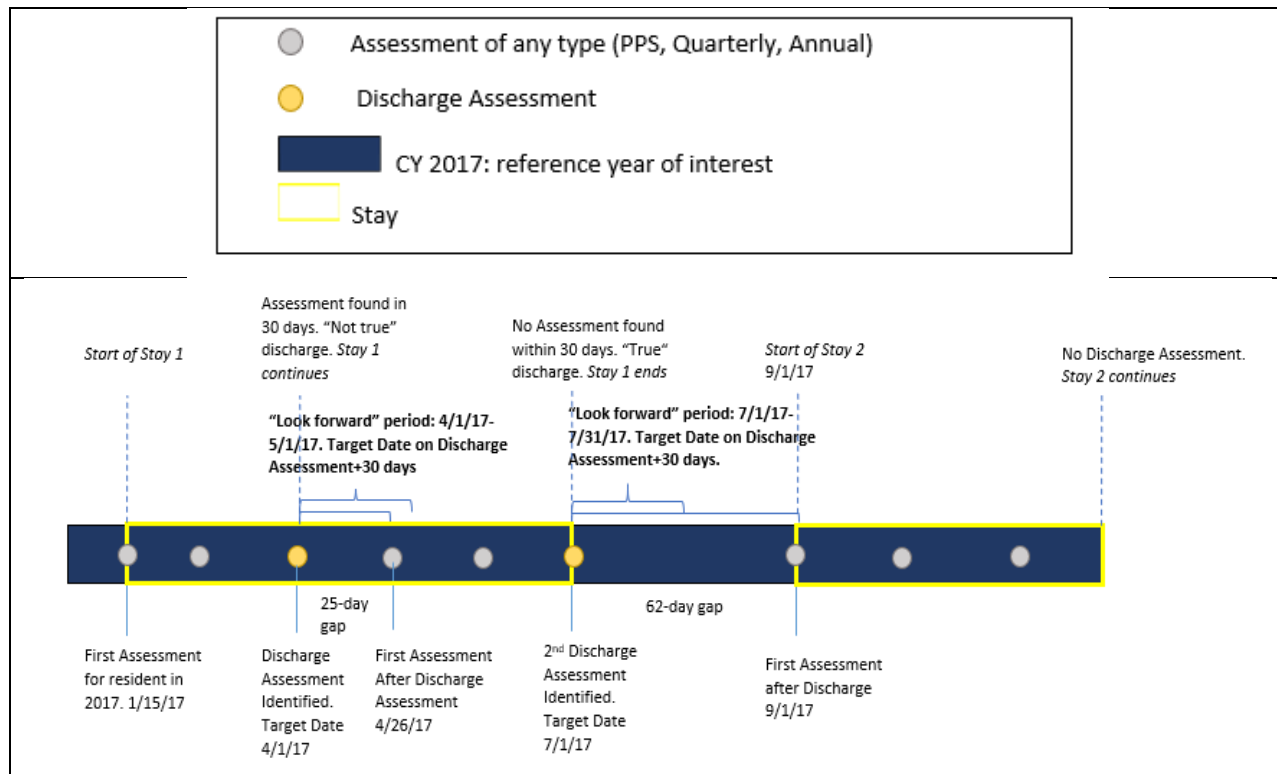
Appendix A: Technical Details

For each year, we looked through the stream of MDS assessment for each resident in that year and distinguished stays for that resident. We first distinguished between-facility stays for each resident by grouping their assessments by facility ID. We then looked through the stream of assessments for each unique resident and facility pairing to determine within-facility stays. We defined the beginning of the first within-facility stay as the first assessment occurring that year at that facility. We considered the end of the first stay to be the nearest discharge assessment with no subsequent assessments within 30 days. If a discharge assessment was found which had a subsequent assessment within 30 days, we continued the stay and evaluated the next discharge assessment, repeating this process until we found a discharge assessment with no assessments within 30 days. The second and subsequent stay began with the first assessment after the discharge of the previous stay and likewise ended with the nearest discharge assessment with no assessments within 30 day. If a stay had no discharge assessment with no subsequent assessments within 30 days during that year, the stay was continued until the end of the year.

Next, we determined whether each stay was a SNF or nursing facility stay by looking at the type of assessment which occurred during that stay. For the first stay for each resident and facility pairing, we also looked through assessment types in the last 4 months of the prior year (September 1 to December 31) in order to gain a more comprehensive understanding of nursing facility usage. We considered a SNF stay to be indicated by the presence of a Medicare Prospective Payment System (PPS) 5-day assessment and a nursing facility stay to be indicated by the presence of a Quarterly or Annual MDS Assessment. For purposes of analyses, we were only interested in new SNF stays, defined as those not preceded by a nursing facility stay. We flagged a stay as SNF stay if it contained 5-day PPS assessment in 2017 that was not preceded by a Quarterly or Annual MDS Assessment, looking back to September 1 of previous year for the first stay and back to the start of the stay for the second and subsequent stays. We flagged a stay as nursing facility if there is a Quarterly or Annual MDS Assessment during the stay, also looking back to the last 4 months of the prior year for a Quarterly or Annual Assessment in the case of the first stay.

A.1 Stay Construction

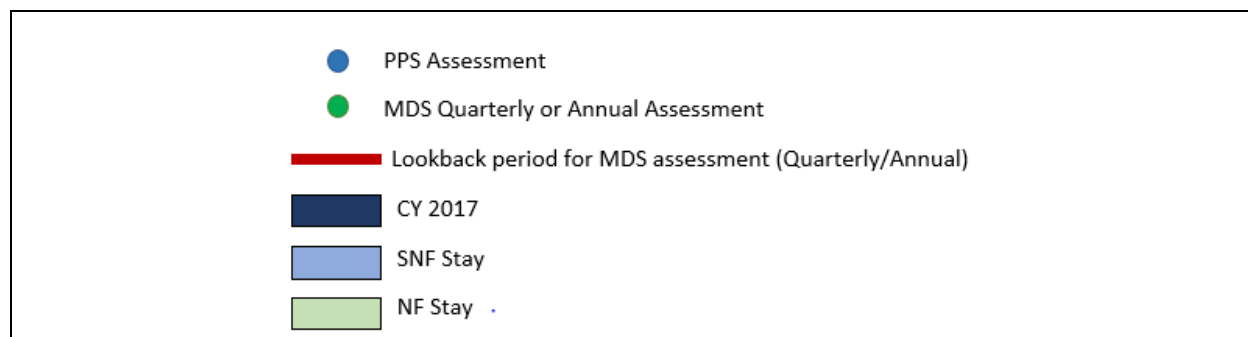
- **Process:** (1) Look for a discharge assessment. (2) Look *forward* from the discharge date to the discharge date+30 days for any assessment. (3) If an assessment is found within 30 days, the discharge assessment is “not true” and the stay does not end. If no assessments are found within 30 days, the discharge assessment is “true” and the stay ends. (4) The next stay begins with the first assessment after a “true” discharge.



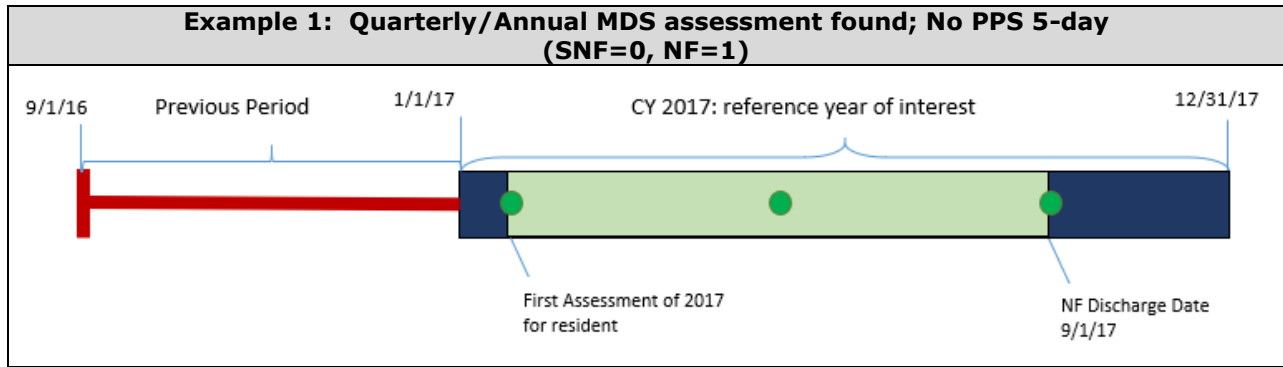
A.2 Determination of SNF and NF Stays

General logic:

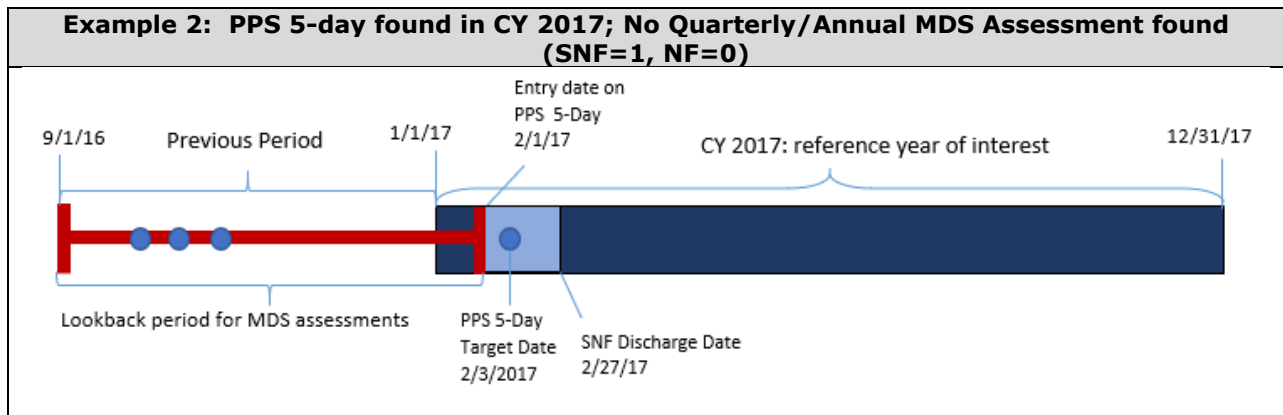
- A stay is considered a nursing facility if there is a Quarterly or Annual MDS Assessment during the stay or Previous Period. Subsequent stays are considered a nursing facility if there is a Quarterly or Annual MDS Assessment during the stay.
- A stay is considered a SNF if there is a PPS 5-day and no Quarterly or Annual MDS Assessment between the Lookback Period start date (September 1, 2016) and the entry date recorded on the PPS 5-day.



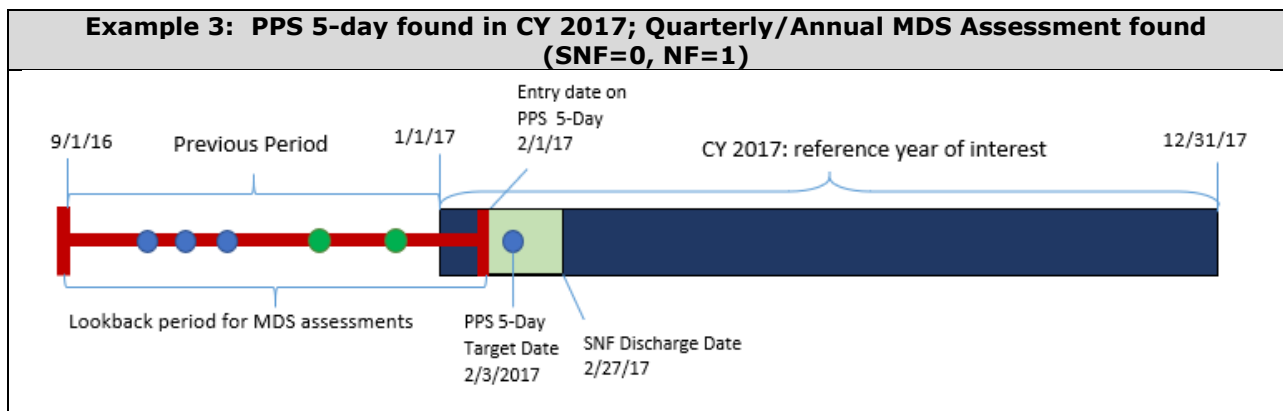
- Example 1 below is considered a nursing facility stay because there is a Quarterly or Annual MDS Assessment during the stay.



- Example 2 is considered a SNF because there is a PPS 5-day and no Quarterly or Annual MDS Assessment between the Lookback Period start date (September 1, 2016) and the entry date recorded on the PPS 5-day.

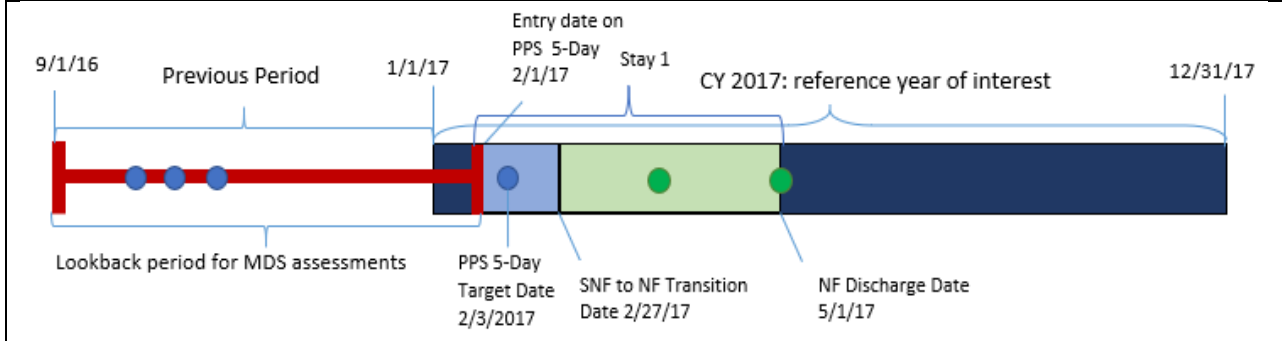


- Example 3 is not considered a SNF because there is a PPS 5-day but also a Quarterly or Annual MDS Assessment in the Lookback Period. Example 3 is considered a nursing facility because there is a Quarterly or Annual MDS Assessment in the Previous Period.



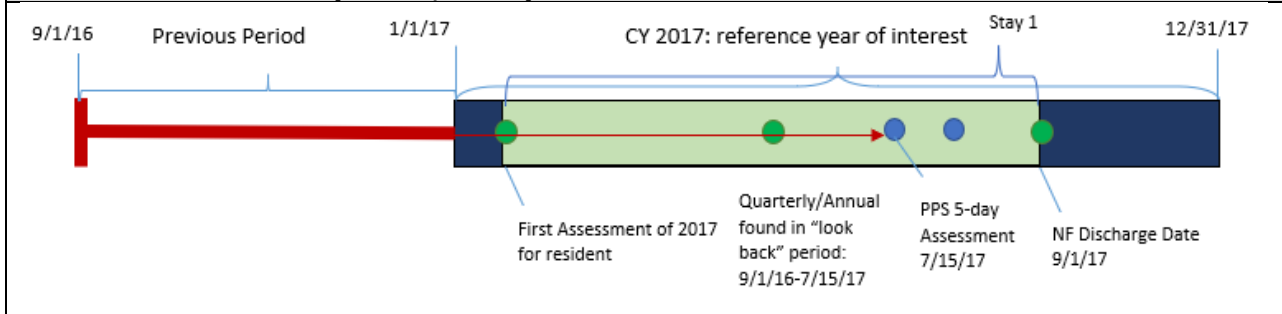
- Example 4 is considered a SNF because there is a PPS 5-day and no Quarterly or Annual MDS Assessment in the Lookback Period. Example 4 is also considered a nursing facility as there was a Quarterly/Annual MDS Assessment during the stay.

Example 4: PPS 5-day found in CY 2017; no Quarterly/Annual MDS Assessment in Lookback period; Quarterly/Annual MDS Assessment found later in CY 2017 (SNF=1, NF=1)--"SNF to NF"



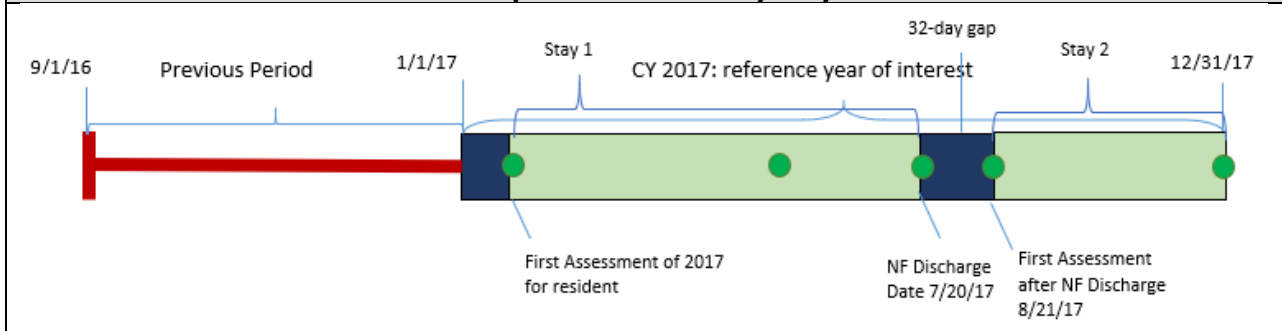
- Example 5 is considered a nursing facility as there was a Quarterly/Annual MDS Assessment during the stay. It is not considered a SNF because there is a PPS 5-day but also a Quarterly or Annual MDS Assessment in the Lookback Period.

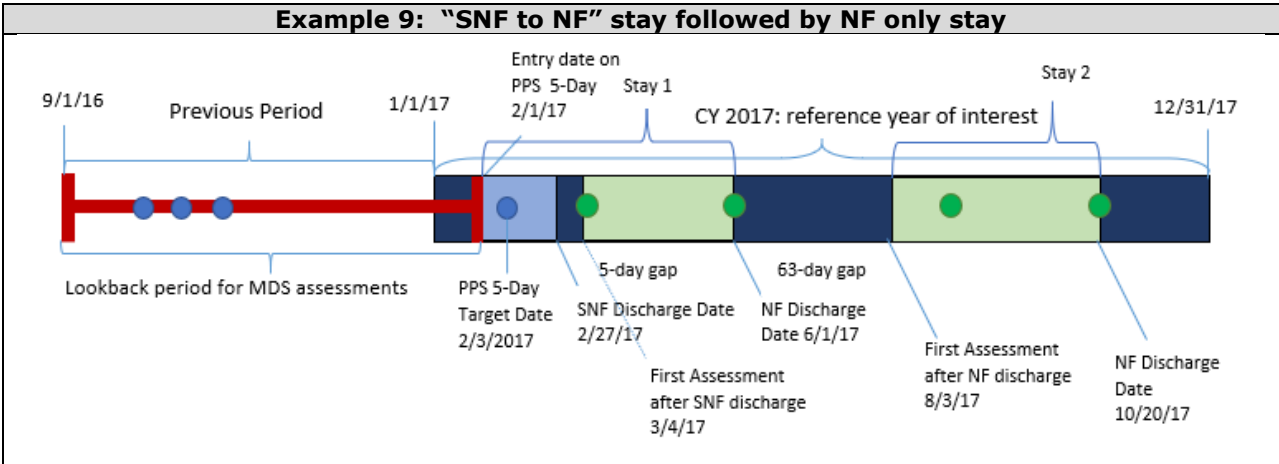
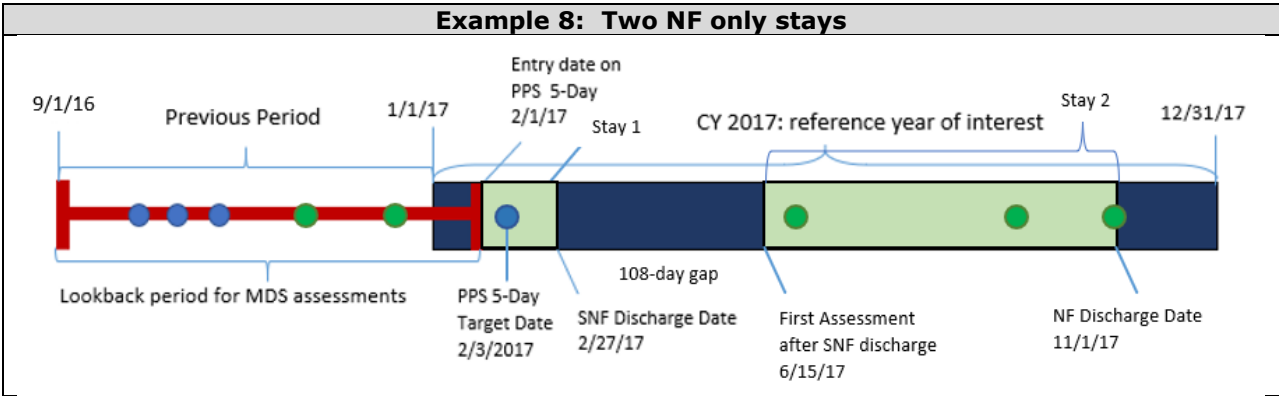
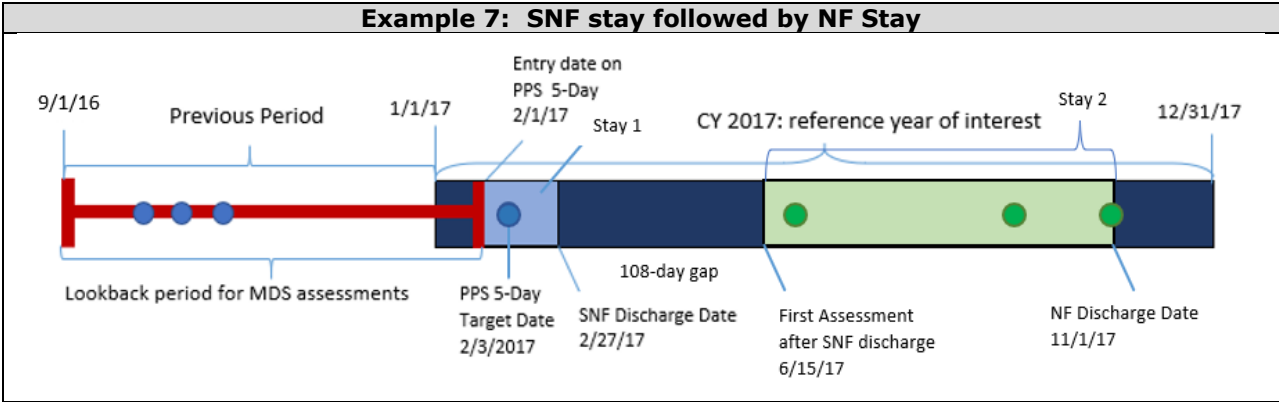
Example 5: PPS 5-day found in CY 2017; Quarterly/Annual MDS Assessment found in lookback period (SNF=0, NF=1)--"PPS assessments within NF"



A.3 Multiple Stays

Example 6: Two NF only stays





Appendix B: Methods

B.1 Data Sources and Analytic File Construction

A single resident-level analytic file was created that includes all variables needed to conduct this research by merging stay-level MDS data with corresponding MBSF and FFS data for that resident and POS data for the facility at which the stay occurred. Data from CY 2012 to 2017 was included for each source.

We defined the population for each year as all residents with at least one nursing home stay in that year. A nursing home resident can have multiple stays. For each stay, we assigned discharge status as not discharged, discharged live or death, based on information in the MDS discharge assessment.

MDS data was used to identify the characteristics of residents discharged live and not discharged from nursing facilities. We included MDS items in our analysis pertaining to behavioral symptoms, psychiatric and mood disorders, Alzheimer's and other dementia diagnoses, suicidal thought and mood distress. We also constructed an Aggregate Behavioral Score, ADL Score and Cognitive Function Score for each resident. We created one set of variables capturing the value of characteristics at end of stay (assessed at discharge or the last MDS assessment). We then compared the value of each MDS item at the end of stay to the earliest value observed, up to 1 year prior to discharge. We created a second set of variables for each characteristic indicating whether the resident increased in the severity or acquired a new diagnosis.

To supplement MDS data, we used MBSF to capture Medicaid eligibility at end of stay. We also noted whether a resident change from none or partial Medicaid eligibility to full Medicaid eligibility over the 3 months and 6 months prior to discharge. MBSF data was also used identify residents that only had health maintenance organization.

We used POS data to obtain facility characteristics, including state, profit status, urban-rural status, chain status, bed count and changes in ownership.

Using FFS inpatient and outpatient claims data, we identified hospitalizations post-discharge, defined as the presence of an inpatient claim in the year following discharge. We identified outpatient acute care use by the presence of an outpatient claim with a revenue charge code indicating emergency department visits or observation stays in the year following discharge. Claims dates were used to determine when outcomes occurred relative to discharge. Lastly, we examined death date of the beneficiary, identified from MBSF data, to determine the presence and timing of death.

B.2 Data Analysis by Research Question

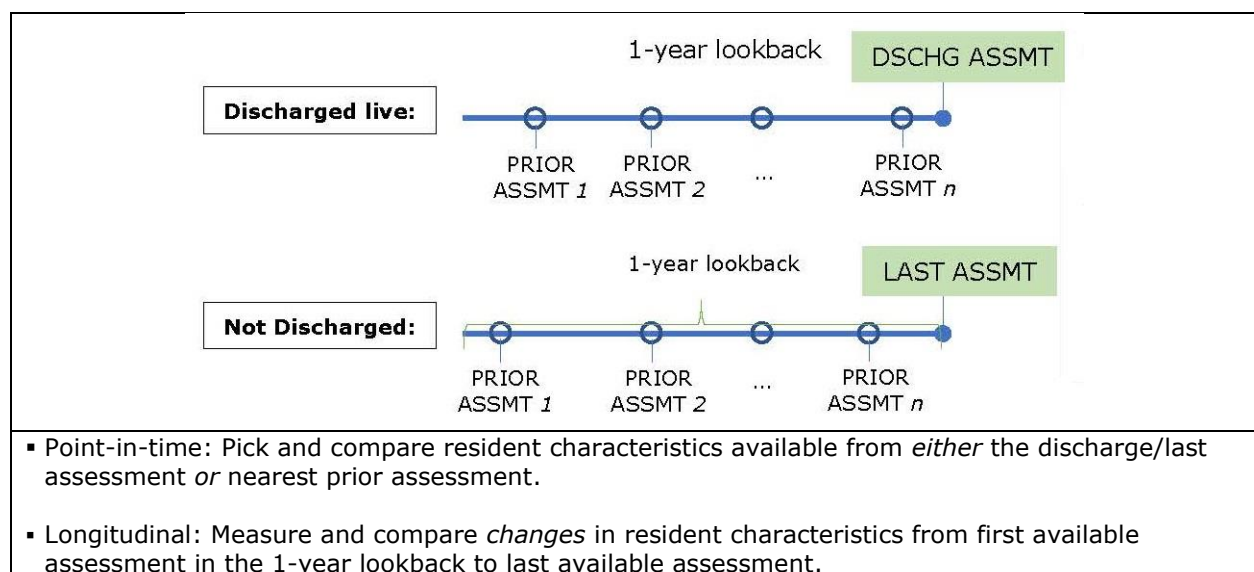
- Unit of Analysis: Stay
- Analysis: Descriptive

RQ1: Nationally, what are the characteristics of residents who are discharged live from nursing homes, compared to residents who remain in the facility? What percentage of residents who are discharged live demonstrate such risk factors for live discharge, relative to the percentage among residents who remain in the facility? How have such risk factors for live discharges changed over time?

The first objective for this work was to identify the association between resident characteristics and live discharge. To address this objective, we conducted descriptive analyses comparing the prevalence of characteristics among residents discharged live and not discharged.

For nursing facility analysis, we were interested in the characteristics associated with two outcomes at the end of the nursing facility stay in each year: being discharged live or remaining in the facility. We compared the characteristics of residents discharged live at point of discharge and residents not discharged at point of last assessment. We looked at both the prevalence of characteristics at end of stay (point-in-time analysis) and changes in the characteristics in the time leading to discharge (longitudinal analysis). A diagram of nursing facility analyses is shown below.

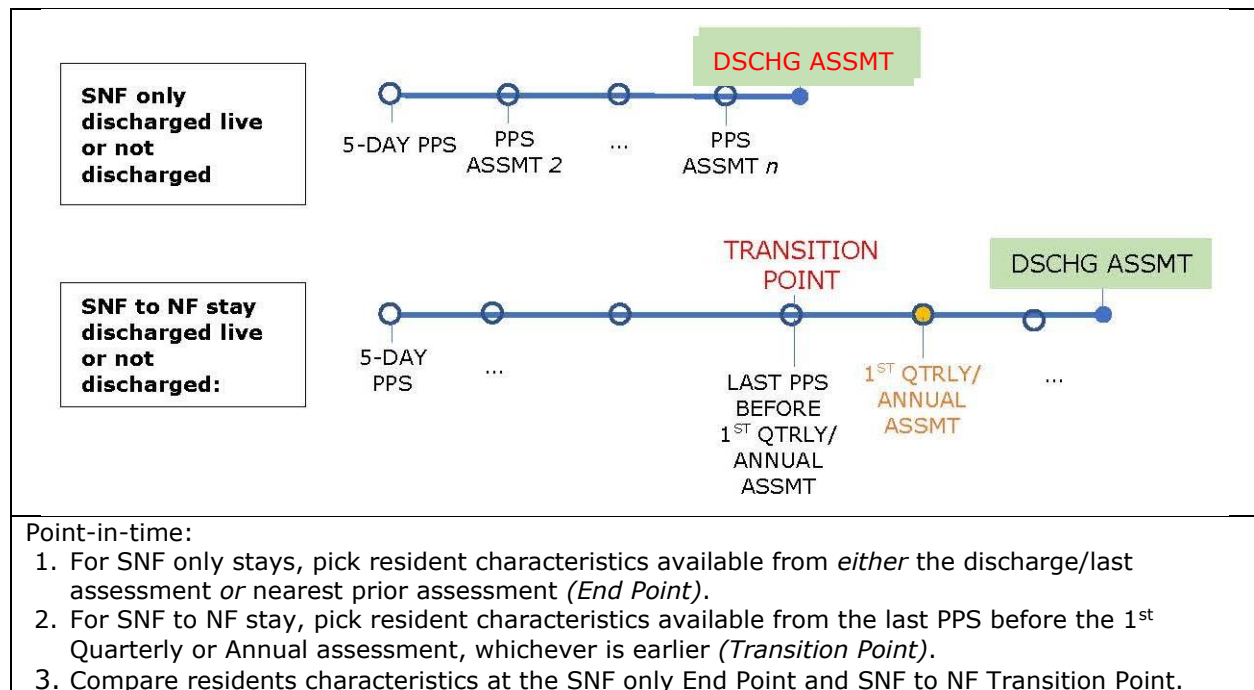
1. Nursing Facility stay alone (SNF=0, NF=1):



For SNF analysis, we were interested in the characteristics associated with two potential outcomes at the end of SNF stays: being discharged live or transiting to nursing facility care

in the same facility. We compared the characteristics of residents discharged live at time of discharge and residents transitioning to nursing facility care at transition point. We defined the transition point as the last MDS PPS assessment (required as part of Medicare-covered SNF care) before the first Quarterly assessment (indicating that the resident has been in the facility for at least a quarter and thus likely to have started nursing facility care). For SNF, we only conducted point-in-time analysis due to the short duration of SNF stays. A diagram of SNF analyses is shown below.

2. Transition Point Analysis (SNF=1, NF=0 versus SNF=1, NF=1).



For both nursing facility and SNF analyses related Medicaid eligibility, we limited residents to those with MBSF data, an approach continued in subsequent analyses.

We considered a characteristic to be a risk factor for potentially questionable discharges if the characteristic was identified in literature and was more prevalent among residents who were discharged live than among those who remained in the facility. Likewise, we also considered an undesirable change in a characteristic (such as a new disease diagnosis or transition to Medicaid eligibility) to be a potential risk factor if the characteristic was identified in literature and showed higher prevalence among residents who were discharged live than not discharged. Characteristics were considered general risk factors for live discharge if they did not appear in the literature as a potential risk factor for FIDs but were more prevalent among residents discharged live.

We calculated the difference in prevalence of each risk factor between residents discharged live and not discharged and compared the direction and size of the difference across years. A positive difference indicates a characteristic is more prevalent among residents discharged live than not discharged, while a negative difference indicates the characteristic is less prevalent among residents discharged live. The size of the difference in prevalence indicates how much more or less prevalent the characteristic is among residents discharged live than residents not discharged.

RQ2: What are the differences in characteristics among residents discharged live across all states and types of facilities (e.g., for-profit vs. non-profit; chain vs. non-chain)?

Our second objective was to assess how relationship between resident characteristics varied by state and facility type. To address this objective, we limited analyses to the risk factors identified in RQ1. For each risk factors, we examined both version (end of stay and change over time), even if only one version was found to be more prevalent among residents discharged live than not discharged. We also limited analyses to nursing facility residents since no risk factors were identified among SNF residents. For each year of analysis, we included only stays that had matching POS data for that year.

We conducted descriptive analyses to assess the prevalence of risk factors within each state and for each facility type characteristic. Using the same method as our across years analysis, we compared the difference in prevalence of each risk factor between residents discharged live and not discharged and compared the direction and size of the difference across states and facility types.

Lastly, we compared the prevalence of risk factors among residents in active and terminated facilities. We focused on the characteristics of residents discharged live from each facility type as the majority of residents were discharged live from terminated facility, and thus the populations of residents discharged live and not discharged were not comparable.

RQ3: Do post-discharge outcomes (e.g., risk of death, worsening health condition leading to hospitalization or emergency department visits) differ among residents discharged live with and without risk factors for live discharge?

The last objective of this research was to determine the outcomes of residents discharged live with and without risk factors. To answer this objective, we focused on hospitalization, outpatient acute care and mortality. We examined three timeframes: from zero to one day

after discharge, from 2 days to 30 days after discharge and across the full 30 days after discharge.

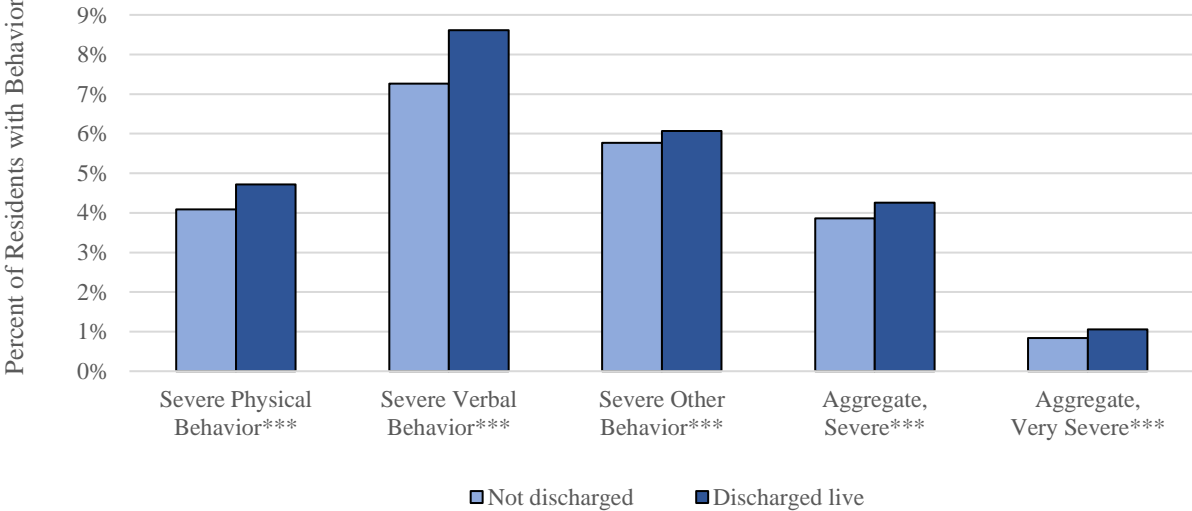
First, we examined hospitalization, outpatient acute care and mortality of all residents discharged live over the three timeframes. We combined hospitalizations and outpatient acute care to determine overall acute care use across each timeframe to distinguish resident who directly to acute care and residents went first to a community or non-acute setting and then acute care. We also examined mortality for residents experiencing acute care within each timeframe and compared the acute care use of residents discharged live from active and residents discharged live from terminated facility.

Next, we examined the characteristics of residents experiencing hospitalization and outpatient acute care. We compared the rate of hospitalization among residents with and without each risk factor across the three timeframes. We repeated this analysis looking at outpatient acute care.

Lastly, we analyzed the MDS item on discharge location, comparing the prevalence of each risk factor among discharges to each setting.

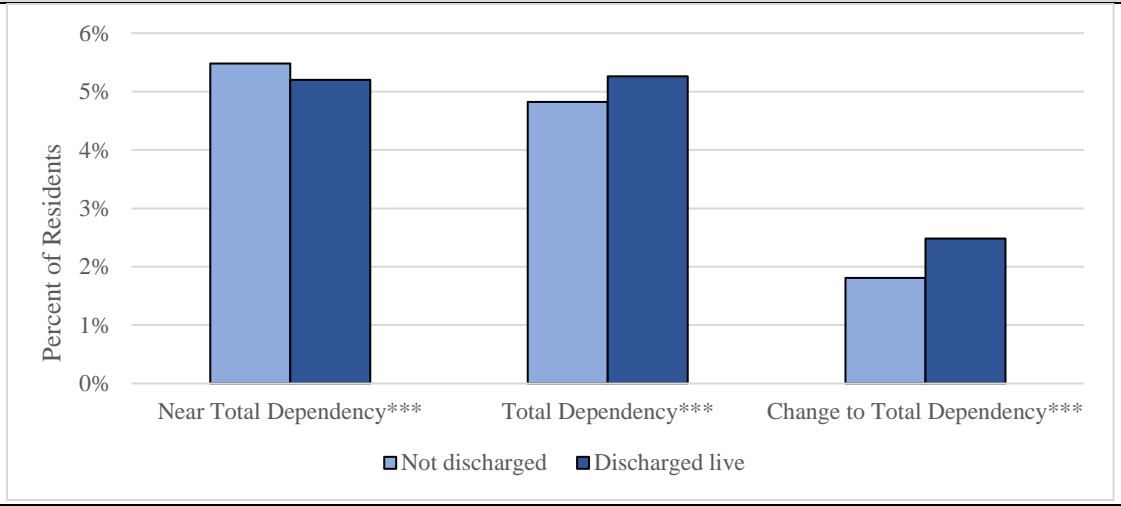
Appendix C: Additional Graphs and Data Tables for Risk Factors

Figure C-1. Behavioral Symptoms at End of NF Stay by Discharge Status, 2017



Difference between acute care usage groups statistically significant at the p=0.001 level.

Figure C-2. Dependency for ADL at End of NF Stay and Change over the Past Year by Discharge Status, 2017



Difference between acute care usage groups statistically significant at the p=0.001 level.

Table C-1. NF Resident Characteristics, 2012-2017

	NF Residents (Assessed at Discharge or Last MDS Assessment)											
	Not discharged						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Demographics												
Number	921,487	911,665	908,660	902,022	895,544	885,788	223,182	221,037	222,628	221,849	222,163	223,522
% of all NF residents	67.18%	66.97%	66.88%	66.50%	66.56%	65.85%	16.27%	16.24%	16.39%	16.36%	16.51%	16.62%
Male***	31.04%	31.52%	32.10%	32.85%	33.33%	33.95%	41.12%	41.68%	42.56%	42.74%	43.38%	43.59%
Female	68.96%	68.48%	67.90%	67.15%	66.67%	66.05%	58.88%	58.32%	57.44%	57.26%	56.62%	56.41%
White only non-Hispanic***	76.35%	75.97%	75.32%	74.88%	74.55%	74.08%	70.08%	70.08%	69.39%	69.13%	68.74%	68.57%
Black only non-Hispanic	14.54%	14.73%	14.82%	15.09%	15.30%	15.58%	18.66%	18.38%	18.51%	18.69%	19.03%	19.14%
Hispanic	5.09%	5.28%	5.38%	5.49%	5.57%	5.69%	6.60%	6.78%	6.66%	6.72%	6.86%	6.94%
Other non-Hispanic	4.02%	4.02%	4.47%	4.55%	4.58%	4.64%	4.66%	4.75%	5.44%	5.45%	5.37%	5.35%
Age <65***	15.87%	16.04%	16.11%	16.53%	16.50%	16.67%	24.76%	25.31%	25.68%	25.86%	26.67%	26.17%
Age 65-75	14.28%	14.90%	15.57%	16.34%	16.95%	17.77%	17.65%	18.69%	19.47%	20.21%	21.08%	21.76%
Age 75-85	26.16%	25.83%	25.51%	25.29%	25.37%	25.66%	26.53%	26.03%	25.76%	25.26%	24.94%	25.05%
Age 85-95	35.44%	34.92%	34.48%	33.46%	32.69%	31.54%	26.67%	25.79%	24.99%	24.51%	23.16%	22.85%
Age ≥95	8.25%	8.31%	8.33%	8.37%	8.47%	8.35%	4.39%	4.17%	4.08%	4.16%	4.13%	4.16%
Dual Status												
Partial Medicaid eligibility at End of Stay***	0.44%	0.30%	0.31%	0.32%	0.38%	0.39%	1.07%	1.14%	1.19%	1.29%	1.27%	1.25%
Full Medicaid eligibility at End of Stay***	84.27%	84.49%	84.50%	84.59%	84.83%	84.90%	72.24%	71.78%	71.61%	71.78%	72.92%	73.51%
Transition to Medicaid eligibility in the last 3 months***	1.49%	1.51%	1.48%	1.64%	1.56%	1.62%	2.55%	2.30%	2.37%	2.41%	2.58%	2.69%
Transition to Medicaid eligibility in the last 6 months***	3.64%	3.77%	3.78%	4.03%	3.95%	4.30%	7.20%	7.07%	7.30%	7.40%	7.69%	7.87%
Transition to Medicaid eligibility in the last year. ***	19.96%	20.75%	20.14%	20.37%	20.57%	20.75%	14.50%	14.73%	14.77%	15.10%	15.55%	15.87%

(continued)

Table C-1. NF Resident Characteristics, 2012-2017 (continued)

	NF Residents (Assessed at Discharge or Last MDS Assessment)											
	Not discharged						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Behavior												
Severe Physical Behavior***	5.12%	5.01%	4.82%	4.49%	4.35%	4.09%	5.28%	5.46%	5.57%	5.02%	4.96%	4.72%
Severe Verbal Behavior***	8.79%	8.62%	8.32%	8.08%	7.59%	7.26%	9.43%	9.60%	9.50%	9.02%	8.98%	8.61%
Severe Behavior, Other***	8.16%	7.92%	7.46%	6.91%	6.25%	5.77%	7.88%	7.78%	7.51%	6.90%	6.43%	6.07%
None or Minimal Aggressive Behavior, Aggregate ¹ ***	79.50%	79.88%	80.65%	81.56%	82.55%	83.34%	79.75%	80.21%	80.47%	81.46%	81.91%	82.55%
Moderate Aggressive Behavior, Aggregate*	13.19%	13.16%	12.99%	12.68%	12.29%	11.97%	12.53%	12.23%	12.28%	12.24%	12.25%	12.12%
Severe Aggressive Behavior, Aggregate***	5.76%	5.51%	5.09%	4.66%	4.22%	3.86%	5.88%	5.75%	5.55%	4.93%	4.64%	4.26%
Very Severe Aggressive Behavior, Aggregate***	1.54%	1.44%	1.28%	1.09%	0.94%	0.84%	1.84%	1.82%	1.72%	1.37%	1.21%	1.06%
Behavior Change over the Past year												
Physical Behavior to Severe***	3.15%	3.17%	3.09%	2.92%	2.87%	2.73%	3.77%	4.10%	4.24%	3.89%	3.91%	3.70%
Verbal Behavior to Severe***	4.99%	5.00%	4.91%	4.86%	4.61%	4.51%	5.98%	6.44%	6.41%	6.25%	6.30%	6.11%
Other Behavior to Severe***	4.62%	4.54%	4.31%	4.09%	3.75%	3.50%	5.04%	5.12%	5.03%	4.78%	4.52%	4.38%
ABS from Mild or None to Severe***	3.50%	3.44%	3.17%	2.96%	2.73%	2.54%	4.07%	4.14%	4.02%	3.63%	3.50%	3.22%
ABS from Mild, None or Severe to Very Severe***	1.01%	0.95%	0.83%	0.73%	0.63%	0.56%	1.40%	1.42%	1.35%	1.09%	0.99%	0.89%
ABS Mean Point Change (out of 12 points)***	0.011	0.017	0.003	-0.001	-0.002	0.001	0.076	0.089	0.090	0.075	0.078	0.075

(continued)

Table C-1. NF Resident Characteristics, 2012-2017 (continued)

	NF Residents (Assessed at Discharge or Last MDS Assessment)											
	Not discharged						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Diagnoses												
Alzheimer's Disease and Non-Alzheimer's Dementia***	58.04%	57.76%	57.48%	57.20%	57.15%	56.54%	42.39%	41.69%	40.91%	40.37%	40.06%	39.36%
Anxiety***	27.16%	28.70%	30.13%	31.18%	32.33%	32.71%	25.85%	27.73%	28.94%	30.08%	30.85%	31.58%
Depression***	53.79%	53.74%	53.82%	53.20%	52.93%	53.09%	49.72%	49.83%	49.92%	50.00%	49.54%	49.38%
Manic Depression (Bipolar Disorder)***	5.10%	5.40%	5.67%	5.83%	6.06%	6.37%	5.89%	6.39%	6.61%	6.85%	7.24%	7.28%
Psychotic Disorder (other than Schizophrenia)***	13.31%	13.10%	12.70%	11.89%	11.12%	10.45%	10.84%	11.21%	10.67%	10.08%	9.29%	8.45%
Schizophrenia***	8.23%	8.54%	8.76%	9.35%	9.90%	10.59%	7.94%	8.19%	8.44%	8.54%	9.53%	9.82%
PTSD***	0.32%	0.38%	0.45%	0.53%	0.65%	0.76%	0.47%	0.58%	0.65%	0.77%	0.95%	1.16%
New Diagnoses over the Past Year												
Alzheimer's Disease and Non-Alzheimer's Dementia	6.85%	6.63%	6.43%	6.98%	5.98%	5.59%	6.89%	6.82%	6.45%	6.32%	6.22%	5.53%
Anxiety***	6.91%	6.78%	6.81%	7.09%	6.75%	6.52%	7.81%	8.29%	8.19%	8.26%	8.22%	8.04%
Depression***	8.63%	8.23%	8.05%	8.30%	7.73%	7.78%	10.62%	10.03%	9.89%	9.80%	9.44%	9.15%
Manic Depression (Bipolar Disorder)***	1.08%	1.05%	1.09%	1.15%	1.11%	1.10%	1.67%	1.84%	1.73%	1.79%	1.88%	1.77%
Psychotic Disorder (other than Schizophrenia)***	4.79%	3.90%	3.67%	3.98%	2.99%	2.74%	4.40%	4.35%	3.73%	3.68%	3.41%	2.88%
Schizophrenia***	0.91%	0.91%	0.89%	1.19%	1.27%	1.32%	1.00%	1.11%	1.12%	1.22%	1.61%	1.62%
PTSD***	0.10%	0.10%	0.11%	0.13%	0.15%	0.16%	0.16%	0.18%	0.20%	0.21%	0.26%	0.28%

(continued)

Table C-1. NF Resident Characteristics, 2012-2017 (continued)

	NF Residents (Assessed at Discharge or Last MDS Assessment)											
	Not discharged						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Other Characteristic												
Severe Urinary Incontinence***	65.55%	65.53%	65.76%	66.01%	66.28%	66.36%	57.91%	57.36%	56.64%	57.00%	56.78%	57.46%
Severe Bowel Incontinence***	52.67%	53.44%	54.47%	55.37%	55.47%	57.26%	49.21%	49.30%	49.69%	50.80%	50.05%	52.53%
None or Minimal Mood Distress ² ***	73.35%	74.15%	74.90%	75.83%	76.75%	77.69%	72.52%	74.43%	75.46%	76.65%	77.56%	78.62%
Mild Mood Distress***	12.73%	12.17%	11.70%	11.04%	10.42%	9.88%	13.48%	12.80%	12.05%	11.53%	10.87%	10.36%
Moderate Mood Distress***	4.52%	4.56%	4.50%	4.35%	4.17%	3.81%	5.06%	4.79%	4.83%	4.56%	4.53%	4.13%
Moderately Severe Mood Distress***	1.18%	1.10%	1.03%	0.95%	0.82%	0.77%	1.49%	1.34%	1.26%	1.13%	1.01%	0.92%
Severe Mood Distress***	0.25%	0.22%	0.19%	0.18%	0.16%	0.13%	0.33%	0.30%	0.28%	0.24%	0.21%	0.17%
Unable to complete Mood Scale***	7.59%	7.43%	7.32%	7.30%	7.35%	7.37%	6.67%	5.97%	5.73%	5.48%	5.46%	5.46%
Severe Suicidal Thoughts	0.62%	0.52%	0.44%	0.39%	0.35%	0.30%	0.67%	0.51%	0.44%	0.37%	0.32%	0.30%
Independence for ADL***	3.65%	3.26%	2.99%	2.89%	2.67%	2.56%	5.82%	5.32%	4.90%	4.59%	4.62%	4.07%
Near Independence for ADL***	6.16%	5.61%	5.22%	4.93%	4.78%	4.69%	6.78%	6.37%	5.97%	5.64%	5.55%	5.51%
Minimal Dependency for ADL***	7.30%	7.62%	7.80%	8.06%	8.41%	8.72%	8.16%	8.61%	9.38%	9.75%	10.68%	11.25%
Mild Dependency for ADL***	8.19%	8.33%	8.30%	8.32%	8.50%	8.66%	8.49%	8.53%	8.94%	8.78%	8.89%	9.26%
Moderate Dependency for ADL***	12.46%	12.66%	12.52%	12.52%	12.71%	12.82%	12.07%	12.46%	12.61%	12.54%	12.53%	12.51%
Severe Dependency for ADL***	27.37%	28.98%	30.40%	31.44%	31.26%	32.67%	24.57%	26.07%	27.05%	28.14%	28.36%	28.88%
Very Severe Dependency for ADL***	19.35%	19.29%	19.76%	19.94%	19.76%	19.58%	17.68%	17.94%	18.09%	18.31%	18.25%	18.06%

(continued)

Table C-1. NF Resident Characteristics, 2012-2017 (continued)

	NF Residents (Assessed at Discharge or Last MDS Assessment)											
	Not discharged						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Nearly Total Dependency for all ADL***	7.70%	7.18%	6.63%	6.17%	5.78%	5.48%	7.35%	6.82%	6.19%	5.86%	5.50%	5.20%
Total Dependency or Other***	7.80%	7.07%	6.37%	5.73%	5.22%	4.82%	9.07%	7.87%	6.86%	6.39%	5.65%	5.26%
No Cognitive Impairment ⁴ ***	20.27%	20.11%	20.97%	21.53%	22.32%	22.62%	19.44%	16.98%	18.33%	19.61%	20.62%	20.62%
Mild Cognitive Impairment***	25.07%	25.89%	26.10%	26.57%	26.78%	27.30%	33.89%	37.06%	37.35%	37.10%	37.35%	37.75%
Moderate Cognitive Impairment***	40.81%	40.85%	40.31%	39.81%	39.33%	38.96%	36.80%	37.03%	36.03%	35.12%	34.19%	34.10%
Severe Cognitive Impairment***	9.93%	9.42%	8.89%	8.31%	7.72%	7.31%	6.83%	6.24%	5.74%	5.62%	5.25%	4.97%
Other Characteristics Change over the Past Year												
Urinary Continence to Severe***	10.01%	9.71%	9.86%	9.81%	9.71%	9.51%	11.51%	11.19%	10.90%	10.85%	10.65%	10.86%
Bowel Continence to Severe***	11.45%	11.45%	11.71%	11.73%	11.67%	11.66%	12.49%	12.40%	12.51%	12.65%	12.44%	12.62%
Mood Score Mean Point Change (Range 0-27 points)***	-0.086	-0.073	-0.063	-0.089	-0.105	-0.103	-0.329	-0.399	-0.355	-0.382	-0.358	-0.367
Suicidal Thoughts to Severe***	0.40%	0.35%	0.30%	0.27%	0.24%	0.21%	0.44%	0.35%	0.32%	0.27%	0.22%	0.21%
ADL Mean Point Change (Range 0-28 points)***	0.814	0.642	0.615	0.520	0.429	0.405	0.067	-0.182	-0.350	-0.392	-0.542	-0.577
ADL to Total Dependency or Other***	2.77%	2.49%	2.26%	2.10%	1.97%	1.81%	4.19%	3.66%	3.16%	2.98%	2.69%	2.48%
CFS Mean Point Change (Range 0-3 points)***	0.040	0.044	0.041	0.043	0.043	0.044	0.126	0.123	0.121	0.120	0.120	0.123

(continued)

Table C-1. NF Resident Characteristics, 2012-2017 (continued)

	NF Residents (Assessed at Discharge or Last MDS Assessment)											
	Not discharged						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Significant Change Assessment in Last 2 months***						6.01%						5.77%

*/**/** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001 (based on 2017).

¹Aggregate Aggressive Behavior was assessed using the Aggressive Behavioral Scale (ABS).

²Mood Distress was assessed using the Mood Scale on the MDS.

³Could also indicate resident did not perform ADL or non-facility caregiver.

⁴Cognitive impairment was assessed using the Cognitive Function Scale.

Table C-2. SNF Resident Characteristics, 2012-2017

	SNF Residents (Assessed at the End of SNF Stay)											
	Transitioned to NF Care						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Demographics												
Number	218,203	218,238	212,303	212,322	201,057	189,475	1,433,244	1454,631	1,443,746	1,423,123	1,423,123	1,363,689
Male	33.35%	34.06%	34.78%	35.02%	35.51%	36.21%	37.68%	38.44%	38.80%	39.30%	39.65%	40.18%
Female	58.24%	57.63%	56.97%	56.59%	55.74%	54.87%	62.31%	61.56%	61.20%	60.70%	60.35%	59.82%
White only non-Hispanic	71.39%	71.03%	69.86%	69.79%	69.00%	68.52%	83.44%	82.53%	81.46%	81.87%	81.40%	81.39%
Black only non-Hispanic	11.97%	12.03%	12.22%	12.54%	12.98%	13.14%	8.95%	9.10%	9.16%	9.24%	9.54%	9.47%
Hispanic	4.73%	4.59%	4.69%	4.72%	4.70%	4.79%	3.49%	3.53%	3.54%	3.47%	3.56%	3.54%
Other non-Hispanic	3.50%	4.05%	4.98%	4.56%	4.57%	4.63%	4.11%	4.84%	5.84%	5.42%	5.50%	5.60%
Age <65	10.23%	10.52%	11.22%	10.71%	11.28%	11.17%	10.93%	11.03%	11.00%	10.31%	10.29%	9.79%
Age 65-75	16.77%	17.39%	18.43%	18.90%	19.95%	20.79%	23.49%	24.25%	24.88%	25.04%	25.70%	25.70%
Age 75-85	28.81%	28.35%	27.87%	27.76%	27.48%	27.14%	35.12%	34.49%	33.99%	33.72%	33.44%	33.47%
Age 85-95	31.20%	30.87%	29.73%	29.56%	27.91%	27.16%	27.70%	27.42%	27.25%	27.80%	27.34%	27.51%
Age ≥95	4.57%	4.55%	4.48%	4.69%	4.62%	4.81%	2.72%	2.78%	2.85%	3.11%	3.21%	3.53%
Dual Status												
Partial Dual at End of Stay	2.90%	2.97%	3.20%	3.50%	3.47%	3.43%	4.85%	4.95%	5.07%	5.07%	5.08%	4.99%
Full Dual at End of Stay	48.44%	48.13%	48.66%	48.42%	49.42%	49.95%	17.39%	17.33%	17.46%	17.36%	17.52%	17.52%
Change to Partial Dual During SNF Stay	0.19%	0.17%	0.21%	0.20%	0.18%	0.21%	0.09%	0.09%	0.11%	0.11%	0.10%	0.10%
Change to Full Dual During SNF Stay	8.61%	8.19%	8.16%	8.26%	8.51%	8.44%	1.11%	1.04%	1.04%	1.04%	1.03%	1.00%

(continued)

Table C-2. SNF Resident Characteristics, 2012-2017 (continued)

	SNF Residents (Assessed at the End of SNF Stay)											
	Transitioned to NF Care						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Behavior												
Severe Physical Behavior	4.03%	3.91%	3.72%	3.27%	3.27%	3.06%	1.52%	1.49%	1.47	1.36%	1.32%	1.31%
Severe Verbal Behavior	6.49%	6.28%	6.17%	5.78%	5.57%	5.44%	2.72%	2.66%	2.64%	2.62%	2.54%	2.52%
Severe Behavior, Other	5.91%	5.58%	5.38%	4.85%	4.51%	4.28%	2.12%	2.08%	2.05%	1.91%	1.83%	1.76%
None or Minimal Aggressive Behavior, Aggregate ¹	83.51%	84.11%	84.55%	85.48%	86.02%	86.50%	92.40%	92.69%	92.78%	93.00%	93.19%	93.35%
Moderate Aggressive Behavior, Aggregate	11.05%	10.94%	10.82%	10.49%	10.37%	10.18%	5.52%	5.41%	5.46%	5.44%	5.35%	5.30%
Severe Aggressive Behavior, Aggregate	4.34%	3.97%	3.73%	3.34%	3.00%	2.79%	1.67%	1.56%	1.45%	1.30%	1.23%	1.14%
Very Severe Aggressive Behavior, Aggregate	1.10%	0.98%	0.90%	0.69%	0.62%	0.54%	0.41%	0.35%	0.31%	0.27%	0.23%	0.22%
Diagnoses												
Alzheimer's Disease and Non-Alzheimer's Dementia	39.64%	39.55%	38.18	37.77%	37.17%	36.97%	16.57%	16.57%	16.33%	16.49%	16.37%	16.57%
Anxiety	21.88%	22.88%	23.68%	23.80%	23.92%	23.33%	17.59%	18.55%	19.21%	19.59%	19.79%	19.61%
Depression	40.09%	39.73%	40.04%	39.70%	39.47%	39.16%	29.21%	29.56%	30.05%	30.23%	30.15%	30.58%
Manic Depression (Bipolar Disorder)	3.14%	3.48%	3.64%	3.69%	3.82%	3.89%	2.18%	2.22%	2.33%	2.36%	2.34%	2.35%
Psychotic Disorder	5.63%	5.45%	5.24%	4.95%	4.05%	3.88%	2.34%	2.39%	2.29%	2.04%	1.68%	1.63%
Schizophrenia	3.22%	3.34%	3.43%	3.45%	4.34%	4.62%	1.21%	1.27%	1.31%	1.37%	1.55%	1.64%
PTSD	0.26%	0.35%	0.38%	0.49%	0.56%	0.68%	0.24%	0.28%	0.33%	0.38%	0.45%	0.50%

(continued)

Table C-2. SNF Resident Characteristics, 2012-2017 (continued)

	SNF Residents (Assessed at the End of SNF Stay)											
	Transitioned to NF Care						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Other Characteristics												
Severe Urinary Incontinence	54.59%	55.08%	55.38%	56.70%	57.11%	58.35%	25.40%	25.47%	25.70%	26.54%	26.99%	28.02%
Severe Bowel Incontinence	42.87%	43.94%	45.43%	47.03%	48.69%	50.56%	19.91%	20.42%	21.38%	22.53%	23.67%	25.02%
None or Minimal Mood Distress ²	72.77%	74.50%	75.56%	77.02%	77.99%	79.25%	79.32%	80.88%	81.81%	82.58%	83.13%	84.04%
Mild Mood Distress	15.78%	14.89%	14.23%	13.42%	12.80%	12.06%	12.45%	11.54%	10.82%	10.21%	9.78%	9.22%
Moderate Mood Distress	5.27%	4.83%	4.62%	4.20%	3.96%	3.53%	3.36%	2.94%	2.65%	2.37%	2.18%	1.99%
Moderately Severe Mood Distress	1.47%	1.28%	1.19%	1.03%	0.94%	0.82%	1.01%	0.83%	0.71%	0.62%	0.55%	0.50%
Severe Mood Distress	0.33%	0.28%	0.24%	0.21%	0.18%	0.16%	0.24%	0.18%	0.15%	0.13%	0.12%	0.11%
Unable to Complete Mood Scale	4.11%	3.93%	3.82%	3.81%	3.80%	3.86%	1.69%	1.56%	1.51%	1.51%	1.53%	1.60%
Severe Suicidal Thoughts	0.69%	0.55%	0.48%	0.42%	0.37%	0.29%	0.35%	0.28%	0.24%	0.20%	0.18%	0.15%
Independence for ADL	1.29%	1.16%	0.96%	0.80%	0.76%	0.74%	3.60%	3.26%	2.86%	2.48%	2.29%	2.30%
Near Independence for ADL	2.78%	2.46%	2.24%	1.95%	1.89%	1.85%	5.76%	5.38%	5.06%	4.66%	4.44%	4.44%
Minimal Dependency for ADL	5.31%	5.19%	5.17%	5.02%	5.18%	5.46%	12.24%	12.57%	12.83%	12.92%	13.43%	14.07%
Mild Dependency for ADL	8.95%	8.84%	8.35%	8.16%	8.16%	8.23%	17.46%	17.35%	17.24%	16.98%	17.17%	17.26%
Moderate Dependency for ADL	16.32%	16.20%	15.90%	15.54%	15.53%	15.91%	21.14%	21.31%	21.28%	21.36%	21.40%	21.52%
Severe Dependency for ADL	40.11%	41.94%	43.51%	45.07%	45.55%	45.78%	28.09%	28.97%	29.97%	31.02%	31.00%	30.46%

(continued)

Table C-2. SNF Resident Characteristics, 2012-2017 (continued)

	SNF Residents (Assessed at the End of SNF Stay)											
	Transitioned to NF Care						Discharged live					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Very Severe Dependency for ADL	17.89%	17.53%	17.75%	17.82%	17.67%	17.05%	8.46%	8.25%	8.07%	8.06%	7.90%	7.65%
Nearly Total Dependency for all ADL	4.27%	3.80%	3.53%	3.32%	3.12%	3.02%	1.77%	1.56%	1.45%	1.34%	1.24%	1.18%
Total Dependency or Other ³	3.09%	2.87%	2.57%	2.31%	2.15%	1.95%	1.51%	1.37%	1.25%	1.19%	1.14%	1.14%
No Cognitive Impairment ⁴	36.73%	37.62%	38.67%	38.73%	40.18%	40.57%	52.67%	52.69%	53.57%	53.57%	54.39%	54.23%
Mild Cognitive Impairment	25.88%	25.93%	25.92%	26.39%	26.14%	26.22%	30.22%	30.32%	29.54%	29.35%	28.70%	28.92%
Moderate Cognitive Impairment	31.39%	30.83%	29.96%	29.67%	28.49%	28.21%	13.32%	13.27%	12.96%	12.96%	12.66%	12.77%
Severe Cognitive Impairment	4.20%	3.93%	3.74%	3.50%	3.45%	3.22%	1.71%	1.55%	1.45%	1.36%	1.30%	1.26%

¹Aggregate Aggressive Behavior was assessed using the Aggressive Behavioral Scale (ABS)

²Mood Distress was assessed using the Mood Scale on the MDS

³Could also indicate resident did not perform ADL or non-facility caregiver

⁴Cognitive impairment was assessed using the Cognitive Function Scale

Table C-3. Differences in Risk Factors for NF Residents

	Difference (Discharged Live-Not Discharged), %					
	2012	2013	2014	2015	2016	2017
Dual Status						
Full Medicaid eligibility at End of Stay	-12.03	-12.71	-12.89	-12.81	-11.91	-11.39
Transition to Medicaid eligibility in last 3 months	1.06	0.79	0.89	0.77	1.02	1.07
Transition to Medicaid eligibility in last 6 months	3.56	3.30	3.52	3.37	3.74	3.57
Behavior						
Severe Physical Behavior	0.16	0.45	0.75	0.53	0.61	0.63
Severe Verbal Behavior*	0.64	0.98	1.18	0.94	1.39	1.35
Severe Behavior, Other**	-0.28	-0.14	0.05	-0.01	0.18	0.30
Severe Aggressive Behavior, Aggregate	0.12	0.24	0.46	0.27	0.42	0.40
Very Severe Aggressive Behavior, Aggregate	0.30	0.38	0.44	0.28	0.27	0.22
Behavior Change over the Past Year						
Physical Behavior to Severe	0.62	0.93	1.15	0.97	1.04	0.97
Verbal Behavior to Severe*	0.99	1.44	1.50	1.39	1.69	1.60
Other Behavior to Severe**	0.42	0.58	0.72	0.69	0.77	0.88
ABS from Mild or None to Severe	0.57	0.70	0.85	0.67	0.77	0.68
ABS from Mild, None or Severe to Very Severe	0.39	0.47	0.52	0.36	0.36	0.33
Diagnoses						
Anxiety	-1.31	-0.97	-1.19	-1.10	-1.48	-1.13
Depression	-4.07	-3.91	-3.90	-3.20	-3.39	-3.71
Manic Depression (Bipolar Disorder)	0.79	0.99	0.94	1.02	1.18	0.91
Psychotic Disorder	-2.47	-1.89	-2.03	-1.81	-1.83	-2.00
Schizophrenia	-0.29	-0.35	-0.32	-0.81	-0.37	-0.77
PTSD***	0.15	0.20	0.20	0.24	0.30	0.40
New Diagnoses over the Past Year						
Anxiety	0.90	1.51	1.38	1.17	1.47	1.52
Depression*	1.99	1.80	1.84	1.50	1.71	1.37
Manic Depression (Bipolar Disorder)	0.59	0.79	0.64	0.64	0.77	0.67
Psychotic Disorder (other than Schizophrenia)	-0.39	0.45	0.06	-0.30	0.42	0.14
Schizophrenia	0.09	0.20	0.23	0.03	0.34	0.30
PTSD***	0.06	0.08	0.09	0.08	0.11	0.12
Severe Urinary Incontinence	-7.64	-8.17	-9.12	-9.01	-9.50	-8.90
Severe Bowel Incontinence*	-3.46	-4.14	-4.78	-4.57	-5.42	-4.73
Total Dependency or Other for all ADL	1.27	0.80	0.49	0.66	0.43	0.44

(continued)

Table C-3. Differences in Risk Factors for NF Residents (continued)

	Difference (Discharged Live-Not Discharged), %					
	2012	2013	2014	2015	2016	2017
Changes in Impairments						
Urinary Continence to Severe	1.50	1.48	1.04	1.04	0.94	1.35
Bowel Continence to Severe	1.04	0.95	0.80	0.92	0.77	0.96
ADL to Total Dependency or Other**	1.42	1.17	0.90	0.88	0.72	0.67
CFS Mean Point Change (Range 0-3 points)	0.086	0.079	0.080	0.077	0.077	0.079

*/**/*** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001

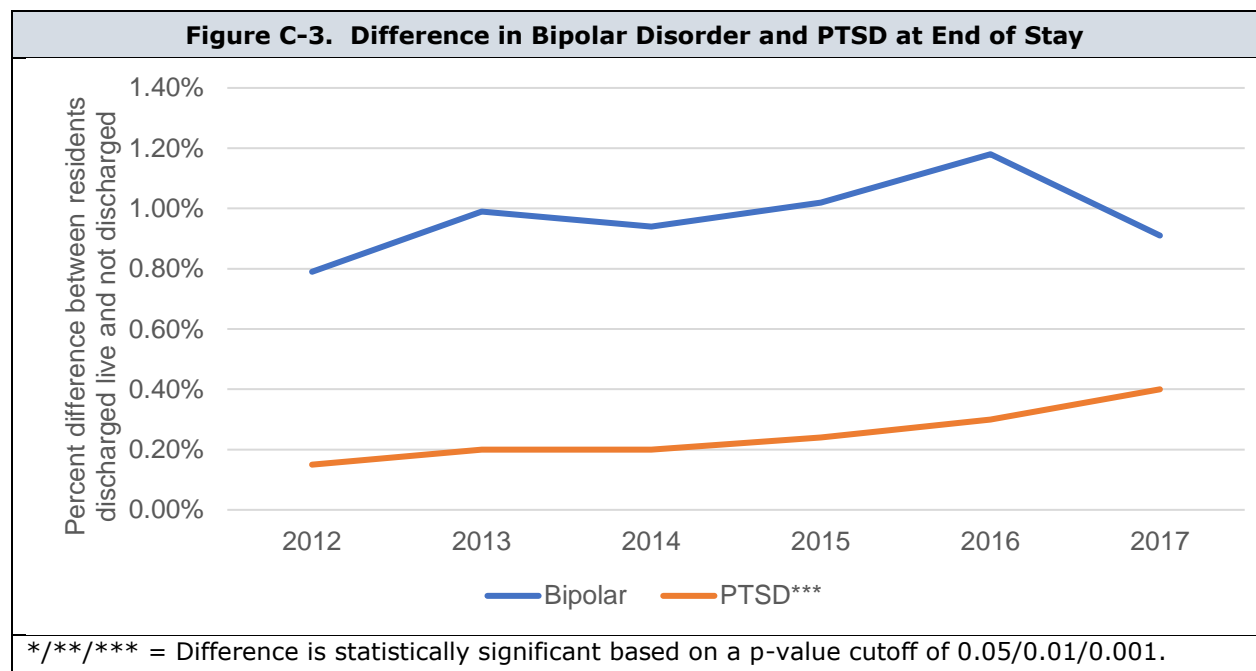
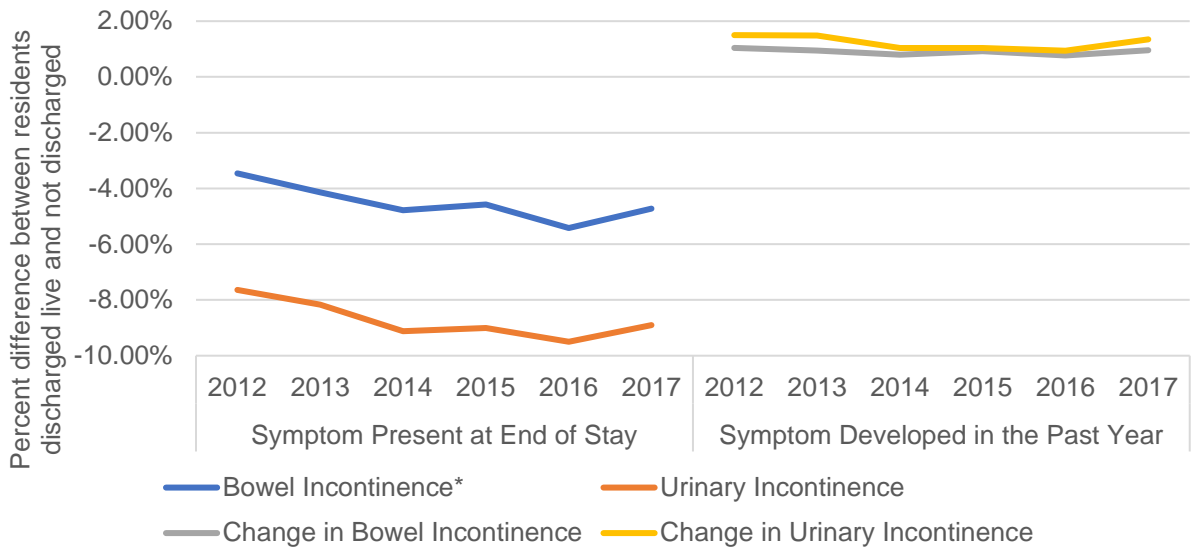
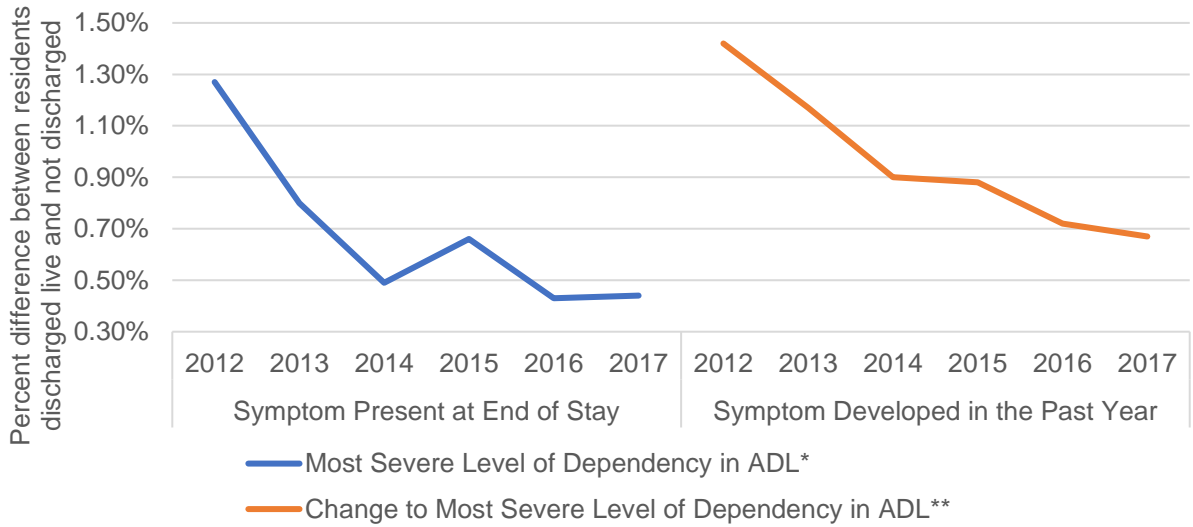


Figure C-4. Difference in Urinary and Bowel Incontinence



*/**/*** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001.

Figure C-5. Difference in the Most Severe Level of Dependency for ADL



*/**/*** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001.

Appendix D: Data Tables for State and Facility Characteristics

Table D-1. Percentage Point Differences in Risk Factors for NF Residents, by States (AL-KS), 2017

	Difference (Discharged Live-Not Discharged)																
	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA	HI	ID	IL	IN	IA	KS
Dual Status																	
Full Medicaid eligibility at End of Stay	-6.37	-10.33	-8.09	-9.06	-14.23	-8.29	-11.03	-4.89	-10.48	-4.18	-11.48	-4.06	-12.99	-13.77	-9.94	-6.37	-6.37
Transition to Medicaid eligibility in last 3 months	1.27	-0.06	0.35	1.62	0.50	0.71	1.17	2.44	2.05	3.00	0.56	0.73	1.84	0.18	3.52	0.28	-0.15
Transition to Medicaid eligibility in last 6 months	1.40	2.09	2.16	5.47	1.51	3.26	3.85	5.18	5.73	8.98	3.90	0.91	6.40	0.83	-1.60	1.40	0.96
Behavior																	
Severe Physical Behavior	3.14	-2.01	0.74	3.30	0.36	0.65	0.25	-0.40	-0.12	0.66	0.53	-0.27	1.04	1.38	1.80	-0.48	2.31
Severe Verbal Behavior	3.04	-9.41	1.39	5.44	0.68	3.51	0.79	-0.74	0.35	1.04	1.13	1.69	3.65	0.90	2.63	1.57	3.52
Severe Behavior, Other	1.53	-5.07	-2.13	2.83	-0.04	0.74	1.06	-0.86	2.22	0.38	-0.17	0.12	2.05	-1.45	1.57	0.82	2.10
Severe Aggressive Behavior, Aggregate	1.58	-1.79	-0.17	2.21	0.06	0.30	0.22	-0.16	-0.28	0.53	0.07	-0.52	2.04	-0.62	1.42	0.71	2.42
Very Severe Aggressive Behavior, Aggregate	0.09	-2.40	0.06	0.87	-0.04	0.85	0.54	-0.19	0.35	0.21	0.50	0.55	0.78	0.18	0.32	0.60	0.70
Behavior Change over the Past Year																	
Physical Behavior to Severe	3.03	1.27	1.35	3.34	0.98	1.06	0.31	0.76	0.47	0.86	1.00	0.27	1.92	1.53	1.61	0.23	2.25
Verbal Behavior to Severe	3.12	-6.45	2.91	4.66	1.27	3.40	1.15	1.22	1.52	1.30	1.74	1.36	2.27	1.46	2.23	1.94	2.76
Other Behavior to Severe	2.02	-2.88	0.37	2.69	0.69	1.48	1.33	2.07	1.90	0.56	0.78	0.51	1.63	0.41	1.73	0.53	1.92
ABS from Mild or None to Severe	1.75	-0.48	1.35	2.23	0.53	0.77	0.43	0.80	0.47	0.76	0.70	0.34	1.28	0.36	1.31	0.61	1.97

(continued)

Table D-1. Percentage Point Differences in Risk Factors for NF Residents, by States (AL-KS), 2017 (continued)

	Difference (Discharged Live-Not Discharged)																
	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA	HI	ID	IL	IN	IA	KS
ABS from Mild, None or Severe to Very Severe	0.14	-1.97	0.36	0.93	0.16	0.91	0.56	-0.16	0.00	0.26	0.83	0.63	0.92	0.33	0.25	0.59	0.76
Diagnoses																	
Anxiety	-1.02	1.68	-1.23	-0.38	1.27	-1.37	-3.33	-0.47	-3.78	-0.53	-3.97	-1.04	-1.10	-0.86	0.94	-3.24	-0.67
Depression	-0.61	-2.67	-4.57	0.34	-2.65	-1.94	-5.16	-1.76	-3.64	-4.40	-6.63	-4.92	-3.58	-3.30	-1.12	-3.24	-1.57
Manic Depression (Bipolar Disorder)	0.70	-1.65	-0.25	0.48	0.76	0.69	0.60	0.19	-0.08	0.89	0.04	-1.25	-0.94	0.91	0.78	0.34	0.69
Psychotic Disorder	-1.64	-1.65	-2.36	-2.41	-1.30	-0.88	-1.36	-3.32	-3.77	-1.94	-2.89	-0.86	-1.02	-1.74	-2.66	-1.49	-1.82
Schizophrenia	-1.38	2.14	-5.03	-1.02	3.17	-0.69	-1.41	-2.19	-4.03	-0.59	-1.97	-0.84	-1.16	-2.26	-1.09	-0.42	-0.66
PTSD	0.30	-2.84	-0.03	0.20	0.22	1.28	1.05	0.23	-0.03	0.31	0.35	-0.33	0.90	0.35	0.21	0.21	0.51
New Diagnoses over the Past Year																	
Anxiety	1.40	-1.35	1.79	0.91	1.98	0.26	1.21	3.61	0.04	2.27	1.09	-0.08	2.66	1.69	1.08	1.00	0.94
Depression	1.69	-3.68	2.11	0.93	0.94	0.63	1.46	0.33	2.42	2.23	1.06	-2.35	1.47	1.27	1.20	-0.01	1.69
Manic Depression (Bipolar Disorder)	1.00	0.00	0.77	0.34	0.85	0.16	0.42	0.60	0.58	0.66	0.23	-0.48	-0.25	0.73	0.63	0.05	0.91
Psychotic Disorder (other than Schizophrenia)	0.35	0.10	0.23	0.28	0.44	-0.26	0.66	-1.14	-0.29	0.69	-0.27	-0.49	0.50	0.27	-0.20	-0.46	0.55
Schizophrenia	0.57	-0.22	-0.20	0.20	0.94	0.05	0.15	-0.45	-0.89	0.70	-0.21	-0.52	0.07	0.29	0.16	0.11	0.40
PTSD	-0.13	-0.22	0.13	0.18	0.10	0.23	0.39	0.02	-0.12	0.11	0.02	-0.03	0.64	0.11	0.00	0.15	0.07
Impairments																	
Severe Urinary Incontinence	-2.18	-27.09	-8.27	-0.71	-10.71	-13.42	-12.95	-7.36	1.68	-6.60	-2.98	-9.18	-12.46	-7.10	-11.54	-12.46	-6.89
Severe Bowel Incontinence	0.98	-21.45	-4.06	0.28	-7.99	-9.99	-9.90	-3.67	2.50	-5.18	-0.34	-5.09	-6.78	-2.76	-6.16	-6.78	-1.92

(continued)

Table D-1. Percentage Point Differences in Risk Factors for NF Residents, by States (AL-KS), 2017 (continued)

	Difference (Discharged Live-Not Discharged)																
	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA	HI	ID	IL	IN	IA	KS
Changes in Impairments																	
Urinary Continence to Severe	2.75	0.45	1.03	3.42	0.90	1.02	0.73	0.83	2.56	2.93	1.84	-0.19	0.84	1.38	0.61	0.84	2.59
Bowel Continence to Severe	4.17	3.81	0.38	4.11	0.34	0.70	-0.51	2.69	1.59	2.03	1.86	0.78	0.62	1.03	0.98	0.62	1.36
ADL to 28	1.75	-1.87	0.96	1.15	1.08	0.22	0.40	0.29	2.48	1.14	1.78	-0.35	-0.07	0.56	0.24	-0.07	0.16
CFS Mean Point Change (Range 0-3 points)	0.12	0.08	0.09	0.11	0.07	0.12	0.07	0.09	0.14	0.08	0.10	0.01	-0.36	0.10	0.05	-0.36	0.11

Table D-2. Percentage Point Differences in Risk Factors for NF Residents, by States (KY-NC), 2017

	Difference (Discharged Live-Not Discharged)																
	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY	NC
Dual Status																	
Full Medicaid eligibility at End of Stay	-10.33	-8.09	-9.06	-14.23	-8.29	-11.03	-4.89	-10.48	-4.18	-11.48	-4.06	-12.99	-13.77	-9.94	-10.52	-8.91	-11.21
Transition to Medicaid eligibility in last 3 months	0.57	1.70	3.29	0.40	-0.13	1.24	1.25	0.50	0.42	2.20	0.08	4.58	1.06	0.04	0.02	1.28	1.80
Transition to Medicaid eligibility in last 6 months	4.39	4.87	7.35	1.28	2.33	4.22	3.95	3.56	2.30	6.18	2.98	8.71	3.65	1.57	1.69	4.81	4.90
Behavior																	
Severe Physical Behavior	0.78	1.71	-0.64	-0.24	0.08	-0.06	-1.57	1.55	3.26	3.37	-0.73	2.02	0.32	0.87	0.84	-0.89	-0.06
Severe Verbal Behavior	1.80	1.78	-0.64	0.56	1.59	0.88	1.55	2.51	4.32	2.10	-0.35	2.16	0.71	1.57	2.27	-0.80	1.08
Severe Behavior, Other	0.76	0.61	0.76	-0.48	0.26	0.93	-0.54	1.29	2.66	1.44	-0.84	1.56	2.60	0.36	0.08	-0.58	-0.41
Severe Aggressive Behavior, Aggregate	1.09	0.98	-0.26	-0.23	0.39	0.15	0.37	0.84	2.27	1.39	-1.07	1.27	0.89	0.57	1.00	-0.38	0.21
Very Severe Aggressive Behavior, Aggregate	0.11	0.29	0.15	0.04	0.59	0.29	-0.04	0.46	0.83	1.59	-0.15	-0.05	0.81	0.25	0.12	-0.10	-0.02
Behavior Change over the Past Year																	
Physical Behavior to Severe	0.74	1.56	0.06	0.12	0.34	0.47	-0.08	1.54	3.06	2.87	0.33	2.05	0.70	1.05	0.72	-0.44	0.30
Verbal Behavior to Severe	1.39	1.65	0.35	0.54	1.69	1.47	1.49	2.25	3.48	1.90	1.00	2.70	1.17	1.25	2.36	-0.12	1.23
Other Behavior to Severe	1.04	0.91	2.28	-0.20	1.47	1.10	0.04	0.97	2.56	1.53	0.81	1.88	1.60	0.63	2.11	-0.11	0.37
ABS from Mild or None to Severe	1.02	1.07	0.56	-0.15	1.05	0.44	0.45	1.04	2.08	1.27	0.07	1.21	0.62	0.55	1.48	-0.15	0.49

(continued)

Table D-2. Percentage Point Differences in Risk Factors for NF Residents, by States (KY-NC), 2017 (continued)

	Difference (Discharged Live-Not Discharged)																
	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY	NC
ABS from Mild, None or Severe to Very Severe	0.08	0.33	0.37	-0.01	0.70	0.31	0.01	0.28	0.79	1.33	0.29	-0.10	0.78	0.27	0.36	0.03	0.05
Diagnoses																	
Anxiety	-1.58	-0.97	0.83	-1.98	-1.41	-2.37	2.33	-0.68	-0.58	0.95	-2.67	1.00	-3.59	1.23	-3.64	-1.89	-1.99
Depression	-3.18	-2.52	-1.34	-5.24	-5.41	-5.27	1.66	-2.47	-2.58	0.29	-1.64	-3.20	-5.48	-2.39	-6.28	-7.20	-2.51
Manic Depression (Bipolar Disorder)	0.28	0.13	0.93	0.66	2.72	1.21	1.97	1.78	3.43	1.42	0.98	1.19	0.00	0.37	0.50	0.06	0.44
Psychotic Disorder	-3.61	-1.42	-2.14	-2.16	-3.19	-2.06	-1.68	-1.47	-1.67	-1.76	-2.61	0.03	-3.61	-1.09	-2.96	-2.39	-1.85
Schizophrenia	-1.78	-1.46	0.61	0.08	-0.80	-0.14	-0.01	-1.70	0.86	-1.92	-1.66	-1.00	-0.96	-3.47	-3.74	-2.91	-0.61
PTSD	0.30	0.16	0.90	0.30	1.39	0.48	1.32	0.01	0.95	2.76	0.05	0.12	0.87	0.03	0.17	0.14	0.16
New Diagnoses over the Past Year																	
Anxiety	1.07	1.17	0.49	-0.05	1.34	2.41	1.12	-0.12	1.00	3.10	1.61	2.71	1.03	1.72	0.93	0.94	2.31
Depression	1.06	1.25	2.35	1.28	1.53	0.96	2.06	0.70	0.60	1.72	3.18	2.28	-0.11	1.41	2.67	1.08	2.69
Manic Depression (Bipolar Disorder)	0.39	0.54	0.13	0.64	0.56	0.83	0.85	0.95	1.23	0.01	1.03	1.93	-0.23	0.20	1.10	0.51	0.83
Psychotic Disorder (other than Schizophrenia)	-0.61	-0.13	-0.06	-0.19	-0.18	0.20	0.33	0.40	-0.19	-0.07	-0.52	-0.34	0.97	-0.01	-0.39	-0.50	0.26
Schizophrenia	-0.04	0.54	0.28	0.66	0.26	0.64	0.38	0.00	0.52	0.24	-0.06	-0.45	0.03	0.01	-0.16	-0.01	-0.37
PTSD	0.00	0.08	-0.02	0.18	0.29	0.25	0.50	0.03	0.27	0.44	0.13	0.33	-0.02	-0.05	0.00	0.07	0.04
Impairments																	
Severe Urinary Incontinence	-2.58	0.53	-18.74	-12.52	-11.76	-9.67	-16.37	1.10	-6.79	-12.99	-12.34	-3.49	-13.33	-2.97	-8.61	-11.10	-8.54
Severe Bowel Incontinence	0.52	1.96	-14.17	-8.24	-7.52	-3.62	-9.21	2.69	-3.82	-9.17	-6.03	-2.52	-5.80	-0.85	-8.15	-6.31	-5.95

(continued)

Table D-2. Percentage Point Differences in Risk Factors for NF Residents, by States (KY-NC), 2017 (continued)

	Difference (Discharged Live-Not Discharged)																
	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY	NC
Changes in Impairments																	
Urinary Continence to Severe	3.16	1.97	2.99	1.09	1.69	1.07	0.14	2.88	1.13	1.31	1.60	2.29	-0.27	2.60	-0.20	0.53	2.72
Bowel Continence to Severe	3.59	2.64	-0.77	-0.09	2.17	0.64	-0.76	2.52	1.01	-1.06	1.76	-0.42	1.73	3.06	-2.10	0.27	2.05
ADL to 28	0.96	1.23	-0.53	0.21	0.05	0.86	-0.21	1.77	0.64	0.45	-0.26	0.71	-0.77	1.19	0.12	0.70	0.06
CFS Mean Point Change (Range 0-3 points)	0.09	0.09	0.04	0.06	0.07	0.07	0.03	0.10	0.09	0.10	0.06	0.12	0.11	0.08	0.09	0.07	0.08

Table D-3. Percentage Point Differences in Risk Factors for NF Residents, by States (ND-WY), 2017

	Difference (Discharged Live-Not Discharged)																
	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY
Dual Status																	
Full Medicaid eligibility at End of Stay	-11.14	-19.67	-4.42	-12.34	-10.53	-12.84	-13.17	-7.12	-12.38	-11.15	0.10	-10.74	-10.39	-11.81	-12.59	-10.15	-12.34
Transition to Medicaid eligibility in last 3 months	1.83	1.05	0.30	0.60	0.64	0.73	0.39	0.73	0.57	1.35	2.91	2.60	0.43	0.63	1.98	0.42	0.51
Transition to Medicaid eligibility in last 6 months	2.73	3.40	1.68	8.14	4.43	1.97	2.32	1.48	2.43	3.85	10.21	5.18	3.49	6.29	4.81	6.05	3.80
Behavior																	
Severe Physical Behavior	0.61	0.23	3.62	-1.04	-0.57	3.52	-0.35	-0.72	2.35	2.37	0.22	-3.14	0.32	-0.74	-0.86	-1.92	-1.49
Severe Verbal Behavior	0.86	0.98	4.79	0.33	0.26	5.09	-0.99	-0.88	2.58	3.19	0.87	-3.56	1.97	-0.50	0.88	-1.13	-2.29
Severe Behavior, Other	0.14	-0.46	3.64	-1.64	-0.28	2.86	0.23	-0.82	1.66	1.18	-0.51	-4.32	0.83	-1.67	-0.64	-2.14	-1.49
Severe Aggressive Behavior, Aggregate	-0.13	-0.51	3.19	-0.61	0.12	2.88	-0.51	-0.79	1.37	1.18	-0.19	-3.63	0.81	-1.49	-0.01	-1.28	-0.92
Very Severe Aggressive Behavior, Aggregate	0.25	0.07	1.20	-0.43	0.22	0.50	-0.35	-0.61	0.68	0.41	-1.16	-0.68	0.15	-0.21	-0.02	-0.05	-0.17
Behavior Change over the Past Year																	
Physical Behavior to Severe	0.33	0.81	3.40	-0.09	-0.01	3.63	0.14	0.09	2.35	2.29	1.77	-1.59	0.37	0.07	0.17	-0.91	-0.34
Verbal Behavior to Severe	0.54	1.43	4.70	1.12	0.74	4.18	0.48	-0.15	2.40	2.85	3.60	-0.47	1.76	1.09	1.09	0.14	-1.37
Other Behavior to Severe	0.10	0.61	3.36	-0.32	0.26	3.10	0.87	-0.60	1.86	1.42	2.20	-1.67	0.97	-0.15	0.19	-0.30	-0.63
ABS from Mild or None to Severe	-0.22	0.27	3.12	-0.25	0.28	2.77	-0.03	-0.56	1.31	1.17	0.87	-2.61	0.91	-0.53	0.19	-0.68	-0.34

(continued)

Table D-3. Percentage Point Differences in Risk Factors for NF Residents, by States (ND-WY), 2017 (continued)

	Difference (Discharged Live-Not Discharged)																
	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY
ABS from Mild, None or Severe to Very Severe	0.25	0.30	1.20	-0.25	0.30	0.43	-0.02	-0.46	0.69	0.47	0.65	-0.35	0.21	0.06	0.11	0.07	0.06
Diagnoses																	
Anxiety	-0.55	-2.08	2.11	-1.19	-1.21	-3.51	-3.51	1.43	-6.08	-2.68	5.68	-2.13	-0.16	-0.84	2.20	-2.90	0.69
Depression	-0.36	-5.55	0.79	-4.77	-3.43	-4.26	-4.34	1.15	-6.72	-4.87	4.11	-7.72	-1.16	-2.74	0.78	-2.39	-2.47
Manic Depression (Bipolar Disorder)	-0.34	0.92	0.88	1.06	1.00	1.73	0.01	1.04	1.40	0.20	2.33	-0.55	0.29	-0.45	0.96	1.33	-0.63
Psychotic Disorder	-2.28	-4.19	-0.73	-3.03	-3.47	-1.94	-2.57	-0.65	-3.01	-2.25	-1.12	-1.76	-2.23	-3.48	-2.98	-2.69	0.02
Schizophrenia	-1.45	-1.99	-0.68	-2.89	-1.04	-0.63	-1.30	2.12	-0.45	-1.98	-0.17	-2.96	-0.63	-1.70	-1.76	0.05	-1.97
PTSD	0.61	0.78	0.42	0.61	0.32	1.02	-0.09	-0.15	0.70	0.17	1.03	2.21	0.49	0.50	0.55	0.58	0.54
New Diagnoses over the Past Year																	
Anxiety	0.49	1.89	1.44	1.02	1.49	0.74	1.86	0.77	2.37	1.05	1.79	2.19	1.60	1.64	3.27	0.39	1.89
Depression	0.21	1.15	1.16	1.30	1.52	1.80	1.97	1.79	2.48	0.85	0.87	0.78	2.35	2.02	3.83	1.67	-0.61
Manic Depression (Bipolar Disorder)	0.08	0.60	0.47	0.37	0.36	1.18	1.02	0.34	1.36	0.68	0.62	0.62	-0.02	0.48	0.85	0.41	-0.29
Psychotic Disorder (other than Schizophrenia)	-0.32	0.35	0.55	-0.46	0.00	-0.19	-0.16	0.56	0.45	0.15	0.27	0.72	0.30	-0.66	-0.45	-0.52	0.18
Schizophrenia	0.57	0.31	-0.50	-0.23	0.16	0.41	0.39	0.27	0.34	-0.22	0.31	-0.01	0.30	0.02	-0.13	0.25	0.00
PTSD	0.24	0.22	0.08	0.23	0.12	0.07	-0.05	-0.07	0.19	0.07	0.64	0.56	0.17	0.50	-0.01	0.17	-0.17
Impairments																	
Severe Urinary Incontinence	-15.11	-14.19	-1.55	-22.14	-13.33	-15.28	-7.50	-10.92	-6.69	-4.59	-20.16	-12.90	-8.04	-17.94	-6.19	-19.43	-7.88
Severe Bowel Incontinence	-7.12	-9.04	1.48	-20.07	-6.96	-12.07	-6.41	-1.49	-4.96	-2.51	-12.99	-10.56	-4.35	-13.95	-2.83	-10.41	-2.59

(continued)

Table D-3. Percentage Point Differences in Risk Factors for NF Residents, by States (ND-WY), 2017 (continued)

	Difference (Discharged Live-Not Discharged)																
	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY
Changes in Impairments																	
Urinary Continence to Severe	0.50	-0.04	4.28	-1.13	1.38	1.13	2.10	-0.84	1.81	2.03	0.93	1.87	1.18	-0.42	2.95	-0.71	-1.70
Bowel Continence to Severe	2.57	-0.22	4.32	-1.80	0.12	-0.97	1.34	1.55	2.21	1.70	0.34	-0.96	1.29	-1.77	1.48	-1.80	0.88
ADL to 28	1.25	0.22	0.77	-0.63	0.48	0.13	1.98	0.24	0.64	0.70	0.01	-1.01	0.46	-0.25	0.67	-0.36	1.23
CFS Mean Point Change (Range 0-3 points)	0.03	0.08	0.12	0.08	0.06	0.12	0.07	0.07	0.09	0.08	0.05	0.07	0.09	0.07	0.05	0.03	0.08

Table D-4. Percentage Point Differences in Risk Factors for NF Residents, by Profit Status, 2016

	Difference (Discharged Live-Not Discharged)		
	For-Profit	Non-Profit	Government
Dual Status			
Full Medicaid eligibility at End of Stay	-12.89	-11.19	-10.65
Transition to Medicaid eligibility in last 3 months	1.12	0.87	1.35
Transition to Medicaid eligibility in last 6 months	3.84	3.02	2.60
Behavior			
Severe Physical Behavior	1.00	-0.30	0.39
Severe Verbal Behavior	1.68	0.42	0.53
Severe Behavior, Other	0.40	0.13	-0.26
Severe Aggressive Behavior, Aggregate	0.50	0.06	0.34
Very Severe Aggressive Behavior, Aggregate	0.23	0.31	-0.01
Behavior Change over the Past Year			
Physical Behavior to Severe	1.19	0.30	1.16
Verbal Behavior to Severe	1.83	0.86	1.22
Other Behavior to Severe	0.98	0.58	0.80
ABS from Mild or None to Severe	0.78	0.29	0.77
ABS from Mild, None or Severe to Very Severe	0.32	0.38	0.22
Diagnoses			
Anxiety	-1.25	-2.11	0.72
Depression	-3.96	-3.76	-1.46
Manic Depression (Bipolar Disorder)	0.62	0.69	1.05
Psychotic Disorder	-2.47	-1.42	-1.29
Schizophrenia	-1.55	-0.25	-1.37
PTSD	0.43	0.26	0.28
New Diagnoses over the Past Year			
Anxiety	1.55	1.15	1.78
Depression	1.33	1.59	1.12
Manic Depression (Bipolar Disorder)	0.66	0.45	0.75
Psychotic Disorder (other than Schizophrenia)	0.13	-0.01	0.14
Schizophrenia	0.23	0.18	0.31
PTSD	0.12	0.11	0.21
Impairments			
Severe Urinary Incontinence	-8.15	-10.82	-7.93
Severe Bowel Incontinence	-4.96	-5.74	-2.58
Changes in Impairments			
Urinary Continence to Severe	1.49	1.12	1.50
Bowel Continence to Severe	1.14	0.76	1.68
ADL to Total Dependency or Other	0.64	0.67	0.92
CFS Mean Point Change (Range 0-3 points)	0.081	0.073	0.086

Table D-5. Percentage Point Difference in Risk Factors for NF Residents, by Rural and Urban Facilities, 2016

	Differences (Discharged Live-Not Discharged)	
	Rural	Urban
Dual Status		
Full Medicaid eligibility at End of Stay	-9.50	-12.06
Transition to Medicaid eligibility in last 3 months	1.02	1.08
Transition to Medicaid eligibility in last 6 months	3.44	3.60
Behavior		
Severe Physical Behavior	0.98	0.59
Severe Verbal Behavior	1.96	1.27
Severe Behavior, Other	0.82	0.23
Severe Aggressive Behavior, Aggregate	0.86	0.32
Very Severe Aggressive Behavior, Aggregate	0.46	0.19
Behavior Change over the Past Year		
Physical Behavior to Severe	1.29	0.94
Verbal Behavior to Severe	2.03	1.54
Other Behavior to Severe	1.30	0.80
ABS from Mild or None to Severe	1.02	0.63
ABS from Mild, None or Severe to Very Severe	0.56	0.27
Diagnoses		
Anxiety	0.23	-1.28
Depression	-1.28	-4.18
Manic Depression (Bipolar Disorder)	1.36	0.77
Psychotic Disorder	-1.36	-2.16
Schizophrenia	-0.46	-0.94
PTSD	0.45	0.40
New Diagnoses over the Past Year		
Anxiety	1.92	1.41
Depression	1.56	1.30
Manic Depression (Bipolar Disorder)	0.64	0.67
Psychotic Disorder (other than Schizophrenia)	0.45	0.06
Schizophrenia	0.23	0.30
PTSD	0.13	0.12
Impairments		
Severe Urinary Incontinence	-8.03	-9.34
Severe Bowel Incontinence	-3.53	-5.52
Changes in Impairments		
Urinary Continence to Severe	1.87	1.27
Bowel Continence to Severe	1.75	0.79
ADL to Total Dependency or Other	0.64	0.67
CFS Mean Point Change (Range 0-3 points)	0.08	-0.32

Table D-6. Percentage Point Differences in Risk Factors for NF Residents, by Chain Status, 2016

	Difference (Discharged Live-Not Discharged)	
	Not Chain	Chain
Dual Status		
Full Medicaid eligibility at End of Stay	-10.14	-12.45
Transition to Medicaid eligibility in last 3 months	0.74	1.28
Transition to Medicaid eligibility in last 6 months	3.17	3.78
Behavior		
Severe Physical Behavior	0.49	0.78
Severe Verbal Behavior	1.04	1.61
Severe Behavior, Other	0.25	0.39
Severe Aggressive Behavior, Aggregate	0.37	0.46
Very Severe Aggressive Behavior, Aggregate	0.21	0.26
Behavior Change over the Past Year		
Physical Behavior to Severe	0.93	1.02
Verbal Behavior to Severe	1.39	1.76
Other Behavior to Severe	0.82	0.93
ABS from Mild or None to Severe	0.69	0.71
ABS from Mild, None or Severe to Very Severe	0.31	0.35
Diagnoses		
Anxiety	-1.22	-1.36
Depression	-4.40	-3.54
Manic Depression (Bipolar Disorder)	0.87	0.88
Psychotic Disorder	-1.68	-2.28
Schizophrenia	-0.38	-1.02
PTSD	0.33	0.43
New Diagnoses over the Past Year		
Anxiety	1.42	1.52
Depression	1.26	1.42
Manic Depression (Bipolar Disorder)	0.68	0.67
Psychotic Disorder (other than Schizophrenia)	0.15	0.12
Schizophrenia	0.41	0.22
PTSD	0.11	0.13
Impairments		
Severe Urinary Incontinence	-8.02	-9.52
Severe Bowel Incontinence	-3.46	-5.75
Changes in Impairments		
Urinary Continence to Severe	1.45	1.27
Bowel Continence to Severe	1.04	0.87
ADL to Total Dependency or Other	0.92	0.52
CFS Mean Point Change (Range 0-3 points)	0.081	0.077

Table D-7. Percentage Point Differences in Risk Factors for NF Residents, by Facility Size, 2016

	Difference (Discharged Live-Not Discharged)		
	Small (≤100 beds)	Medium (>100-200)	Large (>200 beds)
Dual Status			
Full Medicaid eligibility at End of Stay	-11.18	-12.05	-9.50
Transition to Medicaid eligibility in last 3 months	0.96	1.18	0.87
Transition to Medicaid eligibility in last 6 months	3.02	3.98	3.06
Behavior			
Severe Physical Behavior	0.58	0.82	0.03
Severe Verbal Behavior	1.82	1.46	-0.05
Severe Behavior, Other	0.67	0.33	-0.49
Severe Aggressive Behavior, Aggregate	0.71	0.43	-0.33
Very Severe Aggressive Behavior, Aggregate	0.31	0.25	0.02
Behavior Change over the Past Year			
Physical Behavior to Severe	1.06	1.04	0.56
Verbal Behavior to Severe	1.92	1.68	0.59
Other Behavior to Severe	1.15	0.85	0.42
ABS from Mild or None to Severe	0.89	0.72	0.19
ABS from Mild, None or Severe to Very Severe	0.43	0.33	0.11
Diagnoses			
Anxiety	-0.83	-1.45	-1.33
Depression	-2.88	-3.90	-5.46
Manic Depression (Bipolar Disorder)	1.05	0.84	0.81
Psychotic Disorder	-1.66	-2.16	-2.24
Schizophrenia	-0.14	-0.93	-1.39
PTSD	0.41	0.42	0.31
New Diagnoses over the Past Year			
Anxiety	1.56	1.51	1.27
Depression	1.39	1.29	1.58
Manic Depression (Bipolar Disorder)	0.67	0.65	0.73
Psychotic Disorder (other than Schizophrenia)	0.29	0.11	-0.06
Schizophrenia	0.23	0.29	0.51
PTSD	0.15	0.11	0.13
Impairments			
Severe Urinary Incontinence	-9.80	-8.74	-7.53
Severe Bowel Incontinence	-5.18	-4.94	-3.13
Changes in Impairments			
Urinary Continence to Severe	1.08	1.49	1.29
Bowel Continence to Severe	0.59	1.15	0.96
ADL to Total Dependency or Other	0.47	0.68	1.11
CFS Mean Point Change (Range 0-3 points)	0.08	0.08	0.08

Table D-8. Percentage Point Differences in Risk Factors for NF Residents, by Number of Ownership Changes, 2016

	Difference (Discharged Live-Not Discharged)		
	0 changes	1-2 changes	>2 changes
Dual Status			
Full Medicaid eligibility at End of Stay	-11.10	-12.33	-13.16
Transition to Medicaid eligibility in last 3 months	0.76	1.12	1.40
Transition to Medicaid eligibility in last 6 months	3.13	3.48	4.17
Behavior			
Severe Physical Behavior	0.09	0.93	1.16
Severe Verbal Behavior	0.60	1.71	1.89
Severe Behavior, Other	0.10	0.49	0.43
Severe Aggressive Behavior, Aggregate	0.13	0.65	0.52
Very Severe Aggressive Behavior, Aggregate	0.20	0.20	0.33
Behavior Change over the Past Year			
Physical Behavior to Severe	0.60	1.16	1.30
Verbal Behavior to Severe	1.04	1.87	1.95
Other Behavior to Severe	0.68	0.97	1.02
ABS from Mild or None to Severe	0.51	0.80	0.81
ABS from Mild, None or Severe to Very Severe	0.29	0.31	0.41
Diagnoses			
Anxiety	-1.88	-1.08	-1.01
Depression	-4.23	-3.25	-4.06
Manic Depression (Bipolar Disorder)	0.82	0.73	0.62
Psychotic Disorder	-1.68	-2.14	-2.89
Schizophrenia	-0.33	-1.18	-1.82
PTSD	0.31	0.38	0.49
New Diagnoses over the Past Year			
Anxiety	1.34	1.44	1.69
Depression	1.44	1.35	1.21
Manic Depression (Bipolar Disorder)	0.58	0.68	0.71
Psychotic Disorder (other than Schizophrenia)	0.04	0.15	0.14
Schizophrenia	0.29	0.28	0.16
PTSD	0.14	0.09	0.15
Impairments			
Severe Urinary Incontinence	-9.02	-8.50	-8.85
Severe Bowel Incontinence	-4.18	-4.94	-6.07
Changes in Impairments			
Urinary Continenence to Severe	1.26	1.38	1.54
Bowel Continenence to Severe	0.99	1.09	0.99
ADL to Total Dependency or Other	0.66	0.70	0.67
CFS Mean Point Change (Range 0-3 points)	0.08	0.08	0.08

Table D-9. NF Residents Discharged Live, by Program Termination Status, 2012-2017

		2012	2013	2014	2015	2016	2017
All Residents Discharged Live from a NF	Residents discharged from an active facility	216,255 98.69%	215,224 99.07%	217,861 98.84%	219,617 99.18%	218,886 98.68%	221,441 99.19%
	Residents discharged from a terminated facility	2,481 1.14%	1,675 0.77%	2,253 1.03%	1,491 0.68%	2,672 1.21%	1,631 0.73%
Residents Discharged Live from a Terminated NF	Residents discharged live on or before termination date	1,962 79.1%	1,276 76.2%	1,910 84.8%	1,298 87.1%	2,412 90.3%	1,390 85.2%
	Resident discharged live after termination date	519 20.9%	399 23.8%	343 15.2%	193 12.9%	260 9.7%	241 14.8%

Table D-10. Prevalence of Risk Factors among NF Residents Discharged Live, by Program Termination Status, 2016

	Residents Discharged Live, %	
	Active Facility	Terminated Facility
Dual Status		
Full Medicaid eligibility at End of Stay***	73.45	86.02
Transition to Medicaid eligibility in last 3 months	2.70	2.09
Transition to Medicaid eligibility in last 6 months***	7.89	4.83
Behavior		
Severe Physical Behavior	4.72	4.66
Severe Verbal Behavior	8.60	9.93
Severe Behavior, Other	6.06	6.32
Severe Aggressive Behavior, Aggregate	4.25	4.97
Very Severe Aggressive Behavior, Aggregate*	1.07	0.49
Behavior Change over the Past Year		
Physical Behavior to Severe	3.71	3.43
Verbal Behavior to Severe	6.12	5.27
Other Behavior to Severe*	4.38	3.86
ABS from Mild or None to Severe	3.22	3.25
ABS from Mild, None or Severe to Very Severe*	0.90	0.43
Diagnoses		
Anxiety	31.57	33.60
Depression	49.38	50.28
Manic Depression (Bipolar Disorder)	7.27	8.52
Psychotic Disorder**	8.44	10.85
Schizophrenia***	9.79	12.81
PTSD	1.16	0.98
New Diagnoses over the Past Year		
Anxiety	8.04	7.23
Depression*	9.17	7.11
Manic Depression (Bipolar Disorder)***	1.78	1.04
Psychotic Disorder (other than Schizophrenia)	2.88	2.45
Schizophrenia	1.62	0.98
PTSD	0.28	0.43
Impairments		
Severe Urinary Incontinence***	57.42	62.35
Severe Bowel Incontinence*	52.51	55.61
Changes in Impairments		
Urinary Continenence to Severe**	10.87	9.26
Bowel Continenence to Severe**	12.63	10.42
ADL to Total Dependency or Other*	2.48	1.66
CFS Mean Point Change (Range 0-3 points)***	0.124	0.059

*/**/** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001.

Appendix E: Graphs and Data Tables for Outcomes After Discharge

Table E-1. Outcomes of All Resident, by Timeframe After Discharge

	Days After Discharge, %		
	0-1	2-30	0-30
All Acute Care	43.13	9.66	52.79
Hospitalizations	38.54	5.79	44.33
Outpatient Acute Care	8.71	6.69	15.40

Table E-2. Hospitalization by Risk Factor

	NF Residents Risk Factor, %					
	Without			With		
	Time Period After Discharge, Days					
	0-1	2-30	0-30	0-1	2-30	0-30
Dual Status						
Full Medicaid eligibility at End of Stay	29.05	5.92	34.97	42.11***	5.75	47.86***
Transition to Medicaid eligibility in last 3 months	39.13	5.76	44.89	29.87***	7.70***	37.57***
Transition to Medicaid eligibility in last 6 months	39.71	5.68	45.39	29.18***	7.18***	36.36***
Behavior						
Severe Physical Behavior	37.66	5.78	43.44	53.46***	6.01	59.47***
Severe Verbal Behavior	37.58	5.71	43.29	47.76***	6.64***	54.40***
Severe Behavior, Other	37.70	5.80	43.50	49.68***	5.74	55.42***
Severe Aggressive Behavior, Aggregate	36.66	5.70	42.36	50.35***	6.40*	56.75***
Very Severe Aggressive Behavior, Aggregate	36.66	5.70	42.36	55.50***	5.88	61.38***
Behavior Change over the Past Year						
Physical Behavior to Severe	37.71	5.80	43.51	54.62***	6.05	60.67***
Verbal Behavior to Severe	37.71	5.70	43.41	47.94***	7.00***	54.94***
Other Behavior to Severe	37.75	5.79	43.54	50.57***	5.83	56.40***
ABS from Mild or None to Severe	38.06	5.76	43.82	51.47***	6.60**	58.07***
ABS from Mild, None or Severe to Very Severe	38.35	5.79	44.14	56.72***	5.70	62.42***
Diagnoses						
Anxiety	37.68	5.66	43.34	40.37***	6.08**	46.45***
Depression	37.38	5.66	43.04	39.66***	5.92*	45.58***
Manic Depression (Bipolar Disorder)	38.41	5.66	44.07	40.21**	7.65***	47.86***
Psychotic Disorder	37.78	5.85	43.63	45.30***	5.28**	50.58***
Schizophrenia	38.18	5.74	43.92	42.26***	6.39**	48.65***
PTSD	38.67	5.79	44.46	23.31***	5.86	29.17***
New Diagnoses over the Past Year						
Anxiety	38.19	5.77	43.96	40.74***	6.15	46.89***
Depression	38.30	5.76	44.06	38.36***	6.35**	44.71***
Manic Depression (Bipolar Disorder)	38.43	5.75	44.18	41.95***	7.74***	49.69***
Psychotic Disorder (other than Schizophrenia)	38.10	5.83	43.93	43.90***	5.39	49.29***
Schizophrenia	38.46	5.77	44.23	41.66***	7.64**	49.30***
PTSD	38.59	4.14	42.73	23.43***	4.67	28.10***
Impairments						
Severe Urinary Incontinence	25.59	7.25	32.84	46.73***	4.87***	51.60***
Severe Bowel Incontinence	26.99	6.94	33.93	47.95***	4.86***	52.81***

(continued)

Table E-2. Hospitalization by Risk Factor (continued)

Hospitalization	NF Residents Risk Factor, %					
	Without			With		
	Time Period After Discharge, Days					
	0-1	2-30	0-30	0-1	2-30	0-30
Changes in Impairments						
Urinary Continence to Severe	38.91	5.72	44.63	46.28***	5.02***	51.30***
Bowel Continence to Severe	38.69	5.77	44.46	47.15***	4.93***	52.08***
ADL to Total Dependency or Other	38.00	5.88	43.88	55.51***	2.88***	58.39***
CFS 2 Point Change (out of 3 points)	36.22	6.21	42.43	50.74***	3.71***	54.45***

*/**/*** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001

Table E-3. Outpatient Acute Care by Risk Factor

Outpatient	NF Residents Risk Factor, %					
	Without			With		
	Time Period After Discharge, Days					
	0-1	2-30	0-30	0-1	2-30	0-30
Dual Status						
Full Medicaid eligibility at End of Stay	7.52	6.32	13.84	9.17***	6.84**	16.01***
Transition to Medicaid eligibility in last 3 months	8.84	6.68	15.52	7.11**	8.06**	15.17
Transition to Medicaid eligibility in last 6 months	8.96	6.60	15.56	6.71***	8.01***	14.72*
Behavior						
Severe Physical Behavior	8.44	6.71	15.15	13.65***	6.57	20.22***
Severe Verbal Behavior	8.34	6.58	14.92	12.53***	7.88***	20.41***
Severe Behavior, Other	8.46	6.67	15.13	12.37***	7.08	19.45***
Severe Aggressive Behavior, Aggregate	8.08	6.61	14.69	12.49***	6.90	19.39***
Very Severe Aggressive Behavior, Aggregate	8.08	6.61	14.69	14.48***	8.70**	23.18***
Behavior Change over the Past Year						
Physical Behavior to Severe	8.47	6.72	15.19	13.63***	6.91*	20.54***
Verbal Behavior to Severe	8.40	6.62	15.02	12.42***	8.06***	20.48***
Other Behavior to Severe	8.49	6.70	15.19	12.56***	7.17	19.73***
ABS from Mild or None to Severe	8.58	6.69	15.27	12.47***	6.84	19.31***
ABS from Mild, None or Severe to Very Severe	8.65	6.67	15.32	14.83***	9.38***	24.21***
New Diagnoses over the Past Year						
Anxiety	8.70	6.61	15.31	8.97	7.39*	16.36**
Depression	8.73	6.68	15.41	8.24*	7.25**	15.49
Manic Depression (Bipolar Disorder)	8.70	6.65	15.35	9.32	8.79***	18.11**
Psychotic Disorder (other than Schizophrenia)	8.63	6.72	15.35	9.92***	6.70	16.62*
Schizophrenia	8.71	6.67	15.38	8.27	7.93*	16.20
PTSD	6.21	6.68	12.89	3.98	9.71**	13.69
Impairments						
Severe Urinary Incontinence	7.09	9.12	16.21	9.74***	5.16***	14.90***
Severe Bowel Incontinence	7.63	8.80	16.43	9.60***	4.98***	14.58***
Changes in Impairments						
Urinary Continence to Severe	8.67	6.64	15.31	10.82***	5.55***	16.37**
Bowel Continence to Severe	8.59	6.70	15.29	11.13***	5.23***	16.36***
ADL to Total Dependency or Other	8.63	6.83	15.46	11.35***	2.49***	13.84**
CFS 2 Point Change (out of 3 points)	8.14	7.12	15.26	12.21***	4.35***	16.56***

*/**/** = Difference is statistically significant based on a p-value cutoff of 0.05/0.01/0.001.

Table E-4. Discharge Location of NF Residents

	NF Residents Discharged Live (N=223,522)				
	Community	Another Nursing Home or Swing Bed	Hospital		Additional Settings
			Acute	Psychiatric	
Demographics					
Number	76,540	38,142	98,997	4,183	5,660
% of Live Discharges from Stay Type	34.24%	17.06%	44.29%	1.87%	2.53%
Male	45.90%	40.90%	42.20%	52.40%	48.18%
Female	54.10%	59.10%	57.80%	47.60%	51.92%
White only non-Hispanic	68.16%	73.55%	66.59%	73.42%	71.29%
Black only non-Hispanic	19.45%	15.44%	20.65%	15.28%	16.25%
Hispanic	6.66%	6.42%	7.40%	6.34%	6.80%
Other non-Hispanic	5.72%	4.59%	5.36%	4.97%	5.65%
Age <65	35.72%	23.20%	19.05%	36.07%	34.49%
Age 65-75	23.46%	20.61%	20.81%	28.09%	18.55%
Age 75-85	22.01%	26.98%	27.02%	23.02%	20.23%
Age 85-95	16.53%	24.83%	27.48%	11.59%	22.40%
Age ≥95	2.27%	4.38%	5.64%	1.22%	4.33%
Dual Status					
Partial Medicaid Eligibility at End of Stay	1.66%	0.42%	0.87%	0.86%	1.24%
Full Medicaid Eligibility at End of Stay	50.34%	71.61%	70.23%	73.22%	53.60%
Transition to Medicaid Eligibility in the last 3 months	2.66%	2.73%	1.89%	2.77%	1.89%
Transition to Medicaid Eligibility in the last 3 months	8.44%	7.29%	5.32%	6.91%	6.10%
Behavior					
Severe Physical Behavior	1.58%	5.45%	5.21%	42.68%	5.87%
Severe Verbal Behavior	4.39%	10.27%	9.06%	54.34%	10.17%
Severe Behavior, Other	2.83%	7.36%	6.71%	36.87%	7.79%
None or Minimal Aggressive Behavior, Aggregate	89.86%	79.44%	80.75%	24.34%	79.22%
Moderate Aggressive Behavior, Aggregate	7.89%	14.50%	13.40%	34.47%	0.14%
Severe Aggressive Behavior, Aggregate	1.90%	4.92%	4.69%	29.86%	0.05%
Very Severe Aggressive Behavior, Aggregate	0.35%	1.13%	1.17%	11.33%	1.22%
Behavior Change over the Past Year					
Physical Behavior to Severe	1.24%	4.18%	4.01%	36.28%	4.84%
Verbal Behavior to Severe	3.46%	7.00%	6.35%	40.25%	7.34%
Other Behavior to Severe	2.04%	5.15%	4.85%	28.02%	5.74%
ABS from Mild or None to Severe	1.45%	3.51%	3.53%	24.58%	4.20%
ABS from Mild, None or Severe to Very Severe	0.29%	0.92%	0.95%	10.18%	0.99%

(continued)

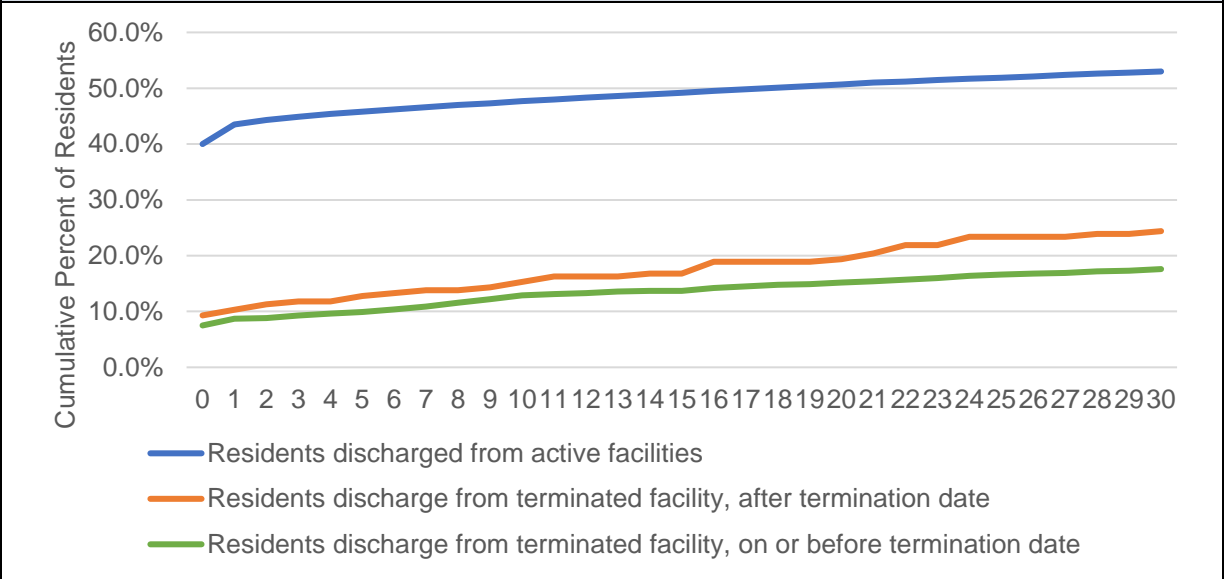
Table E-4. Discharge Location of NF Residents (continued)

	NF Residents Discharged Live (N=223,522)				
	Community	Another Nursing Home or Swing Bed	Hospital		Additional Settings
			Acute	Psychiatric	
Diagnoses					
Anxiety	27.87%	3.65%	32.00%	47.79%	34.79%
Depression	45.27%	54.13%	50.57%	55.50%	47.66%
Manic Depression (Bipolar Disorder)	6.71%	8.63%	6.63%	19.99%	7.93%
Psychotic Disorder	5.02%	10.96%	9.39%	25.36%	9.05%
Schizophrenia	7.64%	11.32%	9.44%	39.95%	13.32%
PTSD	1.48%	1.26%	0.80%	2.46%	1.40%
Diagnoses change over the past year					
Anxiety	7.35%	8.35%	8.14%	12.73%	10.21%
Depression	9.33%	8.93%	9.06%	9.88%	9.44%
Manic Depression (Bipolar Disorder)	1.64%	1.96%	1.69%	4.21%	1.89%
Psychotic Disorder (other than Schizophrenia)	1.96%	3.40%	3.08%	9.57%	3.38%
Schizophrenia	1.40%	1.80%	1.60%	4.45%	1.64%
PTSD	0.39%	0.25%	0.20%	0.53%	0.42%
Other Characteristic					
Severe Urinary Incontinence	34.61%	61.19%	74.43%	42.58%	55.45%
Severe Bowel Incontinence	30.53%	53.79%	69.77%	36.74%	51.76%
No Cognitive Impairment	40.79%	20.34%	5.61%	9.04%	20.69%
Mild Cognitive Impairment	39.32%	30.87%	39.29%	35.74%	37.61%
Moderate Cognitive Impairment	17.46%	40.45%	43.94%	50.47%	32.05%
Severe Cognitive Impairment	1.60%	5.26%	7.52%	1.96%	6.06%
Other Characteristics Change over the Past Year					
Urinary Continence to Severe	6.20%	11.57%	13.98%	14.45%	11.94%
Bowel Continence to Severe	7.03%	13.03%	16.69%	13.76%	13.72%
ADL to 28	0.66%	1.56%	4.24%	0.55%	3.78%
Cognitive Impairment worsen by 1 point out of 3	11.30%	13.95%	21.98%	19.58%	18.68%
Cognitive Impairment worsen by 2 points out of 3	0.80%	1.56%	2.63%	3.75%	1.80%

¹Community includes private home/apartment, board/care, assisted living and group home

²Additional settings include the following settings: Inpatient rehabilitation facility, ID/DD facility, hospice, long-term care hospital and other.

Figure E-1. Acute Care Use, by Program Termination Status



Difference between resident groups statistically significant at the p=0.001 level.