

The State of Nursing Facilities in Oregon, 2016

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Background

This is the third annual report on Oregon nursing facilities funded by the Oregon legislature and prepared by Oregon State University in collaboration with the Oregon Department of Human Services (DHS), LeadingAge Oregon, the Oregon Health Care Association, SEIU Local 503, and the Oregon Health Authority's Office of Health Analytics. These new annual reports replace those published between 1998 and 2009 by the Office for Oregon Health Policy and Research (OHPR), in collaboration with the Seniors and People with Disabilities Division¹ of the Department of Human Services. The data in those prior reports were based on annual surveys of the state's nursing facilities, and are included in this report as trend data.

The purpose of this annual report is to paint a portrait of Oregon's 137 nursing facilities that were in operation in the 2016 state fiscal year to assist in local and statewide planning and policy-making efforts in long-term care services.

In this report, we use data from the Centers for Medicare & Medicaid Services' (CMS) Minimum Data Set (MDS) 3.0 and Nursing Home Compare 3.0, Oregon hospital discharge data, and Oregon provider tax cost and revenue reports. We examine an array of characteristics of the state's nursing facilities, including licensed capacity, bed availability, occupancy, admissions, discharges, readmissions, resident characteristics, length of stay, acuity, payer sources, and quality metrics.

This report contains several improvements from the 2015 report. We refined our methods for measuring length of stay and identifying assessments used for reporting diagnoses, activities of daily living, and treatments. For the first time, we report data at the county level and by urbanicity rather than by geographic region.

Introduction

Oregon has been a national leader in long-term services and supports (LTSS) for over 30 years (Oregon Department of Human Services, 2015). LTSS refers to an array of medical, social, and support services for individuals who, for an extended period of time, are dependent on others for assistance. The goals of LTSS are to promote and maintain health, independent functioning, and quality of life for individuals who utilize long-term care services. Nursing facilities are an important part of LTSS in Oregon. Nursing facilities provide 24-hour medical care and monitoring for people who need it due to a disability or have been discharged from the hospital but are not yet able to return to the community. Thus, nursing facilities serve two different populations—individuals with post-acute care needs, which are characterized by short stays (\leq 90 days), and individuals with ongoing and indefinite needs, which are characterized by longer or indefinite stays ($>$ 90 days). While nursing facilities are the most intensive setting in Oregon's long-term care continuum, they are critical for both short-stay and long-stay individuals with a high need for skilled care. The services offered in nursing facilities are often comprehensive,

¹ Now called the Aging and People with Disabilities Program. Prior to 1998, the Office of Health Policy also conducted surveys of nursing facilities.

and include medical treatment, physical, speech and occupational therapy, assistance with the Activities of Daily Living,² case management, and social services. Nursing facilities will continue to be an important part of the state's array of LTSS because of the four percent projected annual growth of the 65 and older population through 2050 (Office of Economic Analysis, 2013).

² The Activities of Daily Living (ADLs; Katz, 1983) measure the functional impairment of individuals (National Center for Health Statistics, 2006). ADLs commonly refer to assistance with bathing, eating, dressing, mobility, transferring, grooming, and toileting.

Research Highlights

This report provides a comprehensive and current look at the state's 137 certified nursing facilities in State Fiscal Year 2016 (SFY), which covers the period of July 1, 2015 to June 30, 2016.³ In SFY 2016, there were 11,542 licensed beds in nursing facilities across the state (Exhibit 1.0). The number of facilities ranged widely, from none in six counties to 33 in Multnomah County, for an average of 4 facilities per county statewide. In 2016, 34,627 individuals required services in an Oregon nursing facility for at least one day, representing a 3% increase from 2015. Compared to national averages, the residents of Oregon nursing facilities were more likely to be under age 85 and non-Hispanic white, but less likely to be female. These results suggest that the oldest Oregonians (85 years and older) were more likely to reside in community settings compared to their same age counterparts in other states. Other notable findings in this report are highlighted below.

Exhibit 1.0. Characteristics of Oregon Nursing Facilities, OR Fiscal Years, 2016

Characteristic	
Total number of facilities	137
Total number of licensed beds	11,542
Average licensed capacity per facility	84
Minimum number of licensed beds	5
Maximum number of licensed beds	214
Average number of facilities per county	4

Sources: Cost Reports, Revenue Statements, and Nursing Home Compare 3.0

Facilities

- The number of facilities ranged widely across counties, with an average of 4 per county.
- Over two-thirds of all facilities (71%) were small- to medium-sized facilities with fewer than 100 beds, accounting for more than half (53%) of all beds statewide.

Licensed Capacity & Bed Availability⁴

- The total number of licensed beds declined 5% from 2015 to 11,542 in 2016, representing a consistent overall decline of 12.1% in the last 17 years.
- The average number of licensed beds was 84, compared to the national average of 109 in 2014.
- The number of licensed beds by facility ranged from five to 214.
- The number of licensed beds per 1,000 population 75 years and older declined by 6% from 2015 to 43 in 2016, representing a consistent decline of 29% in the last 17 years.

³ Unless otherwise noted, all references to 2016 refer to the State Fiscal Year.

⁴ Oregon passed House Bill 2216 in June 2013 as a concerted effort to reduce licensed bed capacity across the state by incentivizing voluntary bed reductions by nursing facilities. The goal of House Bill 2216 was to slow the growth of system wide costs by reducing bed capacity, increasing occupancy levels, and enhancing efficiency.

- 78% of licensed beds statewide were staffed and ready for use (i.e., set-up), however, the percentage of set-up beds ranged widely across the state, from a low of 54% in Umatilla County to a high of 96% in Clatsop County.

Occupancy

- Average occupancy rates decreased from 72% in 2000 to 66% in 2016, which increased 2% from 2015. Oregon continues to have the lowest occupancy rate in the nation.
- Average occupancy rates across counties ranged from 39 to 89%.
- Oregon nursing facilities with less than 50 beds had an average occupancy rate between 3 to 12 percentage points higher than larger facilities of any other size. Facilities with at least 150 beds had the lowest average occupancy rate (58%) compared to facilities of other sizes.
- Between 2010 and 2016, the number of resident days remained relatively stable; however, there was a 1% increase in resident days from 2015 to 2016.
- Facilities with 50-99 beds accounted for the greatest share of resident days (50%) among all facilities.
- Multnomah, Clackamas, Lane, and Washington Counties had the highest numbers of total resident days, accounting for 27, 11, 10, and 9% of all resident days statewide, respectively.

Admissions, Discharges and Reentries⁵

- 94.1% of all admissions came from acute care hospitals.
- Facilities with less than 50 beds had the lowest average numbers of admissions and discharges (134 and 133, respectively), whereas facilities with 150 or more beds had the highest average numbers of admissions and discharges (507 and 494, respectively).
- 25.2% of all discharges were to an acute care hospital; 89.0% of these discharges to hospitals subsequently reentered a nursing facility within a 30-day period.
- 71% of all discharges returned to the community.

Residents

- The state's nursing facility population was younger than national estimates, with 80% of nursing facility residents being age 65 or older, compared to 85% of residents nationwide.
- 42% of residents were male compared to 33% of U.S. nursing facility residents.
- Racial/ethnic minority individuals were under-represented in Oregon nursing facilities compared to the Oregon general population and to nursing facilities nationally.
- Racial/ethnic minority residents were younger compared to the state's general nursing facility population.

⁵ An admission refers to an entry into a nursing facility by an individual for the very first time or for the first time after having been discharged from the facility at least 30 days before. A reentry occurs when an individual returns to a facility from which he or she was discharged less than 30 days before. A discharge refers to an individual being released from a nursing facility whether they re-enter or not.

Length of Stay

- 92% of all nursing facility stays were less than or equal to 90 days, commonly referred to as a “short stay.”
- 38% of stays lasted between 14 and 30 days.
- Short- and mid-length stays—meaning stays for less than a full year—averaged 31 days compared to 885 days (or approximately 2.5 years) for long-stays.
- Average lengths of stay were highest for the youngest (under age 25) and oldest (85 and older) age groups.
- The median length of stay in Oregon facilities was 20 days.
- 58% of nursing facility stays linked to hospital discharges were for residents who had been hospitalized for medical conditions, such as infections or pulmonary problems, while 34% had been hospitalized for surgical procedures.
- The overall average nursing facility length of stay was 41.5 days for stays linked to hospital discharges, with a median of 20 days.

Acuity of Residents

- Average ADLs of nursing facility residents decreased 2.3% from 3.74 in 2012 to 3.65 in 2016.
- 45% of stays involved residents who were somewhat or completely dependent on five ADLs, compared to 23% of all nursing facility residents in the U.S.
- 51% of short- and 64% of mid-length stays involved dependence on five or more ADLs, compared to 65% of long-stays.
- Stays of residents under 18 years of age had higher levels of complete dependence than stays of other age groups for all ADLs except bed mobility.
- Bathing was the most common ADL need for all stays (77%), followed by toileting (72%) and bed mobility (71%).
- 59% of stays involved at least one acute medical condition, with anemia, urinary tract infections, and transient ischemic attack (TIA) stroke being the most common individual diagnoses.
- 93% of stays involved at least one chronic medical condition, with seven in 10 having hypertension, four in 10 having hyperlipidemia, and nearly three in 10 having diabetes.
- Physical therapy was provided five or more days per week for 82% of short stays.
- Occupational therapy was provided five or more days per week for 77% of short stays.

Payers

- Medicaid was the primary payer for 59% of resident days in Oregon nursing facilities during 2016, representing a 6% decline over the last 7 years.
- Medicaid paid for 60, 56, and 70% of resident days in urban areas, large rural cities/towns, and small/isolated rural towns, respectively.
- The proportion of days paid for by Medicare Fee-For-Service remained stable from 2015 to 2016 (15%), whereas the proportion of days paid for by Medicare Advantage increased from 8% in 2015 to 10% in 2016.

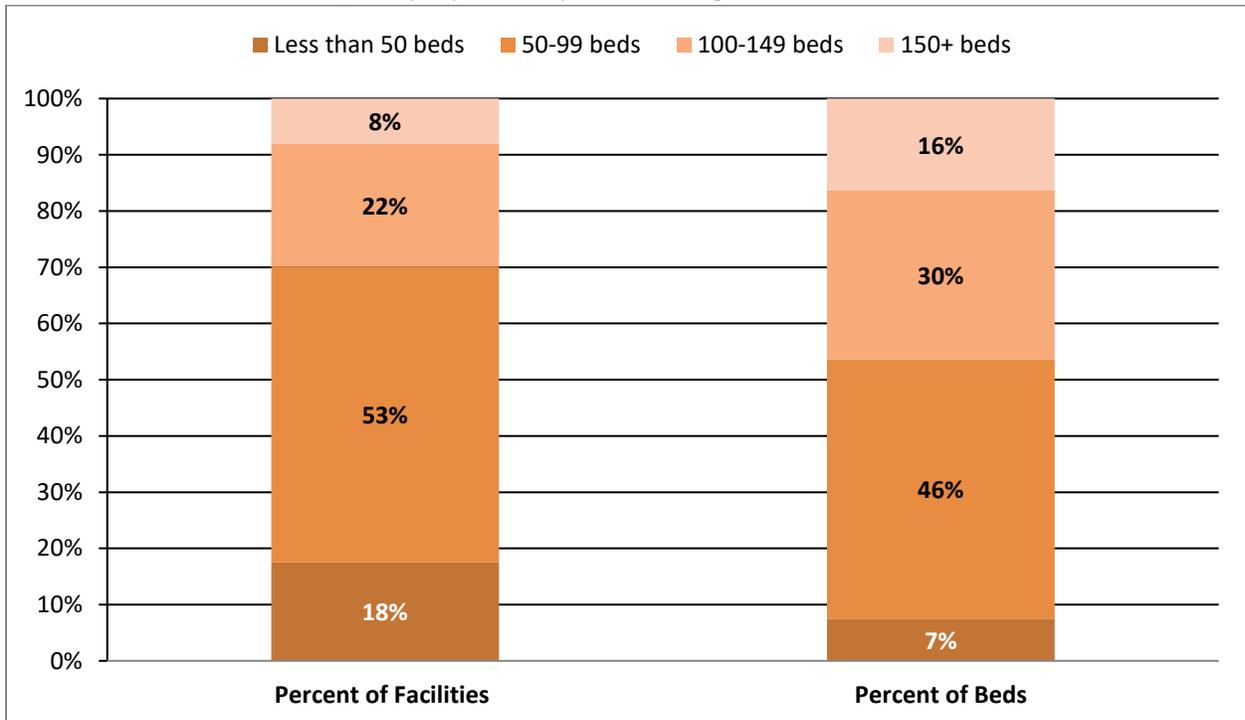
Quality Measures

- Oregon nursing facilities performed the same or better than the national average on eight of 12 CMS-defined quality measures.
- For each quality measure, we divided nursing facilities into four equal groups—or quartiles—to characterize the variation across facilities:
 - Facilities in the highest 25% group had vaccination rates from 89 to 93% for short stays and 98 to 99% for long stays, whereas facilities in the lowest 25% group had rates from 68 to 75% for short stays and 88 to 91% for long stays.
 - Short stays reported 15% moderate to severe pain in the highest 25% group and 29% in the lowest 25% group
 - Long stays reported 8% moderate to severe pain in the highest 25% group and 19% in the lowest 25% group.
 - For most quality measures, adverse events among long stays were two to three times more likely in the lowest 25% group than in the highest 25% group.

Section 1. Licensed Capacity

Oregon had 137 nursing facilities in SFY 2016, with a total of 11,542 licensed beds (Exhibit 1.1). Seventy-one percent of all facilities had fewer than 100 beds, accounting for more than half (53%) of all beds statewide. The average number of licensed beds was 84, compared to 109 nationally in 2014, the most recent data available (Harrington et al., 2015).

Exhibit 1.1. Licensed Capacity by Facility Size, Oregon 2016



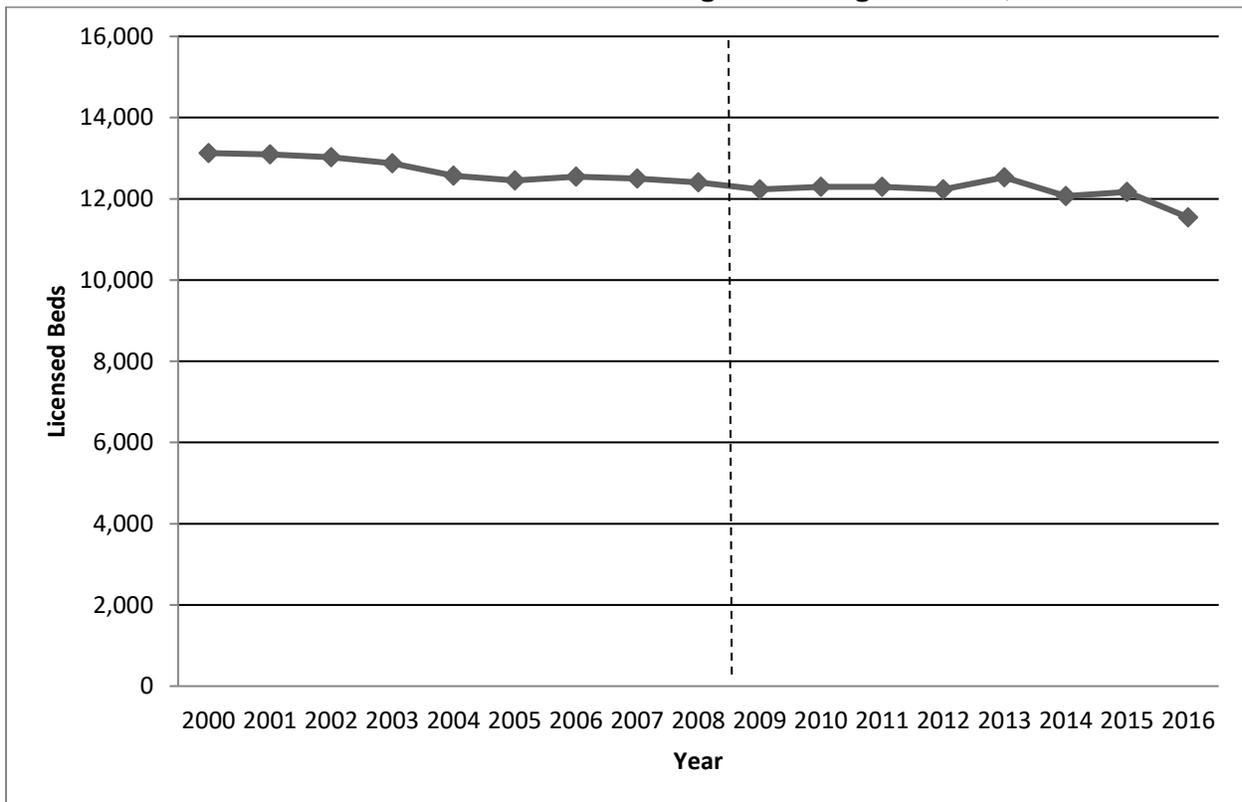
Sources: Cost Reports, Revenue Statements, and Nursing Home Compare 3.0

The total number of nursing facilities in Oregon changed from 138 in the SFY 2015 report to 137 in the SFY 2016 report.⁶ Three nursing facilities changed ownership at the beginning of or during SFY 2016. No facilities closed or opened during SFY 2016.

⁶ One nursing facility that closed in December 2014 was included in the SFY 2015 report; however, there were 137 facilities in operation at the end of SFY 2015 (June 30, 2015).

The total number of licensed nursing facility beds in Oregon declined 12.1% over the last 17 years, from 13,127 in 2000 to 11,542 in 2016 (Exhibit 1.2). The total number of licensed beds in 2016 represents a 5.2% decrease from 2015. One contributor to this decrease in 2016 was reductions in licensed beds at existing facilities. During the year, 29 facilities reduced their number of licensed beds, while only one facility increased its number of licensed beds. The dashed vertical line between 2000-08 and 2010-16 signifies a change in the methodology used to obtain the data reported in this exhibit and in Exhibit 1.3 (next page). Thus, the trends for these two time periods may not be completely comparable.⁷ The overall decrease in licensed capacity contrasts with the national trend, which has remained relatively stable since 2004 (American Health Care Association, 2014). The overall decreasing trend may reflect Oregon’s ongoing efforts to direct individuals into home and community-based long-term care options. Moreover, Oregon has the third lowest number of nursing facility residents per 1,000 population 65 years and older in the United States (AARP, 2014), providing further evidence of the state’s commitment to non-institutionalized long-term care.

Exhibit 1.2. Total Number of Licensed Beds in Oregon Nursing Facilities, 2000-2016

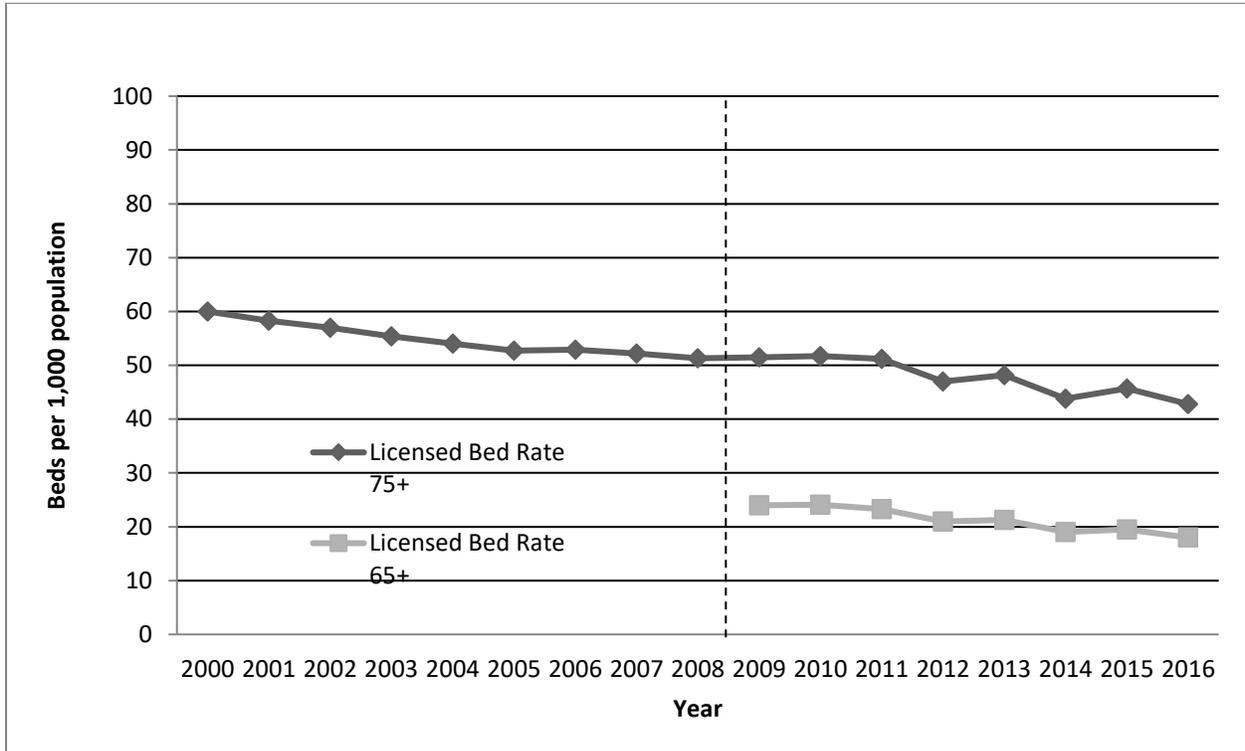


Sources: OHPN Nursing Facility Reports, 2000-08; Cost Reports, Revenue Statements, and Nursing Home Compare 3.0, 2010-15

⁷ Data for the 2000-08 period are based on information used by the state for facility licensing. The trend for 2010-16 come from state and federal data collected as part of the reporting requirements for nursing facility certification and payment.

The number of licensed beds per 1,000 population 75 years and older steadily declined since 2000 (60 vs. 43; Exhibit 1.3). The 29% decrease over the past 17 years reflects the overall reduction in licensed capacity and the growth in the state’s older population during this same time period. Over the last six years, the decrease in the number of licensed beds per 1,000 was smaller for the population 75 years and older (16%) than for the population 65 years and older (23%). This reflects faster population growth among individuals in the oldest age categories, consistent with national demographic trends in the U.S. population.

Exhibit 1.3. Licensed Bed Rate per 1,000 Population 65 Years and Older and 75 Years and Older, Oregon 2000-2016



Sources: OHPNR Nursing Facility Reports, 2000-08; Cost Reports, Revenue Statements, and Nursing Home Compare 3.0, 2010-16

Section 2. Bed Availability

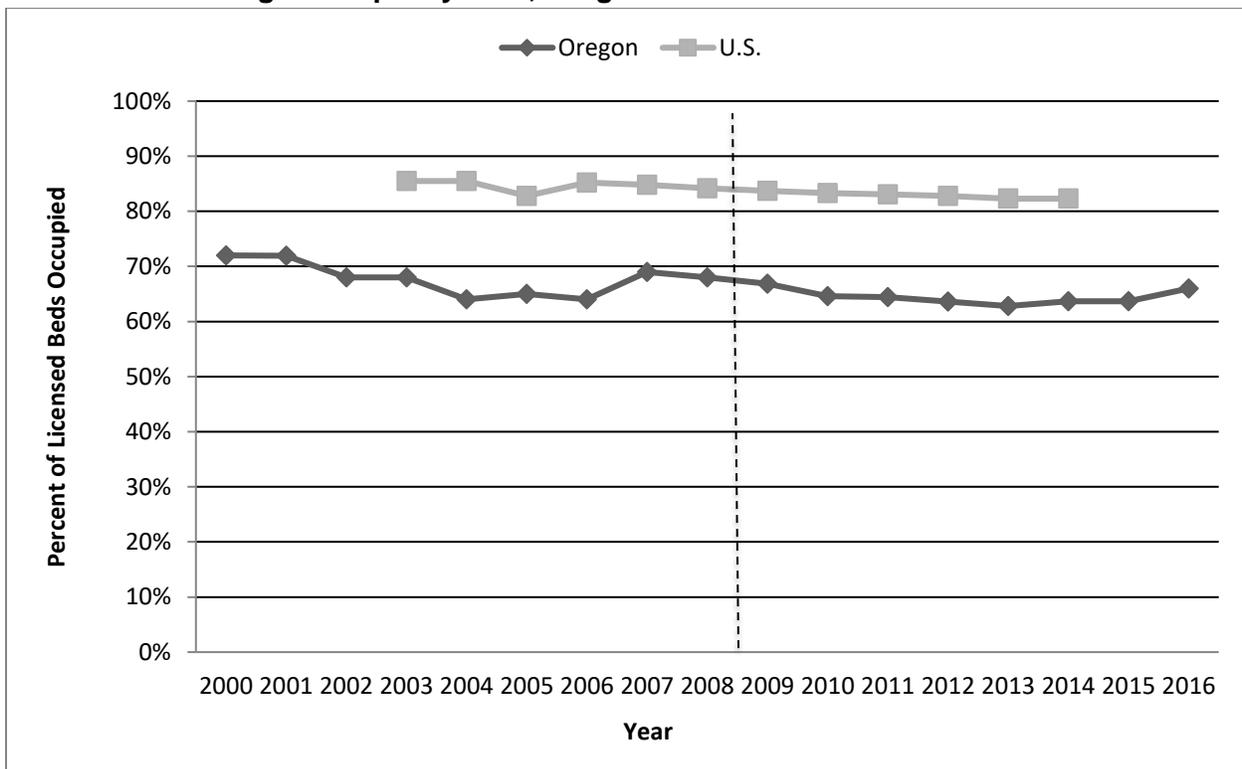
In 2016, there were 43 licensed beds per 1,000 population 75 years and older in Oregon (Appendix, Table A), a decrease of seven percent from 2015. This rate varied widely across the state's 36 counties. Eight counties—Baker, Gilliam, Grant, Harney, Morrow, Sherman, Wallowa, and Wheeler—had no nursing facilities and thus no beds. Among counties that had nursing facilities, the number of licensed beds per 1,000 population 75 years and older ranged from a low of 13 in Jefferson County to a high of 147 in Wasco County (Appendix, Table A).

Statewide, 78% of licensed beds were staffed and available for use, what we refer to as “set-up.” However, the proportion of licensed beds that were “set-up” varied widely across the state. For example, Umatilla County had the lowest percentage of licensed beds that were set-up (54%), followed by Crook County (57%). Clatsop County had the highest percentage of licensed beds that were set up (96%), followed by Tillamook County (94%). There was a twelve-fold difference in the number of set-up beds per 1,000 adults 75 and older across Oregon, from a low of nine in Jefferson County to a high of 108 in Wasco County (Appendix, Table A).

Section 3. Occupancy

The average occupancy rate⁸ statewide decreased from 72% in 2000 to 66% in 2016 (Exhibit 3.1). The average occupancy rate increased by 3% from 2015 to 2016. The dashed line between the 2000-08 and 2010-16 periods signifies a change in the methodology used to obtain the data reported in this exhibit. Thus, the trends for these two time periods may not be completely comparable.⁹ Nonetheless, Oregon’s nursing facility occupancy rates rank as the lowest in the nation. This trend may reflect the state’s continuing efforts to use home and community-based long-term care services, such as assisted living facilities, adult foster care, home health care, and residential care. In addition, Oregon enacted House Bill 2216 in June 2013. The policy reimburses quality nursing facilities that voluntarily reduce bed capacity with the goal impeding the growth of system-wide costs.

Exhibit 3.1. Average Occupancy Rate, Oregon and U.S. 2000-2016



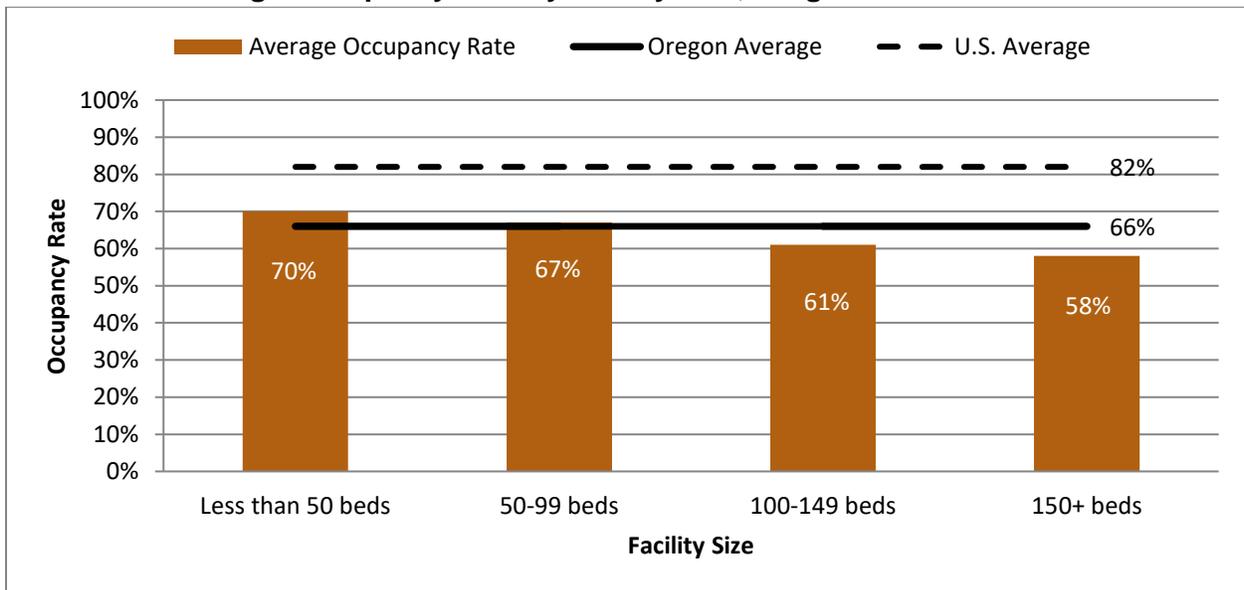
Sources: OHPN Nursing Facility Reports, 2000-08; Cost Reports, Revenue Statements, and Nursing Home Compare 3.0, 2010-15, The Henry J. Kaiser Family Foundation.

⁸ A facility’s occupancy rate is the total number of resident days reported by that facility during the fiscal year divided by the total number of bed days available at that facility during the fiscal year. Occupancy rates are adjusted for facility openings and closings during the fiscal year.

⁹ The dashed vertical line between 2008 and 2009 indicates a change in the data used to construct the trends reported in Exhibits 3.1 and 3.3. Data for the 2000-08 period were collected from annual surveys of the state’s nursing facilities, and year-by-year fluctuations reflect variation in response rates to the survey. Data for 2009 and later years come from state and federal reporting requirements for nursing facility certification and payment, which are not affected by response rates.

In SFY 2016, the average statewide occupancy rate of 66% (Exhibit 3.2) was 16 percentage points lower than the national average (82%) in 2014 (the most current data available), and the lowest rate of any state (Harrington et al., 2015). Smaller nursing facilities, with less than 50 beds, had a higher average occupancy rate (70%) than facilities of any other size. Larger facilities, with 150 or more beds, had the lowest occupancy rate (58%) compared to facilities of other sizes. The occupancy rate increased by six percentage points from 2015 for facilities with 150 or more beds. This change may have reflected the opening and closing of individual nursing facilities of this size. The rates for other-sized facilities were similar to those in 2015.

Exhibit 3.2. Average Occupancy Rate by Facility Size, Oregon 2016

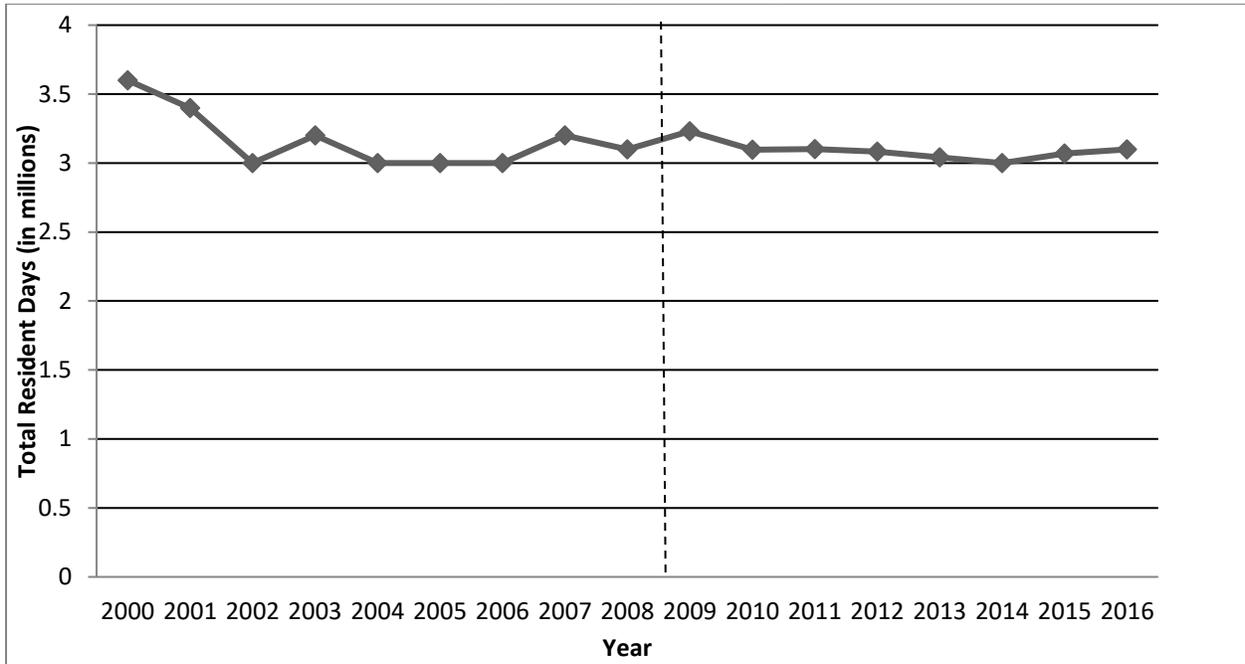


Sources: Cost Reports, Revenue Statements, and Nursing Home Compare 3.0

Average occupancy rates also varied across the state's 36 counties (Appendix, Table A). Jefferson (89%), Klamath (74%), Multnomah (74%), Clackamas (73%), Washington (72%), Linn (69%), Marion (68%), and Lane (67%) Counties had an occupancy rates higher than the statewide average. Seventeen counties had rates under 60%, with Hood River County having the lowest occupancy rate (39%) of all counties statewide.

Overall, the total number of resident days declined between 2000 and 2008, from 3.6 million to 3.1 million (Exhibit 3.3). Since 2009, the number of resident days remained relatively stable, with a one percent increase from 2015 to 2016.

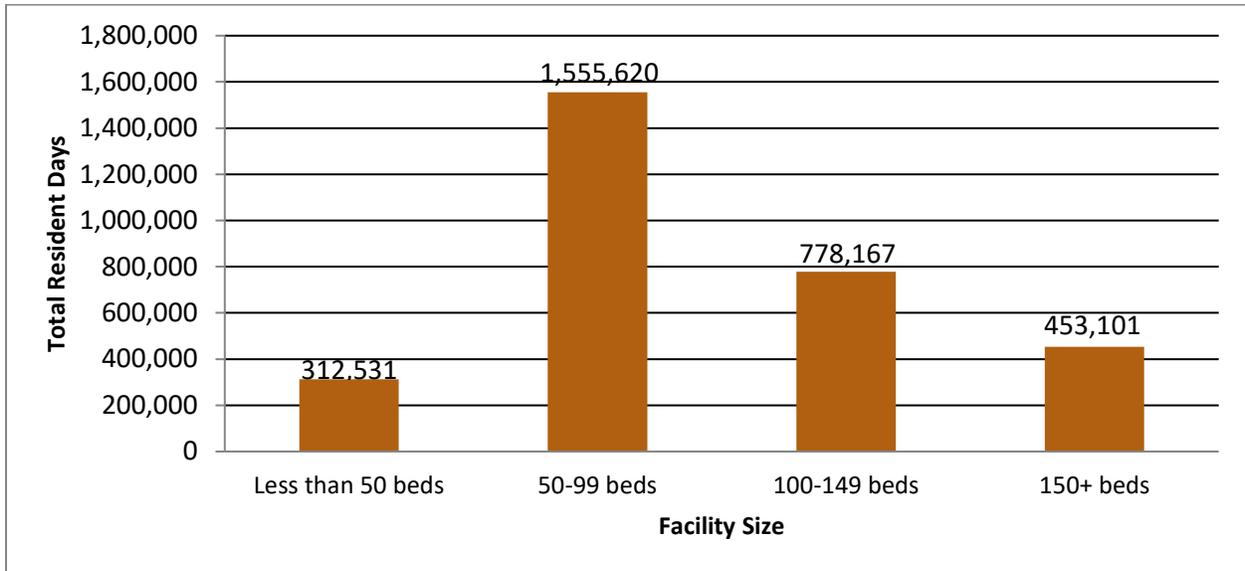
Exhibit 3.3. Number of Resident Days in Oregon Nursing Facilities, 2000-2016



Sources: OHPN Nursing Facility Reports, 2000-08 (adjusted for annual survey response rates); Cost Reports, Revenue Statements, and Nursing Home Compare 3.0, 2010-15

Facilities with 50-99 beds accounted for the greatest share of resident days (50%) for all facilities in 2016 (Exhibit 3.4). However, the smallest- and largest-sized facilities had the fewest number of resident days, representing 10% and 15% of all resident days statewide, respectively. This pattern is consistent with 2015 data. Resident days increased for facilities of all sizes except those with 100-149 beds, which saw a 31% decline. Facilities with 150+ beds had the largest increase from 2015 (44%).

Exhibit 3.4. Total Number of Resident Days by Facility Size, Oregon 2016

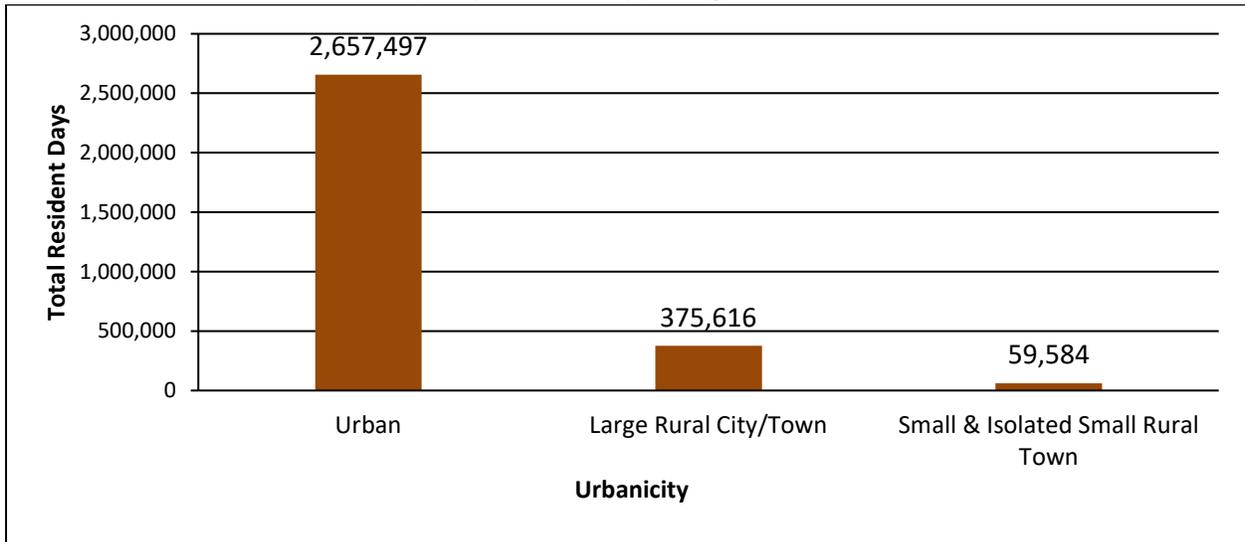


Sources: Cost Reports, Revenue Statements, and Nursing Home Compare 3.0

The total number of resident days also varied by county (Appendix, Table A). Multnomah, Clackamas, Lane, and Washington Counties had the highest numbers of total resident days, accounting for 27, 11, 10, and 9% of all resident days statewide, respectively.

Exhibit 3.5 shows resident days by Rural-Urban Commuting Area (RUCA) categories that we refer to as urbanicity. RUCA categories are defined by U.S. Census tracts, where “urban” refers to an area with population $\geq 50,000$, “large rural city/town” refers to an area with population from 10,000-49,999, and “small and isolated small rural town” refers to a population size of 2,500-9,999.¹⁰ As expected, 86% of all resident days were in urban areas (Exhibit 3.5), compared to 12% and 2% in large rural towns and small rural towns, respectively.

Exhibit 3.5. Total Resident Days by Urbanicity, Oregon 2016



Sources: Cost Reports, Revenue Statements, RUCA 2.0, and Nursing Home Compare 3.0

¹⁰ See Technical Notes for more detailed information on these definitions.

Section 4. Admissions, Discharges, and Reentries

Methodology

An admission refers to an entry into a nursing facility by an individual. There are two categories of admissions, according to CMS Minimum Data Set (MDS) definitions:

- An entry is when an individual enters a facility for the very first time, or for the first time after having been discharged from the facility at least 30 days before.
- A reentry is when an individual returns to a facility from which he or she was discharged less than 30 days before.

A discharge refers to when a person leaves a nursing facility to return to the community, to be admitted to a hospital, or to go to other destinations. A nursing facility stay is a period of continuous residence in a nursing facility, beginning with an admission and ending with a discharge.

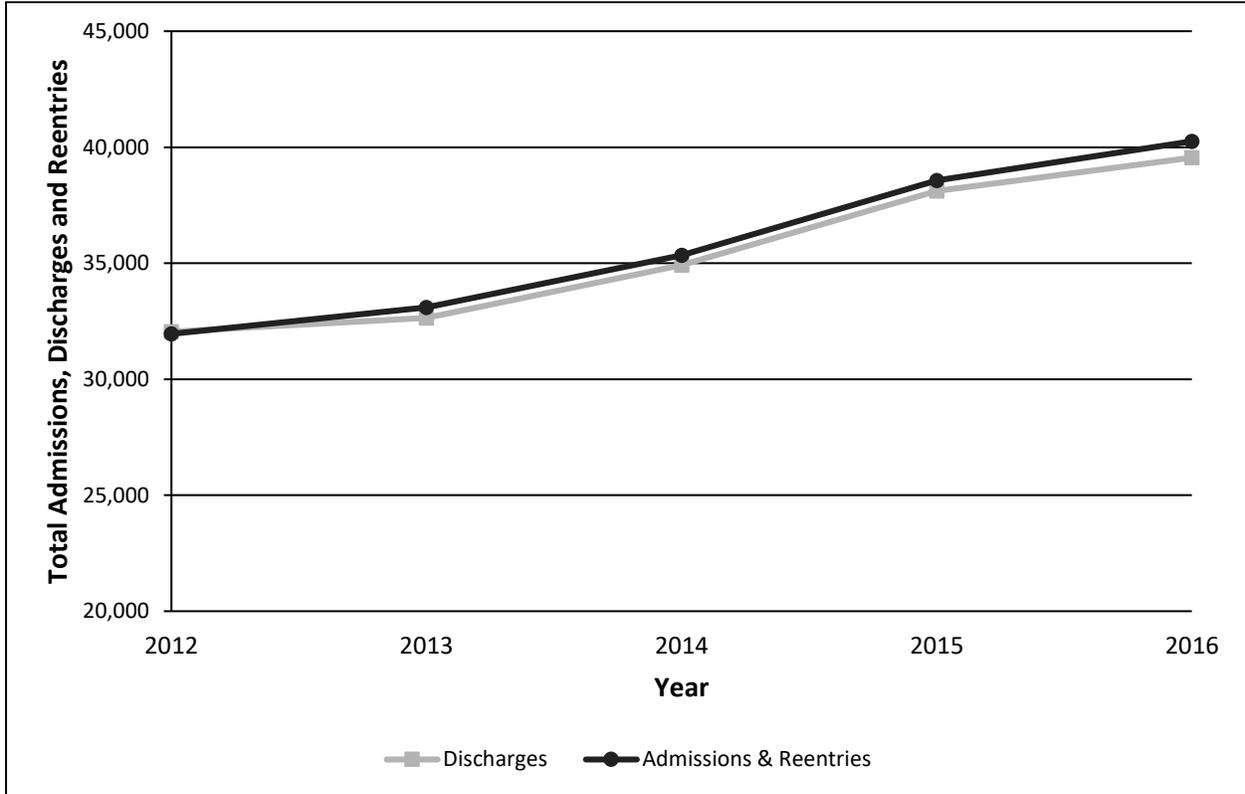
For this report we first identified discharges in the MDS, and then identified the admission date that corresponded to each discharge; the nursing facility stay was constructed as the period from admission to discharge.¹¹ We also identified reentries directly, using dates of discharge from and reentry to the same facility within 30 days. We excluded from our analyses nursing facility stays for which the MDS does not include a discharge date. See the Technical Notes for further details.

After adjusting the total of 38,885 SFY 2016 admissions for 2,209 admissions that were not included in this report because of no discharge date in the MDS, the total number of nursing facility admissions we report is within 5% of the number of Oregon nursing facility admissions derived from detailed annual cost reports submitted to the Centers of Medicare and Medicaid Services by nursing facilities (Hansen Hunter & Co., 2016).

¹¹ As described in the Technical Notes, we began using the current approach for identifying stays in the 2015 report. For persons still residing in a nursing facility on the date the MDS dataset was created for Oregon State University, December 4, 2016, we constructed a stay that began on the admission date and ended on December 4, 2016..

As shown in Exhibit 4.1, the numbers of admissions and discharges have steadily increased from 2012 to 2016. Admissions and Reentries increased from 31,954 in 2012 to 40,254 in 2016. Discharges increased from 32,048 in 2012 to 39,549 in 2016. The percent increases in admissions, discharges, and reentries during this time period were 22.8%, 23.4%, and 37.6%, respectively.

Exhibit 4.1. Trend in Total Admissions, Discharges and Reentries, Oregon 2012 - 2016

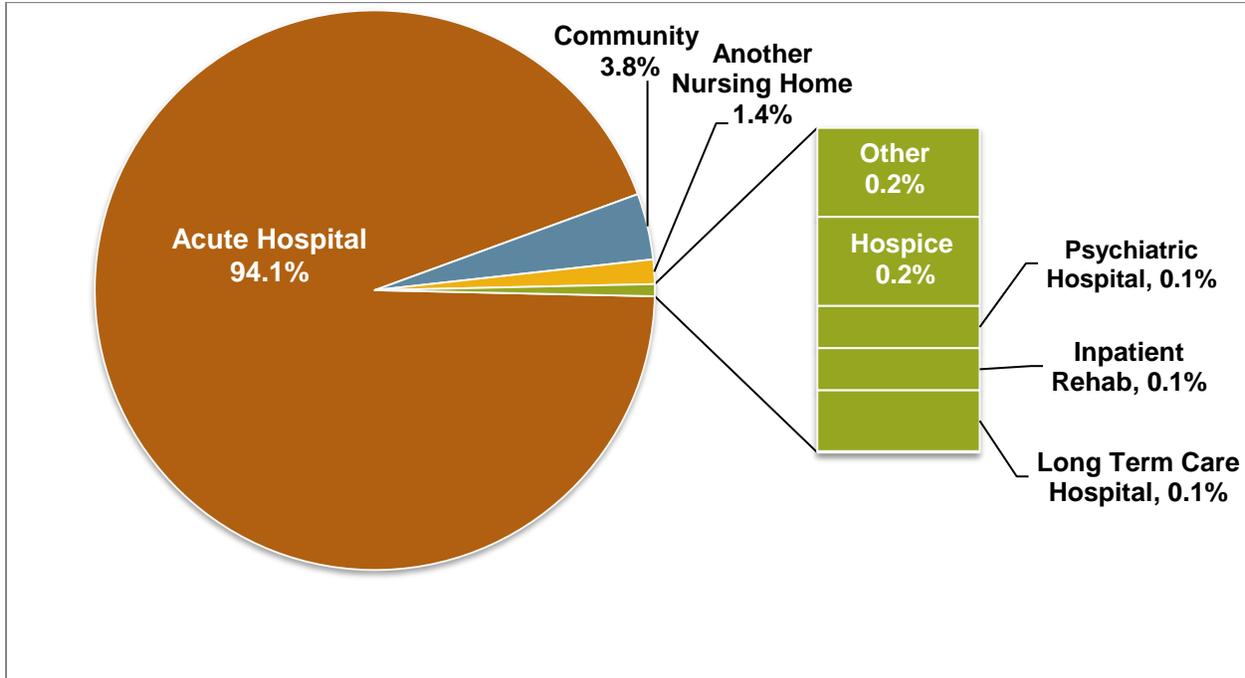


Source: CMS Minimum Data Set

Admissions

In SFY 2016, nursing facilities statewide had 40,256 admissions, based on MDS data. Of these, 9,448 (23.5%) were reentries. Exhibit 4.2 displays the admission source as a percentage of total admissions. Acute hospitals accounted for the highest percentage at 94.1%. Community admission sources contributed 3.8% while another nursing home accounted for 1.4% of total admissions. This pattern has been consistent since 2012 (See Appendix Table B).

Exhibit 4.2. Admission Source as Percentage of Total Admissions, Oregon 2016

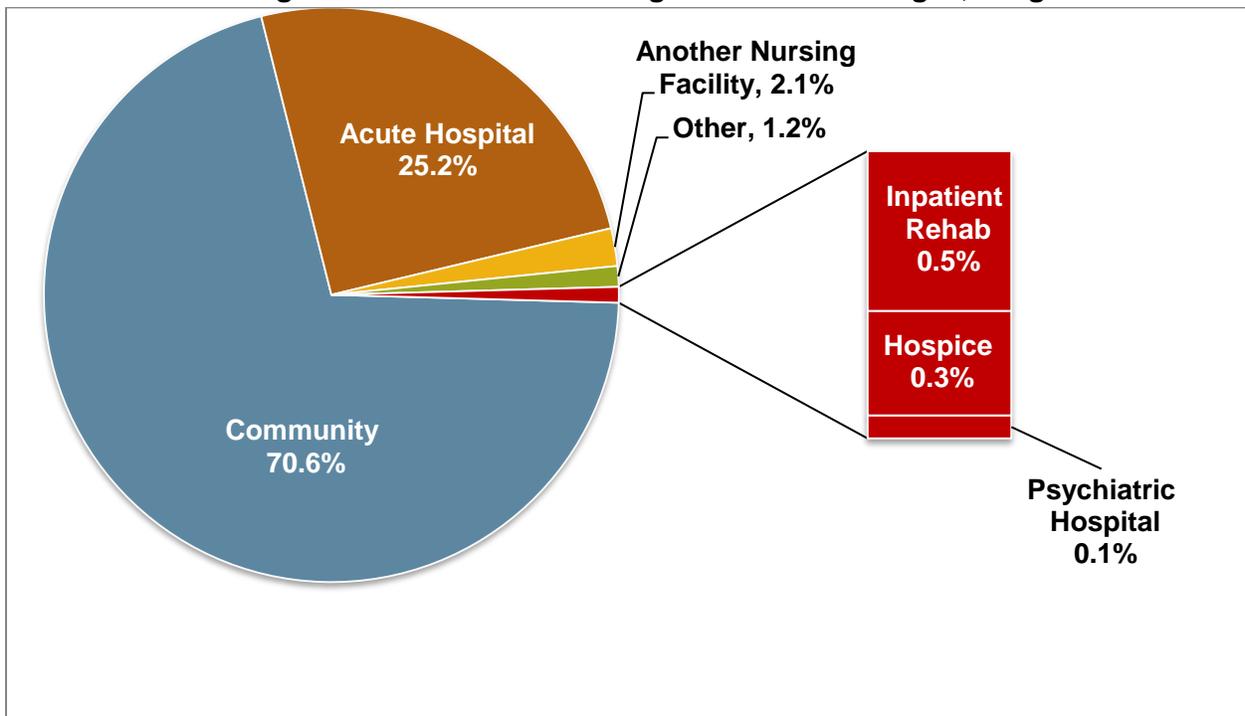


Source: CMS Minimum Data Set

Discharges

In 2016, nursing facilities statewide had 39,549 discharges, based on MDS data. Exhibit 4.3 presents discharge destination as a percentage of total discharges. The majority of individuals discharged from nursing facilities returned to the community (70.6%) followed by acute care hospital (25.2%). A small proportion of residents (2.1%) were transferred to another nursing facility or other facility (1.2%), which included long-term care hospitals or facilities not otherwise specified. Inpatient rehabilitation, hospice, and psychiatric hospitals represented less than one percent of all discharges. The distribution of discharge destinations was very similar from 2012 to 2016, except that the proportion of discharges to the community increased slightly, and the proportion to hospital decreased slightly (see Appendix Table C).

Exhibit 4.3. Discharge Destination as Percentage of Total Discharges, Oregon 2016

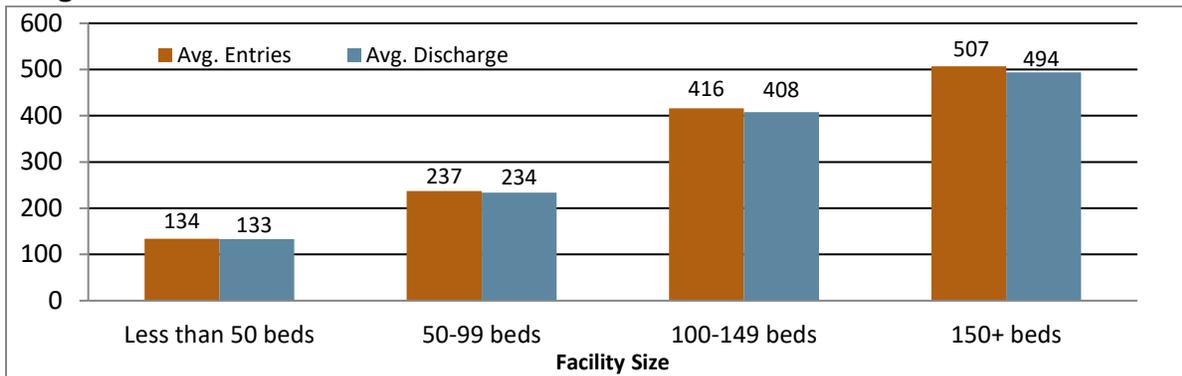


Source: CMS Minimum Data Set

Admissions and Discharges by Facility

Statewide, the average number of admissions per facility was 294 in SFY 2016, and the average number of discharges was 289. However, Exhibit 4.4 shows that the average numbers of admissions and discharges increased with the size of facility. Facilities with less than 50 beds had the lowest average numbers of admissions and discharges (134 and 133, respectively) and facilities with 150 or more beds had the highest average numbers of admissions and discharges (507 and 494, respectively).

Exhibit 4.4. Average Numbers of Admissions and Discharges by Facility Size, Oregon 2016



Source: CMS Minimum Data Set

Reentries to Nursing Facilities after Discharge to Acute Hospitals

As mentioned earlier in this section, some individuals return to nursing facilities within 30 days of being discharged. This event, defined as a reentry,¹² may occur as part of a treatment plan or as a result of a new or unexpected health problem. In State Fiscal Year 2016, one in four nursing facility admissions was a reentry, for a total of 9,448 reentries statewide. Ninety-three percent of these reentries (8,819; Exhibit 4.5) were from an acute hospital. Other reentries came from the community (4%), and other places (3%; data not shown).

Exhibit 4.5 shows the numbers of discharges to acute care hospitals, the number of those discharges followed by reentries to nursing facilities, and the percent reentering within 30 days. Of the 9,934 nursing facility discharges to acute care hospitals, 89% reentered the same nursing facility within a 30-day period. Reentry rates varied only modestly by facility size. Facilities with 100 to 149 beds had the highest reentry rate (91%), and facilities with 150 or more beds had the lowest (81%). Some reentries in SFY 2016 were for discharges that occurred in SF 2015.

Exhibit 4.5. Discharges to and Reentries from Acute Hospitals by Facility Size, Oregon 2016

	Number of Discharges to Acute Hospitals	Number of Reentries from Acute Hospitals within 30 Days	Percent Reentering within 30 days
<50 Beds	613	513	84%
50 - 99 Beds	3,826	3,456	90%
100 - 149 Beds	4,229	3,829	91%
150+ Beds	1,266	1,021	81%
Total	9,934	8,819	89%

Source: CMS Minimum Data Set

Although directly comparable national data on reentries were not available at the time of this report, it is important to note that residents of Oregon nursing facilities were much less likely to be hospitalized than were nursing facility residents in other states. Compared to other states, Oregon has the second-lowest rate of hospitalization¹³ among its long-stay nursing facility residents (AARP, 2014) and the third lowest hospitalization rate¹³ among its Medicare-paid nursing facility residents (Office of the Inspector General, 2013).

¹² In this report we use the term “reentry” to a nursing facility to avoid confusion with “readmission” to an acute hospital.

¹³ This rate includes new hospitalizations and re-hospitalizations.

Section 5. Residents

Exhibit 5.1 shows the composition of Oregon’s nursing facility population by age group, which remained relatively stable from SFY 2015. In 2016, the state’s nursing facility population was younger on average (75 years) than national estimates, with 80% of nursing facility residents being age 65 or older, compared to 85% of residents nationwide (Centers for Medicare & Medicaid Services, 2014).

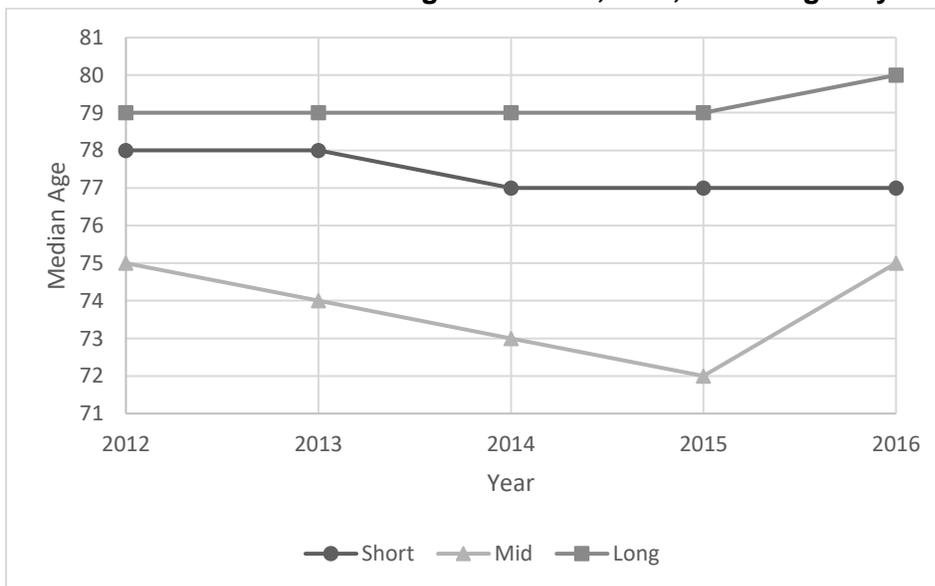
Exhibit 5.1. Distribution of Oregon Nursing Facility Residents by Age, 2016

Age Group	Percent
Under 18	0.1
18-24	0.2
25-44	2.1
45-64	17.8
65-74	23.2
75 - 84	27.9
85 and Over	28.7
Total	100

Source: CMS Minimum Data Set

Age varied by length of stay, with long stays involving the oldest individuals on average. Exhibit 5.2 shows the trend in median age based on length of stay. Long stayers had a consistent trend in median age (79) from 2012 through 2015 with median age rising from 79 to 80 in 2016. Mid-stayers showed a decline in median age from 2012 to 2015, but 2016 brought about an increase from 72 to 74. Short stayers had a slight decrease in median age from 2012 (78) to 2016 (76).

Exhibit 5.2. Trend in Median Age for Short-, Mid-, and Long-Stayers, Oregon 2012 - 2016



Source: CMS Minimum Data Set

Exhibit 5.3 displays the distribution of Oregon’s nursing facility population by marital status. Most of the residents were married (38%) or widowed (33%). The remaining residents were divorced (15%), never married (13%) or separated (1%).

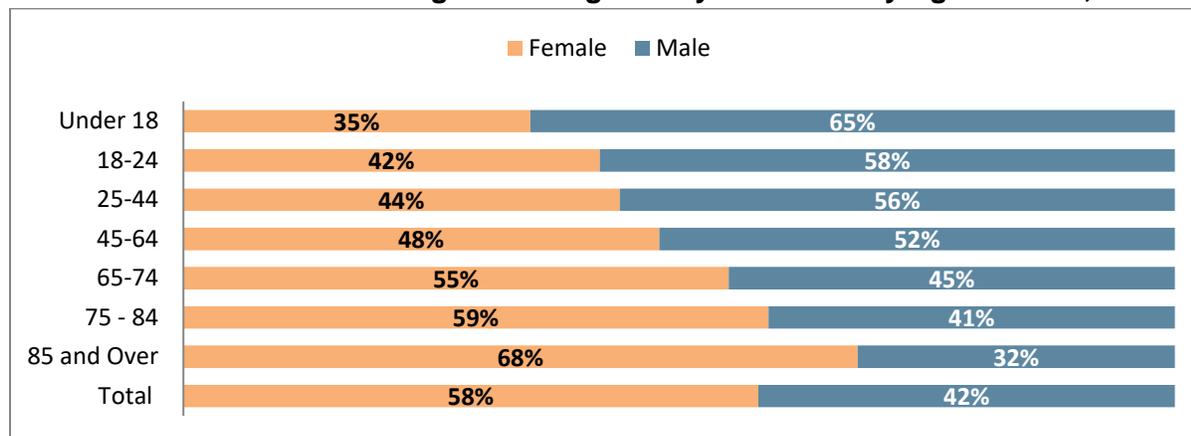
Exhibit 5.3. Distribution of Oregon Nursing Facility Residents by Marital Status, 2016

Marital Status	Percent
Never Married	12.9
Married	37.6
Widowed	32.9
Separated	1.2
Divorced	15.4
Total	100

Source: CMS Minimum Data Set

Exhibit 5.4 shows the composition of Oregon’s nursing facility population by age and sex. In 2016, the majority (58%) of all residents were women, which was lower than the national average of 67% (Centers for Medicare & Medicaid Services, 2014). The proportion of female residents increased with age, with 68% of residents being female in the oldest age category (85 and older).

Exhibit 5.4. Distribution of Oregon Nursing Facility Residents by Age and Sex, 2016



Source: CMS Minimum Data Set

Exhibits 5.5 and 5.6 show the distribution of race/ethnicity for all nursing facility residents and for residents 65 years and older, compared to their counterparts in the general Oregon population. In 2016, the majority of nursing facility residents was non-Hispanic white (87.0%), followed by African American (1.6%) and Hispanic (1.4%). In comparison, the state’s general population in 2015 was 76.6% non-Hispanic white, 12.7% Hispanic, 4.4% Asian American, and 2.1% African American or Black. The racial/ethnic composition of Oregon’s nursing facility population also differed from that of the U.S. nursing facility population in 2012, where 78%, 13.9%, and 5% of all U.S. nursing facility residents non-Hispanic white, African American, and Hispanic, respectively (Centers for Medicare & Medicaid Services, 2014). The slightly higher proportion of

non-Hispanic white residents in the 65+ age category indicates that racial/ethnic minority residents were younger compared to the general nursing facility population.

Exhibit 5.5. Oregon Nursing Facility Residents and General Population by Race/Ethnicity, 2016

Race/Ethnicity	All Nursing Facility Residents	All Oregon Residents
Non-Hispanic White	87%	76.5%
Native American/Alaska Native	0.6%	2.4%*
Asian American	0.8%	4.0%
African American or Black	1.6%	1.8%
Native Hawaiian/ Pacific Islander	0.2%	._**
Hispanic	1.4%	12.7%
More than 1 race	0.4%	3.6%
Unknown	8.0%	._**
Total	100%	N/A

Source: CMS Minimum Data Set; U.S. Census Bureau, 2015 American Community Survey 1-Year Estimates

* This category includes Native American/Alaska Native alone or in combination with one or more races, not Hispanic.

** The American Community Survey does not provide estimates for the Oregon population in these racial/ethnic groups.

Exhibit 5.6. Oregon Nursing Facility Residents and General 65+ Population by Race/Ethnicity, 2016

Race / Ethnicity	Nursing Facility Residents 65+	Oregon Residents 65+
Non-Hispanic White	88.3%	91.4%
Native American/Alaska Native	0.4%	1.7%*
Asian American	0.8%	2.6%
African American or Black	1.2%	0.9%
Native Hawaiian/ Pacific Islander	0.2%	._**
Hispanic	1.1%	3.0%
More than 1 race	0.5%	1.3%
Unknown	7.6%	._**
Total	100%	N/A

Sources: CMS Minimum Data Set; U.S. Census Bureau, 2015 American Community Survey 1-Year Estimates

* This category includes Native American/Alaska Native alone or in combination with one or more races, not Hispanic.

** The American Community Survey does not provide estimates for the Oregon population in these racial/ethnic groups.

The distribution of race/ethnicity was similar by sex, with non-Hispanic whites comprising the majority of all male and female nursing facility residents (data not shown). However, the composition of men and women varied within racial/ethnic categories. The ratio of males to females was roughly equal for non-Hispanic white and Asian American residents. However, there were more males than females for Native American/Alaska Native (1.4:1), African American or Black (1.3:1), Native Hawaiian/Pacific Islander (1.8:1), and Hispanic residents (1.7:1).

Section 6. Length of Stay

Nursing facilities provide 24-hour medical care and monitoring for individuals who need it due to a disability, or have been discharged from the hospital but are not yet able to return to the community. Nursing facilities thus serve individuals with post-acute care needs and those with ongoing needs. The length of a nursing facility stay reflects whether services are needed on a temporary or an indefinite basis. Individuals who enter nursing facilities and remain for 100 or more days are far less likely to return to the community than are those who have shorter stays (AARP, 2014).

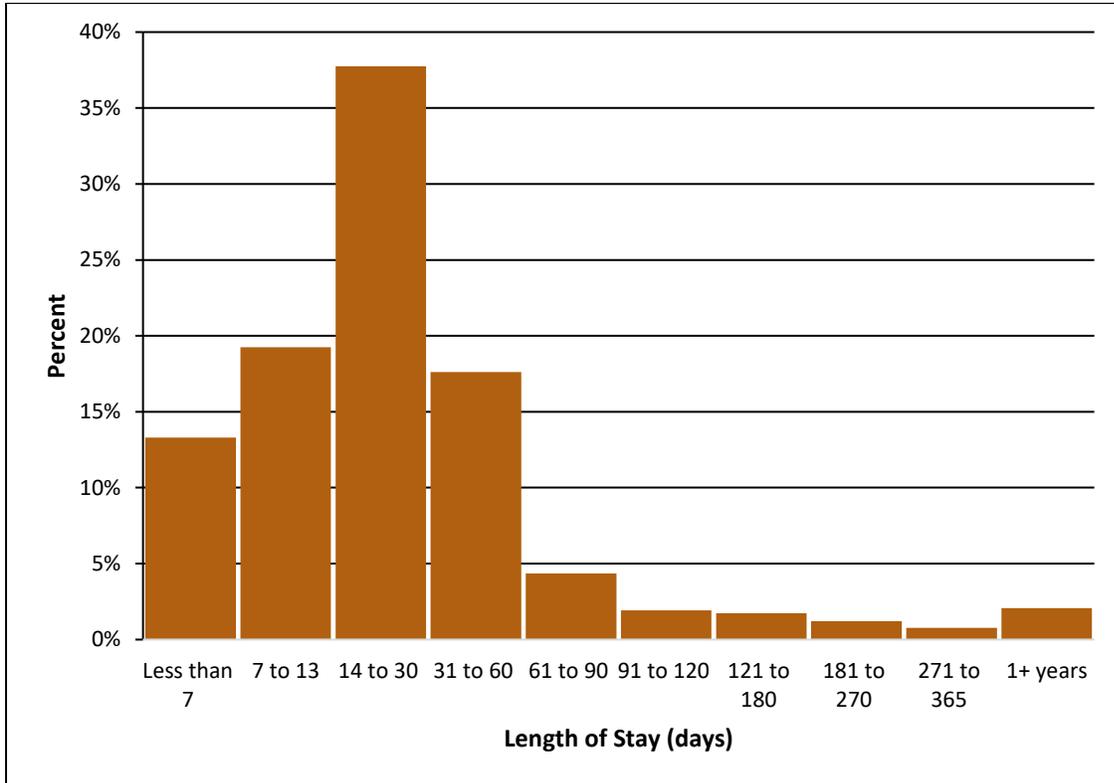
In this report, we define short-term nursing facility stays as less than or equal to 90 (<90) days, mid-length stays as 91 to 365 days, and long stays as more than one year. An individual may have more than one nursing facility stay during the fiscal year. To ensure that length of stay data are directly comparable across years, we report length of stay results only for nursing facility stays that had a discharge during the report year.¹⁴ The Technical Notes at the end of this report provide further detail on how length of stay was calculated for this report.

Short- and mid-length stays—that is, stays for less than a full year—averaged 31 days compared to 885 days (or approximately 2.5 years) for long-stays (data not shown).

¹⁴ In other words, persons who are residents in a nursing facility at the end of the state fiscal year (30 June 2016 for this report) are not included in length of stay results. This approach differs from prior years' reports, in which length of stay was calculated for all residents who spent at least 1 day in a nursing facility during the report year. However, the distributions of length of stay results changed little as a result of the new approach.

Exhibit 6.1 shows the distribution of length of stay for Oregon’s nursing facility population. In 2016, 92% of all nursing facility stays were short,¹⁵ while 6% and 2% were mid-length and long, respectively. More than one in three (38%) stays lasted between 14 and 30 days.

Exhibit 6.1. Nursing Facility Length of Stay, Oregon 2016



Source: CMS Minimum Data Set

Exhibit 6.1 also shows that 70% of Oregon nursing facility stays lasted 30 days or less. This reflects the dominant role of post-acute care in nursing facility utilization in Oregon. The percentage of new nursing facility stays in Oregon that last 100 days or longer is lower than in any other state (AARP, 2014). The greater utilization of nursing facilities for short stays is likely due to the utilization of home and community-based services and assisted living for ongoing long-term care (American Health Care Association, 2013).

¹⁵ 2.9% of stays were exactly 7 days. Therefore, 16.2% of stays were 1 to 7 days, and 16.3% of stays were 8 to 13 days.

Exhibit 6.2 shows the average and median lengths of stay in State Fiscal Year 2016. The median length of stay—that is, the number of days for which half of stays were longer and half were shorter—provides further detail about the utilization of nursing facility care in Oregon. Specifically, although the overall average length of stay was 49 days in SFY 2016, the median length of stay was 20 days because a relatively small proportion of residents with very long lengths of stay inflated the average.

Exhibit 6.2 also presents average and median lengths of stay by age group. Average lengths of stay were highest for the youngest (under age 44) age groups. As discussed in Section 7, these age groups have the greatest need for assistance with Activities of Daily Living. The median length of stay is 30 days or less for all age groups, but the average length of stay ranges from approximately 2 to 7 times greater than the median.

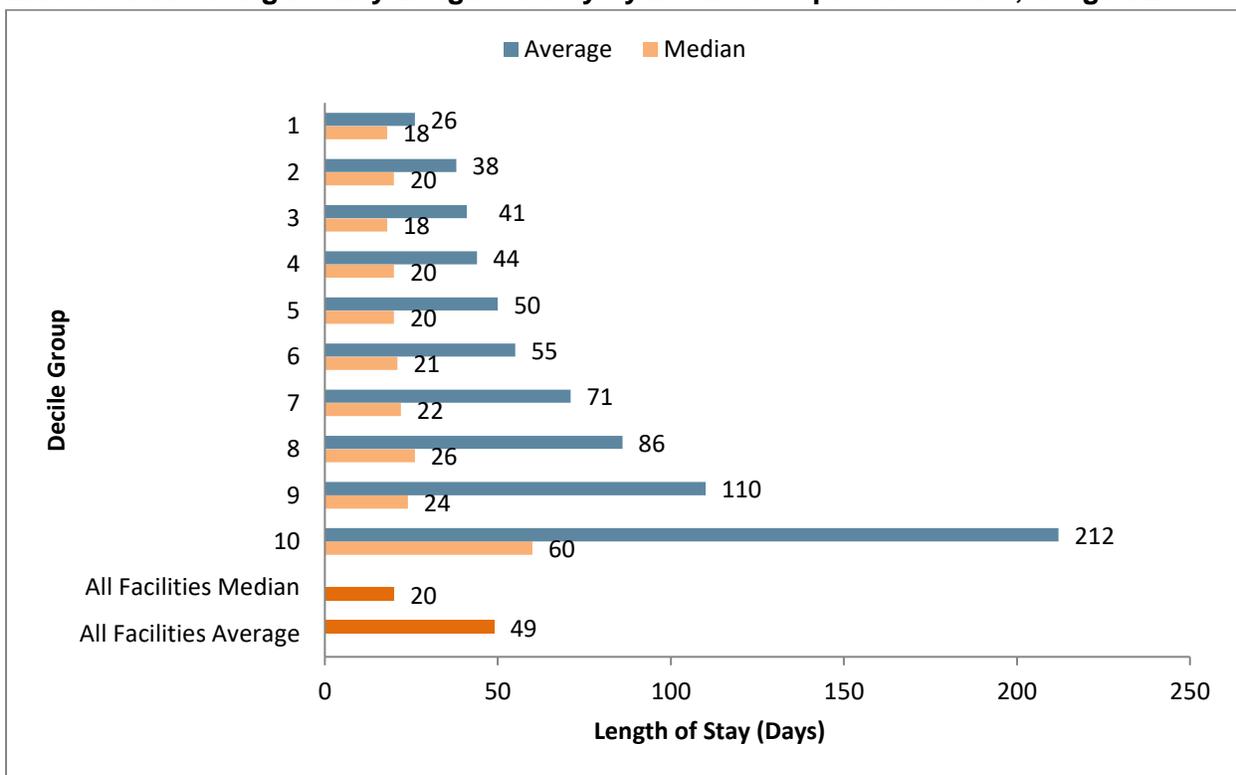
Exhibit 6.2. Nursing Facility Length of Stay (Days) by Age, Oregon 2016

Age Group	Average Length of Stay	Median Length of Stay
Under 18	60	14
18-24	137	20
25-44	64	19
45-64	48	19
65-74	47	19
75-84	47	20
85 and Over	51	22
Total	49	20

Source: CMS Minimum Data Set

Length of stay also varies across facilities. To characterize this variation, we divided nursing facilities into 10 equal-sized groups, or deciles, based on each facility's average length of stay (Exhibit 6.3). Each decile group represents 13 or 14 facilities. The average length of stay increased from 26 days in the first decile group of nursing facilities to 212 days in the tenth decile group of facilities. However, the median length of stay was 26 days or less for facilities in all of the first nine decile groups, reflecting the preponderance of short stays in Oregon nursing facilities, as described above. The tenth decile group has much higher average and median lengths of stay compared to all other groups of nursing facilities. This is consistent with the fact that many facilities in this decile group serve residents with extensive, ongoing care needs including pediatric, enhanced care, or non-dementia behavioral health care needs.

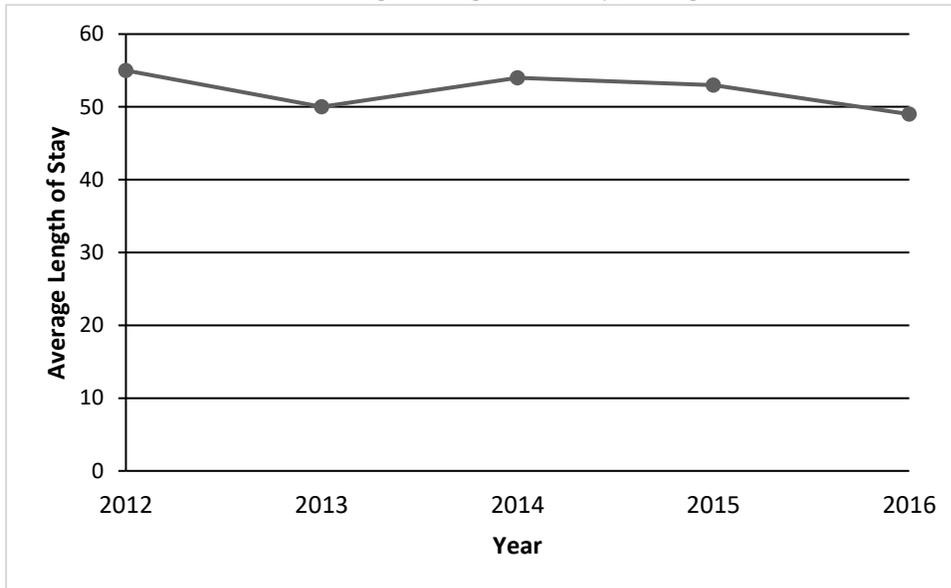
Exhibit 6.3. Nursing Facility Length of Stay by Decile Groups of Facilities, Oregon 2016



Source: CMS Minimum Data Set

Exhibit 6.4 shows the trend in average length of stay for nursing home residents in Oregon from 2012 to 2016. The average length of stay declined from 55 days in 2012 to 49 days in 2016, indicating an 11% decrease during this time period.

Exhibit 6.4. Trend in Average Length of Stay, Oregon 2012 – 2016



Source: CMS Minimum Data Set

Hospitalizations Linked to Nursing Facility Stays

Although more than nine in 10 entries or reentries to nursing facilities were from hospitals, MDS does not provide information about why these residents were hospitalized. Because nursing facility care often focuses on helping residents recover from conditions for which they were hospitalized, such information is helpful in understanding the mix of clinical needs among nursing facility residents.

We therefore linked MDS data to Oregon hospital discharge data records in a two-step linkage process involving, Oregon State University, the Oregon Department of Human Services, and the Oregon Health Authority’s Office of Health Analytics. First, hospital discharge records were matched to the MDS by name and date of birth. Second, specific hospital discharge dates were matched to nursing facility entry or reentry dates for individual nursing facility residents in the MDS. Overall, 31,916 hospital discharges were linked to MDS stays, accounting for 79.3% of all SFY 2016 entries or reentries to nursing facilities from hospitals. The Technical Notes provide further details about the linkage process.

Overall, 58% of nursing facility stays linked to hospital discharges were for residents who had been hospitalized for medical conditions, such as infections or pulmonary problems, while 34% had been hospitalized for surgical procedures. Five percent of linked stays were for residents who had been hospitalized for trauma, one percent for behavioral conditions, and one percent were uncategorized. The overall average nursing facility length of stay was 41.5 days for stays linked to hospital discharges, with a median of 20 days.

The proportions of linked stays with hospital discharges were very similar to 2015 in the medical, surgical, trauma, and other categories. The overall average nursing facility length of stay was approximately 1 day lower in 2016 than in 2015¹⁶ for residents admitted from a hospital.

Exhibit 6.5 presents more detailed information about the clinical reasons for hospitalizations and the average length of stay for subsequent nursing facility stays. Overall, 26% of linked nursing facility stays followed hospitalizations for orthopedic conditions, and the average nursing facility length of stay was 31 days. Almost four in 10 of these orthopedic hospitalizations were for joint replacement surgery, and had an average nursing facility length of stay of 24 days. Somewhat fewer than one in 10 orthopedic hospitalizations were for spinal fusion, and had a 30 day average nursing facility length of stay. Almost one in four orthopedic hospitalizations were for hip fracture repair, and were followed by a nursing facility length of stay averaging 39 days. Patients who had been hospitalized for infections conditions accounted for 17% of nursing facility stays linked to hospitalizations, and had an average nursing facility length of stay of 54 days. Sepsis accounted for slightly more than half of these hospitalizations, with an average 57 day nursing facility length of stay. Cardiology and cardiac surgery hospitalizations accounted for 10% of linked stays, and had an average nursing facility length of stay of 31 days. Hospitalizations for pulmonary conditions (of which almost half were pneumonia or respiratory failure) preceded 7% of linked stays, with an average nursing facility length of stay of 50 days. Residents who had been hospitalized for a stroke or transient ischemic attack (TIA) made up 5% of linked stays, with an average 53 day nursing facility length of stay.

¹⁶ This comparison refers to 2015 lengths of stay calculated according to the same methodology as used in this 2016 report. As described in the Technical Notes, the length of stay results in Section 6 of this report are quite, but not exactly, comparable to those in Section 6 of the 2015 report. The 2016 report presents length of stay data for nursing facility residents discharged in the report year (even if they were admitted in prior years), while the 2015 report presented length of stay for nursing facility residents admitted in the report year.

Exhibit 6.5. Nursing Facility Length of Stay (Days) by Hospital MS-DRG, Oregon 2016

Category of Hospital MS-DRG	Percent of Hospital Discharges	Average Length of Nursing Facility Stay
Orthopedic	26	31
Infectious	17	54
Cardiology & Cardiac Surgery	10	31
Other	8	42
Pulmonary	7	50
Trauma	5	35
Stroke & TIA	5	53
Neurology & Neurosurgery	5	55
Gastroenterology	3	47
General Surgery	3	33
Vascular	3	32
Endocrine	3	42
Renal Failure	3	48
Urology	2	63
Ventilator	1	35
All Discharges	100	42

Sources: CMS Minimum Data Set and Oregon Hospital Discharge Records

Note: Results are shown for nursing facility stays where resident entered from a hospital within SFY 2016 and where MDS data can be linked to hospital discharge data.

Section 7. Acuity of Residents

Acuity Measurements

Acuity commonly refers to an individual's requirements for nursing care. Individuals that enter a nursing facility are assessed to identify the level of care needed during their stay. Nursing facilities use acuity information to plan personnel resources, manage costs, and measure quality. For example, many post-acute care patients are discharged from acute care hospitals after surgery or treatment for acute medical conditions, and temporarily require skilled rehabilitation or nursing care that cannot be provided effectively at home or in community-based facilities. Such individuals comprise a significant portion of short-stay nursing facility residents.

There are many measures of acuity. In this section, we report data about several of those indicators: Activities of Daily Living (ADLs), reasons for hospitalization, diagnoses among residents, and therapies received by residents.

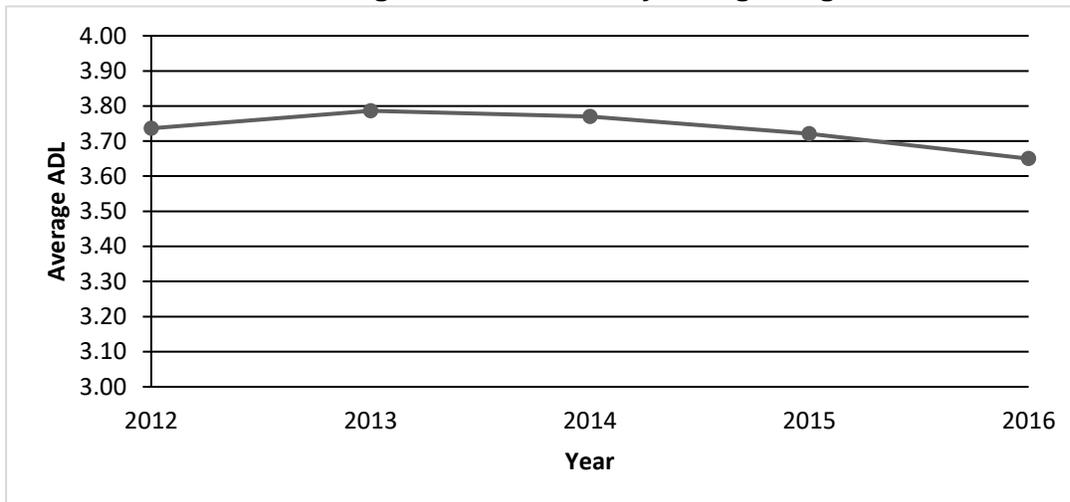
Most data in this section are based on facilities' assessments of their residents as reported in the MDS. Beginning with the SFY 2016 report, we changed methodology to capture assessments for calculating Activities of Daily Living (ADL), diagnoses and treatments. Assessments coded as an entry, reentry or annual assessment were identified first. For any stay that did not have one of these coded assessments, the first assessment of the stay was identified and used instead. This approach allows us to use information from all enrollees in SFY 2016 and to characterize acuity among short and mid-length stays at the time residents entered the nursing facility, and among long-stay residents at the time of their annual reassessment. See the Technical Notes for further details.

Activities of Daily Living

ADLs (Katz, 1983) measure the extent to which care recipients cannot perform self-care tasks. ADLs are used to characterize levels of caregiving need (National Center for Health Statistics, 2006) of individuals, whether on a temporary or indefinite basis. Once admitted to a nursing facility, residents are assessed for their level of dependence for each ADL, ranging from independence in performing the activity to complete dependence on staff. In this report, we focus on bed mobility, transfer, eating, dressing, toileting, and bathing ADLs.

Exhibit 7.1 displays the trend in average number of ADLs among resident stays from 2012 to 2016. The average number of ADLs declined 2.3%, from 3.74 in 2012 to 3.65 in 2016.

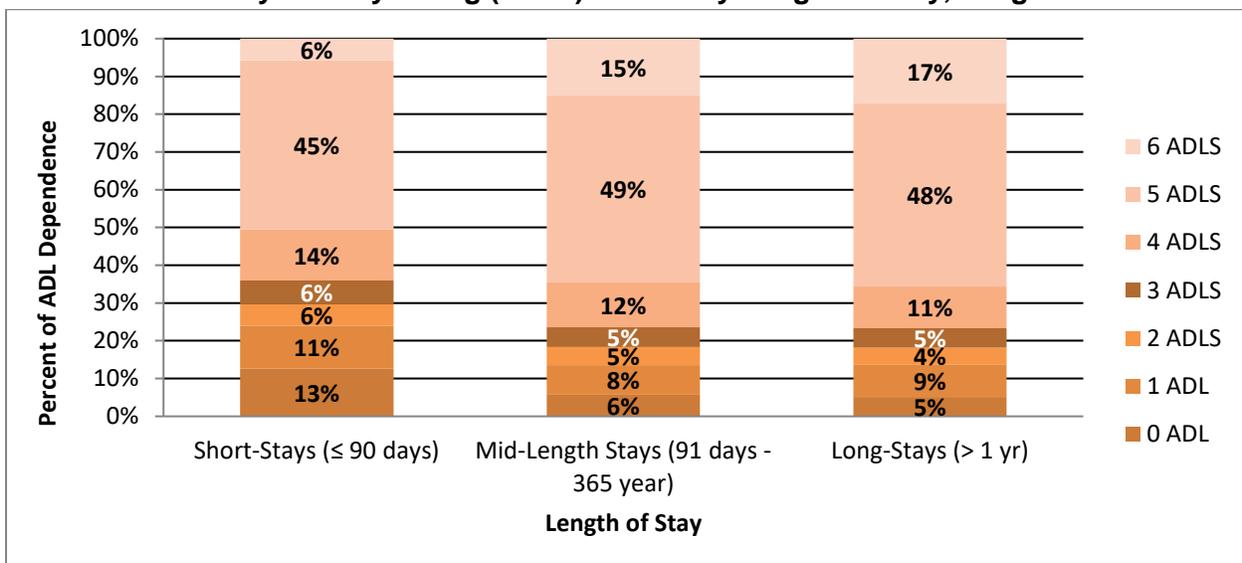
Exhibit 7.1. Trend in Average Activities of Daily Living, Oregon 2012-2016



Source: CMS Minimum Data Set

In 2016, stays with dependence on five ADLs represented the highest proportion of short-stays (45%), mid-stays (49%) and long-stays (48%; Exhibit 7.2). These percentages are approximately twice as high than for all nursing facility residents in the U.S (23%; Centers for Medicare & Medicaid Services, 2014). Fifty-one percent and 64% of short and mid-length stays, respectively, involved dependence on five or more ADLs, compared to 65% of long stays.

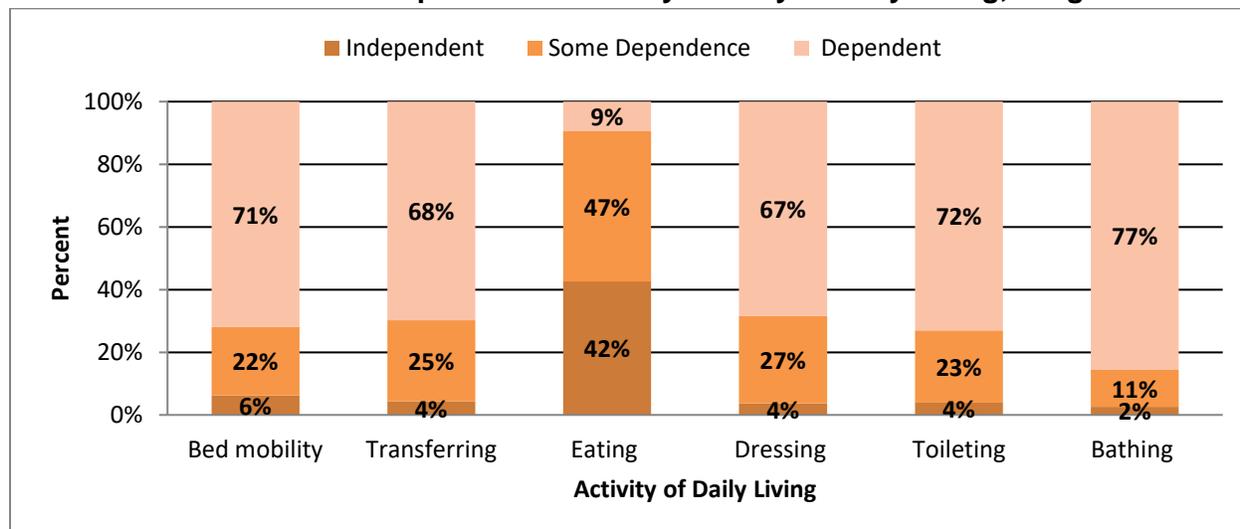
Exhibit 7.2. Activity of Daily Living (ADLs) Scores by Length of Stay, Oregon 2016



Source: CMS Minimum Data Set

Exhibit 7.3 presents the distribution of dependence on staff for six ADLs. For all ADLs except eating, complete dependence on staff was reported for at least 67% of all stays.

Exhibit 7.3. Distribution of Dependence Level by Activity of Daily Living, Oregon 2016



Source: CMS Minimum Data Set

Exhibit 7.4 provides more detail on ADL dependence. In 2016, long stays had the highest proportions of complete dependence in five of six ADLs, compared to other lengths of stay. Mid-length stays had the highest proportions of complete dependence for bed mobility (78%). Stays of individuals under 18 years of age had higher levels of complete dependence than stays of other age groups for all ADLs except bed mobility, followed by individuals age 85 and over for (all ADLs except eating). Bathing was the most common ADL need for all stays. The rates of complete dependence for all ADLs were similar by sex (data not shown).

Exhibit 7.4. Complete Dependence for ADLs by Length of Stay and Age, Oregon 2016

	Bed Mobility	Transferring	Eating	Dressing	Toileting	Bathing
Length of Stay						
Short stay	70%	67%	7%	65%	70%	75%
Mid-length stay	78%	74%	18%	80%	82%	85%
Long stay	76%	74%	20%	81%	82%	89%
Age Group						
Under 18	72%	97%	94%	97%	100%	99%
18-24	53%	54%	33%	54%	58%	64%
25-44	51%	49%	16%	46%	52%	60%
45-64	56%	54%	8%	52%	58%	66%
65-74	69%	64%	8%	63%	69%	75%
75-84	76%	73%	9%	71%	76%	81%
85 and Over	82%	79%	11%	79%	82%	84%
Total Complete Dependence	71%	68%	9%	67%	72%	77%

Source: CMS Minimum Data Set

Clinical Conditions Among Nursing Facility Residents

The number and severity of clinical conditions impact the type and intensity of services received by a nursing facility resident. The MDS provides information about whether a resident had each of 56 specific diagnoses within seven days prior to his or her assessment. We grouped these diagnoses into several major categories, and tabulated whether each stay had one or more diagnoses in each category. Residents who had more than one stay during SFY 2016 may be counted more than once in the ADL measures presented in this report.

Exhibit 7.5 presents the prevalence of each diagnosis category and the most common individual diagnoses. Six in 10 nursing facility stays (59.0%) involved at least one acute medical condition, with anemia, urinary tract infections, and TIA or stroke being the most common individual diagnoses. Nearly all stays (93.4%) involved at least one chronic medical condition, with seven in 10 involving hypertension, four in 10 involving hyperlipidemia, and nearly three in 10 involving diabetes. Approximately one in four stays involved a cardiac rhythm disorder, gastric ulcer or reflux, arthritis and/or chronic lung disease such as asthma or COPD. Approximately one in five stays involved heart failure, coronary artery disease, and/or kidney problems, including renal failure. One in eight stays involved osteoporosis.

One in 10 stays involved a hip fracture, and nearly one in seven another type of fracture. One in eight stays involved neurologic conditions such as seizure disorders or Parkinson's disease. Four in 10 stays involved one or more behavioral health conditions, with one in three involving depression and one in six involving anxiety. Approximately one in five stays involved dementia.¹⁷ Severely disabling conditions such as full or partial paralysis or traumatic brain injury were present in 7.4% of stays.

¹⁷ The MDS diagnosis category of "Alzheimer's Disease" shown in Exhibit 7.5 may underestimate the prevalence of Alzheimer's dementia in nursing facility residents. MDS assessments require that a diagnosis be confirmed by a physician within the past 60 days and have a direct relationship to the resident's current functional, cognitive, or mood or behavior status, treatment, monitoring, or mortality risk within the 7 days before the assessment. Diagnoses for which prior physician documentation is not available or that are not being specifically treated may therefore not be captured on an MDS assessment. MDS also provides another possible category of "Non-Alzheimer's Dementia" described as "e.g., Lewy-Body dementia; vascular or multi-infarct dementia; mixed dementia; frontotemporal dementia, such as Pick's disease; and dementia related to stroke, Parkinson's disease or Creutzfeldt-Jakob diseases."

Exhibit 7.5. Percent of Nursing Facility Stays with Specific MDS Diagnoses by Category, Oregon 2016

Category Specific MDS Diagnosis	Percent of Stays	Category Specific MDS Diagnosis	Percent of Stays
Acute Medical	59.0	Chronic Medical Cont'd	
Anemia	21.5	Cataracts, Glaucoma, Macular Degeneration	9.4
UTI	12.5	Benign Prostatic Hyperplasia	9.1
TIA or Stroke	11.1	PAD	6.7
Cancer	9.4	Fractures	22.4
Pneumonia	8.0	Other Fracture	14.0
Hyponatremia	6.4	Hip Fracture	9.7
Respiratory Failure	5.5	Neurologic	13.0
Malnutrition	4.9	Seizure/Epilepsy	5.3
DVT	4.9	Parkinson's Disease	3.6
Septicemia	4.0	Behavioral	41.6
Chronic Medical	93.4	Depression	34.7
Hypertension	69.4	Anxiety	17.0
Hyperlipidemia	40.1	Dementia	17.8
Diabetes	31.8	Non-Alzheimer's	15.7
Atrial Fibrillation	28.6	Alzheimer's	3.0
Ulcer or Reflux Disease	25.4	Paralysis & TBI	7.4
Arthritis	24.5	Hemi/Para/Quadriplegia	6.3
Asthma, COPD	24.4	Traumatic Brain Injury (TBI)	0.9
Thyroid Disorder	21.9	Severe & Persistent Mental Illness (SPMI)	6.3
Heart Failure	21.7	Manic Depression	3.2
Coronary Artery Disease	19.8	Schizophrenia	2.5
ESRD	19.1	None of the Above	1.2
Osteoporosis	11.4		

Source: CMS Minimum Data Set

Notes Percent indicates stays with one or more specific MDS diagnoses in that category. Because diagnoses are not mutually exclusive, percentages add up to more than 100%. Diagnoses that occur in less than 2.5% of stays are not shown individually, but are included in the category. See Technical Notes for a list of all diagnoses.

As shown in Exhibit 7.6, the prevalence of some diagnoses varied by nursing facility length of stay. Acute medical conditions were somewhat more common among long-stay residents, but the prevalence of chronic medical conditions was high regardless of length of stay. Fractures were much more common among short-stay residents. However, the prevalence of other categories of diagnoses, including neurologic conditions, behavioral health conditions, dementia, paralysis, and SPMI, was markedly higher among residents with longer lengths of stay. The prevalence of some diagnoses also varied by resident age (data not shown). Residents age 75 and older were more likely than younger residents to have had fractures or dementia, but less likely to have suffered from neurologic or behavioral conditions, paralysis, or SPMI.

Exhibit 7.6. Distribution of MDS Diagnosis Categories by Length of Stay, Oregon 2016

Diagnosis Category	Percent of Stays with One or More Diagnoses in Category		
	Short Stay	Mid Stay	Long Stay
Acute Medical	58%	63%	60%
Chronic Medical	94%	92%	92%
Fractures	24%	16%	13%
Neurologic	11%	23%	25%
Behavioral	39%	53%	54%
Dementia	14%	26%	40%
Paralysis & TBI	5%	16%	17%
SPMI	5%	13%	15%
None of the Above	1%	0%	0%
Total Stays	38,472	4,263	3,502

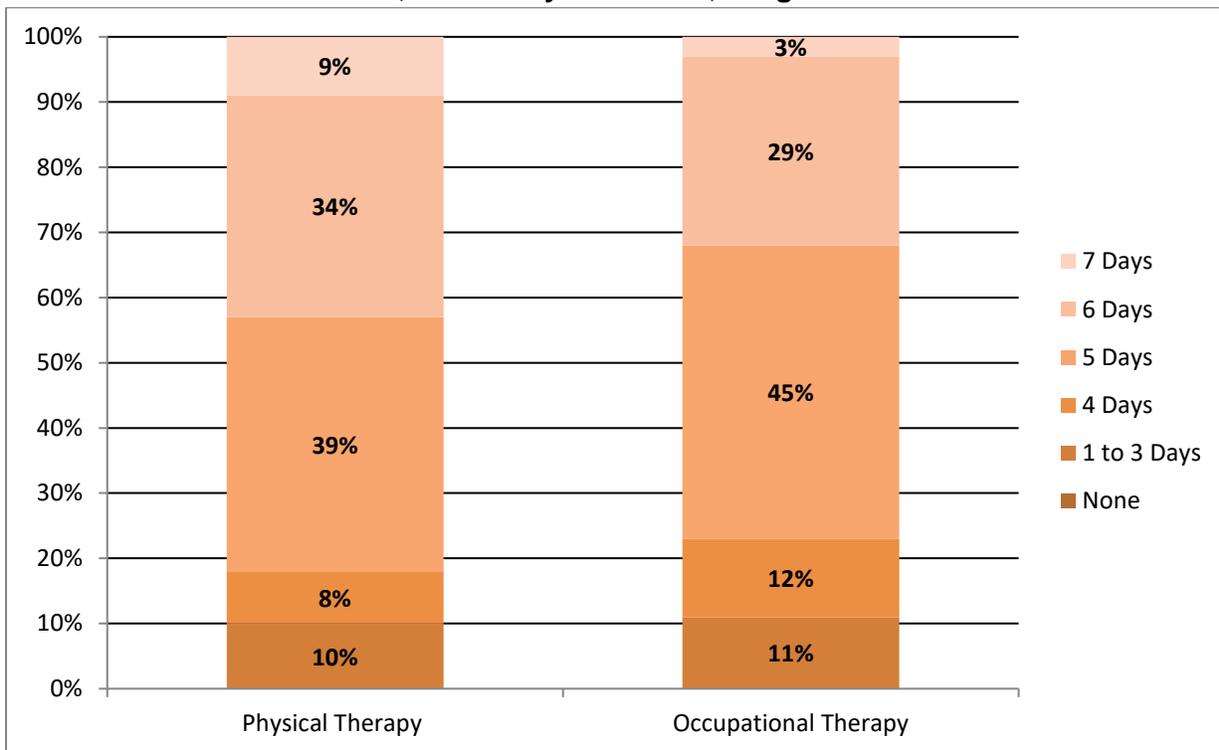
Source: CMS Minimum Data Set

Treatments Provided to Nursing Facility Residents

MDS captures information about selected types of treatment provided to nursing facility residents. We measured the number of stays for which specific types of treatment were provided within 7 days prior to the assessment.

As shown in Exhibit 7.7, all short-stay residents received physical and occupational therapy in the period after they entered a nursing facility. For more than eight in 10 short stays, physical therapy was provided five or more days per week. Occupational therapy was provided five or more days per week during eight of 10 short stays as well.

Exhibit 7.7. Distribution of Number of Days of Physical and Occupational Therapy within 1 Week Prior to Assessment, Short Stay Residents, Oregon 2016



Source: MDS Minimum Data Set

Additionally, oxygen was administered during 16.7% of nursing facility stays in SFY 2016 (data not shown). BiPAP treatment (to prevent breathing stoppages during sleep for residents with sleep apnea) was provided for 3.3% of stays (data not shown). Dialysis, which indicates the presence of renal failure, was needed for 2.2% of stays (data not shown). The rate of each of these treatments was roughly twice as common among short stays compared to long stays.

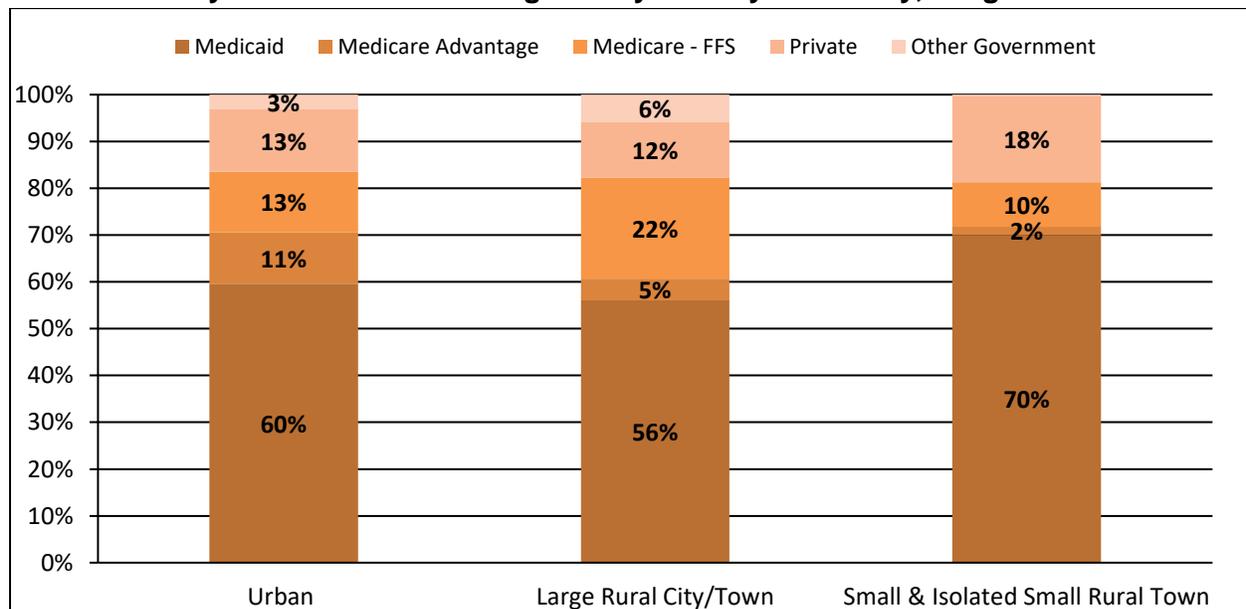
Section 8. Payers

Medicaid was the primary payer for more than half (59%) of resident days in Oregon nursing facilities during 2016 (Exhibit 8.1). Private payers (including commercial insurers, long-term care insurance plans, and self-pay residents) paid for 14% of all resident days. Medicare Fee-For-Service (FFS), which covers up to 100 days of skilled nursing facility care per year, paid for 15% of resident days, and Medicare Advantage plans paid for 10%. Other government payers (including the Veterans Administration) paid for the remaining 3% of resident days in 2016.

Medicare Advantage, the managed care option for Medicare beneficiaries, is an important payer in the Oregon health care market. At 44% of eligible beneficiaries, Oregon has the third highest rate of Medicare Advantage enrollment among states (Jacobson et. al 2016). This is the second year that we are able to report the percentage of resident days paid for by Medicare Advantage because of enhanced DHS data collection. Prior to 2015, Medicare Advantage was mostly included in the private payer category. Because of this methodological change, the 2015 and 2016 data reported here for Medicare and private payers are not directly comparable to those of prior years. Additionally, the possibility continues to exist of under-reporting of resident days paid for by Medicare Advantage in 2016. As nursing facilities continue to gain more experience with the new reporting categories, the proportion of Medicare Advantage versus private payer days will likely change in future years.

Exhibit 8.1 presents payer sources for Oregon’s nursing facilities by urbanicity, using the same categories described for Exhibit 3.5 (p. 17). In 2016, Medicaid was the majority payer of resident days. Medicaid paid for 60% of resident days in urban areas, 56% in large rural cities/towns and 70% in small/isolated rural towns.

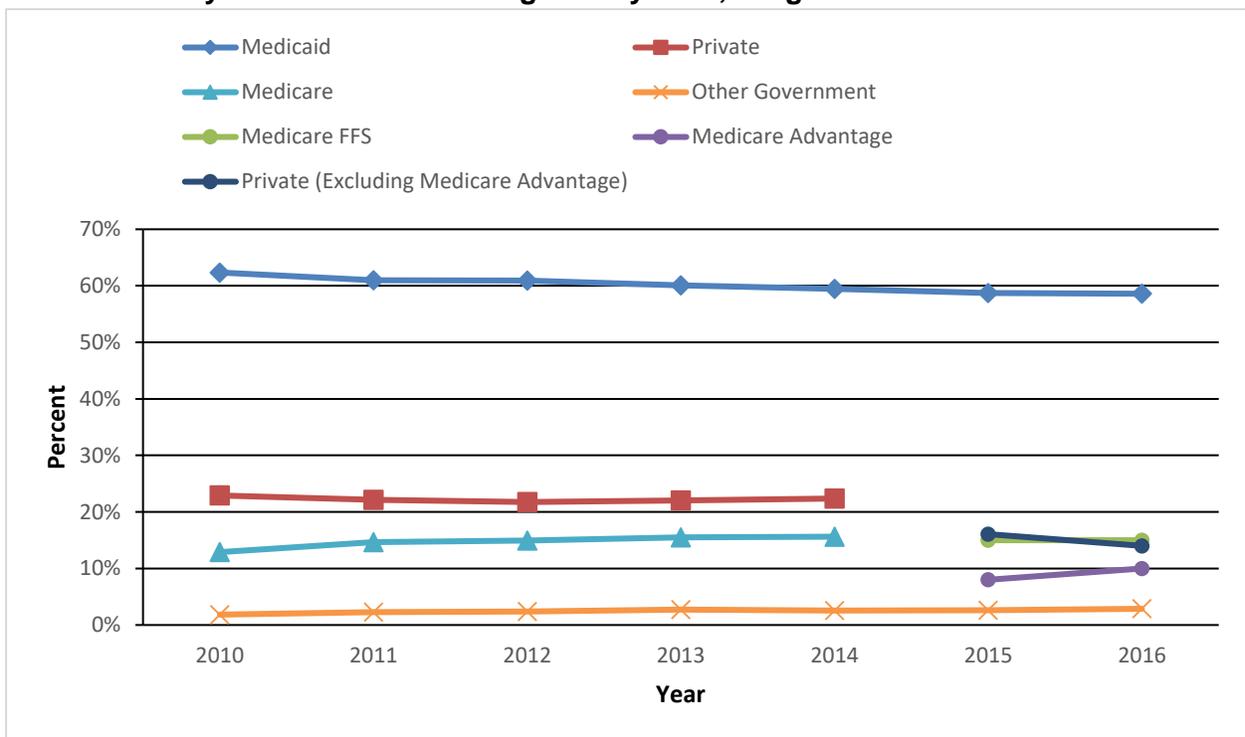
Exhibit 8.1. Payer Sources for Nursing Facility Care by Urbanicity, Oregon 2016



Source: Cost Reports and Revenue Statements

As shown in Exhibit 8.2, the share of nursing facility resident days paid for by Medicaid declined slightly between 2010 and 2016 (62 vs. 59%), and the proportion of days paid for by other government sources remained relatively stable over those years. The dashed line signifies the 2015 change in methodology to require separate reporting of resident days paid for by Medicare Advantage. As a result, the percentage of days paid by private payers appears to have declined since 2014 but is actually an artifact of the improved measurement of payer sources over the last two years. The proportion of days paid for by Medicare Fee-For-Service remained stable from 2015 to 2016 (15%), whereas the proportion of days paid for by Medicare Advantage increased from two percentage points to 10%.

Exhibit 8.2. Payer Sources for Nursing Facility Care, Oregon 2010-2016



Sources: Cost Reports and Revenue Statements

Note: For years 2010 through 2014, "Medicare" includes Medicare FFS only.

Section 9. Quality Measures

Nursing Home Compare summarizes information on specific nursing facility quality measures based on MDS 3.0 assessments. We report the average performance level for Oregon nursing facilities on each of these measures. We divided the facilities into four equal groups—or quartiles—for each measure to characterize the variation in performance across facilities. The exhibits in this section show the statewide performance level for all facilities, the performance level by best, second best, third best, and worst groups of facilities, and the national averages for each measure. The number of facilities in each group depended on the total number of facilities for which a given measure is reported, which ranged from 122 to 133 facilities.

Exhibit 9.1 shows the rates of appropriate administration of seasonal flu and pneumococcal pneumonia vaccinations, with higher rates indicating better quality of care. Over 75% of short-stay residents, and over 90% of long-stay residents, were assessed for, and when appropriate, given each vaccine. These rates are similar to those of all nursing facilities nationwide. Average performance for flu vaccine was slightly lower than in 2015, and the same or slightly improved for pneumococcal vaccine. For each vaccine measure, there was substantial variation between facilities in the highest and lowest 25% groups in 2016.

Exhibit 9.1. Vaccination Rates by Length of Stay and Specific Nursing Facility Groups, Oregon and U.S. 2016

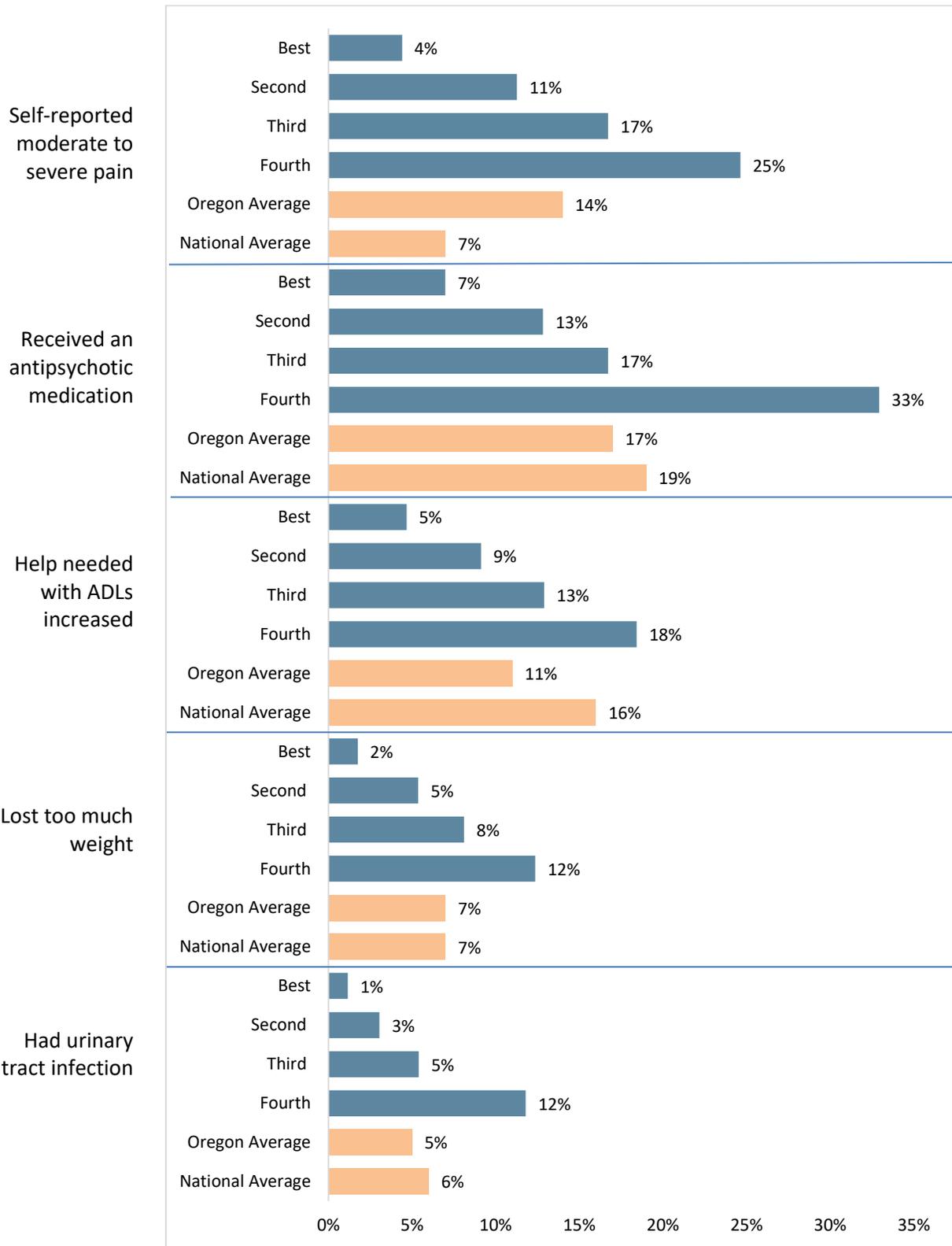
Vaccination	All Oregon Facilities	Best	Second	Third	Fourth	All U.S. Nursing Facilities
Short stay						
Seasonal flu vaccine	77%	93%	87%	77%	52%	83%
Pneumococcal vaccine	80%	97%	89%	81%	54%	82%
Long stay						
Seasonal flu vaccine	92%	100%	97%	92%	80%	93%
Pneumococcal vaccine	92%	100%	98%	95%	77%	94%

Source: Nursing Home Compare 3.0

Exhibits 9.2 and 9.3 show the rates of specific events occurring during short and long stays; lower rates indicate better quality of care. Overall, Oregon nursing facilities performed the same or better than the national average on eight of 12 quality measures. There was substantial variation across facilities in reported rates of pain, which may reflect variations in the mix of residents across facilities. Higher rates of reported pain in Oregon facilities than nationwide may reflect the higher acuity of nursing facility residents in Oregon compared to other states. Seventeen percent of long stays involved residents newly receiving an antipsychotic medication compared to two percent of short stays.¹⁸ Use of antipsychotic medications among long-stay residents has been the target of a national quality improvement initiative since 2011, and has declined steadily in Oregon nursing facilities over that time period (Centers for Medicare & Medicaid, 2014).

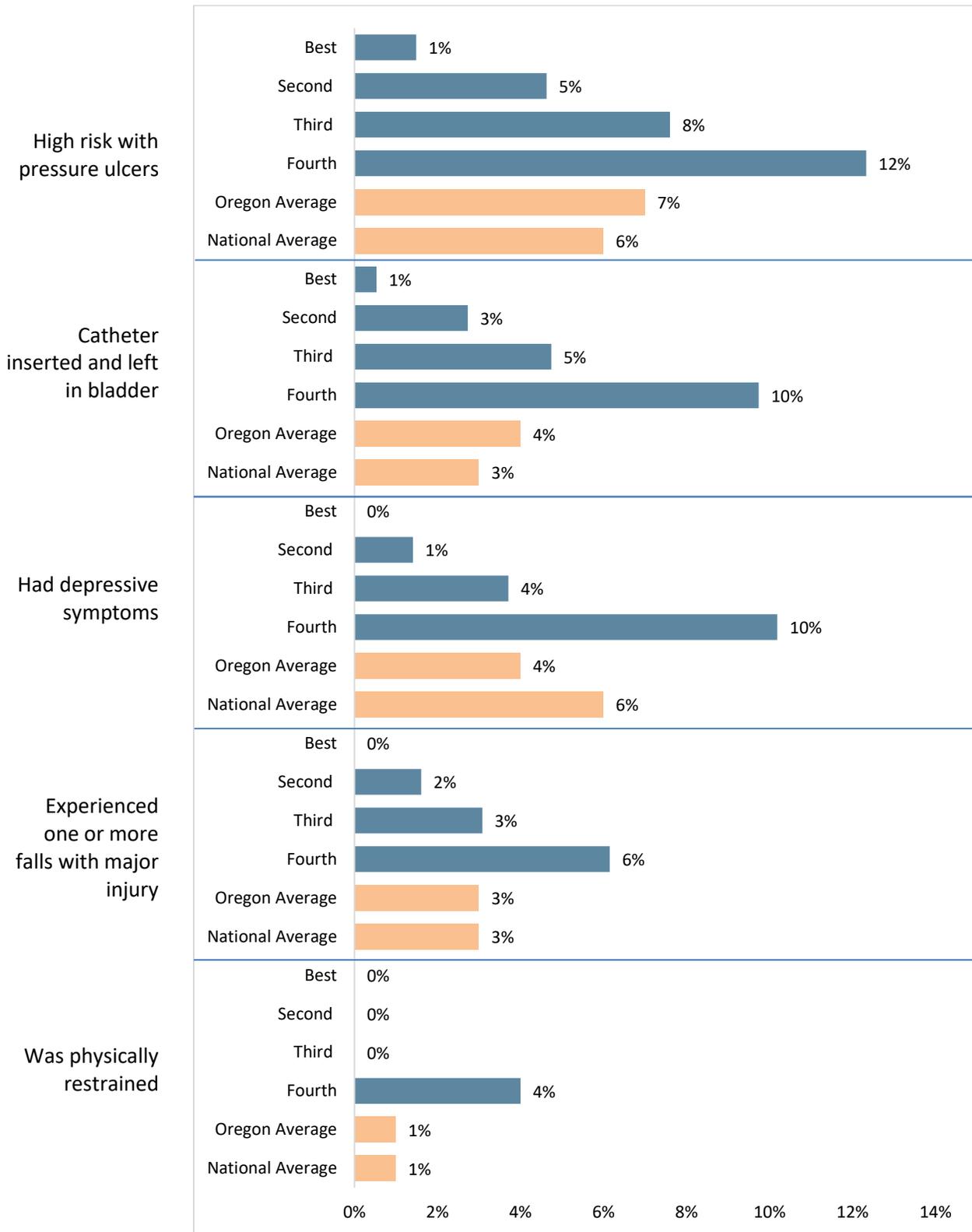
¹⁸ This measure excludes residents diagnosed with schizophrenia, Huntington's disease, or Tourette's syndrome.

Exhibit 9.2. Quality Measures of Long Stays by Specific Nursing Facility Groups, Oregon and U.S. 2016



Source: Nursing Home Compare 3.0

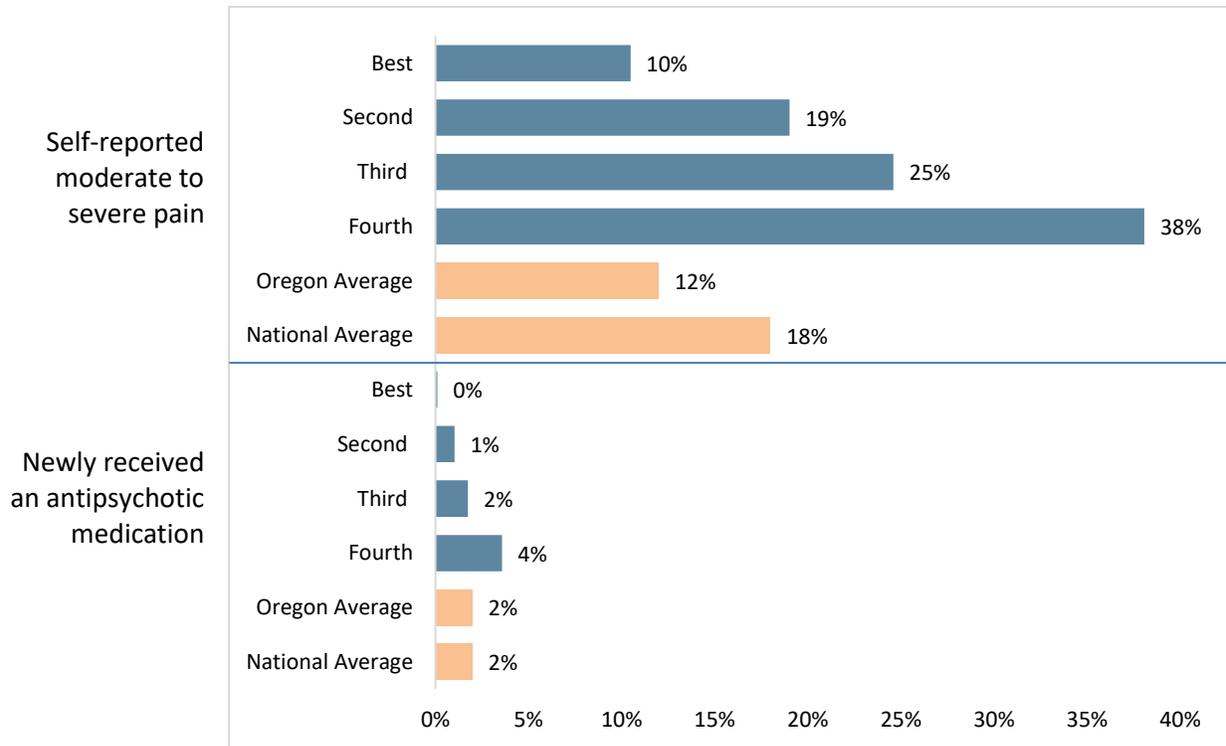
Exhibit 9.2. Quality Measures of Long Stays by Specific Nursing Facility Groups, Oregon and U.S. 2016



Source: Nursing Home Compare 3.0

Eleven percent of long stays involved residents needing increased help with ADLs, and seven percent involved residents losing too much weight. Urinary tract infections occurred during five percent of long stays, and pressure ulcers among seven percent of high-risk long stays. Ongoing catheter use, depressive symptoms, falls with injury, and physical restraint use were each reported in five percent or less of long stays.

Exhibit 9.3. Quality Measures of Short Stays by Specific Nursing Facility Groups, Oregon and U.S. 2016



Source: Nursing Home Compare 3.0

Performance in 2016 on the quality measures in Exhibits 9.2 and 9.3 were very similar to 2015, with average levels of each measure remaining the same or increasing or decreasing by no more than one percentage point. For each measure, there was substantial variation between facilities in the highest and lowest 25% groups in 2016.

Appendix

Table A. Number of Licensed Beds and Set-Up Beds per 1,000 Population 75 years and Older, Occupancy Rate, and Resident Days by County, Oregon 2016

County	Licensed Beds	Set-Up Beds	% Beds That Are Set-Up	Occupancy Rate	Resident Days
Benton	39	33	83%	57%	43,124
Clackamas	28	23	81%	73%	330,472
Clatsop	24	23	96%	52%	13,480
Columbia	40	31	80%	59%	27,395
Coos	45	32	70%	47%	71,200
Crook	30	17	57%	58%	11,327
Curry	25	22	90%	49%	11,739
Deschutes	26	15	58%	53%	48,077
Douglas	29	22	75%	55%	61,359
Hood River	83	60	72%	39%	18,481
Jackson	26	20	76%	59%	149,069
Jefferson	13	9	70%	89%	28,302
Josephine	54	43	80%	50%	91,074
Klamath	21	17	81%	74%	28,410
Lake	61	39	64%	43%	7,356
Lane	43	35	81%	67%	301,475
Lincoln	17	11	65%	63%	15,121
Linn	55	49	90%	69%	120,343
Malheur	54	46	85%	42%	16,879
Marion	43	36	83%	68%	282,293
Multnomah	74	61	83%	74%	812,016
Polk	35	30	86%	64%	49,890
Tillamook	21	20	94%	56%	10,220
Umatilla	66	36	54%	46%	48,528
Union	33	25	78%	45%	12,575
Wasco	147	108	74%	57%	80,995
Washington	34	29	87%	72%	280,138
Yamhill	59	50	85%	63%	90,800
Oregon	1225	942	78%	66%	3,062,138

Sources: Cost Reports and PSU Population Estimates for June 30, 2016

Note; Baker, Gilliam, Grant, Harney, Morrow, Sherman, Wallowa, and Wheeler counties not shown because they have no nursing facilities.

Table B. Admission Source as Percentage of Total Admissions, Oregon 2012 – 2016

Admission	2012	2013	2014	2015	2016
	Percent	Percent	Percent	Percent	Percent
Acute Hospital	93.81	93.21	93.23	93.35	94.09
Community	4.51	4.69	4.29	4.15	3.82
Another NF	1.05	1.34	1.44	1.56	1.41
Other	0.18	0.22	0.41	0.43	0.19
Hospice	0.19	0.18	0.22	0.17	0.19
Psych Hospital	0.14	0.15	0.19	0.14	0.09
Inpatient Rehab	0.11	0.14	0.11	0.13	0.09
LTCH	0.01	0.07	0.11	0.08	0.13
ID/DD	0.01	0.00	0.00	0.00	0.00
Died	0.00	0.00	0.02	0.00	0.00
Total	100%	100%	100%	100%	100%

Source: CMS Minimum Data Set

Table C. Discharge Destination as Percentage of Total Discharges, Oregon 2012 - 2016

Destination	2012	2013	2014	2015	2016
	Percent	Percent	Percent	Percent	Percent
Community	67.96	69.25	68.72	68.28	70.59
Acute Hospital	28.50	26.47	26.50	26.74	25.19
Another NF	1.88	2.13	2.37	2.48	2.12
Other	0.58	0.96	1.44	1.55	1.16
Inpatient Rehab	0.48	0.60	0.53	0.49	0.49
Hospice	0.24	0.29	0.26	0.30	0.32
Psych Hospital	0.14	0.13	0.11	0.09	0.07
LTCH	0.01	0.03	0.03	0.04	0.04
ID/DD	0.01	0.02	0.02	0.03	0.02
Died	0.20	0.12	0.02	0.00	0.00
Total	100%	100%	100%	100%	100%

Source: CMS Minimum Data Set

Technical Notes

Data Sources and Analyses

This report is based on analyses of data from multiple sources, including:

- Annual Cost Reports and Revenue Statements provided to the Department of Human Services (DHS) by all Oregon nursing facilities
- Assessments of nursing facility residents as reported in the Centers for Medicare & Medicaid Services (CMS) Minimum Data Set (MDS)
- Facility-specific data on nursing facility characteristics and performance from the CMS Nursing Home Compare (NHC) datasets
- Hospital Discharge Data (HDD) for persons discharging from a hospital to an Oregon nursing facility or persons entering a hospital from an Oregon nursing facility

Each of these data sources is described briefly below. Also described are important assumptions or methods used in data analyses whose results are presented in this report.

DHS Cost Reports and Revenue Statements

Each Oregon nursing facility that contracts with DHS to receive Medicaid reimbursement must submit an annual Cost Report that contains data including numbers of beds, resident days, costs, and revenues. DHS uses data from these reports to establish and update Medicaid payment rates.

Each facility that does not contract with Medicaid must submit an annual Revenue Statement, which contains similar information but not data on licensed or setup beds or costs. For these facilities, numbers of licensed beds were obtained from Nursing Home Compare data (see below); numbers of setup beds were estimated based on other facilities of similar size.

The reporting period for Cost Reports and Revenue Statements is the State Fiscal Year (SFY), which begins July 1st and ends June 30th. This report focuses on SFY 2016, which ended June 30th, 2016, but also includes data for SFYs 2009 through 2015. If a facility changed ownership during a year, resident days from partial-year cost reports from the different owners were combined for that facility.

Occupancy rates for each facility were calculated using resident days and number of available bed days from Cost Reports and Revenue Statements. Occupancy rates were adjusted for facilities that increased or decreased the number of licensed beds available during the SFY or were only open for part of the year. If information about when the change in licensed beds occurred was not available, the average of beginning and end of year bed numbers was used. As Revenue Statements do not contain information about the number of licensed beds in a facility, this was obtained from Nursing Home Compare July 2015 and June 2016 (see below). Facilities in operation for less than 2 months of a SFY were excluded from that year. If a data

element, such as number of beds or resident days was missing for a facility for one year, we estimated it based on data from prior and/or subsequent years' reports. If a Cost Report facility did not report set-up beds numbers, they were imputed based on the set-up bed to licensed-bed ratio of other like-sized facilities.

Many sections of the Cost Reports and Revenue Statements provide details by payer and by payment category within payer. We used these detailed data to exclude Assisted Living and Residential Care resident days from our analyses.

Population data used to calculate nursing facility bed availability rates were obtained from Portland State University's annual population estimates. The numbers of licensed and set-up beds at the beginning of each fiscal year were divided by population estimates for the beginning of that year.

MDS Assessments

CMS mandates that the Minimum Data Set (MDS) assessment questionnaire be completed for all nursing facility residents within 7 days of entry (admission). This assessment includes a wide range of data, including admission source, discharge destination, demographics, ADLs, diagnoses, treatments received, and quality measures. This report is based on Version 3.0 of the MDS questionnaire.

Nursing facility residents are assessed at entry and at discharge. Reassessments are to be performed if there is a significant change in a resident's health status, or quarterly if a resident's stay exceeds 3 months. If the resident is discharged within 7 days, only one assessment need be performed.

MDS data files were provided to Oregon State University (OSU) by DHS. These data files included assessments reported to DHS through December 5, 2016, which permitted analyses of nursing facility stays that extended past the end of SFY 2016. The data received by OSU were de-identified, so that resident names or other unique identifiers were removed. DHS provided a unique random ID number for each person, so that multiple assessments per person could be linked together. Duplicate assessments were removed from the de-identified dataset prior to analyses. OSU created a crosswalk between MDS facility identifiers and DHS report identifiers so that MDS results could be disaggregated by county or facility size.

This report is based only on assessments of residents for whom discharge dates were available in the MDS data. Residents with an uncertain discharge status (that is, no assessment within 150 days of the December 5, 2016 date when the dataset was created) were excluded from analyses. Residents of facilities with unknown or missing facility identification numbers were also excluded from analyses.

This report employs a systematic approach for capturing and counting entries, reentries, discharges, and stays in the MDS data. Entries and reentries into a nursing facility data are captured based on the date of discharge,¹⁹ because while only the final assessment of a stay

¹⁹ This methodology was first implemented for the SFY 2015 report.

includes a discharge date, all assessments include the date of entry. Therefore, for any discharge assessment, the entrance date associated with that assessment is also used to define the beginning and end of that stay.²⁰ Residents still enrolled at the time the MDS dataset was created for OSU, December 5, 2016, were assigned this date as their discharge date.

Reentries are counted based on the MDS definition of a reentry: if a person is discharged from a nursing facility and then reenters the same facility within 30 days, it is a reentry.²¹

Nursing facility length of stay (LOS) was calculated from the resident's entry date and discharge date. If an individual was still resident in a facility as of December 5, 2016, LOS was truncated as of that date; this yields a conservative underestimate of actual LOS for those residents. A separate LOS was calculated for each new stay, whether an entry or reentry. If a resident was discharged from a nursing facility and subsequently re-entered that facility within 30 days, this was treated as two separate stays.²²

Demographic data presented in Section 5 were derived from the discharge assessment. Individuals who had more than one stay during the fiscal were counted only once in exhibits that present demographic data.

Because the 2016 report contains trend based on multiple years of MDS data, LOS in Section 6 is reported based only on stays that had a discharge in the reported SFY. This allows trends to better reflect changes in LOS over time because those with truncated LOS who remain in a nursing facility at the time of the data pull are not counted.

The SFY 2016 report also uses a refined methodology to capture assessments for calculating Activities of Daily Living (ADL), diagnoses and treatments²³; these data are presented in Section 7. The first assessment of each resident who was enrolled in SFY 2016 was identified. This approach allows us to use information from all stays in SFY 2016 and to characterize acuity among short and mid-length stays at the time residents entered the nursing facility, and among long-stay residents at the time of their annual reassessment.

ADLs, diagnoses, and treatments were calculated for any person who spent at least one day in an Oregon nursing facility during SFY 2015. A resident who had more than one stay may therefore have been counted more than once in these analyses.²⁴

²⁰ For the 2014 report, any entry or reentry that was coded in MDS as being an entry assessment, or the very first assessment for a resident if no coded entry assessment existed for that resident, was counted as the beginning of a stay. Discharge dates were then filled in to align with those selected entry or reentry dates. Because it did not capture all discharges, this prior method was determined to undercount total stays.

²¹ The 2014 report counted as reentries only assessments coded as such in MDS.

²² For the 2014 report, if a resident was discharged from and subsequently re-entered a nursing facility within 30 days, this was counted as one stay. However, the LOS in the 2014 report was calculated from the last entry date (even if it was a re-entry) to the final discharge date.

²³ In the 2015 report, only assessments that were coded as entry, reentry or annual assessments in SFY 2015 were used to capture this information. The 2014 report captured ADLs using the last assessment of a person's first stay in that fiscal year.

²⁴ This is a change from the 2014 report where an individual could have only one ADL score.

Nursing Home Compare (NHC) data

The NHC system reports data collected by CMS during periodic surveys of nursing facilities, which must happen at least every 15 months. This report uses NHC data for each facility's survey date closest to the relevant SFY.

NHC reports the percentage of each facility's residents who meet each MDS-based quality measure for each calendar quarter. Quality measure definitions can be found at <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/MDS-30-QM-User's-Manual-V80.pdf>

This report analyzed data for the 3 quarters (9 months) of SFY 2016 that were available from the June 2016 NHC system to coincide with the SFY reporting period. Facilities that reported a measure for less than 20 short-stay residents or 30 long-stay residents during that 9-month period are excluded from analyses for that measure. For each measure, this report presents the average of values for all facilities for which NHC reports data for that measure.

Facilities that only submit Revenue Statements do not include information on the number of licensed or set up beds. Because NHC files include information on the number of licensed beds, July 2015 NHC files were utilized to fill in beginning of the SFY licensed bed numbers and June 2016 were used to fill in end of the SFY licensed bed numbers for these facilities.

Hospital Discharge Data (HDD)

Hospital Discharge Data (HDD) captures diagnosis, payer, and demographic information on individuals who spend time in an inpatient hospital in Oregon. HDD data were linked to MDS in a 2-step process. First, using LinkKing software, OHA probabilistically matched persons who, per MDS, had entered or discharged from a nursing facility in SFY 2014 through SFY 2016 to persons who, per the HDD, were discharged from a hospital during calendar years 2013 through 2016. Matching was based on first name, last name, middle initial, date of birth, and sex. Second, we aligned these matched hospital discharges and nursing facility admissions by date; an alignment margin of plus or minus two days was used. At the end of these steps, 31,916 of the 40,254 nursing facility admissions in SFY 2015 were linked to hospital discharges. For 1,970 of the unlinked nursing facility admissions, MDS indicated that the resident had not entered from a hospital; these admissions were excluded from the denominator in calculating the linkage rate. Overall, therefore, we achieved an 83.4% linkage rate between HDD and MDS for SFY 2016. This compares to an 80.5% linkage rate in SFY 2015

Rural Urban Commuting Areas (RUCAs)

Rurality was measured using the Rural-Urban Community Areas-B (RUCA-B) classification. RUCAs utilize distance to a city center and commuting flows to classify rurality and have been found to be very sensitive to demographic changes²⁵. To create the analytic file that assigned a rurality to each facility, Census tracts were matched to facility ZIP codes in our data using a ZIP-Tract crosswalk file from the US Census bureau. Because some ZIP codes map onto more than one Census tract and some Census tracts map onto more than one ZIP code, ZIP codes that fell into more than one Census tract were assigned to the largest area grouping.

The Census tract-based RUCA Version 2 codes are based on: a) 2000 Census work commuting information, and b) Census Bureau-defined Urbanized Areas and Urban Clusters.

RUCA-B classifications are as follows:

“Urban”: An area with population $\geq 50,000$ **or** town of any size with high primary commuting flow (30-49%) to an Urban Core (UC) and/or $\geq 30\%$ secondary flow to an Urban Area (UA)

“Large Rural City/Town”: An area with population of from 10,000-49,999 with $\geq 10\%$ primary commuting flow to an UC and/or $< 29\%$ secondary commuting flow to an UA.

“Small and Isolated Small Rural Town”: A city/town core with a population size of 2,500-9,999 with $\geq 10\%$ primary commuting flow to a small UC and/or with 10-29% secondary commuting flow to a UA **or** a town with a population core $< 2,500$ with primary commuting flow to a tract outside a UA or UC and/or with $\geq 10\%$ secondary commuting flow to a UC or 10-29% secondary commuting flow to a UA.

RUCA Definitions:

“Urban Clusters”: cities/towns of from 2,500 to 49,999 populations

“Urban Area”: cities of 50,000 and greater population

“Primary Flow”: the primary commuting destination; assigned by the first digit

“Secondary Flow”: second largest share of commuting flow; assigned by the second digit

²⁵ Larson, EH., Hart, LG., Rural Health workforces methods and analysis. In: Larson, EH., Johnson, KE., Norris, TE., Lishner, DM., Rosenblatt, RA., & Hart, LG. eds. *State of the Health Workforce in Rural American: State Profiles and Comparisons*. Seattle, WA: WWAMI Rural Health Research Center, University of Washington; 2003: 15-22.

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Definitions Used in This Report

Admission: This occurs when a person enters a NF and is admitted as a resident. An admission may be:

- An entry into a nursing facility (if the resident has never been admitted to the specified facility before, or if the resident was in the specified facility previously and was discharged and not did not return within 30 days of the discharge); or
- A reentry, which occurs when an individual is discharged from a nursing facility and then returns to the same facility within 30 days of that discharge.

Discharge*: A discharge occurs when an individual is released from a nursing facility whether they re-enter or not. This does not include a leave of absence or hospital observational stays of less than 24 hours unless the individual was admitted to the hospital.

Final discharge: A final discharge occurs when an individual is released from the nursing facility and does not return to the same facility within 30 days of that discharge date

Discharge followed by a reentry within 30 days: This occurs when an individual is released from a nursing facility and returns to the same facility within 30 days of the discharge date.

*As defined by the CMS MDS v3 Manual Section A

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