

# 2021 Nursing Facilities

The State of Nursing Facilities in Oregon,  
state fiscal year 2021



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A study completed by Oregon State University,  
College of Public Health and Human Sciences

**September 2022**



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College of Public Health  
and Human Sciences

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# The state of nursing facilities in Oregon, 2021

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## Funded by:

Oregon Department of Human Services  
[www.oregon.gov/dhs](http://www.oregon.gov/dhs)

## In collaboration with:

Oregon Health Authority, Office of  
Health Analytics

<https://www.oregon.gov/oha/HPA/ANALYTICS/Pages/index.aspx>

Oregon Health Care Association  
[www.ohca.com](http://www.ohca.com)

We acknowledge the assistance of the Oregon Association of Hospitals and Health Systems (OAHHS) for authorizing access to Oregon hospital discharge data, and the National Investment Center for Seniors Housing & Care (NIC) for providing national nursing facility occupancy data.

## Suggested Citation:

J Luck, W Zhang, N Scarborough, A Kaiser, A Bahl, C Mendez-Luck. *The State of Nursing Facilities in Oregon, 2021*. Corvallis, OR: OSU College of Public Health and Human Sciences, 2022.

**This report was funded by the Oregon Department of Human Services, under Intergovernmental Agreement Number 170214.**

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# Executive summary

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Nursing facilities are an integral component of Oregon's long-term services and supports continuum and the overall health care system, serving residents who need high-level skilled care on a post-acute or long-term basis. This report presents the most recent federal and state data for all licensed nursing facilities that operated in Oregon during State Fiscal Year (SFY) 2021.

## Licensed capacity and occupancy

There were 10,658 licensed beds in Oregon's 130 nursing facilities in SFY 2021. The number of beds has decreased gradually since 2000, and the decline accelerated somewhat beginning in SFY 2015. Currently, Oregon has one of the lowest nursing facility occupancy rates among all 50 states and the District of Columbia, reflecting the state's ongoing commitment to community-based long-term care options, such as assisted living, adult foster care, residential care, and memory care. The total number of resident days per year in Oregon nursing facilities remained stable at approximately three million from 2002-2019, before dropping to 2.8 million in 2020, and decreasing even further to 2.6 million in 2021. Nursing facilities are concentrated in urban areas, and eight counties had no freestanding nursing facilities.

## Admissions, discharges, and reentries

There were 28,787 admissions to Oregon nursing facilities in SFY 2021, a 9.9% decrease from 2012.<sup>1</sup> Approximately one in four admissions was a reentry by a person who had been discharged from a nursing facility fewer than 30 days before. Slightly more than 94% of admissions were from acute care hospitals. During SFY 2021, Oregon nursing facilities statewide had 28,292 discharges, a decrease of 11.7% from 2012. The large majority of discharges (69%) were to community settings, including home as well as community-based long-term care facilities. Of the 27% of discharges that were to acute care hospitals, more than nine in ten returned to a nursing facility within 30 days.

## Residents

34,426 individuals resided in an Oregon nursing facility for at least one day during SFY 2021. Most nursing facility residents (56%) were female, and 83% were 65 years of age or older. The nursing facility population is less racially and ethnically diverse than the general Oregon population.

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<sup>1</sup> This report uses 2012 as the benchmark year because it is the first year for which Minimum Data Set (MDS) 3.0 data are complete enough to create annual totals.

## Length of stay

The average length of stay for residents discharged from Oregon nursing facilities in SFY 2021 was 63 days, but the median length was only 20 days. Almost seven in ten stays lasted 30 days or fewer. This reflects the fact that most residents of Oregon nursing facilities are there to receive post-acute care or rehabilitation care after discharge from a hospital. Linkage to hospital discharge data showed that 61% of nursing facility stays were by residents who had been hospitalized for medical conditions, such as infections or pulmonary problems, while 29% had been hospitalized for surgical procedures such as joint replacement.

## Acuity of residents

Most Oregon nursing facility residents required a great deal of assistance with the six basic activities of daily living (ADLs), that is, bed mobility,<sup>2</sup> transferring, eating, dressing, toileting, and bathing. Thirty-four percent of short nursing facility stays involved dependence on five or more ADLs, as did 55% of long stays. In addition, 95% of all nursing facility stays involved at least one chronic medical condition, such as hypertension, hyperlipidemia, and diabetes. Seventy percent of all nursing facility stays involved at least one acute medical condition, such as anemia or urinary tract infections, and 47% of all stays involved behavioral health conditions such as depression or anxiety.

## Payers

Medicaid was the primary payer for 65% of resident days in Oregon nursing facilities during SFY 2021. Traditional Medicare paid for 12% of days in 2021 while Medicare Advantage managed care plans paid for 9% of days. Private payers (including commercial insurers, long-term care insurance plans, and self-pay residents) paid for 10% of resident days. Other government payers paid for the remaining 4% of resident days in 2021.

## Quality measures

Oregon nursing facilities performed as well or worse than the national average on 9 of 17 specific quality measures defined by the Centers for Medicare & Medicaid Services (CMS). Long stay nursing facility residents in Oregon were less likely than the national average to receive an antianxiety or hypnotic medications. Some measures for which Oregon nursing facilities did not perform as well as the national average included

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<sup>2</sup> Bed mobility in the MDS 3.0 refers to how a nursing facility resident moves to and from a lying position, turns side to side, and positions their body while in bed or alternate sleep furniture; this measure does not refer to the mobility measure in the Katz Index of Independence in Activities of Daily Living (Katz et al., 1963).

influenza vaccines for long stay residents and having an outpatient emergency department visit for short stay residents.

## **COVID-19**

The COVID-19 pandemic severely impacted nursing facilities in Oregon and nationwide. The number of Oregon nursing facility resident days in SFY 2021 decreased compared to SFY 2020 and remained below pre-pandemic levels. Decreases in resident days that followed the Delta variant wave were concentrated among Medicare fee-for-service and Medicaid resident days.

The Centers for Disease Control & Prevention reported a total of 1,932 COVID-19 cases among Oregon nursing facility residents, and 2,054 cases among staff, during SFY 2021. There were 536 COVID-19 deaths among Oregon nursing facility residents and 5 deaths among staff.

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# Background

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This is the eighth 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 (ODHS), the Oregon Health Care Association, and the Oregon Health Authority's Office of Health Analytics. These annual reports succeed reports published between 1998 and 2009 by the Office for Oregon Health Policy and Research (OHPR), in collaboration with the Seniors and People with Disabilities Division<sup>3</sup> 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's trend data.

The purpose of this annual report is to paint a portrait of the 130 Oregon nursing facilities that were in operation in the 2021 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 Care Compare, 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.

## Introduction

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Oregon continues to be a bellwether for reform and innovation in long-term services and supports (LTSS) in the United States. 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 focus of this report is on nursing facilities, which 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 medical condition or illness or who have been discharged from the hospital but are not yet able to return to their own home or to a home and community-based service (HCBS) setting. 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). Nursing facilities are the most clinically intensive setting in Oregon's long-term care continuum, and they are critical for both short stay and long stay individuals with a high need for skilled care. The services

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<sup>3</sup> Now called the Aging and People with Disabilities Program (APD). Prior to 1998, the Office of Health Policy also conducted surveys of nursing facilities.

offered in nursing facilities are often comprehensive, and include medical treatment; physical, speech and occupational therapy; assistance with Activities of Daily Living;<sup>4</sup> case management; and social services. Nursing facilities will continue to be an important part of the state's system of LTSS because of the above four percent projected annual growth of the 65 and older population through 2050 (*OR\_pop\_trend2019.Pdf*, n.d.).

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<sup>4</sup> Activities of Daily Living (ADLs; Katz et al., 1963) measure the functional impairment of individuals (Katz et al., 1963). 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 130 certified nursing facilities in Oregon’s State Fiscal Year 2021 (SFY), which covers the period of July 1, 2020, to June 30, 2021. Unless explicitly noted, all references to 2021 in this report refer to SFY 2021.

Nursing facilities serve long-term care residents with the most acute care needs, such as those receiving post-acute care after being hospitalized. Oregon’s nursing facility population reflects the state’s continued efforts to house as many individuals as possible in community-based long-term care options, including assisted living, residential care, and adult foster care, or in their own home.

There were 10,658 licensed beds in Oregon nursing facilities in SFY 2021 (Exhibit 1.0). The number of facilities per county ranged widely, from zero in eight counties to 34 in Multnomah County, for an average of four facilities per county statewide.

In 2021, 34,426 individuals required services in an Oregon nursing facility for at least one day, representing a 13% decrease from SFY 2020. Compared to national averages, the residents of Oregon nursing facilities were more likely to be under age 85 and non-Hispanic white, but more likely to be female.

**Exhibit 1.0. Characteristics of Oregon nursing facilities, 2021**

Characteristic	
Total number of facilities	130
Total number of licensed beds	10,658
Average licensed capacity per facility	82
Minimum number of licensed beds	6
Maximum number of licensed beds	214
Average number of facilities per county	4

Sources: Cost Reports, Revenue Statements, and Care Compare

Other notable findings in this report are highlighted below.

## Facilities

- The number of facilities ranged widely across counties, with an average of four 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 (57%) of all beds statewide.

## Licensed capacity and bed availability

- The total number of licensed beds has declined consistently (17%) over the past 20 years, before increasing by 1% in 2020 to 11,006 and declining again to 10,658 licensed beds in 2021. This decline began accelerating in 2015, which may in part be due to Oregon House Bill 2216 that reimbursed nursing facilities for voluntarily reducing bed capacity.
- The average number of licensed beds per nursing facility in Oregon was 82, compared to the national average of 106 in 2019, the most recent national data available.
- The number of licensed beds per facility ranged from six to 214.
- The number of licensed beds per 1,000 population 75 years and older decreased by 6% from 35 in 2020 to 33 in 2021. This is consistent with the overall decline (40%) in the number of licensed beds per 1,000 population 75 years and older in the last 20 years.
- 86% 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 53% in Grant county to a high of 100% in Curry, Klamath, and Lincoln counties.

## Occupancy

- Average occupancy rates decreased from 72% in 2000 to 62% in 2021.
  - The lower occupancy rate in 2021 was due in part to the COVID-19 pandemic.
- Across counties, average occupancy rates ranged from 33% to 84%.
- Oregon nursing facilities with fewer than 50 beds had an average occupancy rate between seven to thirteen percentage points higher than larger facilities of any other size. Facilities with 100 to 149 beds had the lowest average occupancy rate (57%) compared to facilities of other sizes.
- Between 2010 and 2020, the number of resident days has remained relatively stable overall, before a 9% decrease in 2021.
- Facilities with 50-99 beds accounted for the greatest share of resident days (53%) among all facilities.
- Multnomah, Lane, Clackamas, Washington, and Marion counties had the highest numbers of total resident days, accounting for 27, 10, 10, 9, and 9% of all resident days statewide, respectively.

## Admissions, discharges and reentries<sup>5</sup>

- 94% of all admissions to Oregon nursing facilities came from acute care hospitals.
- Admissions dropped 10% from 2020 to 2021, largely due to the COVID-19 pandemic.
- Facilities with fewer than 50 beds had the lowest average numbers of admissions and discharges (51 and 48, respectively), whereas facilities with 100 -149 beds had the highest average numbers of admissions and discharges (327 and 323, respectively).
- 27% of all discharges were to an acute care hospital; 93% of these discharges to hospitals resulted in a re-entry to a nursing facility within a 30-day period.
- 69% of all discharges returned to the community, which included the person's home, assisted living, residential care, and adult foster care.

## Residents

- The state's nursing facility population was younger than national estimates, with 83% of Oregon nursing facility residents being age 65 or older, compared to 85% of residents nationwide, according to the latest available data.
- 44% of Oregon 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 overall general nursing facility population.

## Length of stay

- 68% of Oregon nursing facility stays lasted 30 days or fewer.
- 89.2% of all nursing facility stays were less than or equal to 90 days, referred to as a "short stay."
- The median length of stay in Oregon nursing facilities was 20 days.
- After remaining stable from 2016 through 2019, average length of stay jumped by 10% in 2020 before increasing again by 13% in 2021, from 56 to 63 days. This increase over the last two years is largely due to the COVID-19 pandemic

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<sup>5</sup> 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 fewer than 30 days before. A discharge refers to an individual being released from a nursing facility whether they re-enter or not.

- Short and mid-length stays—meaning stays of less than one full year—averaged 23 and 180 days compared to 852 days (or approximately 2.4 years) for long stays.
- Average lengths of stay were highest for younger residents (18 to 24 years) at 477 days.
- 61% of nursing facility stays that linked to hospital discharges were for residents who had been hospitalized for medical conditions, such as infections or pulmonary problems, while 29% had been hospitalized for surgical procedures.
- For stays that linked to hospital discharges, average nursing facility length of stay was 55 days, with a median of 20 days.

## Acuity of residents

- Average ADLs of Oregon nursing facility residents decreased 12.2% from 3.7 in 2012 to 3.3 in 2021.
- 39% of stays in Oregon involved residents who were somewhat or completely dependent on five ADLs.
- 35, 51, and 56% of short, mid-length, and long stays, respectively, involved dependence on five or more ADLs.
- 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 (85%), followed by toileting (69%) and bed mobility (67%).
- 70% of stays involved at least one acute medical condition, with anemia, malnutrition, and transient ischemic attacks (TIA) being the most common individual diagnoses.
- 95% of stays involved at least one chronic medical condition, with seven in 10 having hypertension, five in 10 having hyperlipidemia, and more than three in 10 having diabetes.
- Physical therapy was provided five or more days per week for 34% of short stays, and occupational therapy five or more days per week for 31% of short stays.
  - These rates of physical and occupational therapy provision in 2021 were each more than 20 percentage points lower than in 2020. This reflects the implementation by CMS of the new Patient Driven Payment Model (PDPM) under which Medicare reimburses post-acute nursing facility residents. The COVID-19 pandemic may also have contributed to this change.

## Payers

- Medicaid was the primary payer for 65% of resident days in Oregon nursing facilities during 2021, a proportion that has remained relatively stable since 2010.
- Medicaid paid for 65, 62, and 80% of resident days in urban areas, large rural cities/towns, and small/isolated rural towns, respectively.
- Medicare Fee-For-Service paid for 12% of Oregon nursing facility resident days in 2021 while Medicare Advantage managed care plans paid for 9% of days.
- Private payers (including commercial insurers, long-term care insurance plans, and self-pay residents) paid for 10% of all resident days.
- The distribution of resident days among payers did not appear to have been significantly affected by the COVID-19 pandemic.

## Quality measures

- Oregon nursing facilities performed the same or worse than the national average on 9 of 17 CMS-defined quality measures.
- Oregon facilities' average performance on individual quality measures in 2021 was similar to 2020 and 2019.
- Average rates of pneumococcal pneumonia vaccination remained the same in all Oregon facilities for long stays, compared with 2020, and seasonal flu vaccination for long stays in all Oregon facilities also stayed the same compared with 2020, with pneumococcal pneumonia vaccination rates slightly surpassing the national average, with seasonal flu vaccine rates mostly remaining the same or higher than the average for all nursing facilities nationwide.
- Average rates of vaccination for pneumococcal pneumonia and seasonal flu decreased in Oregon facilities for short stays, compared with 2020, and pneumococcal pneumonia vaccination rates and seasonal flu vaccination rates surpassed the national average.
- Like 2020, short and long stay nursing facility residents in Oregon were less likely than nursing facility residents nationwide to receive antianxiety or hypnotic medications. In addition, fewer long stay residents reported having depressive symptoms compared with the average rates for all nursing facilities nationwide.
- Rates of several negative outcomes of long stays (for example, the ability to move independently worsening) were somewhat higher in Oregon than the national average.
- Short stay residents in Oregon nursing facilities were more likely than the national average to visit a hospital emergency department, and less likely to be re-hospitalized after entering the nursing facility.

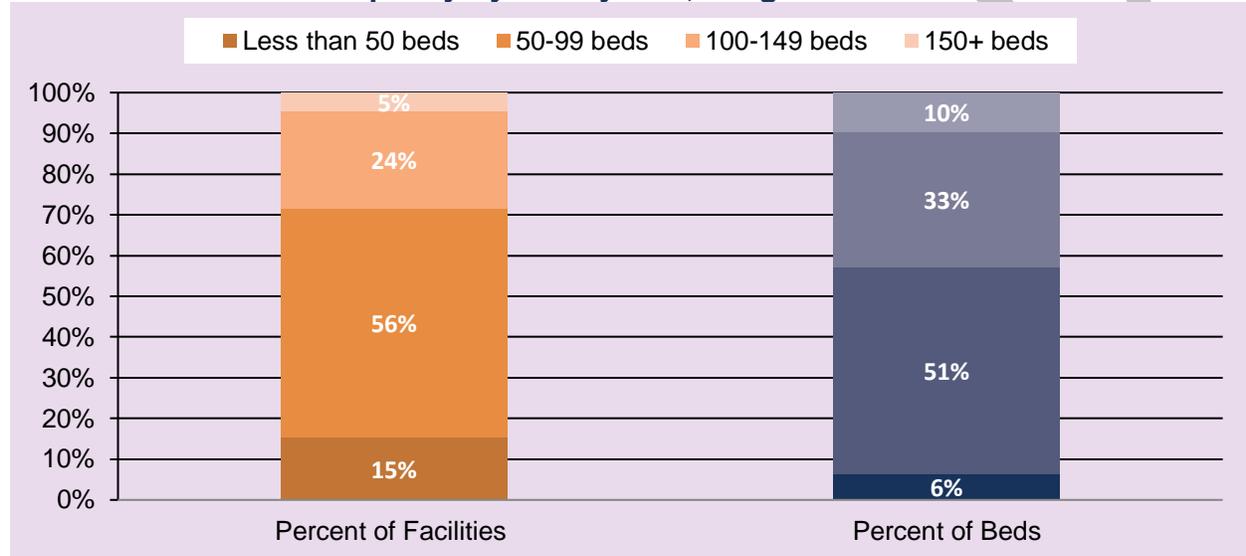
## COVID-19

- The total number of resident days in February 2021 was 17% lower than in February 2020.
- In January 2021, the total number of nursing facility discharges paid by Medicare only was well over a thousand throughout the SFY 2021 whereas dual Medicare + Medicaid coverage remained in the 600-800 range, Medicaid only remained around the 200s, and Others where in the 100s or less.
- During SFY 2021, the average length of stay by payer for all payers overall decreased until about May 2021, where all average lengths of stay began to slightly increase.
- From July 2020 to June 2021, Oregon Nursing facilities reported 1,932 and 2,054 cases of COVID-19 for residents and staff, respectively. They also reported 536 and 5 resident and staff deaths, respectively.
- Vaccination coverage percentages didn't start being recorded until the week ending of May 23, 2021, with the partial percentages in Oregon typically decreasing over time as the complete vaccination percentages were increasing over time, for both nursing facility residents and staff.

# Section 1. Licensed capacity

Oregon had 130 nursing facilities in SFY 2021, with a total of 10,658 licensed beds (Exhibit 1.1). Seventy-one percent of all facilities had fewer than 100 beds, accounting for more than half (57%) of all beds statewide. The average number of licensed beds was 84, compared to 109 nationally in 2020 (The Kaiser Family Foundation, 2021).

**Exhibit 1.1. Licensed capacity by facility size, Oregon 2021**



Sources: Cost Reports, Revenue Statements, and Care Compare 3.0

The total number of nursing facilities in Oregon (n=130) is the same as in SFY 2020. One nursing facility closed during or before July 2020, and one new facility opened in SFY 2021. No facilities closed in SFY 2021.

The total number of licensed nursing facility beds in Oregon declined 19% over the last 20 years, from 13,091 in 2001 to 10,658 in 2021 (Exhibit 1.2). The total number of licensed beds in 2021 decreased (3.2%) compared to 2020.

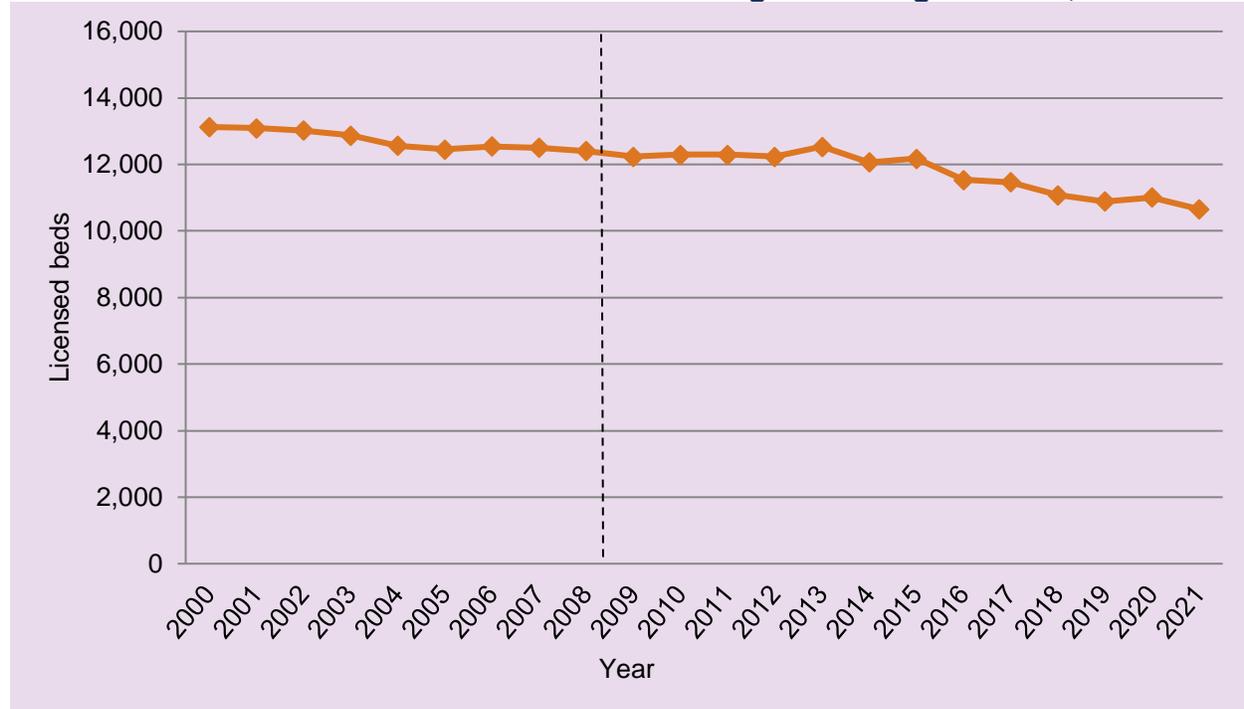
Note that the dashed vertical line between 2000-08 and 2009-21 signifies a change in the methodology used to obtain the data reported in this exhibit and in Exhibit 1.3. Thus, the trends for these two time periods may not be completely comparable.<sup>6</sup>

The long-term decrease in licensed bed-capacity contrasts with the national trend, which has remained relatively stable since 2004 (Harrington et al., 2018). Oregon has among the lowest number of nursing facility residents per 1,000 population 65 years

<sup>6</sup> Data for the 2000-08 period are based on information used by the state for facility licensing. The trend for 2009-20 come from state and federal data collected as part of the reporting requirements for nursing facility certification and payment.

and older in the United States (Reinhard et al., 2014), which reflects the state's commitment to non-institutionalized long-term care.

**Exhibit 1.2. Total number of licensed beds in Oregon nursing facilities, 2000–2021**

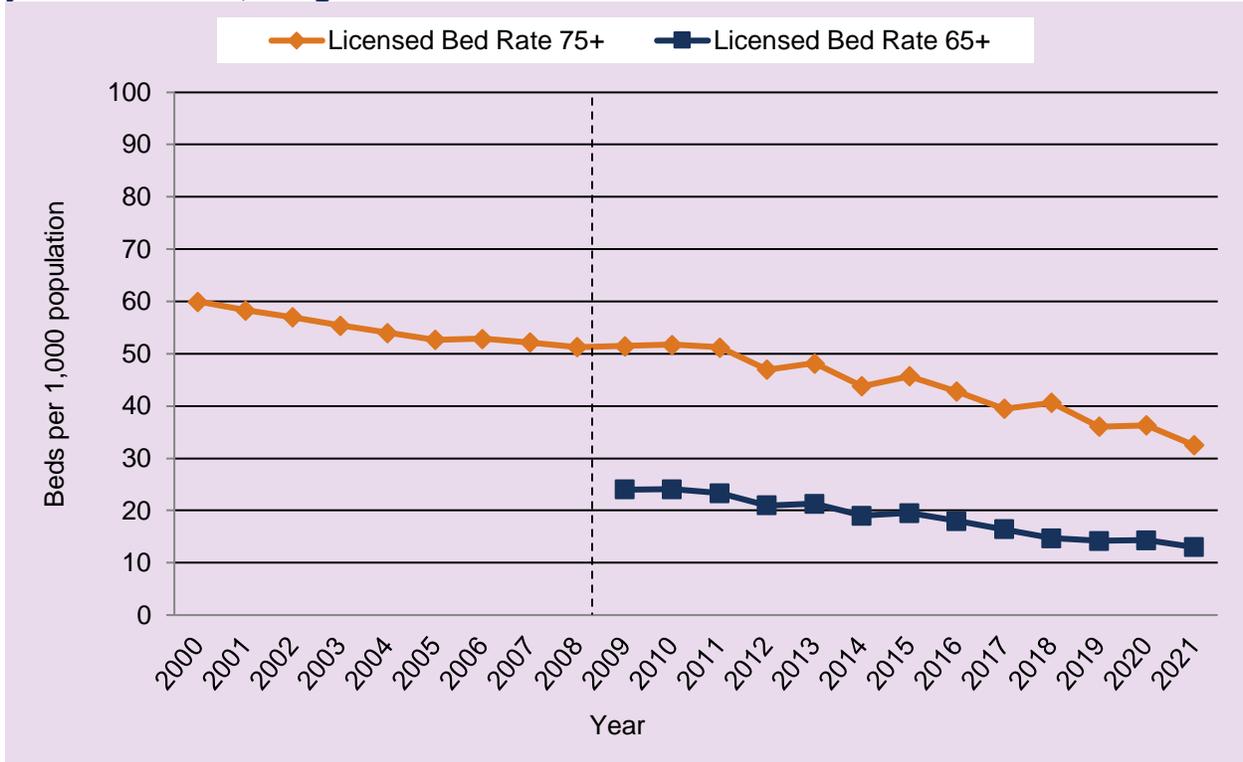


Sources: OHPR Nursing Facility Reports, 2000-08; Cost Reports, Revenue Statements, and Care Compare, 2009-21

The number of licensed beds per 1,000 persons 75 years and older in Oregon has declined steadily since 2000 (60 vs. 33; Exhibit 1.3) and since 2009 per 1,000 persons 65 years and older (24 vs 13; Exhibit 1.3). The 44% decrease over the past 20 years in licensed beds per 1,000 population 75 years and older reflects both the overall reduction in licensed capacity and growth in the state's older population during this same time period.

Over the last 10 years, the decrease in the number of licensed beds per 1,000 was smaller for the population 75 years and older (37%) than for the population 65 years and older (46%). This reflects rapid growth in the number of people turning 65 over the past decade, as the Baby Boomer cohort ages (US Census Bureau, 2020).

**Exhibit 1.3. Licensed bed rate per 1,000 population 75 years and older and 65 years and older, Oregon 2000-2021**



Sources: OHPR Nursing Facility Reports, 2000-08; Cost Reports, Revenue Statements, and Care Compare, 2009-21

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## Section 2. Bed availability

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In 2021, there were 33 licensed beds per 1,000 population 75 years and older in Oregon (Appendix, Table A). This rate varied widely across the state's 36 counties. Eight counties—Baker, Gilliam, Harney, Morrow, Malheur, 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 9 in Lincoln County to a high of 126 in Wasco County (Appendix, Table A).

Statewide, 86% of licensed beds were staffed and available for use in 2021, which we refer to as “set-up.” However, the proportion of licensed beds that were “set-up” varied widely across the state. For example, Grant County had the lowest percentage of licensed beds that were set-up (53%), followed by Coos County (64%). Three counties had 100% of licensed beds that were set-up: Curry, Klamath, and Lincoln. There was a more than thirteen-fold difference in the number of set-up beds per 1,000 adults 75 and older across Oregon, from a low of eight in Jefferson County to a high of 102 in Wasco County (Appendix, Table A).

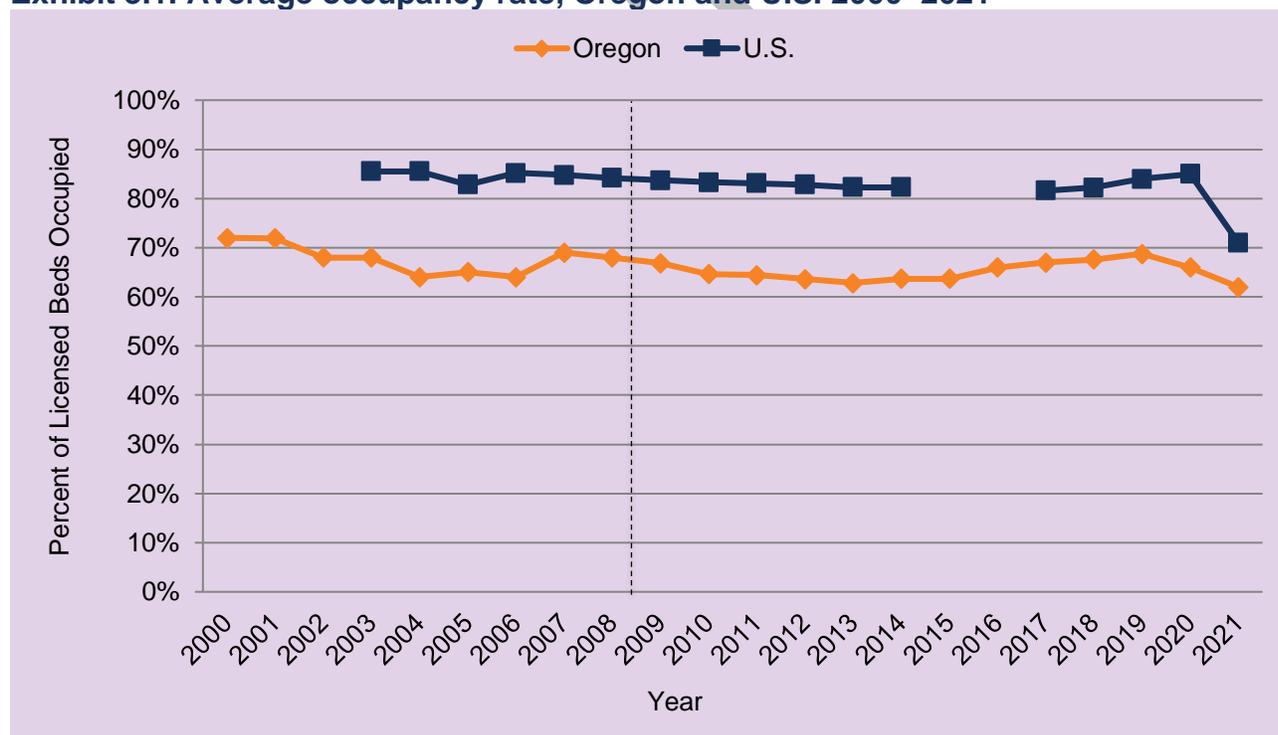
## Section 3. Occupancy

The average occupancy rate<sup>7</sup> statewide decreased overall between 2000 (72%) and 2021 (62%; Exhibit 3.1). As described in more detail in Section 10, this decrease is largely due to the impact of the COVID-19 pandemic.

The average occupancy rate had risen in 2016 through 2019, before decreasing in 2020 and 2021. Nevertheless, Oregon’s average nursing facility occupancy rate ranks consistently as one of the lowest in the nation (The Kaiser Family Foundation, 2021).

Note that the dashed line between the 2000-08 and 2009-21 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.<sup>8</sup>

**Exhibit 3.1. Average occupancy rate, Oregon and U.S. 2000–2021**



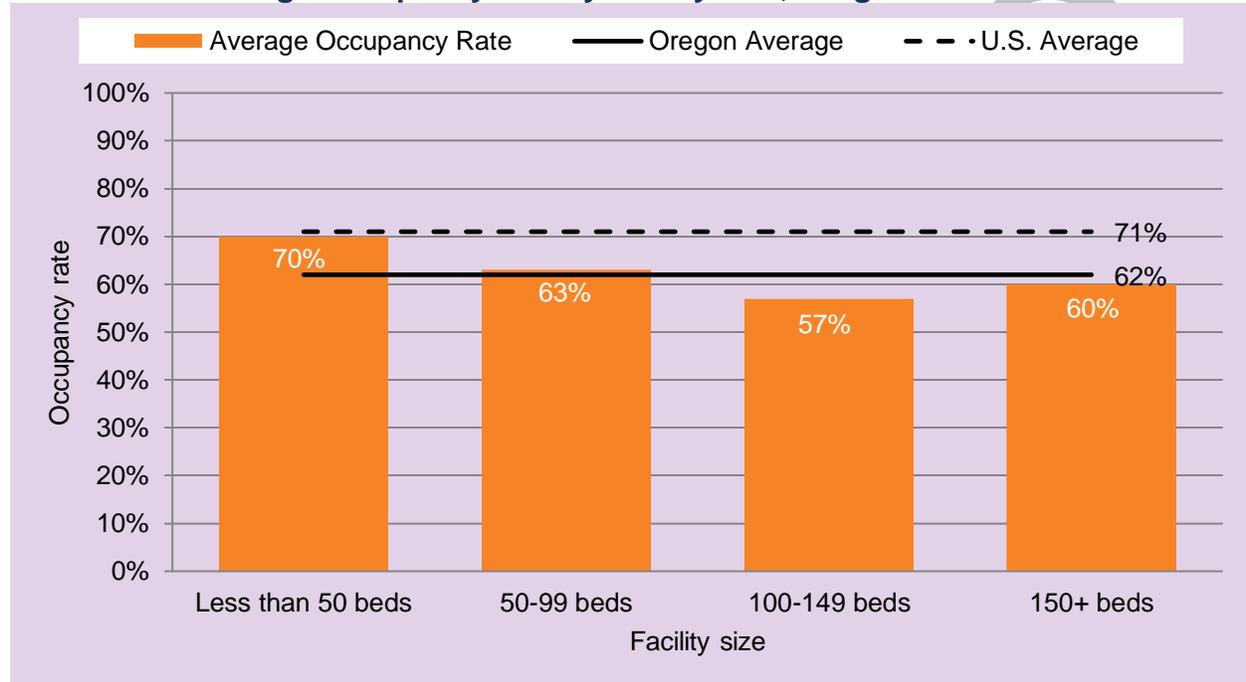
Sources: Oregon occupancy rate 2000-2008: OHPR Nursing Facility Reports; Oregon occupancy rate 2009-2021: Cost Reports, Revenue Statements, and Care Compare; National occupancy rate: 2003-2016: The Henry J. Kaiser Family Foundation; National occupancy rate 2017-2019: National Investment Center for Seniors Housing & Care (NIC), Skilled Nursing Data Report, 2020-2021.

<sup>7</sup> A facility’s occupancy rate is the total number of resident days reported by that facility during the state fiscal year divided by the total number of bed days available at that facility during the same fiscal year. Occupancy rates are adjusted for facility openings and closings during the state fiscal year.

<sup>8</sup> 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 responses rates to the survey. Data for 2009 and later years come from state and federal reporting for nursing facility certification and payment, which are not affected by response rates.

In SFY 2021, the average statewide occupancy rate of 62% (Exhibit 3.2) was 9 percentage points lower than the national average (71%; (NIC MAP, 2021). Nursing facilities with fewer than 50 beds had a higher average occupancy rate (70%) than facilities of any other size, whereas facilities with 100 to 149 beds had the lowest occupancy rate (57%). The occupancy rates for facilities of all sizes decreased between one and four percentage points from 2019 to 2021.

**Exhibit 3.2. Average occupancy rate by facility size, Oregon 2021**



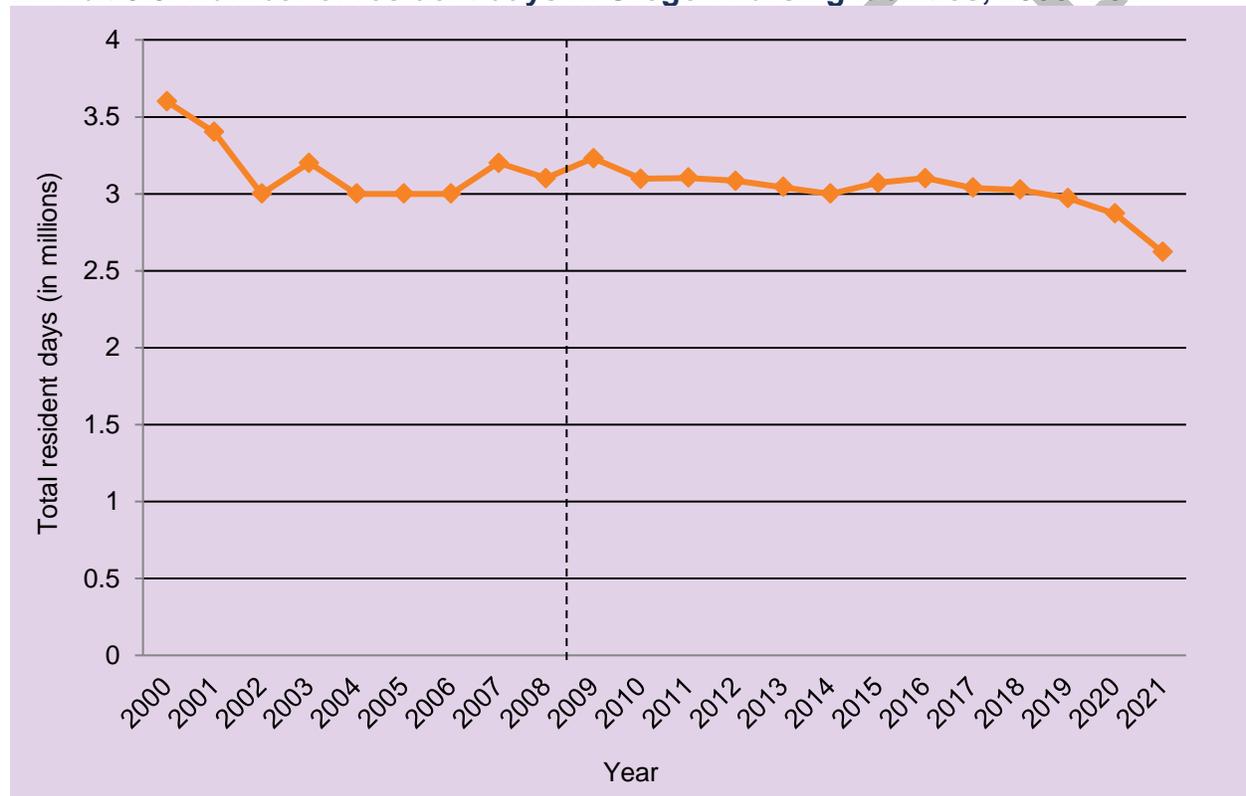
Sources: Cost Reports, Revenue Statements, and Care Compare; National Investment Center for Seniors Housing & Care (NIC), Skilled Nursing Data Report, 2021

Average occupancy rates also varied across the state’s 36 counties (Appendix, Table A). Lake County had the highest occupancy rates at 84%, followed by Jefferson County (76%), and then both Klamath and Lincoln (74%) Counties. Fifteen counties had rates under 60%, with Grant County having the lowest occupancy rate (33%) of all counties statewide.

Exhibit 3.3 shows the total number of resident days for Oregon nursing facilities, which declined from 3.6 to 3.1 million between 2000 and 2008, and from 3.2 to 2.6 million between 2009 and 2021. The change in resident days since 2011 represents a decrease of 15.6%.

As explained in more detail in Section 10, the drop in resident days during 2021 appears to be due largely to the COVID-19 pandemic. Resident days dropped sharply beginning in March 2020, particularly days paid by Medicare.

**Exhibit 3.3. Number of resident days in Oregon nursing facilities, 2000–2021**

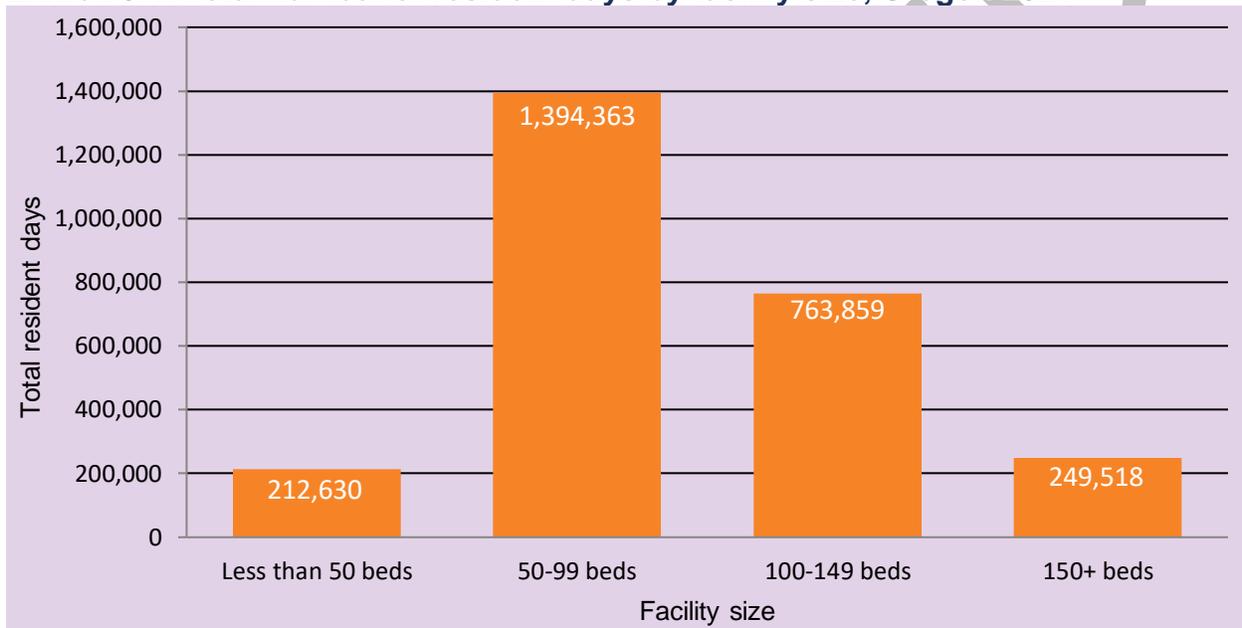


Sources: OHPN Nursing Facility Reports, 2000-08 (adjusted for annual survey response rates)<sup>9</sup>; Cost Reports, Revenue Statements, and Care Compare, 2009-21

<sup>9</sup> 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 responses rates to the survey. Data for 2009 and later years come from state and federal reporting for nursing facility certification and payment, which are not affected by response rates.

Facilities with 50-99 beds accounted for the greatest share of resident days (53%) among all facilities in 2021 (Exhibit 3.4). In contrast, the smallest- and largest-sized facilities had the fewest numbers of resident days, representing 8% and 10% of all resident days statewide, respectively. This overall pattern is consistent with 2019 and 2020 data, although the proportion of resident days by facility size changed somewhat since 2019. For example, resident days decreased for facilities with fewer than 50 beds, 50-99 beds, 100-149 beds, and 150+ beds, with facilities with more than 150 beds having the largest decrease from 2020 (19%).

**Exhibit 3.4. Total number of resident days by facility size, Oregon 2021**



Sources: Cost Reports, Revenue Statements, and Care Compare

The total number of resident days in 2021 also varied by county (Appendix, Table A). Consistent with 2020 numbers, Multnomah, Lane, Clackamas, and Washington Counties had the highest numbers of total resident days, accounting for 27, 10, 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  $\geq 50,000$  population, “large rural city/town” refers to an area with 10,000-49,999 population, and “small and isolated small rural town” refers to 2,500-9,999 population (Larson et al. 2003).<sup>10</sup> Similar to previous years, 87% of all resident days were in urban areas (Exhibit 3.5), compared to 11% and 2% in large rural towns and small and isolated small rural towns, respectively.

**Exhibit 3.5. Total resident days by urbanicity, Oregon 2021**



Sources: Cost Reports, Revenue Statements, RUCA 2.0, and Care Compare

<sup>10</sup> See Technical Notes for more detailed information on these definitions.

# Section 4. Admissions, discharges, and reentries

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## 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 fewer than 30 days before.

A **discharge** refers to when a person leaves a nursing facility to return to the community, be admitted to a hospital, or 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.<sup>11</sup> 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.

Before October 2019, Medicare payments to nursing facilities under the SNF Prospective Payment System (PPS) were based on Resource Utilization Groups, Version IV (RUG-IV). However, CMS determined that RUG classifications did not adequately describe nursing facility residents' unique characteristics and needs.

The Patient Driven Payment Model (PDPM) was therefore implemented effective October 1, 2019, with the goal of improving payment accuracy. Reimbursement under PDPM is based on residents' clinical and functional characteristics when they are admitted to a nursing facility. PDPM increased the focus on length of stay and was expected to incentivize shorter stays (Unruh et al., 2020) (See Section 6 for further details).

PDPM introduced a new assessment schedule, which is significantly simpler than the assessment schedule under RUG-IV. Beginning in October 2019, the number of MDS

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<sup>11</sup> For persons still residing in a nursing facility on the date the MDS dataset was created for OSU (Dec 3, 2020) we constructed a stay that began on the admission date and ended on December 3, 2020. As described in the Technical Notes, we began using the current approach for identifying stays in the 2015 report.

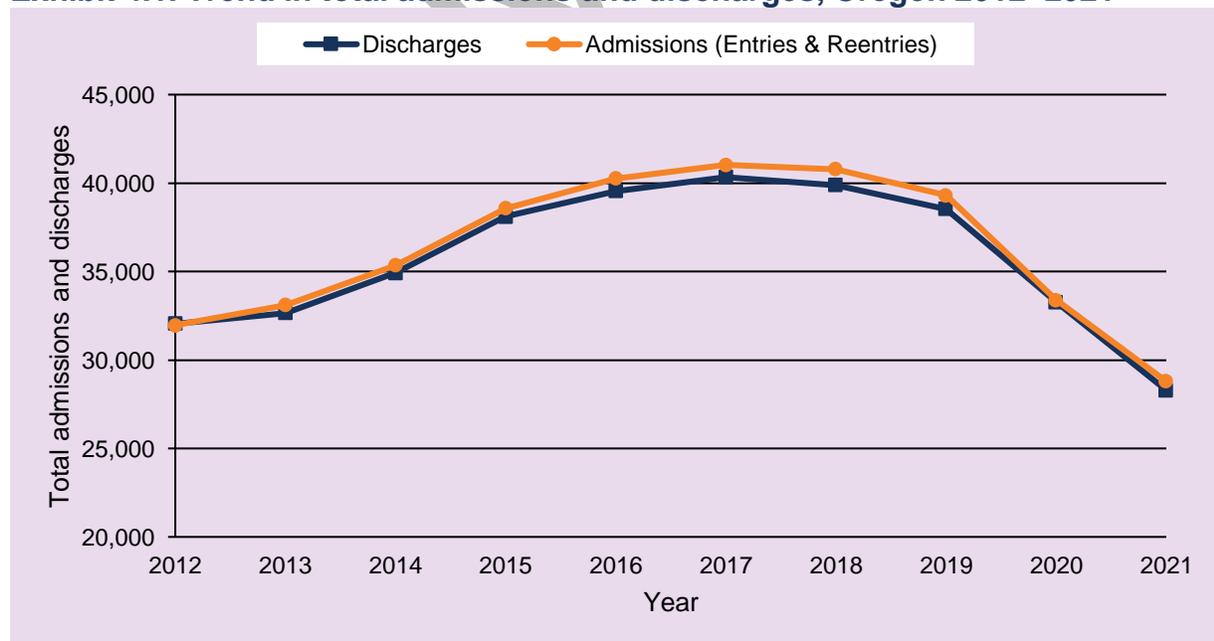
assessments per month dropped significantly. However, this change in the number of assessments did not reflect changes in the actual number of nursing facility admissions or discharges.

There were 34,426 individuals who resided in an Oregon nursing facility for at least one day during SFY 2021.

The total number of nursing facility admissions (that is, all admissions with a discharge date in MDS) in SFY 2021 included in this report is 28,787.<sup>12</sup> This is 11.2% less than the total number of Oregon nursing facility admissions derived from detailed annual cost reports submitted to the Centers of Medicare & Medicaid Services by nursing facilities (Hansen Hunter & Co., 2022). The SFY 2021 difference between admissions measured by MDS and admissions derived from cost reports is much smaller than that difference was last year. This is because the SFY 2020 MDS data included the first months of the COVID-19 pandemic, which were not reflected in the Hansen-Hunter report until the following year.

As shown in Exhibit 4.1, admissions (entries and reentries) increased steadily from 2012 to 2017 and decreased in 2018 and 2019; the trend in discharges was similar. However, admissions in 2021 fell by 10% compared to 2020, largely a result of the COVID-19 pandemic; discharges fell by 12%. (See Section 10 for more details).

**Exhibit 4.1. Trend in total admissions and discharges, Oregon 2012–2021**



Source: CMS Minimum Data Set

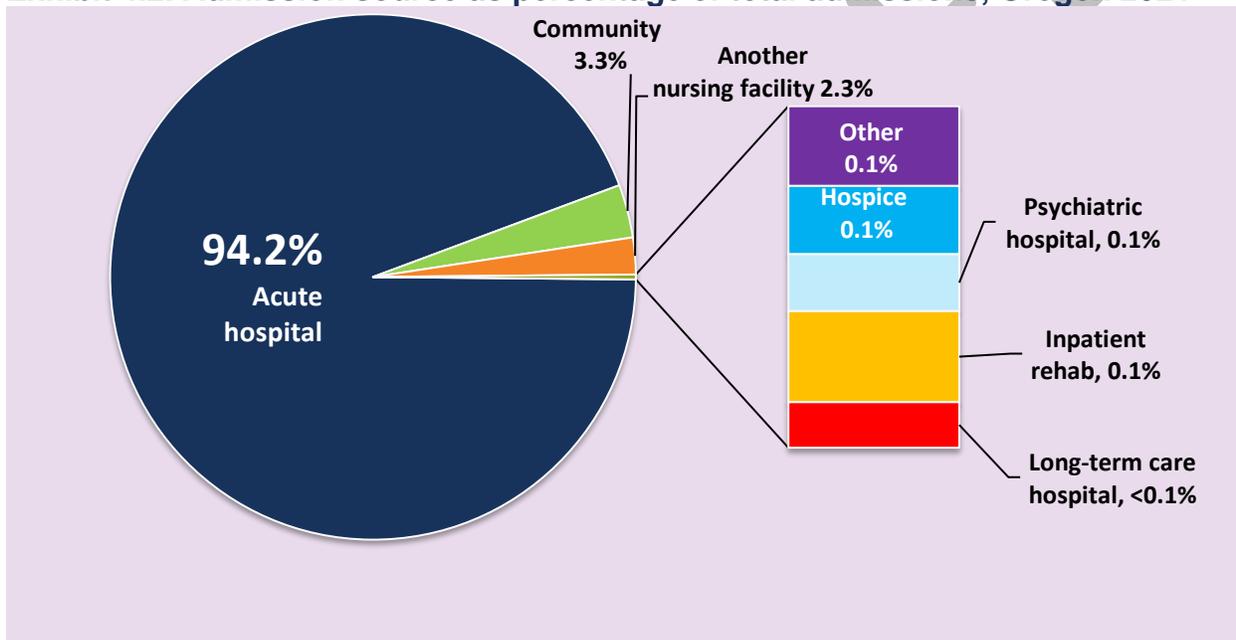
<sup>12</sup> There were additional 1,375 admissions without a discharge date in MDS.

# Admissions

In SFY 2021, nursing facilities statewide had 28,787 admissions, based on MDS data. Of these, 7,275 (25.3%) were reentries.

Exhibit 4.2 displays the admission source as a percentage of total admissions. Acute hospitals accounted for the highest percentage at 94.2%. Community admission sources contributed 3.3%, while 2.3% of total admissions came from another nursing facility. The COVID-19 pandemic did not have a discernable effect on this pattern, which has been consistent since 2012 (See Appendix Table B).

**Exhibit 4.2. Admission source as percentage of total admissions, Oregon 2021**

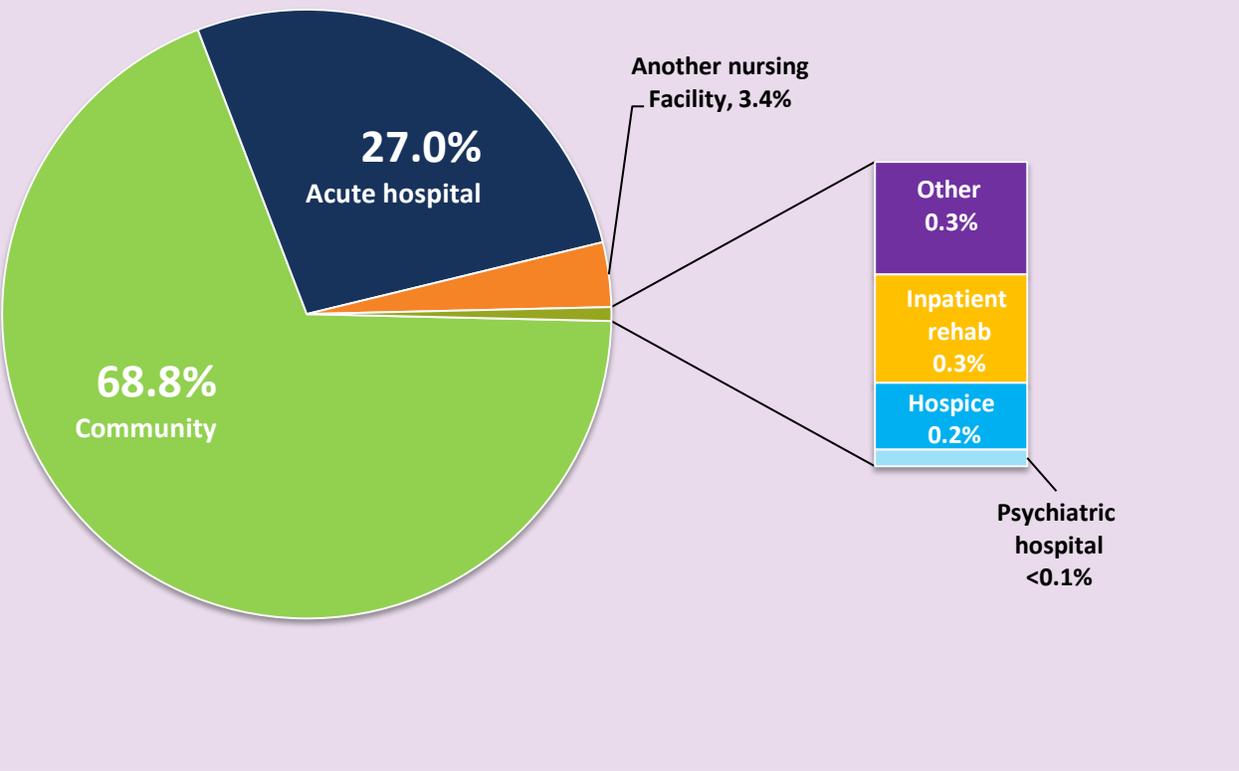


Source: CMS Minimum Data Set

# Discharges

In 2021, nursing facilities statewide had 28,292 discharges, based on MDS data. Exhibit 4.3 presents discharge destination as a percentage of total discharges. The majority (68.8%) of individuals who discharged from nursing facilities returned to the community, which included home or other long-term care settings such as assisted living, residential care, and adult foster care. Slightly more than one in four discharges from nursing facilities (27.0%) were to acute care hospitals. A small proportion of residents (3.4%) were transferred to another nursing facility or other facility (0.3%), 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 has been consistent since 2012, except that the proportion of discharges to hospice has decreased slightly, and the proportion to another nursing facility has increased (see Appendix Table C). The COVID-19 pandemic did not appear to affect the distribution of discharge destinations in SFY 2021 compared to prior years.

**Exhibit 4.3. Discharge destination as percentage of total discharges, Oregon 2021**

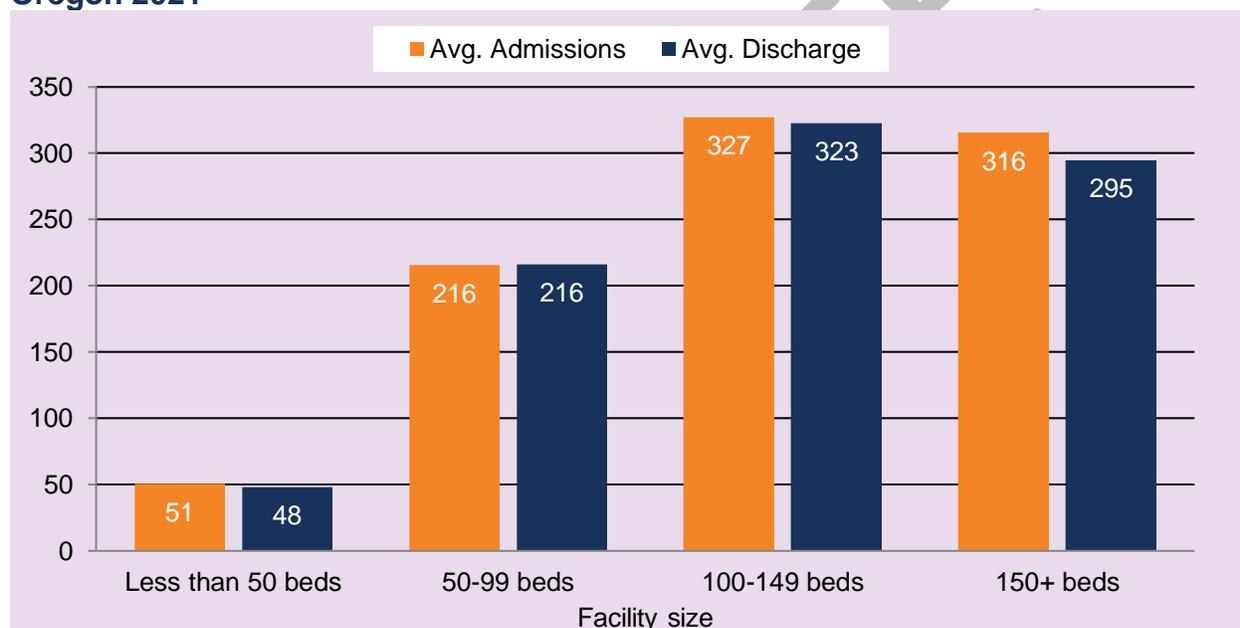


Source: CMS Minimum Data Set

## Admissions and discharges by facility size

Statewide, the average number of admissions per facility was 221 in SFY 2021, and the average number of discharges was 219. Exhibit 4.4 shows that the average numbers of admissions and discharges increased with the size of facility, before decreasing slightly for facilities with 150+ beds. Facilities with fewer than 50 beds had the lowest average numbers of admissions and discharges (51 and 48, respectively) and facilities with 100-149 beds had the highest average numbers of admissions and discharges (327 and 323, respectively).

**Exhibit 4.4. Average numbers of admissions and discharges by facility size, Oregon 2021**



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,<sup>13</sup> may occur as part of a treatment plan or as a result of a new or unexpected health problem. In SFY 2021, approximately one in four nursing facility admissions was a reentry, for a total of 7,275 reentries statewide. Ninety-three percent of these reentries (6,766; Exhibit 4.5) were from an acute hospital. Other reentries came from the community (2.9%), and other places (4.1%; data not shown).

<sup>13</sup> In this report we use the term “reentry” to a nursing facility to avoid confusion with “readmission” to an acute hospital.

Exhibit 4.5 shows the number of discharges to acute care hospitals, the number of those discharges that resulted in a reentry to a nursing facility, and the corresponding percent percentage. Of the 7,626 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 50-99 beds had the highest reentry rate (90%), and facilities with fewer than 50 beds had the lowest reentry rates (83%). Some reentries in SFY 2021 were for discharges that occurred in SFY 2020

#### Exhibit 4.5. Discharges to and reentries from acute hospitals by facility size, Oregon 2021

	Number of discharges to acute hospitals	Number of reentries from acute hospitals within 30 days	Percent reentering within 30 days
<50 Beds	392	325	83%
50 - 99 Beds	4,140	3,724	90%
100 - 149 Beds	2,547	2,240	88%
150+ Beds	547	477	87%
<b>Total</b>	<b>7,626</b>	<b>6,766</b>	<b>89%</b>

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 sixth-lowest rate of hospitalization<sup>14</sup> among its long stay nursing facility residents (Reinhard et al., 2020), and the third lowest hospitalization rate among its Medicare-paid nursing facility residents, per the most recent available data (Levinson, 2013).

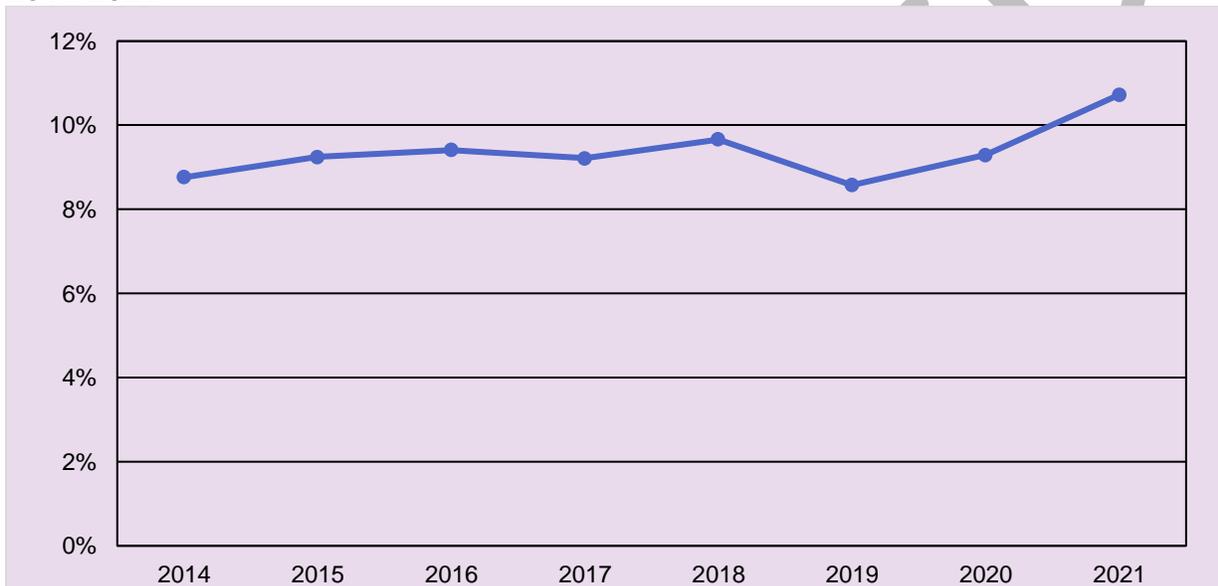
## In-hospital mortality after discharge from nursing facilities

Some residents who are discharged from a nursing facility and admitted to a hospital do not survive to return to the nursing facility. To identify such residents, we linked MDS data on nursing facility discharges to data on hospital admissions provided by the Oregon Health Authority. We identified in-hospital mortality among these linked stays and calculated the mortality rate among nursing facility residents admitted to hospitals (see Technical Notes for further details).

<sup>14</sup> This rate includes new hospitalizations and re-hospitalizations.

In SFY 2021, 6,022 discharges from a nursing facility (79% of discharges to hospitals) were linked to a hospital admission.<sup>15</sup> Of those linked hospital admissions, 646 residents died in the hospital, yielding a mortality rate of 10.7%, 1.4% higher compared to SFY 2020. Exhibit 4.6 shows the trend in hospital mortality after nursing facility discharge, which has fluctuated within a narrow range of 8.6% to 10.7% between SFYs 2014 and 2021.

**Exhibit 4.6. Trend in hospital mortality after nursing facility discharge, Oregon, 2014-2021**



Sources: CMS Minimum Data Set and Oregon Hospital Discharge Records  
Note: Not all nursing facility discharges for December 2018 were included in linkage.

<sup>15</sup> Linkage was based on a hospital admission on the same day, or  $\pm 1$  day, as the nursing facility discharge.

## Section 5. Residents

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Exhibit 5.1 shows the composition of Oregon’s nursing facility population by age group, which remained relatively stable from SFY 2020. In 2021, the state’s nursing facility population was younger on average (75.7 years) than national estimates, with 83% of nursing facility residents being age 65 or older, compared to 85% of residents nationwide (Centers for Medicare & Medicaid Services, 2015).

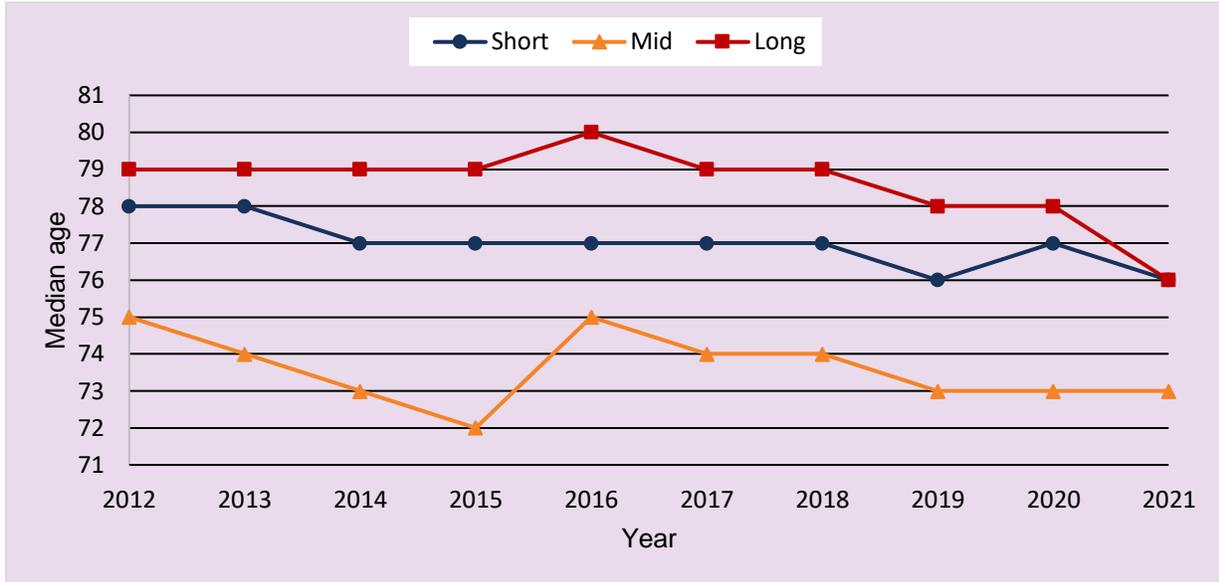
**Exhibit 5.1. Distribution of Oregon nursing facility residents by age, 2021**

Age group	Percent
Under 18	0.2
18 - 24	0.1
25 - 44	1.5
45 - 64	15.4
65 - 74	26.5
75 - 84	30.8
85 and over	25.5
<b>Total</b>	<b>100.0</b>

Source: CMS Minimum Data Set

Exhibit 5.2 shows the trend in resident median age by length of stay. The overall trend indicates that resident median age for long stays is older than that for mid-length and short stays. This trend has remained consistent between 2012 and 2020, with some year-to-year fluctuations occurring within each stay category, before short and long stays converged in 2021.

**Exhibit 5.2. Trend in resident median age for short, mid-, and long-stays, Oregon 2012-2021**



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 (34%) or widowed (29.3%). The remaining residents were divorced (18.6%), never married (16.7%) or separated (1.5%).

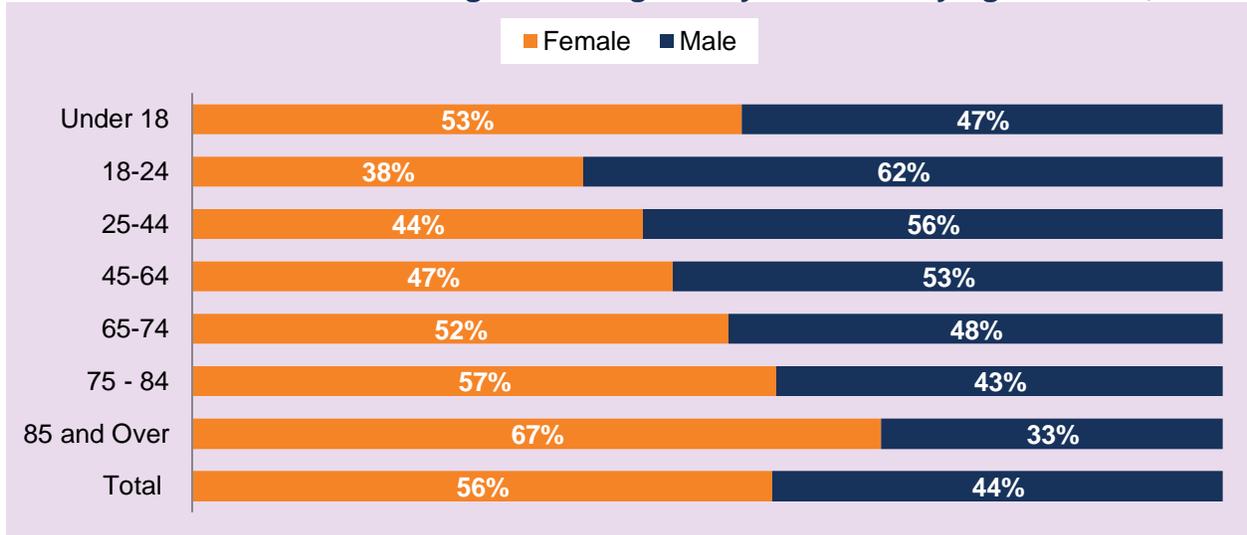
**Exhibit 5.3. Distribution of Oregon nursing facility residents by marital status, 2021**

Marital status	Percent
Never married	16.7
Married	34.0
Widowed	29.3
Separated	1.5
Divorced	18.6
<b>Total</b>	<b>100.0</b>

Source: CMS Minimum Data Set

Exhibit 5.4 shows the composition of Oregon’s nursing facility population by age and sex. In 2021, 56% of all residents were women, which was lower than the national average of 66% (Centers for Medicare & Medicaid Services, 2015). The proportion of female residents increased with age, with 67% of residents in the oldest age category being female.

**Exhibit 5.4. Distribution of Oregon nursing facility residents by age and sex, 2021**



Source: CMS Minimum Data Set

Exhibit 5.5 shows the distribution of race/ethnicity for all nursing facility residents compared to the general Oregon population (Bureau, 2020). In 2021, the majority of nursing facility residents were non-Hispanic white (82.7%), followed by African American or Black (1.8%) and Hispanic (1.5%). In comparison, the state’s general population in 2020 was 71.1% non-Hispanic white, 13.9% Hispanic, 4.5% Asian American, and 1.9% African American or Black. The racial/ethnic composition of Oregon’s nursing facility population also differed from the general U.S. nursing facility population in 2014, where 77.9%, 14.2%, and 5.3% of all U.S. nursing facility residents were non-Hispanic white, African American, and Hispanic, respectively (Centers for Medicare & Medicaid Services, 2015).

### Exhibit 5.5. Oregon nursing facility residents and general population by race and ethnicity, 2021

Race and ethnicity	All nursing facility residents	All Oregon residents*
White, Not Hispanic	82.7%	71.7%
American Indian/Alaska Native, Not Hispanic	0.6%	1.0%
Asian American, Not Hispanic	1.2%	4.5%
African American or Black, Not Hispanic	1.8%	1.9%
Native Hawaiian/Pacific Islander, Not Hispanic	0.2%	0.4%
Hispanic of any race	1.5%	13.9%
More than 1 race, Not Hispanic	0.2%	0.5%
Unknown	11.8%	6.1%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

Source: CMS Minimum Data Set; \*Data from U.S. Census Bureau 2020, 2020 American Community Survey 5-Year Estimates

Exhibit 5.6 compares the distribution of racial/ethnic groups in Oregon nursing facilities to the state's overall population 65 years and older in 2021. The higher proportion of non-Hispanic white residents in the 65+ age category indicates that racial/ethnic minority residents were younger compared to the nursing facility population.

### Exhibit 5.6. Oregon nursing facility residents and general 65+ population by race and ethnicity, 2021

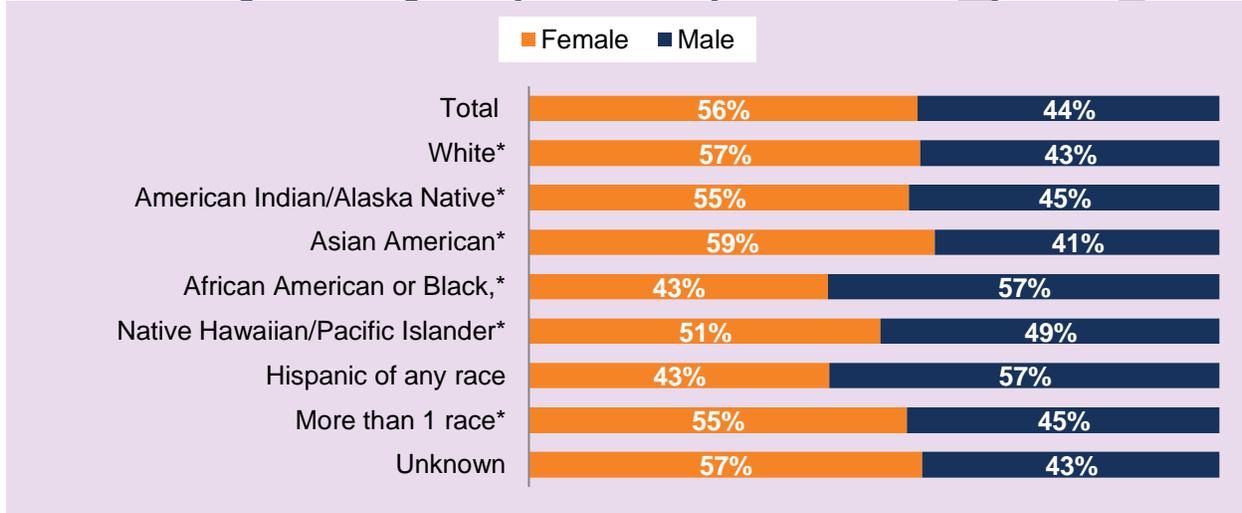
Race and ethnicity	Nursing facility residents 65+	Oregon * residents 65+
White, Not Hispanic	83.8%	90.2%
American Indian/Alaska Native, Not Hispanic	0.4%	1.0%*
Asian American, Not Hispanic	1.2%	2.9%
African American or Black, Not Hispanic	1.3%	1.0%
Native Hawaiian/Pacific Islander, Not Hispanic	0.2%	0.2%
Hispanic of any race	1.1%	3.4%
More than 1 race, Not Hispanic	0.2%	1.3%
Unknown	11.6%	**
<b>Total</b>	<b>100%</b>	<b>100.0%</b>

Sources: CMS Minimum Data Set; \* Data from U.S. Census Bureau; 2020

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

The racial/ethnic distribution of all nursing facility residents by sex was similar to Exhibits 5.5 and 5.6, with non-Hispanic whites comprising the majority of all male and female nursing facility residents (data not shown). However, the composition varied within racial/ethnic categories (Exhibit 5.7). There were more females than males for all racial/ethnic categories except for non-Hispanic African American or Black and Hispanic of any race, where the proportion of male residents outweighed the proportion of female residents (43% vs. 57% for both categories).

**Exhibit 5.7. Oregon nursing facility residents by race and ethnicity and sex, 2021**



Source: CMS Minimum Data Set  
 Notes: \* Not Hispanic.

## Section 6. Length of stay

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Nursing facilities provide 24-hour skilled nursing care, rehabilitation services, and monitoring for individuals who need it due to a medical condition or illness, or who have been discharged from the hospital but are not yet able to return to the community (either their own home or a licensed community-based care setting).

The length of a nursing facility stay reflects whether services are needed on a temporary basis or an indefinite one. 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 (Reinhard et al., 2014).

Before October 2019, Medicare reimbursed nursing facilities a constant per-diem amount each day, regardless of variation in resource utilization during the stay. To account more accurately for such variation, PDPM includes a “Variable Per Diem (VPD) adjustment” that adjusts the per diem amount for physical therapy (PT) occupational therapy (OT), and nontherapy ancillary conditions and services (NTA) over the course of the stay (Acumen, LLC, 2018).

This adjustment, however, could incentivize nursing facilities to discharge residents, and then readmit them, to reset the variable per diem rate. To mitigate this possibility, PDPM also includes an “interrupted stay policy”: if a resident is discharged from a nursing facility and readmitted to the same nursing facility within 3 calendar days, the subsequent stay is considered a continuation of the previous stay (Acumen, LLC, 2018).

These changes were implemented in October 2019. During SFY 2021, only 221 discharges (0.8%) were designated as having an interrupted stay.

In this report, we define short-term nursing facility stays as less than or equal to 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 is directly comparable across years, we report length of stay results only for nursing facility stays that had a discharge during the report year.<sup>16</sup> The Technical Notes at the end of this report provide further detail on how length of stay was calculated for this report.

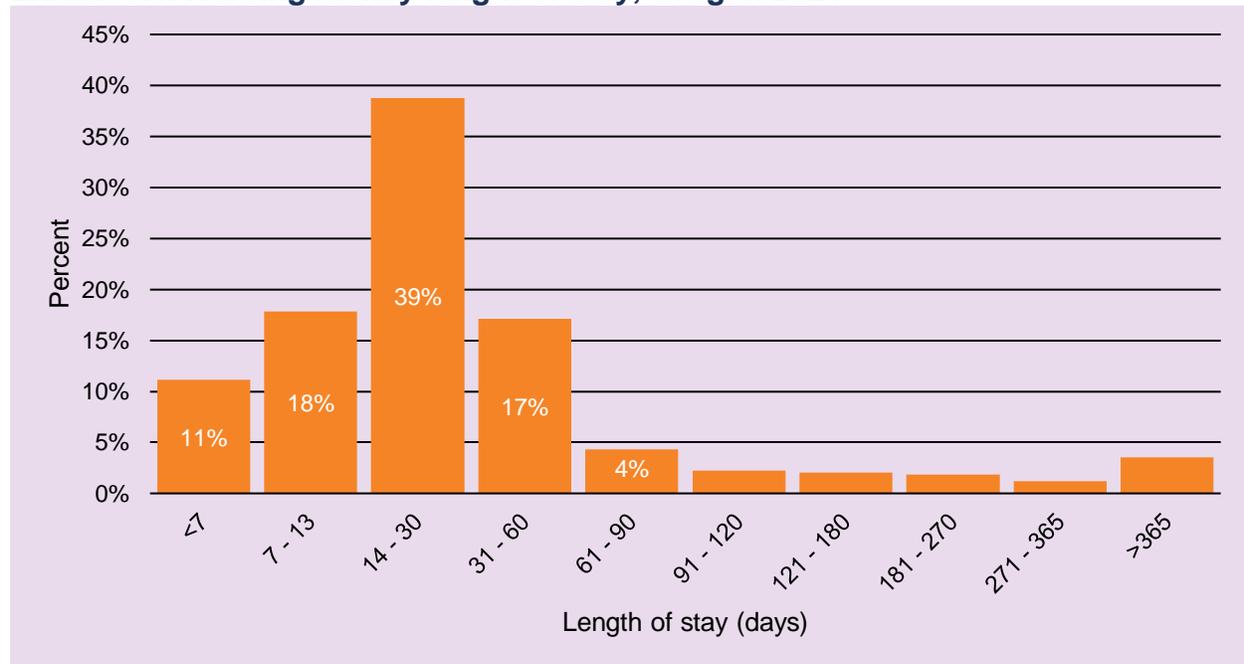
In SFY 2021, long stays averaged 852 days (or approximately 2.4 years), compared to short and mid-length stays that averaged 23 and 180 days respectively.

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<sup>16</sup> Persons who were residents in a nursing facility at the end of the report year (30 June 2020) are therefore not included in length of stay results. However, residents who discharged during the report year, but had been admitted in prior years, are included in the length of stay results.

Exhibit 6.1 shows the distribution of length of stay for Oregon’s nursing facility population. In 2021, 89.2% of all nursing facility stays were short, while 7.3% and 3.5% were mid-length and long stay, respectively. Approximately four in ten (38.8%) stays lasted between 14 and 30 days.

**Exhibit 6.1. Nursing facility length of stay, Oregon 2021**



Source: CMS Minimum Data Set

Exhibit 6.1 also shows that 68% of Oregon nursing facility stays lasted 30 days or fewer, and 89% of stays lasted fewer than 90 days. 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 lasted 100 days or longer is lower than in any other state except Arizona (Reinhard et al., 2017). This greater utilization of nursing facilities for short stays is likely due to Oregon’s commitment to utilizing home and community-based services for ongoing long-term services and supports (American Health Care Association, 2013).

Exhibit 6.2 shows the average and median lengths of stay in SFY 2021. 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. Although the overall average length of stay was 63 days, the median length of stay was only 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 length of stay was highest for the 18-24 age group. The median length of stay was 21 days or less for all age groups.

**Exhibit 6.2. Nursing facility length of stay (days) by age, Oregon 2021**

Age group	Average length of stay	Median length of stay
Under 18	147	13
18-24	477	18
25-44	64	20
45-64	69	20
65-74	63	20
75-84	64	20
85 and over	56	21
<b>Total</b>	<b>63</b>	<b>20</b>

Source: CMS Minimum Data Set

Since SFY2019, MDS provided information on the payer for individual discharges. Specifically, stays can be categorized by the resident’s health insurance status: Medicare only, Medicaid only, dual Medicare/Medicaid, or other (including commercial health insurance and private long term care insurance).

Exhibit 6.3 shows the number of discharges and average and median lengths of stay by payer group. Six in ten nursing facility stays were by residents who had only Medicare, while another one in three stays were by residents who had dual Medicare and Medicaid coverage. Average length of stay was highest for the dual eligibility group, and approximately four times longer than for the Medicare only or other payer groups. The median length of stay was 30 days or less for all payer groups.

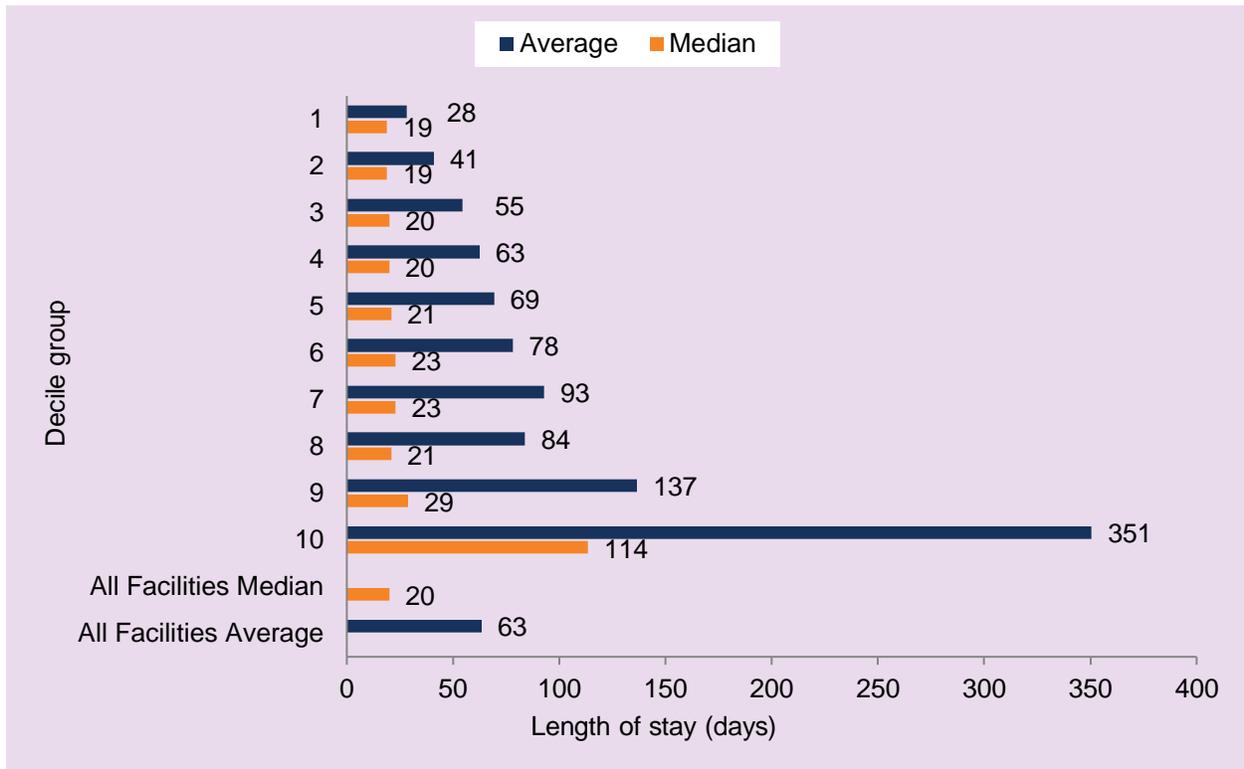
**Exhibit 6.3. Nursing facility discharges and length of stay (days) by payer, Oregon 2021**

<b>Payer group</b>	<b>Number of discharges</b>	<b>Average length of stay</b>	<b>Median length of stay</b>
Medicare only	16,173	30	19
Dual eligibility	8,236	127	30
Medicaid only	2,429	91	20
Others	1,454	27	15
<b>Total</b>	<b>28,292</b>	<b>63</b>	<b>20</b>

Source: CMS Minimum Data Set

Length of stay also varied across facilities. To characterize this variation, we ranked nursing facilities in order of average length of stay and divided the facilities into 10 equal-sized groups based on average length of stay (Exhibit 6.4). Each group represents 12 to 13 facilities. Average length of stay increased from 28 days in group one, to 351 days in group 10. However, the median length of stay was 29 days or fewer for facilities in all of the first nine groups, reflecting the preponderance of short stays in Oregon nursing facilities. Group 10 had 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 group 10 serve residents with extensive, ongoing care needs including pediatric, enhanced care, and non-dementia behavioral health care needs.

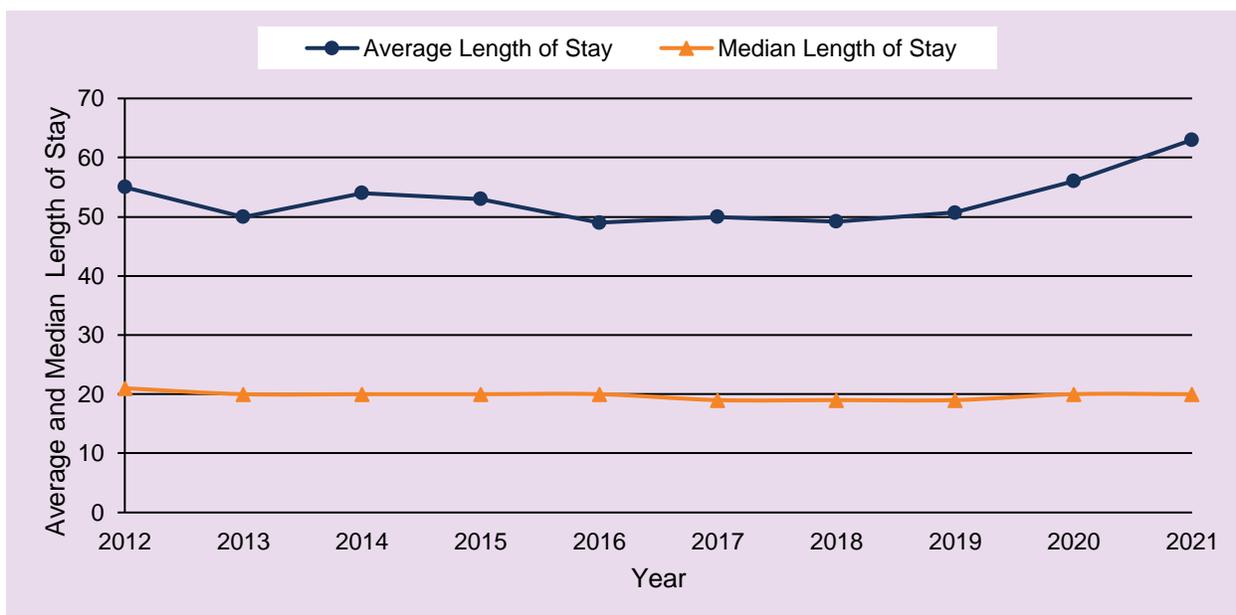
**Exhibit 6.4. Nursing facility length of stay by decile groups of facilities, Oregon 2021**



Source: CMS Minimum Data Set

Exhibit 6.5 shows the trend in average and median lengths of stay for nursing facility residents in Oregon from 2012 to 2021. The average length of stay was stable from 2016 to 2019. Median length of stay also changed little during those years. There was a significant increase in average length of stay from 51 days in 2019 to 56 days in 2020, which increased again in 2021 to 63 days. As described in more detail in Section 10, this increase is largely due to the COVID-19 pandemic.

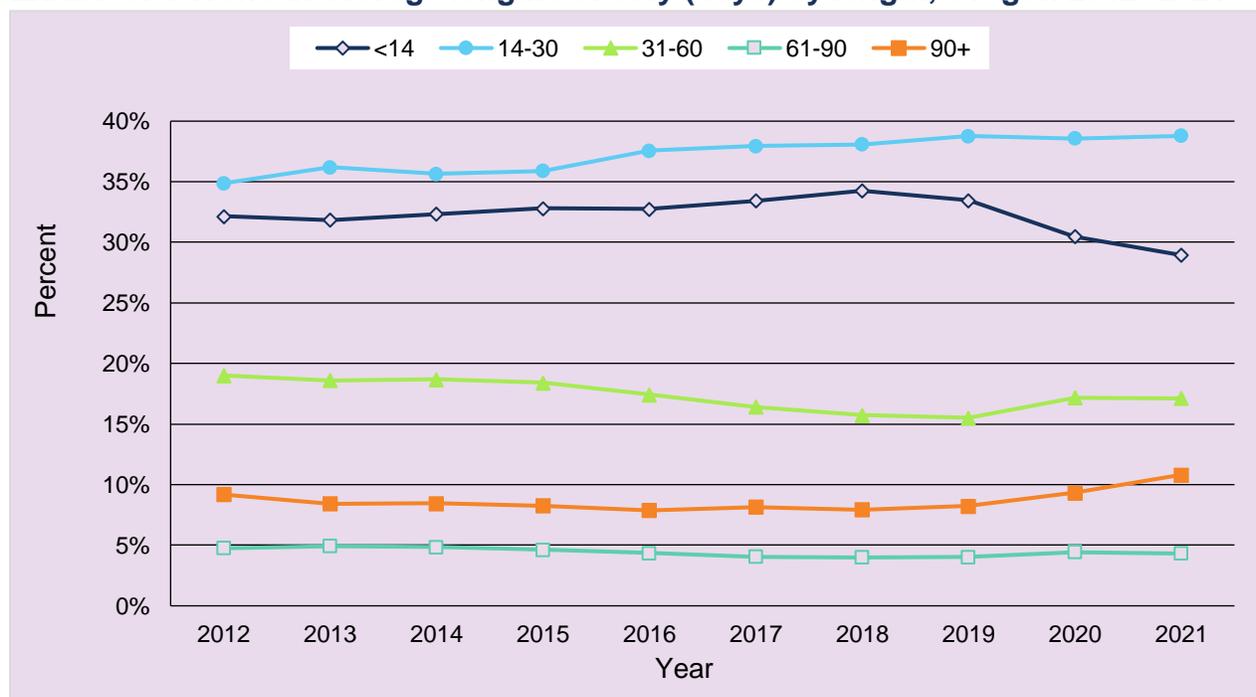
**Exhibit 6.5. Trend in average and median lengths of stay, Oregon 2012–2021**



Source: CMS Minimum Data Set

Exhibit 6.6 displays trends in the proportion of nursing facility stays within different length of stay categories. The proportion of stays that lasted fewer than 14 days had increased slightly from 2012 to 2019, then dropped noticeably in 2020 and 2021 as a result of the COVID-19 pandemic. Many of these short stays were for individuals who needed temporary post-acute care after elective surgeries, which declined during the pandemic (Baum & Schwartz, 2020). The proportion of stays that lasted 14-30 days increased from 2012 to 2019 but plateaued beginning in 2020. In contrast, the proportion of stays that were 31-60 days long had decreased from 2015 to 2019, potentially reflecting efficiency improvements among short stay residents, but increased noticeably in 2020 before plateauing in 2021. The proportion of stays lasting 90 or more days also increased in 2021. The proportions of stays lasting 61-90 days changed little over the years. Disaggregating these trends further by age group (Appendix Figures 1-4) shows that the trends through 2019 were driven by residents ages 45-64 and 75+ years, but the changes since 2020 were observed in all age groups.

**Exhibit 6.6. Trend in average lengths of stay (days) by length, Oregon 2012–2021**



Source: CMS Minimum Data Set

We disaggregated average length of stay by month for SFYs 2020 and 2021 (Appendix Figures 5 and 6). In SFY 2020, the average length of stay for short stay residents (who comprised around 90% of discharges in those months) gradually increased from 21.2 days to 23.2 days from June 2019 through March 2020, suddenly increased in April and May 2020, then returned to the level at 23 days in June 2020. The trend remained consistent during SFY 2021 with some small month-to-month fluctuations. However, the trends of the average length of stay for mid-length and long stay residents discharged in SFY 2021 and SFY 2020 were similar with a variation between 300 and 450 days, except for a jump in March 2020.

## Hospitalizations linked to nursing facility stays

Although more than nine in 10 admissions to nursing facilities were from acute hospitals, MDS data do not provide complete information about why these residents were hospitalized. Such information is helpful in understanding the mix of clinical needs among nursing facility residents, because their care often focuses on helping them recover from conditions for which they were hospitalized.

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. To account for the effect of the interrupted stay policy, we expanded the aligned date margin from plus or minus two days to three days since SFY 2020. Overall, 28,292 hospital discharges were linked to MDS stays, accounting for 80.0% of eligible SFY 2021 discharges from nursing facilities. The Technical Notes provide further details about the linkage process.

Overall, 61% 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 29% 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 55 days for stays linked to hospital discharges, with a median of 20 days.

The proportions of linked stays with hospital discharges were similar to 2020 and 2021 in the medical, surgical, trauma, and other categories. The overall average nursing facility length of stay for residents admitted from a hospital had been stable between 2016 and 2019, but jumped in 2020 and continued increasing in 2021, probably due to the COVID-19 pandemic<sup>17</sup>.

Exhibit 6.7 presents more detailed information about the clinical reasons for hospitalizations and the average length of stay for subsequent nursing facility stays. Overall, 22% of linked nursing facility stays followed hospitalizations for orthopedic conditions, and the average nursing facility length of stay was 41 days. Slightly more than one in five of these orthopedic hospitalizations were for joint replacement surgery and had an average nursing facility length of stay of 37 days. More than one in 20 orthopedic hospitalizations were for spinal fusion and had a 31-day average nursing facility length of stay. Almost one in three orthopedic hospitalizations were for hip fracture repair and were followed by a nursing facility length of stay averaging 45 days. Patients who had been hospitalized for infectious conditions accounted for 18% of nursing facility stays linked to hospitalizations and had an average nursing facility length of stay of 71 days. Sepsis accounted for more than half of these hospitalizations, with an average 76-day nursing facility length of stay. Cardiology and cardiac surgery hospitalizations accounted for 9% of linked stays and had an average nursing facility length of stay of 48 days. Hospitalizations for pulmonary conditions (of which almost half were pneumonia or respiratory failure) accounted for 7% of linked stays, with an average nursing facility length of stay of 59 days. Residents who had been hospitalized

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<sup>17</sup> The 2016 through 2020 reports present length of stay data for nursing facility residents discharged in the report year (even if they were admitted in prior years).

for a stroke or transient ischemic attack (TIA) made up 5% of linked stays, with an average 71-day nursing facility length of stay.

**Exhibit 6.7. Nursing facility length of stay (days) by hospital MS-DRG, Oregon 2021**

Category of Hospital MS-DRG	Percent of hospital discharges	Average length of nursing facility stay
Orthopedic	22%	41
Infectious	18%	71
Cardiology and cardiac surgery	9%	48
Other	10%	45
Pulmonary	7%	59
Trauma	5%	48
Neurology and neurosurgery	5%	61
Strokes and transient ischemic attack	5%	71
Gastroenterology	4%	57
Vascular	3%	52
Endocrine	3%	54
Urology	3%	80
General surgery	2%	53
Renal failure	2%	61
Ventilator	1%	90
<b>All discharges</b>	<b>100%</b>	<b>55</b>

Sources: CMS Minimum Data Set and Oregon Hospital Discharge Records

Note: Results are shown for nursing facility stays where the resident entered from a hospital, was discharged from a nursing facility within SFY 2021, and MDS data can be linked to hospital discharge data. Stays include both planned and unplanned stays.

## Section 7. Acuity of residents

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### Acuity measurements

Acuity refers to an individual's requirements for nursing care. Individuals who enter a nursing facility are assessed to identify the level of care needed during their stay. For example, many post-acute care patients are discharged from acute care hospitals after surgery or treatment for acute medical conditions, and they 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.

Nursing facilities use acuity information to plan personnel resources, manage costs, and measure quality. There are many measures of acuity. In this section, we report data about several of those indicators, including: Activities of Daily Living (ADLs), reasons for hospitalization, diagnoses among residents, and therapies received during a stay.

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 2021 and to characterize acuity among short and mid-length stays at the time residents entered the nursing facility, and among long stays at the time of residents' annual reassessments. Residents who had more than one stay during SFY 2021 may be counted more than once in the ADL, diagnoses, or treatment measures presented in this section. See the Technical Notes for further details.

### Activities of daily living

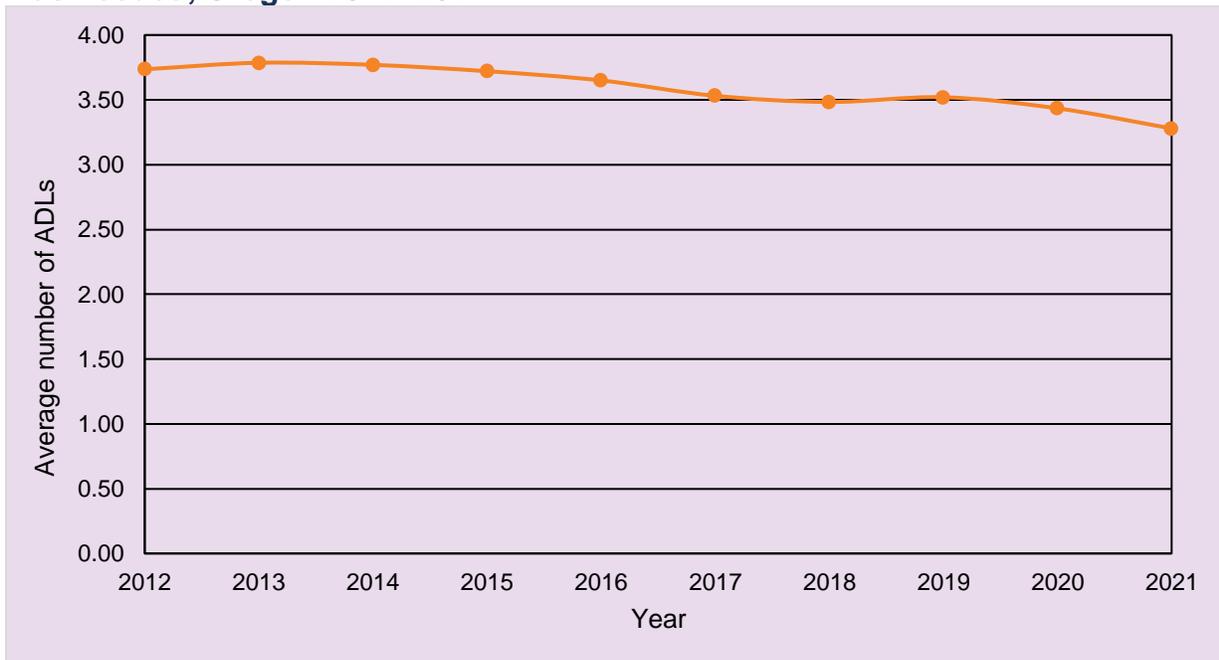
ADLs measure the extent to which care recipients cannot perform self-care tasks (Katz et al., 1963). ADLs are used to characterize individuals' levels of caregiving need (National Center for Health Statistics, 2015), whether on a temporary or indefinite basis. Once admitted to a nursing facility, residents are assessed for their level of dependence for each ADL, ranging from independence to complete dependence on staff. In this report, we focus on bed mobility,<sup>18</sup> transferring, eating, dressing, toileting, and bathing ADLs.

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<sup>18</sup> Bed mobility in the MDS 3.0 refers to how a nursing facility resident moves to and from a lying position, turns side to side, and positions their body while in bed or alternate sleep furniture; this measure does not refer to the mobility measure in the Katz Index of Independence in Activities of Daily Living (Katz et al., 1963).

Exhibit 7.1 displays the trend in average number of ADLs with which individuals needed help during their stays from 2012 to 2021. The average number of ADLs individuals needed help with during their stays has declined by over 12%, from 3.7 in 2012 to 3.3 in 2021.

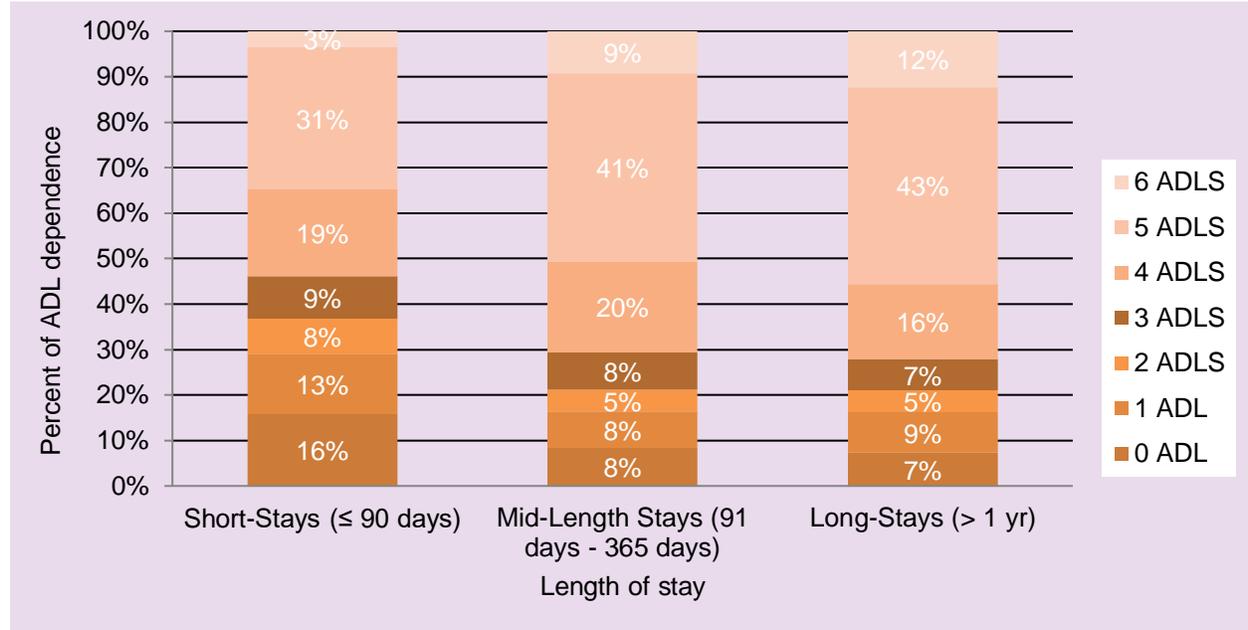
**Exhibit 7.1. Trend in average number of activities of daily living for which help was needed, Oregon 2012–2021**



Source: CMS Minimum Data Set

In 2021, stays with dependence on five ADLs represented the greatest proportion of short stays (31%), mid-length stays (41%) and long stays (43%; Exhibit 7.2). These percentages are approximately twice the average among all nursing facility residents in the U.S (23%; (Centers for Medicare & Medicaid Services, 2015)). The proportion of stays that involved dependence on at least five ADLs dropped noticeably from 2020 to 2021 for all lengths of stay.

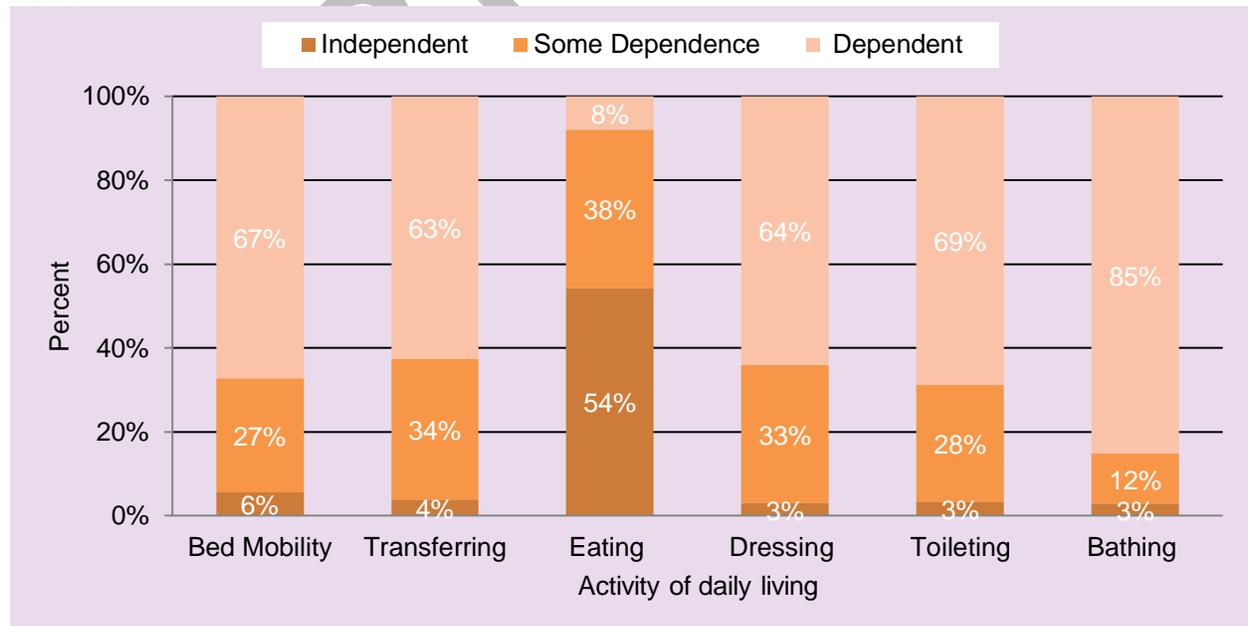
**Exhibit 7.2. Activity of daily living (ADLs) dependence by length of stay, Oregon 2021**



Source: CMS Minimum Data Set

Exhibit 7.3 presents the distribution of dependence level of six individual ADLs. Complete dependence on staff was reported for at least 63% of all stays for all ADLs except for eating.

**Exhibit 7.3. Distribution of dependence level by activity of daily living, Oregon 2021**



Source: CMS Minimum Data Set

Exhibit 7.4 provides more detail on ADL dependence. Bathing was the most common ADL need with complete dependence among all stays (85%) in 2021 and eating was the lowest (8%). Long and mid-length stays had similar proportions of complete dependence for all six ADLs, and their level of complete dependence was significantly higher than for short stays. For all ADLs other than bed mobility, stays for individuals under 18 years of age had the highest levels of complete dependence compared with other age groups, followed by individuals 85 years and over (except for eating). 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 2021**

	Bed mobility	Transferring	Eating	Dressing	Toileting	Bathing
<b>Length of stay</b>						
Short stay	65%	60%	6%	60%	66%	83%
Mid-length stay	78%	74%	14%	77%	80%	91%
Long stay	76%	73%	16%	79%	80%	92%
<b>Age group</b>						
Under 18	73%	100%	94%	99%	100%	100%
18-24	43%	57%	36%	61%	61%	77%
25-44	57%	57%	16%	56%	61%	77%
45-64	56%	53%	9%	54%	60%	77%
65-74	64%	59%	7%	61%	66%	84%
75-84	71%	65%	8%	67%	71%	87%
85 and over	75%	71%	7%	72%	77%	90%
<b>Total complete dependence</b>	<b>67%</b>	<b>63%</b>	<b>8%</b>	<b>64%</b>	<b>69%</b>	<b>85%</b>

Note: "Activity occurred 2 or fewer times", "Activity did not occur" and "missing" categories were removed from all denominators  
 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 during a nursing facility stay. MDS provides information about whether a resident had one or more 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 2021 may be counted more than once in the diagnoses measures presented in this report. Prevalence of diagnoses also add to more than 100% because most residents have multiple diagnoses.

Exhibit 7.5 presents the prevalence of each diagnosis category, and of the most common individual diagnoses. Nearly seven in ten nursing facility stays (69.7%) involved at least one acute medical condition, with anemia, malnutrition, and stroke being the most common individual diagnoses.

Nearly all stays (95.0%) involved at least one chronic medical condition, with more than seven in ten involving hypertension, five in ten involving hyperlipidemia, and near four in ten involving diabetes. Approximately three in ten stays involved an atrial fibrillation, end-stage renal disease, an ulcer or reflux disease, arthritis, asthma/COPD/chronic lung disease, or heart failure. Approximately two in ten stays involved a thyroid disorder or coronary artery disease. Approximately one in ten stays involved osteoporosis, benign prostatic hyperplasia, cataracts/glaucoma/macular degeneration, or peripheral artery disease. Less than one in ten stays involved orthostatic hypotension or cirrhosis.

One in ten stays involved a hip fracture, and one in six involved another type of fracture. Approximately, one in six stays involved neurologic conditions such as seizure disorders or Parkinson's disease. Over four in ten stays involved one or more behavioral health conditions, with nearly four in ten involving depression and one in five involving anxiety. Approximately one in five stays involved any dementia, including Alzheimer's and non-Alzheimer's dementias.<sup>19</sup> Although not directly comparable, (Harris-Kojetin, Lauren D. et al., 2019) report that the national prevalence of dementia among nursing facility residents was approximately 48%. Severely disabling conditions such as full or partial paralysis or traumatic brain injury were present in eleven percent of stays. Less than one percent of stays did not have any of these diagnoses.

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<sup>19</sup> 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 2021**

<b>Category: Specific MDS diagnosis</b>	<b>Percent of Stays</b>	<b>Category: Specific MDS diagnosis</b>	<b>Percent of stays</b>
<b>Acute medical</b>	<b>69.7</b>	<b>Chronic medical cont'd</b>	
Anemia	30.3	Benign prostatic hyperplasia	13.3
Malnutrition	15.4	Cataracts, glaucoma, macular degeneration	11.2
Transient Ischemic Attack or Stroke	13.7	Peripheral artery disease	8.7
Respiratory Failure	13.2	Orthostatic hypotension	5.4
Urinary Tract Infection	11.8	Cirrhosis	3.4
Cancer	11.1	<b>Fractures</b>	<b>25.8</b>
Hyponatremia	8.2	Other Fracture	17.1
Septicemia	8.0	Hip Fracture	10.3
Deep Vein Thrombosis	5.7	<b>Neurologic</b>	<b>17.8</b>
Pneumonia	5.7	Seizure/Epilepsy	7.1
Hyperkalemia	2.8	Neurogenic Bladder	4.1
Viral Hepatitis	2.7	Parkinson's Disease	4.0
Obstructive uropathy	2.6	Aphasia	3.5
<b>Chronic Medical</b>	<b>95.0</b>	<b>Behavioral</b>	<b>47.1</b>
Hypertension	74.2	Depression	39.8
Hyperlipidemia	51.5	Anxiety	21.1
Diabetes	38.3	Post-Traumatic Stress Disorder	3.3
Atrial Fibrillation	34.2	<b>Dementia</b>	<b>19.5</b>
End-Stage Renal Disease	32.4	Non-Alzheimer's	18.2
Ulcer or Reflux Disease	30.9	Alzheimer's	3.5
Arthritis	30.1	<b>Paralysis and Traumatic Brain Injury</b>	<b>11.3</b>
Asthma and COPD*	29.8	Hemiplegia, paraplegia, quadriplegia	10.1
Heart Failure	28.8	Traumatic Brain Injury	1.2
Thyroid Disorder	24.6	<b>Severe &amp; Persistent Mental Illness (SPMI)</b>	<b>7.7</b>
Coronary Artery Disease	23.0	Manic Depression	4.0
Osteoporosis	13.5	Schizophrenia	3.1

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%. Aside from TBI, diagnoses that occur in less than 2.5% of stays are not shown individually but are included in the category. Data in this table are based on 28,292 stays that have a diagnosis-coded entry, reentry, or annual assessment.

\*"Asthma, COPD..." accounts for Asthma, Obstructive Pulmonary Disease, Chronic Lung Disease, Chronic Bronchitis, and Restrictive Lung Diseases.

As shown in Exhibit 7.6, the prevalence of some diagnoses varied by length of stay. Acute medical conditions were slightly more common in short or mid-length stays, but the prevalence of chronic medical conditions was high regardless of length of stay. Almost all short stays involved residents with a chronic medical condition. Fractures were more common in short stays. However, the prevalence of other categories of diagnoses, including neurologic conditions, behavioral health conditions, and paralysis were similar among residents with long and mid-lengths of stay, and higher than among short length of stay residents.

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, chronic medical conditions, and/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 2021**

Diagnosis category	Percent of stays with one or more diagnoses in category		
	Short stay	Mid-length stay	Long stay
Acute medical	71%	73%	61%
Chronic medical	95%	97%	95%
Fractures	29%	19%	14%
Neurologic	14%	28%	28%
Behavioral	44%	56%	55%
Dementia	16%	25%	36%
Paralysis and TBI	8%	20%	21%
SPMI	6%	13%	15%
None of the above	3%	1%	1%
<b>Total stays</b>	<b>25,252</b>	<b>2,055</b>	<b>985</b>

Source: CMS Minimum Data Set. Data in this table are based on 33,277 stays that have a diagnosis-coded entry, reentry, or annual assessment.

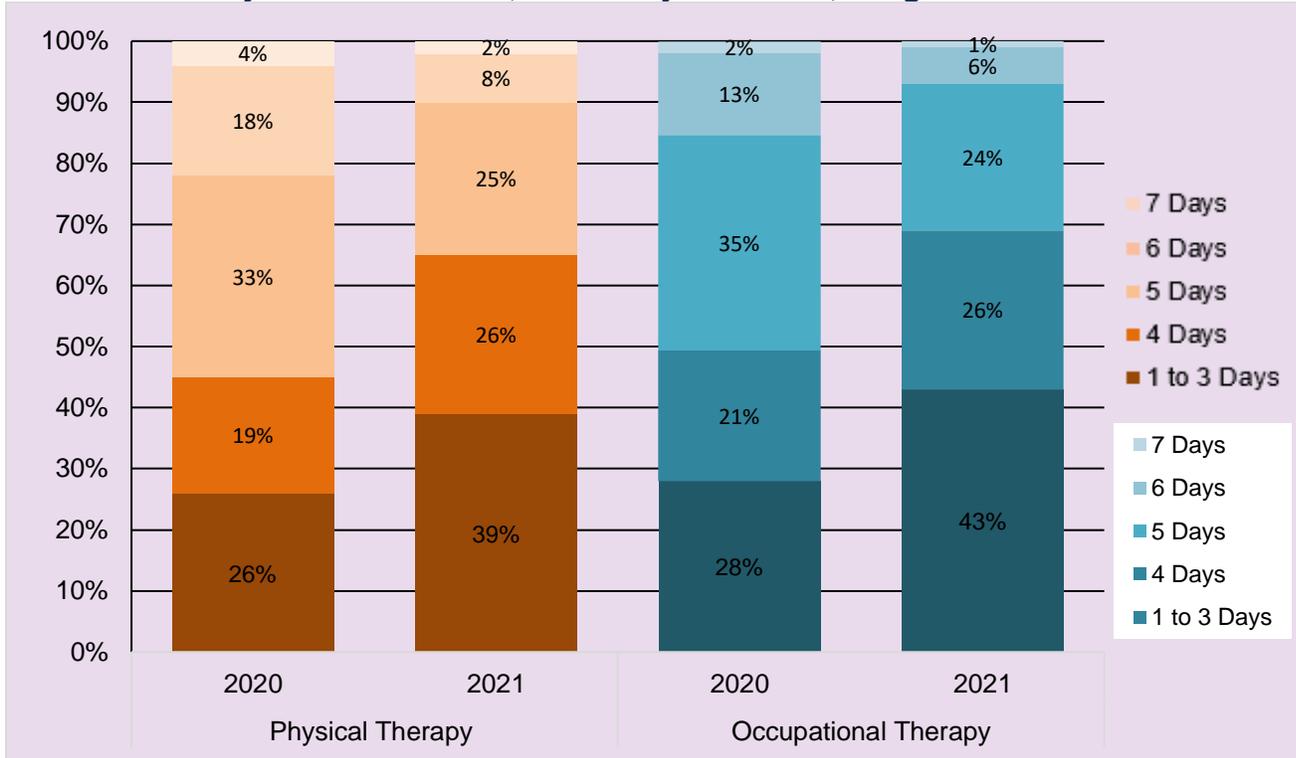
## Treatments provided to nursing facility residents

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

As shown in Exhibit 7.7, most short stays involved physical and occupational therapy in the period following an admission or entry to a nursing facility. Physical therapy and occupational therapy were provided five or more days per week for 35% and 31% of short stays in SFY 2021, respectively.

The distribution of the number of days of physical and occupational therapy significantly changed in SFY 2021 compared to SFY 2020. The proportion of short stay residents with one to three days of physical therapy increased from 26% in 2020 to 39% in 2021, and the proportion with four days of physical therapy from 19% to 26%. In contrast, the proportion of short stay residents with five, six, or seven days of physical therapy dropped 8%, 10%, and 2%, respectively. Similarly, the proportion of short stay residents with one to three days of occupational therapy increased from 28% in 2020 to 43% in 2021, and the proportion with four days of occupational from 21% to 26%. The proportion of short stay residents with five, six, or seven days of occupational dropped 11%, 7%, and 1%, respectively. The fact that these changes in physical and occupational therapy use began in October 2019 (see Appendix Figures 7 and 8) suggest that they reflect the changed reimbursement incentives of PDPM.

**Exhibit 7.7. Distribution of number of days of physical and occupational therapy within seven days of assessment, short stay residents, Oregon 2020 and 2021**



Source: MDS Minimum Data Set. Data in this table are based on 34,348 stays that have a therapy-coded entry, reentry, or annual assessment in MDS.

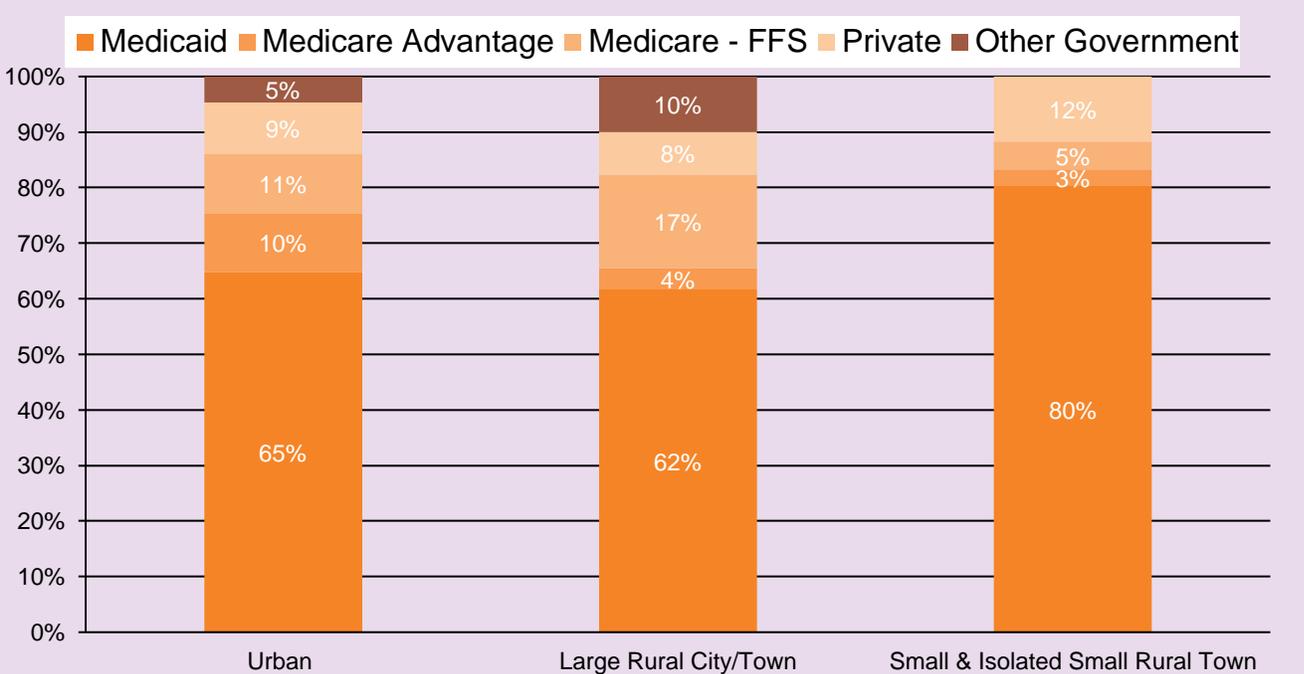
Additionally, oxygen was administered during 16.4% of nursing facility stays in SFY 2021 (data not shown). BiPAP treatment (to prevent breathing stoppages during sleep for residents with sleep apnea) was provided for 6.3% of stays (data not shown). Dialysis indicates the presence of renal failure and was needed for 3.1% of stays (data not shown). The rate of BiPAP and dialysis treatments was roughly twice as common among short stays compared to long stays. Oxygen treatment was administered during nearly 18% of short and mid-length stays, but only 12% of long stays.

# Section 8. Payers

Medicaid was the primary payer for 65% of resident days in Oregon nursing facilities during 2021. Private payers (including commercial insurers, long-term care insurance plans, and self-pay residents) paid for 10% of all resident days. Medicare Fee-For-Service (FFS), which covers up to 100 days of skilled nursing facility care per year, paid for 12% of resident days, and Medicare Advantage plans<sup>20</sup> paid for 9%. Other government payers (including the Veterans Administration) paid for the remaining 4% of resident days in 2021.

Exhibit 8.1 breaks down payer sources for Oregon nursing facility resident days by facility location, using the same rurality categories described for Exhibit 3.5 (p. 23). In 2021, Medicaid was the predominant payer in urban as well as rural areas, paying for 65% of resident days in urban areas, 62% in large rural cities/towns and 80% in small/isolated rural towns. The proportion of days paid by Medicare FFS was highest (17%) in large rural cities/towns, and the private pay proportion was highest (12%) in small/isolated rural towns.

**Exhibit 8.1. Payer sources for nursing facility resident days by urbanicity, Oregon 2021**



Source: Cost Reports and Revenue Statements

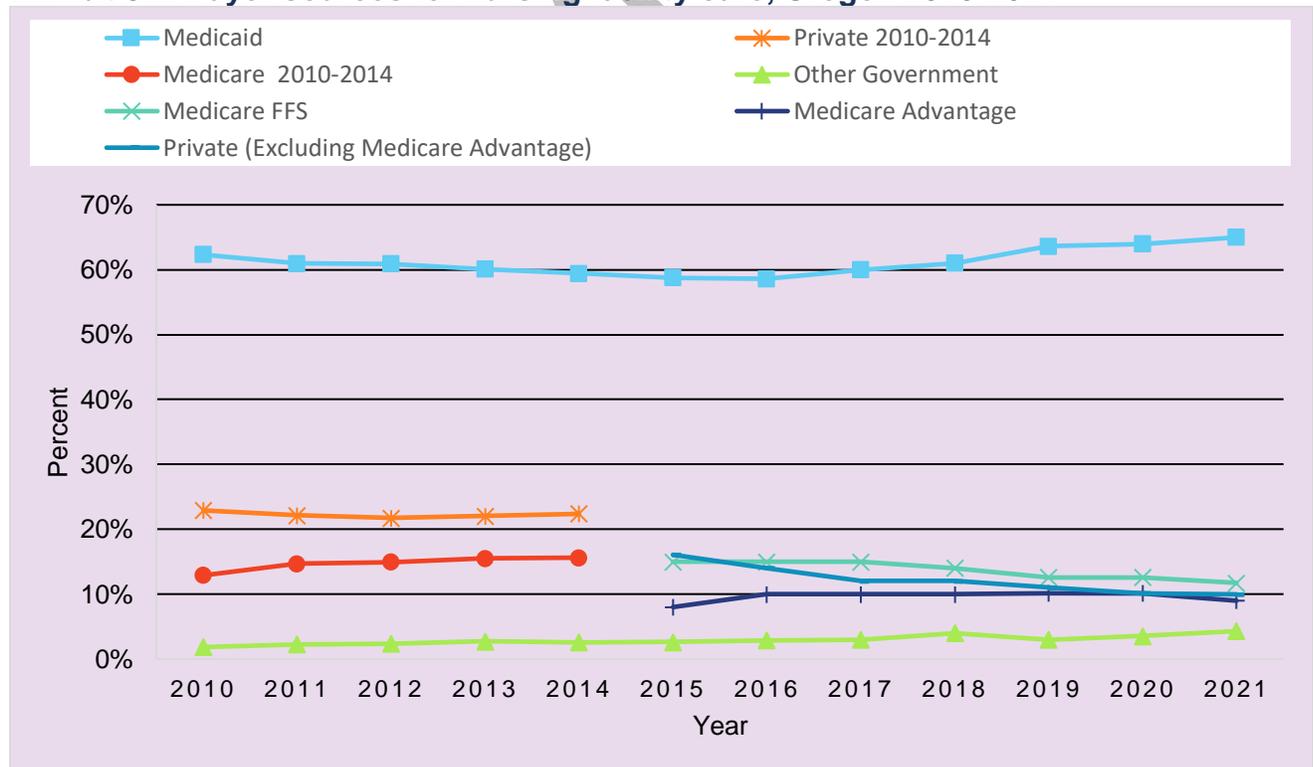
<sup>20</sup> Prior to 2015, Medicare Advantage days were mostly included in the private payer category.

Medicare Advantage, the managed care option for Medicare beneficiaries, is an important payer in the Oregon health care market. At 42% of eligible beneficiaries, Oregon has the third highest rate of Medicare Advantage enrollment among states (Yoo, 2021). The lower proportion of Medicare Advantage payment in rural areas likely reflects the lower Medicare Advantage enrollment rates in Oregon’s rural areas.

Exhibit 8.2 shows the trend in payer sources in Oregon nursing facilities. Beginning in 2015, nursing facilities were required to report separately the number of resident days paid for by Medicare Advantage, Medicare FFS, and private pay. Because of this methodological change, we show data 2015 and forward separately from pre-2015 data; data reported for Medicare and private payers for 2015-2021 are therefore not directly comparable to those of prior years.

The proportion of nursing facility resident days paid for by Medicaid was 65%; this share fell from 2010 to 2016 but has risen again in recent years. The apparent decline in the proportion of days paid by private payers after 2015 reflects both the improved measurement of Medicare Advantage payments, as well as a concurrent increase in the proportion of days paid by Medicaid. The proportion of days paid for by Medicare FFS remained stable from 2015 to 2017, before declining slightly from 2018-2021.

**Exhibit 8.2. Payer sources for nursing facility care, Oregon 2010-2021**



Sources: Cost Reports and Revenue Statements  
 Note: For years 2010 through 2014, “Medicare” includes Medicare FFS only

## Section 9. Quality measures

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The CMS provides data on a wide range of nursing facility quality measures. These measures are derived from MDS 3.0 assessments and made available from Care Compare.

CMS quality measures are calculated separately for short stay and long stay residents. In this section, a short stay is defined as lasting 100 or fewer days; a long stay is one that lasts more than 100 days.<sup>21</sup> In SFY 2021, more than nine in ten stays in Oregon were short stays.

Below we present the average performance level of Oregon nursing facilities on each quality measure, as well as the national average for the same measure. We also divide Oregon facilities into four equal groups—or quartiles—for each measure and present the average performance within each group to describe the variation in performance across facilities within the state.<sup>22</sup> There was wide variation between facilities in the best and lowest performing groups for almost every measure.

Exhibit 9.1 presents five measures for which a higher percentage represents better performance. For short and long stay residents, average rates of both seasonal flu vaccination and pneumococcal pneumonia vaccination either decreased or maintained the same values compared with SFY 2020 for majority of the quarters, given a few exceptions. Nevertheless, Oregon facilities' seasonal flu vaccination rates for long stay residents remained somewhat lower than the averages for nursing facilities nationwide, while short and long stay rates for pneumococcal pneumonia vaccinations in Oregon facilities were higher than the national averages. The proportion of short stay residents whose functional status improved was higher than in 2020 and remained higher in Oregon than the national average.

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<sup>21</sup> This CMS definition is slightly different from the definition of short stay (90 days or fewer) used in other sections of this report. Most stays reported as “mid-length” (91 to 365 days) in other sections of this report are included in the long stay category for these quality measures.

<sup>22</sup> The total number of facilities for which a given measure is reported ranged from 66 to 130 facilities, and so the number of facilities in each quartile group also varies somewhat across measures.

**Exhibit 9.1. Vaccination rates and functional status by length of stay and specific nursing facility groups, Oregon and U.S. 2021**

	All Oregon facilities	Best	Second	Third	Fourth	All U.S. nursing facilities
<b>Long stay</b>						
Seasonal flu vaccine	94%	98%	98%	95%	86%	96%
Pneumococcal vaccine	95%	100%	99%	96%	87%	94%
<b>Short stay</b>						
Seasonal flu vaccine	81%	94%	86%	80%	63%	80%
Pneumococcal vaccine	83%	98%	90%	82%	61%	80%
Improved functional status	75%	86%	78%	73%	65%	72%

Source: Care Compare

Exhibits 9.2 and 9.3 present 17 measures for which a lower percentage or number represents better performance. Long stay measures are shown in Exhibit 9.2, and short stay measures are shown in Exhibit 9.3. Oregon nursing facilities performed the same or better than the national average on 11 of the 17 quality measures. The exceptions to this for long stay residents include residents who received an antipsychotic medication, residents whose ability to move independently worsened, residents who had a urinary tract infection, and the number of outpatient emergency visits per 1,000 long-stay resident days. For short stay residents, Oregon facilities performed worse than the national average for pressure ulcers that were new or worsened and the number of outpatient emergency visits.

Fifteen percent of long stay residents newly received an antipsychotic medication compared with two percent of short stays.<sup>23</sup> This long stay rate is slightly higher than the national average, whereas the short stay rate is slightly lower; the rate for long stay residents is greater than 2020, however the rate for short stay residents is similar than 2020. Use of antipsychotic medications among long stay residents has been the target of a national quality improvement initiative since 2011, and has declined in Oregon nursing facilities over that time period (Centers for Medicare & Medicaid Services, 2016). Long stay residents in Oregon were also far less likely than the national average to receive an antianxiety or hypnotic medication in both 2020 and 2021.

Rates of several negative outcomes among long stay residents (for example, losing too much weight, high-risk patients with pressure ulcers, urinary tract infections, or falls with

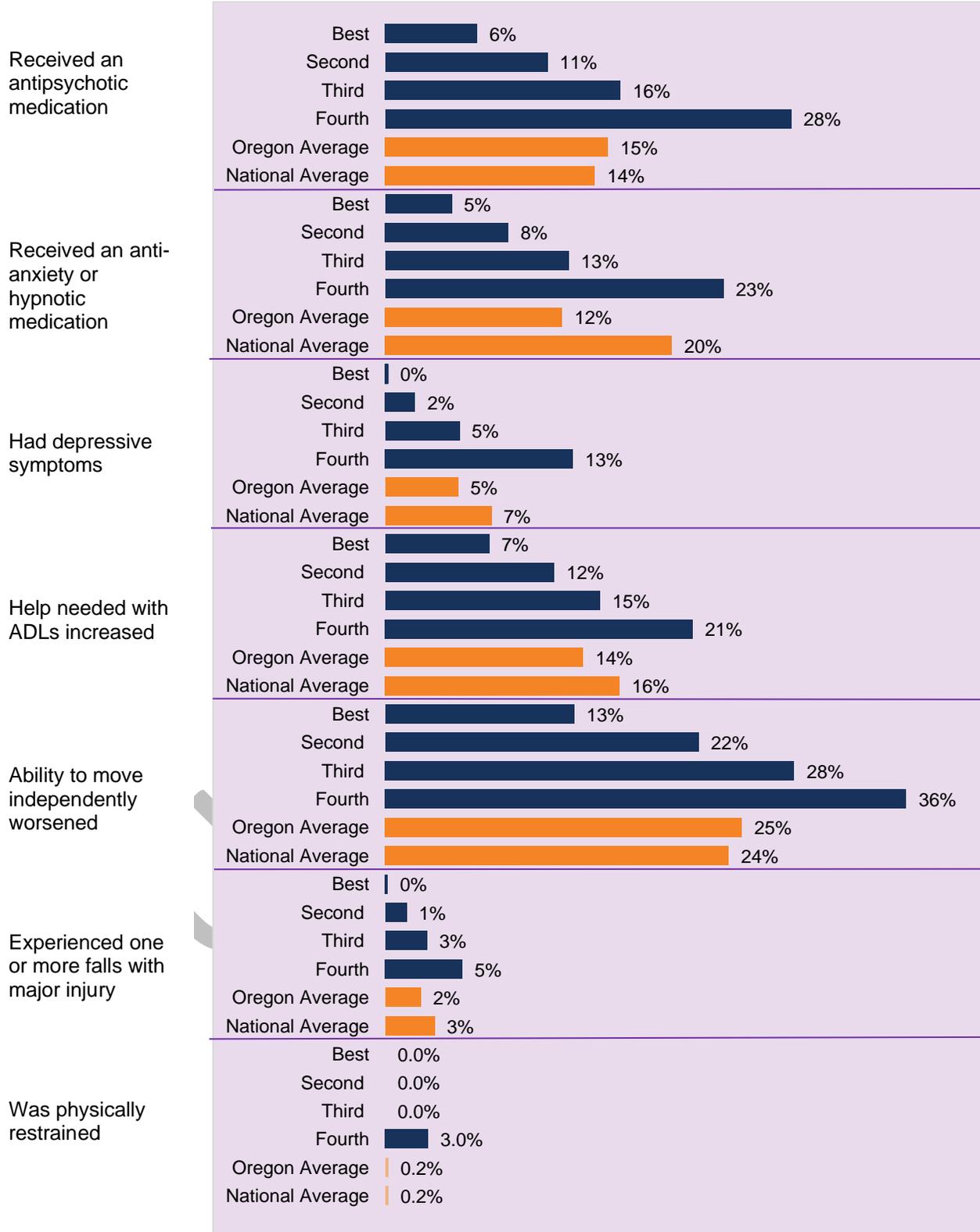
<sup>23</sup> This measure excludes residents diagnosed with schizophrenia, Huntington's disease, or Tourette's syndrome.

major injury) were similar to the national average, and performance in 2021 was similar to that in 2020 and 2019.

In 2021, both short and long stay residents in Oregon facilities were more likely than short and long stay residents nationwide to have an outpatient emergency department visit. However, long stay residents in Oregon facilities were less likely than long stay residents nationwide to be hospitalized (per 1,000 long stay resident days). Short stay residents in Oregon were less likely to be rehospitalized after entering the nursing facility than residents nationwide.

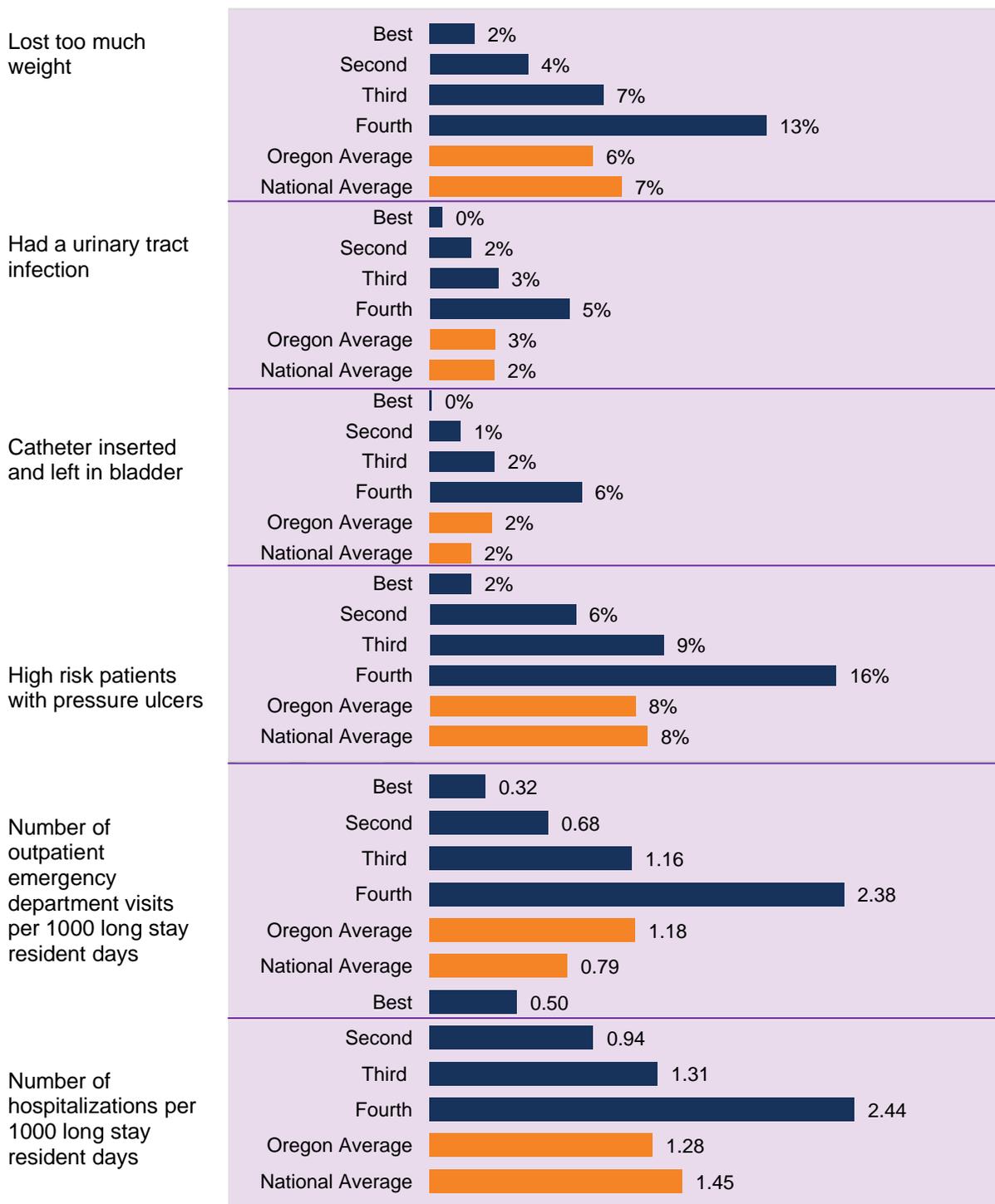
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**Exhibit 9.2. Quality measures of long stays by nursing facility groups, Oregon and U.S. 2021**



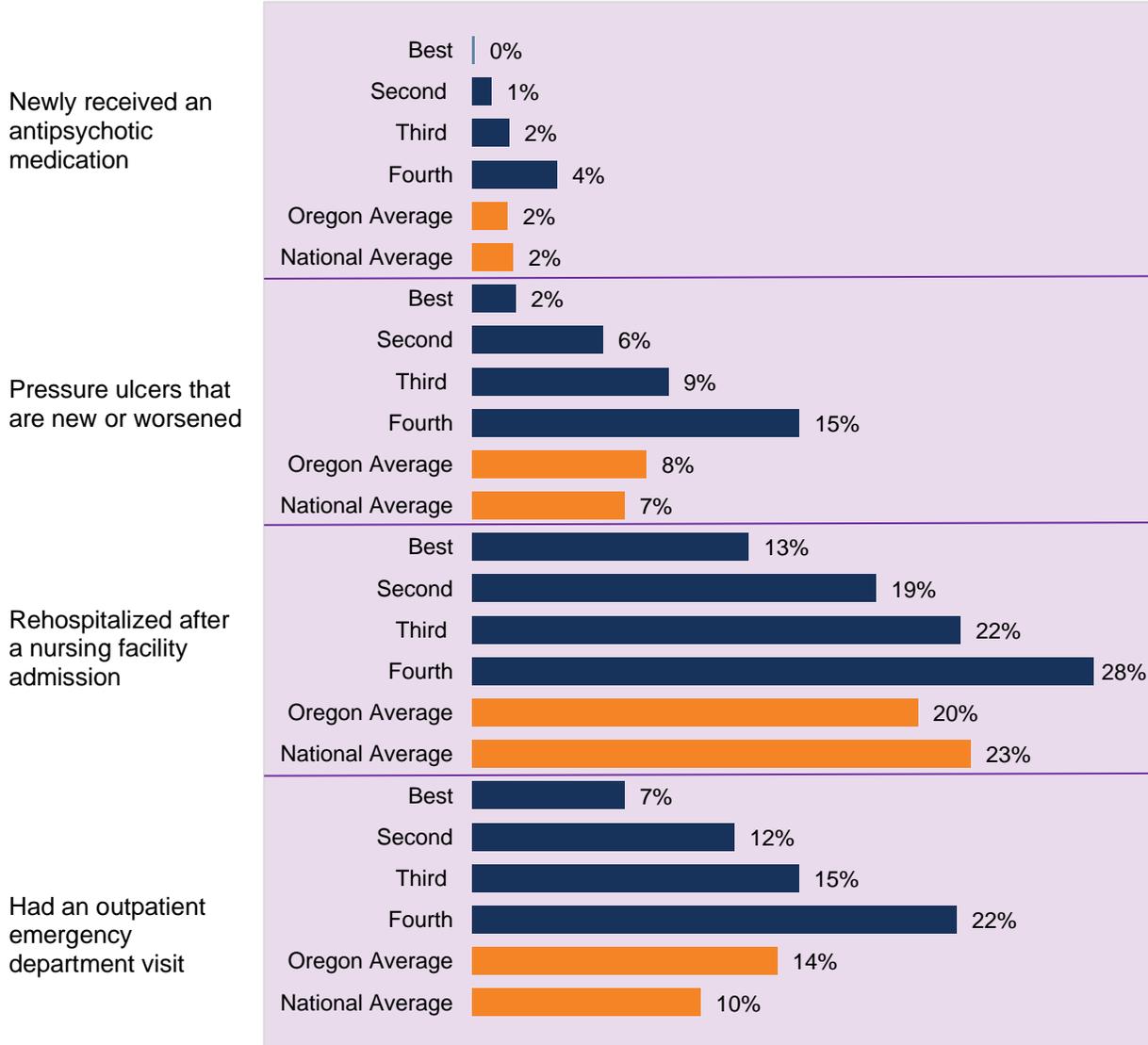
Source: Care Compare

**Exhibit 9.2. Quality Measures of long stays by nursing facility groups, Oregon and U.S. 2021 (Continued)**



Source: Care Compare

### Exhibit 9.3. Quality measures of short stays by nursing facility groups, Oregon and U.S. 2021



Source: Care Compare

## Section 10. COVID-19 in nursing facilities

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### Background

The COVID-19 pandemic began in the middle of Oregon SFY 2020, and severely impacted nursing facilities in Oregon and nationwide. This report presents data from that time through the end of SFY 2021 in June 2021.

The Centers for Disease Control and Prevention (CDC) confirmed the first US case of 2019 Novel Coronavirus (2019-nCoV)<sup>24</sup> in Washington state in January 2020. Oregon's first community presumptive coronavirus case was identified on February 28, 2020.

On February 29, 2020, CDC and Washington state public health officials reported the first possible coronavirus outbreak in a long-term care facility. That day, ODHS issued strict guidelines restricting visitations to care facilities including nursing facilities. By March 8, 2020 Governor Brown declared a state of emergency. Her Executive Order restricted non-essential visitor entry to nursing facilities, residential care facilities and assisted living facilities, including those with memory care endorsements, requiring 100% screening of all individuals allowed to enter facilities, documenting screening procedures for all persons entering, and limiting community activities (ODHS, 2020a; ODHS, 2020b).

Oregon reported its first COVID-19 death on March 14, 2020. Two days later, ODHS imposed further restrictions on visitors to long-term care and other residential care facilities. To conserve personal protective equipment (PPE), another Executive Order prohibited elective and non-urgent procedures across all care settings beginning March 23, 2020 (Office of the Governor, 2020); elective procedures began to be performed again in June 2020.

The first presumptive case in an Oregon nursing facility was identified on March 11, 2020. By April 10, 2020, 32 Oregon long-term care facilities reported having either a resident, staff member, or both test positive for coronavirus. In the following week, ODHS contracted with two nursing facilities (Laurelhurst Village and Pacific Health & Rehabilitation Center) to be standalone emergency care centers, intended to house COVID-19 patients from other long-term care facilities that could not keep them adequately isolated. Both centers were operational as designated COVID-19 care centers through June 2020 (KTVZ news, 2020).

In the early months of the pandemic, nursing facilities struggled to obtain resources such as personal protective equipment and coronavirus testing. One facility, Healthcare

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<sup>24</sup> This report uses the term "coronavirus" to refer to the Novel Coronavirus (2019-nCoV), and "COVID-19" to refer to the disease caused by this virus.

at Foster Creek, had such a large number of coronavirus infections and deaths that it was ordered closed by ODHS in May 2020 (Monahan, 2020). The facility subsequently reopened in January 2021 under new ownership.

In eight states including Oregon, at least half of COVID-19 deaths in the first few months of the pandemic were linked to nursing facilities (National Association of Counties, 2020). Long-term care facilities accounted for 4% of all US coronavirus cases and 32% of US COVID-19 deaths by April 2021 (NY Times, 2021).

Oregon COVID-19 cases stayed under 500 per day through the summer of 2020, trending towards zero in September. However, case numbers increased rapidly in the winter months, peaking at over 1,500 cases per day in December. Case counts briefly receded to 1,000 cases per day around New Year's 2021 before spiking again to 1,300 cases per day in mid-January. Case rates declined through the spring months, dropping to under 300 cases per day in March. A summer surge began in April 2021, peaking again just below 1,000 cases per day, and declining through May and June. COVID-related deaths track a similar timeline, staying relatively low (<5 deaths per day) through the summer and fall of 2020, before spiking to near 30 deaths per day for short periods in December and then January 2021. Deaths then trended back down before rising again in May, though after March, they never rose beyond 10 deaths per day again. (CDC, 2020b)

The Coronavirus pandemic appeared in several waves of infection, precipitated by mutated variants of the virus. The Delta variant was identified as a Variant of Concern on November 30<sup>th</sup>, 2021. It quickly replaced dominant strains in the US, bringing greatly increased transmissibility. This coincided with the December/January surges in COVID-19 cases and deaths. (CDC, 2020a)

The Moderna and Pfizer vaccines gained provisional use authorization in December of 2020, allowing Oregon to begin emergency vaccine distribution. Healthcare workers and residents of long term care facilities were prioritized under Oregon's Phase 1a COVID-19 Vaccine Plan, and were the first eligible for vaccination (*Oregon Health Authority : Phase 1a of Vaccine Plan Targets Wide Range of Health Settings : External Relations Division : State of Oregon*, n.d.). By the end of June 2021, over 2.1 million Oregonians were fully vaccinated. (*Oregon COVID-19 Vaccine Effort Metrics*, n.d.)

## Data and methods

To understand trends during the COVID-19 pandemic, this report analyzes monthly (rather than just annual) data derived from Cost Reports/Revenue Statements and MDS. It also presents additional data collected by CMS on coronavirus cases, COVID-19 mortality in nursing facilities, and vaccination rates. (See Technical Notes for further details.)

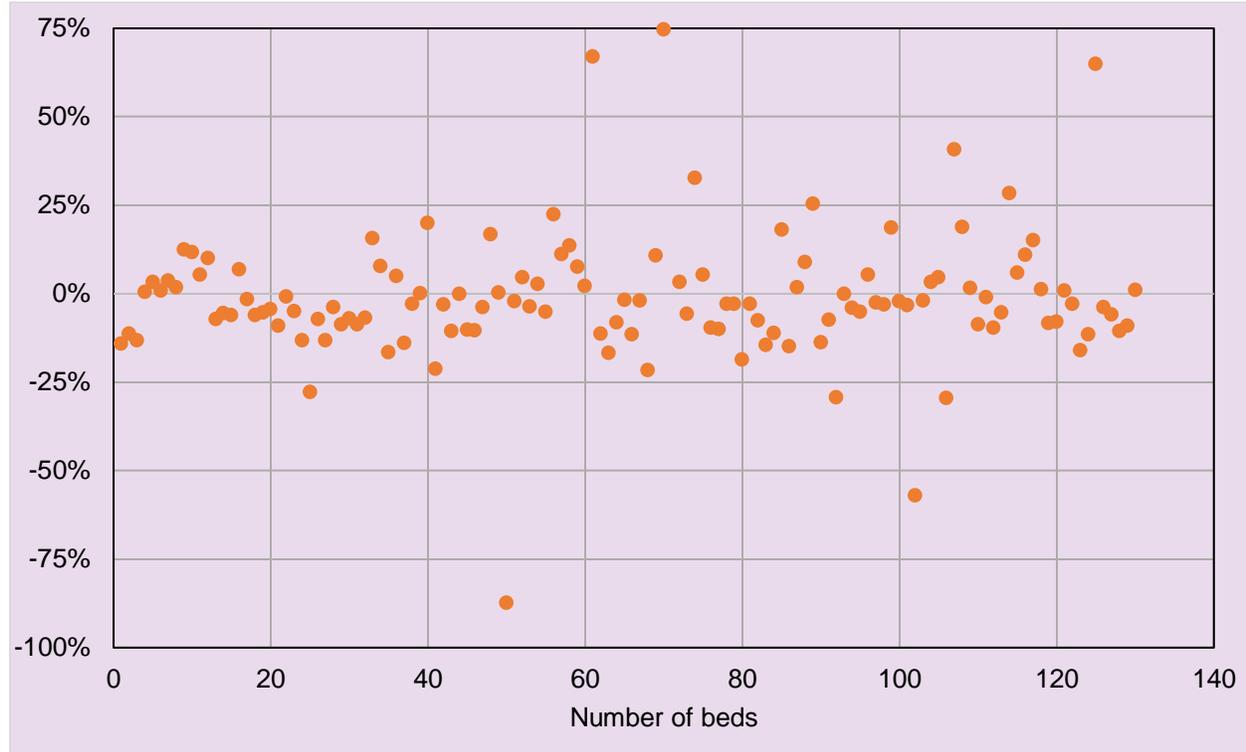
The Centers for Medicare & Medicaid Services (CMS) began requiring nursing facilities to report specified COVID-19 data, including cases and deaths for nursing facility residents and staff, on May 24, 2020; the accuracy of reporting retroactive to the beginning of calendar year 2020 is unknown. Subsequently, nursing facilities were required to self-report new coronavirus cases and COVID-19 deaths on a weekly basis (CMS, 2020). This SFY 2021 report presents weekly trends of those data. Trends are reported for counts as well as per 1,000 resident-weeks. The latter controls for changes in the nursing facility population over time, and for the population size difference between Oregon and the United States.

Vaccination rates among nursing facility residents and staff began to be reported in May 2021 and are briefly summarized at the end of this section.

## Results

Exhibit 10.1 presents the change in occupancy rate for each nursing facility, arrayed by facility size in licensed beds at the beginning of SFY 2021. Eighty-two of the 130 facilities had reduced occupancy in 2021 compared to 2020, including large and small facilities. Four of the remaining 48 facilities had no change in their occupancy rate during SFY 2021 compared to 2020.

**Exhibit 10.1. Change in nursing facility occupancy rate by number of beds, 2021 and 2020**



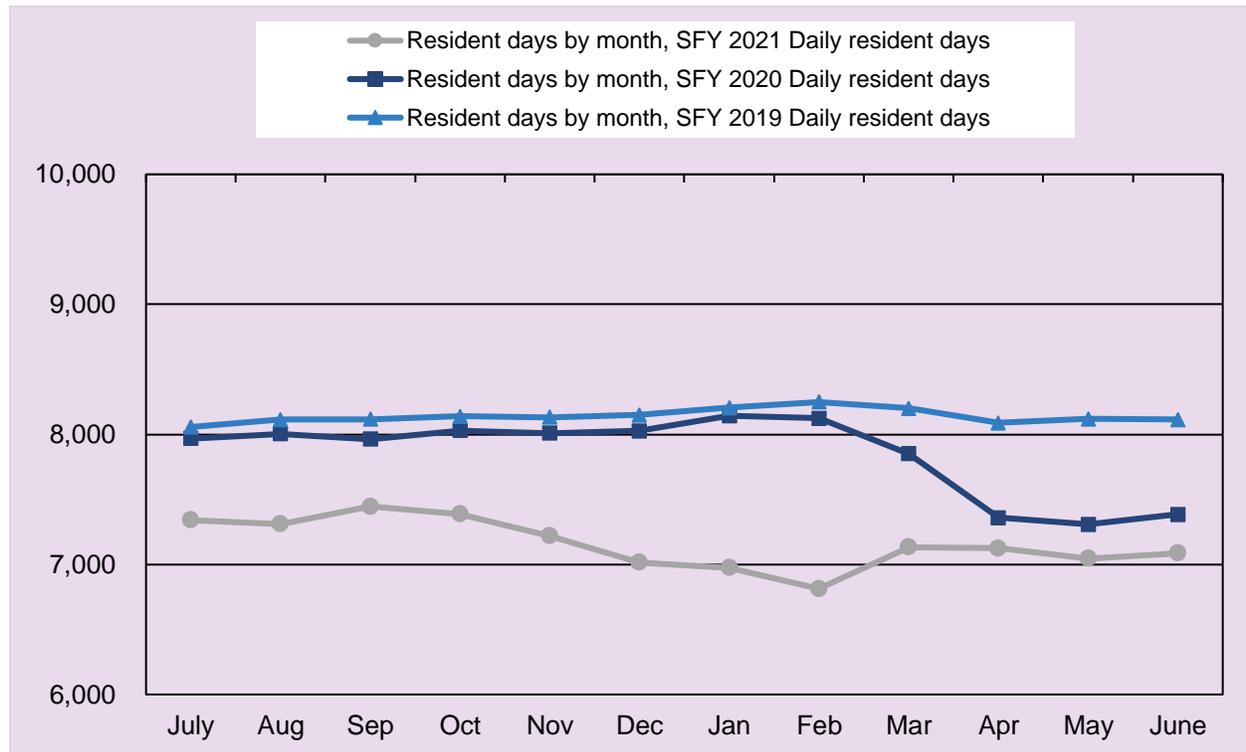
Note: Facilities with more than 200 beds or occupancy rate change >+75% not shown  
Sources: Cost Reports and Revenue Statements

Prior to SFY 2021, the average occupancy rate was 66% in Oregon as of May 2020. The national average occupancy rate during SFY 2020 was 85%. But as the COVID pandemic began, the national average occupancy dropped sharply to 78.9% by April 2020 (Spanko, 2020).

Exhibit 10.2 shows the total number of resident days per day in SFY 2019, SFY 2020, and SFY 2021; showing results by day adjusts for the varying number of days per month<sup>25</sup>. The number of resident days dropped very sharply in March and April 2020 as the pandemic began. The number of resident days then held relatively steady for several months but began to drop again in November 2020, reaching a low point in February 2021 that was 16% lower than February 2020. Occupancy rates and total resident days began to increase by March 2021, but remained approximately 12% below pre-pandemic levels.

<sup>25</sup> Including an extra leap day in February 2020.

## Exhibit 10.2. Average daily resident days for 2021, 2020, and 2019



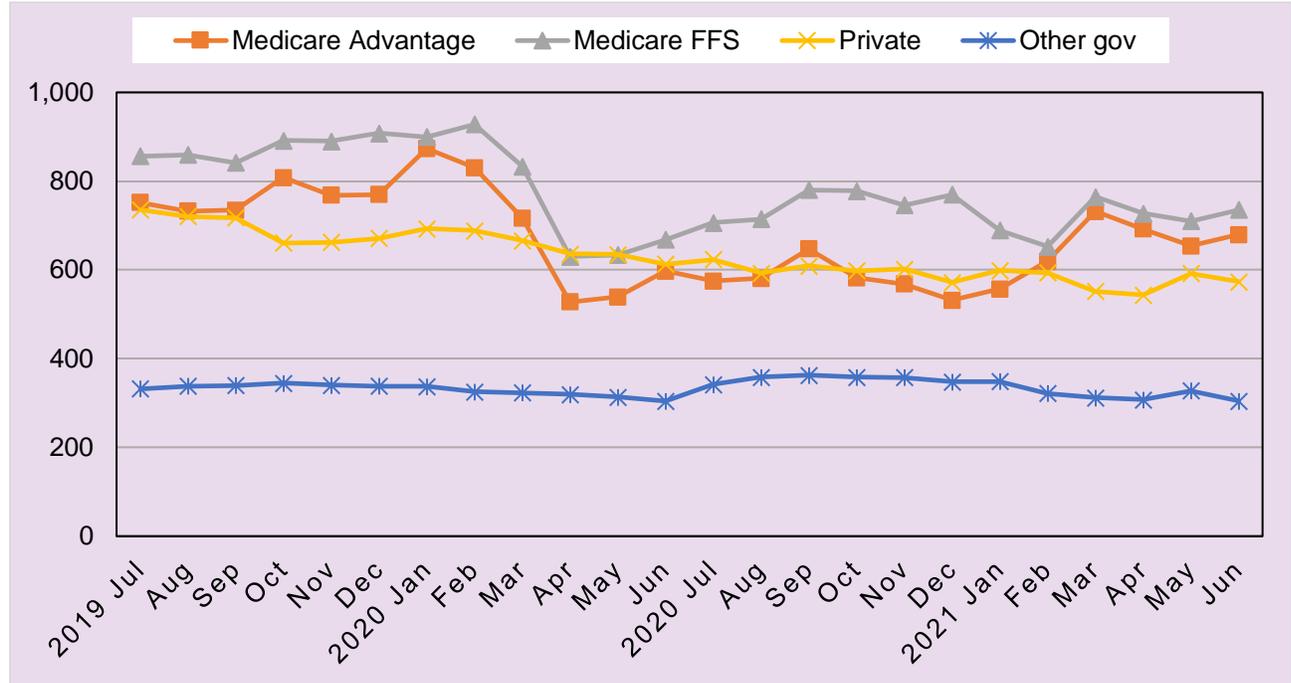
Sources: Cost Reports and Revenue Statements

Note: Resident days per day adjusted by number of days in the month (e.g.-28 for February 31 for July)

Exhibits 10.3 & 10.4 show the total number of resident days per day in 2020 & 2021, broken down by individual payer. The number of resident days funded by Medicaid (shown separately because it is the largest payer) decreased slightly from July 2020 to February 2021, before increasing again. The number of other government-funded days remained relatively stable. Medicare FFS days increased during the fall of 2021, then fell during January and February 2022 before rising again. Medicare Advantage days remained stable over the first half of SFY 2021, then rose significantly starting in January 2021. Private payer days showed a steady decline across SFY 2020 and 2021.

At the end of SFY 2021, Medicare FFS, Medicare Advantage, and private payer resident days remained below pre-pandemic levels. Medicaid days were slightly higher than before the pandemic.

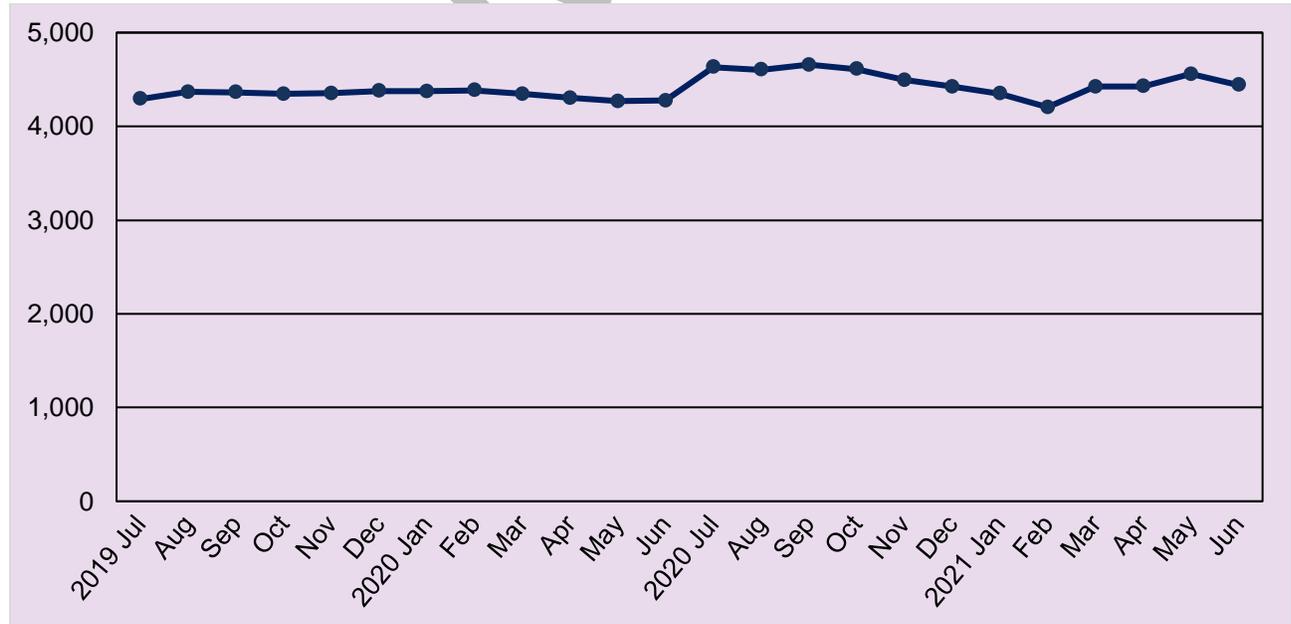
**Exhibit 10.3. Average daily resident days by payer not including Medicaid, Oregon 2020-2021**



Sources: Cost Reports and Revenue Statements

Note: Resident days per day adjusted by number of days in the month (e.g. - 28 for February 31 for July)

**Exhibit 10.4. Average daily resident days by payer (Medicaid only), Oregon 2020-2021**

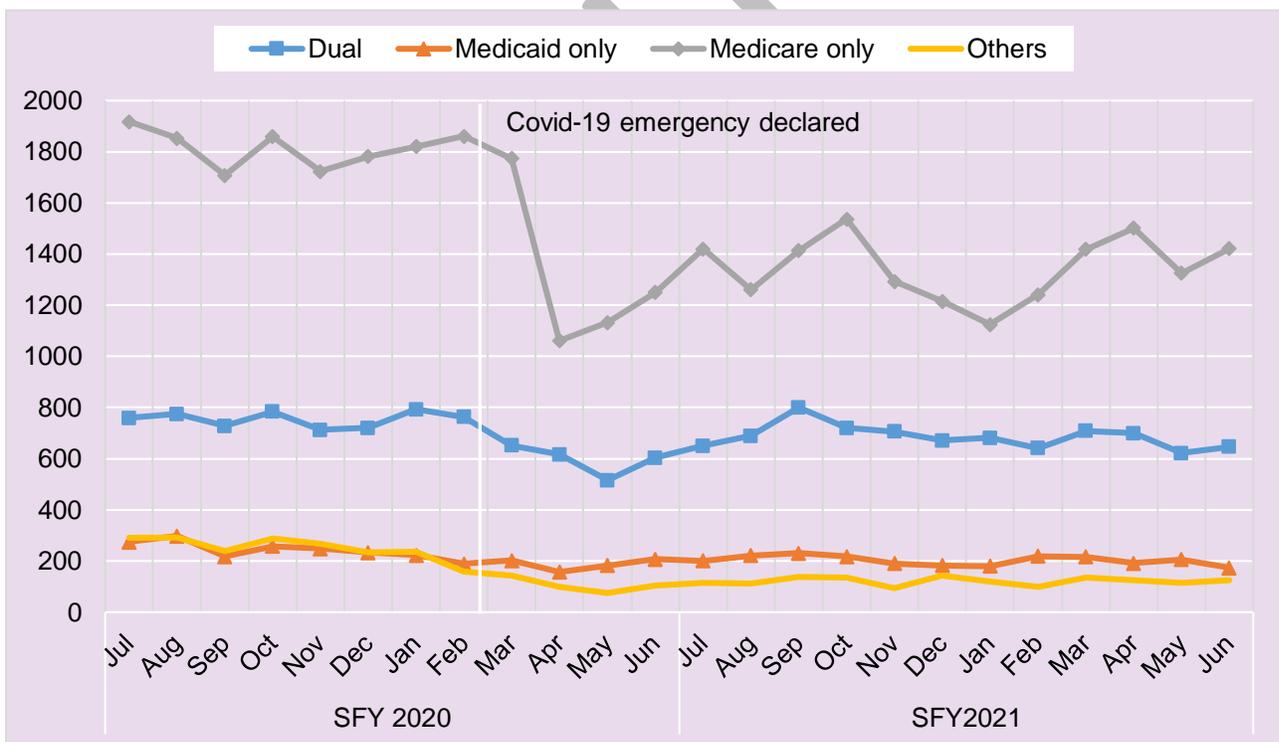


Sources: Cost Reports and Revenue Statements

Note: Resident days per day adjusted by number of days in the month (e.g. - 28 for February 31 for July)

MDS provides information on the number of discharges from nursing facilities and the payer for each discharge<sup>26</sup>. Exhibit 10.5 shows that the monthly number of stays covered by Medicare only dropped dramatically in April 2020 after the COVID-19 emergency was declared, then gradually increased through October 2020. Medicare-only stays dropped again during the Delta variant wave of October 2020 through January 2021, then recovered; however, by the end of SFY 2021 stays per month remained approximately one-quarter lower than pre-pandemic levels. The monthly number of stays covered by dual Medicare + Medicaid followed a similar trend, but was relatively stable during SFY 2021 and remained below pre-pandemic levels at the end of the fiscal year. Monthly stays for Other payers also dropped steeply at the beginning of the pandemic, and remained at about half of pre-pandemic levels through the end of SFY 2021. Similar to Exhibit 10.4, monthly Medicaid-only stays dropped somewhat at the beginning of the pandemic, but then remained stable throughout SFY 2020-2021.

**Exhibit 10.5. Monthly trend in discharges by payer, Oregon 2020-2021**



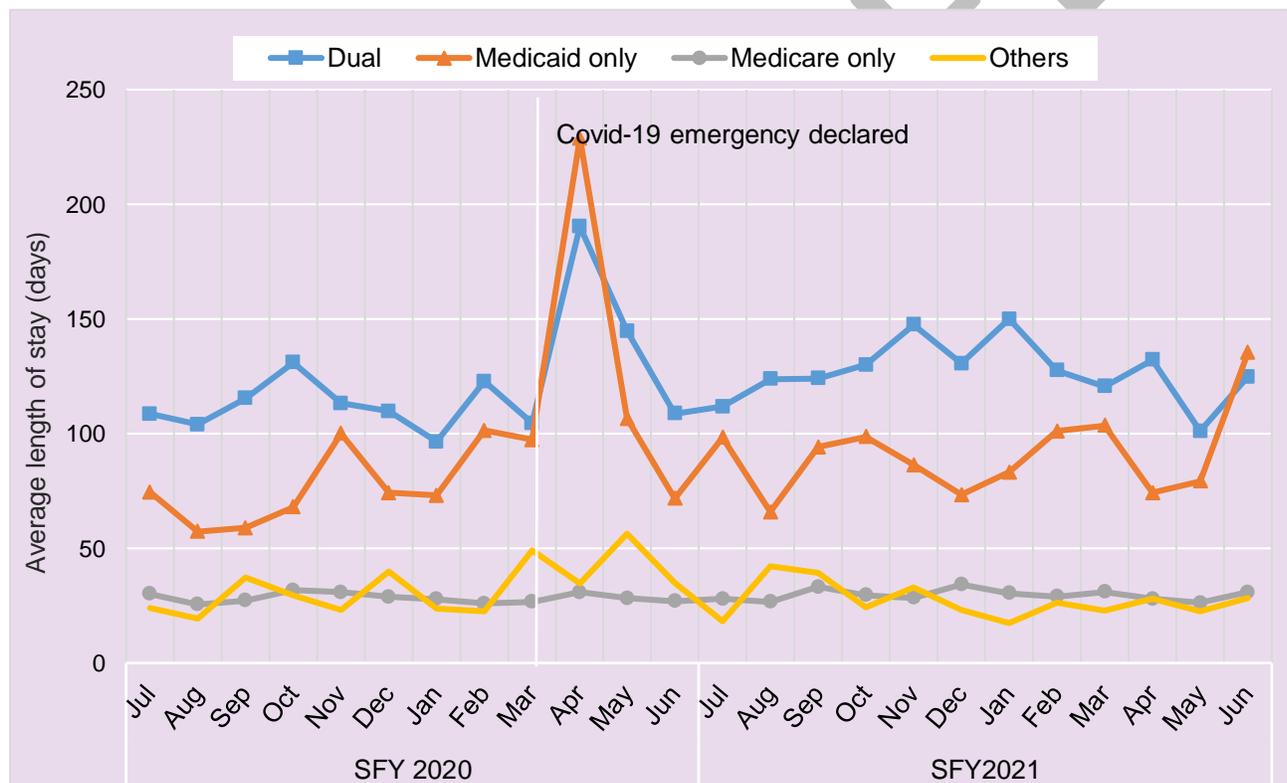
Source: MDS Minimum Data Set.

MDS also allows calculation of length of stay for residents who are discharged from nursing facilities. Exhibit 10.6 shows the average nursing facility length of stay in each

<sup>26</sup> Note that payer categories in MDS are not exactly the same as in cost reports and revenue statements.

month, broken down by payer in SFY 2020-2021. Average length of stay for Medicare only and Other payer stays did not appear to change significantly during either major wave of the COVID-19 pandemic. In April 2020, the average length of stay for residents with dual Medicare + Medicaid coverage spiked dramatically, then fell back and remained similar to pre-pandemic levels during SFY 2021. Length of stay for Medicaid-only discharges followed a very similar trend but appeared to rise in the last month of SFY 2021.

**Exhibit 10.6. Monthly trend in average lengths of stay (days) by payer, Oregon 2020-2021**

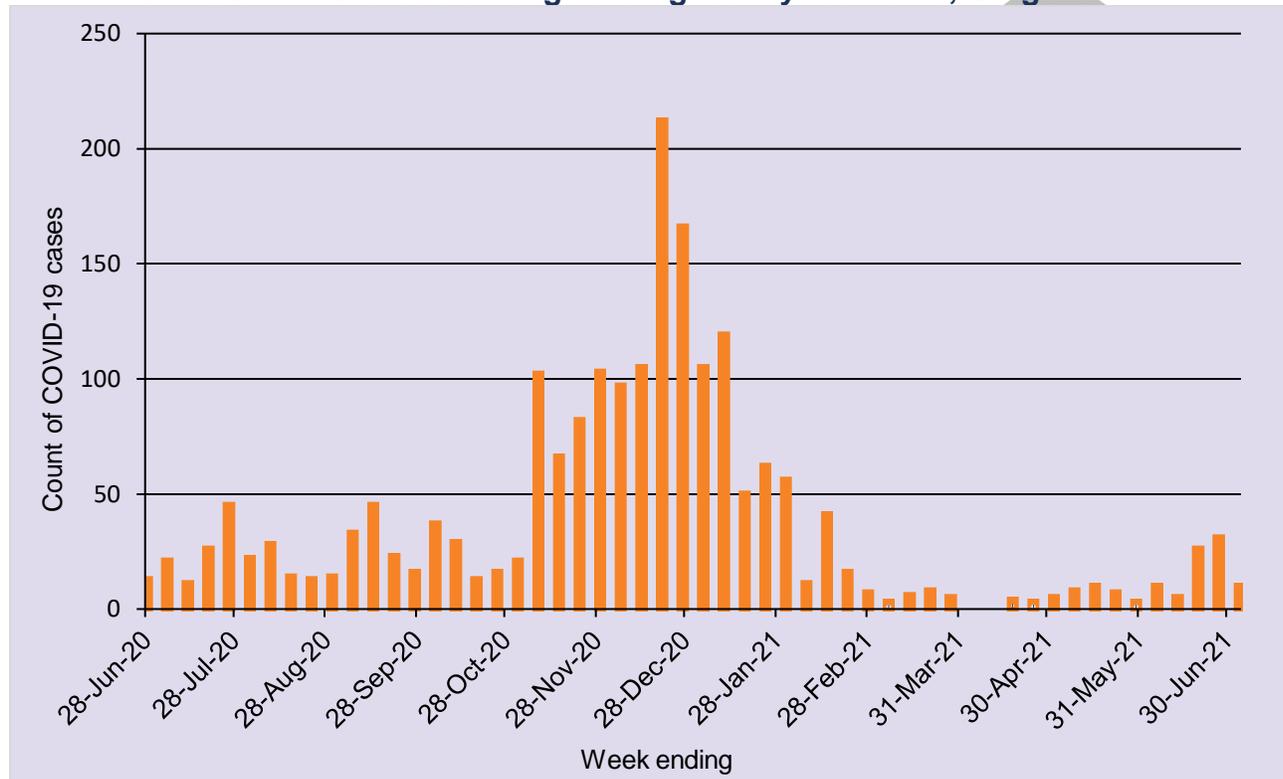


Source: MDS Minimum Data Set.

We also disaggregated average length of stay for short stay residents and mid-length and long stay residents in SFY 2020 through SFY 2021. For short stay residents (Appendix Figure 5), average length of stay in SFY 2021 was less variable than in SFY 2020, but consistently remained higher than before the pandemic. For mid-length and long stay residents (Appendix Figure 6), average length of stay varied from month to month, but was generally similar to pre-pandemic levels.

From January through June 2020 (the second half of SFY 2020), 179 residents were admitted to Oregon nursing facilities with COVID-19, and another 172 residents were diagnosed with COVID-19. Among staff members, 150 cases of COVID-19 were diagnosed during this period. There were 42 deaths due to COVID-19 among Oregon nursing facility residents from January through June 2020.

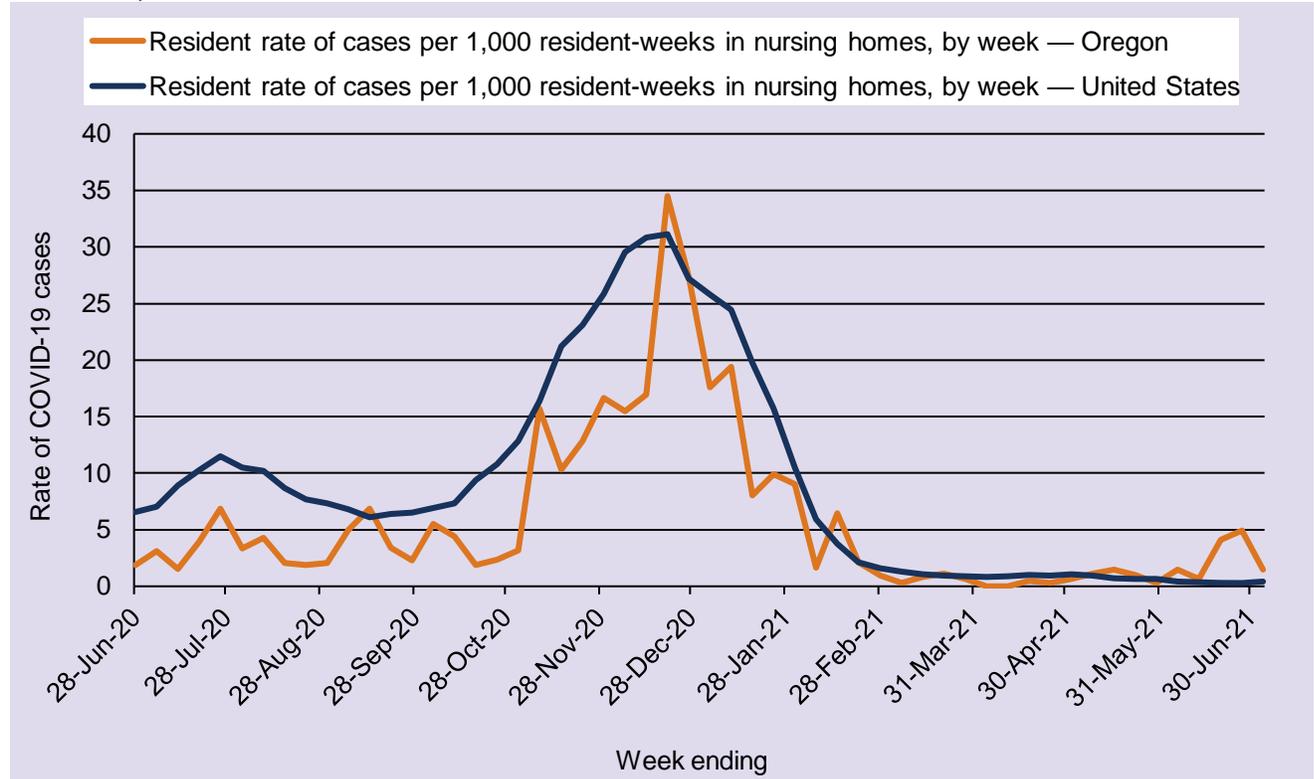
**Exhibit 10.7. COVID-19 cases among nursing facility residents, Oregon 2021**



Source: CDC

As shown in Exhibit 10.7, the number of COVID-19 cases among Oregon nursing facility residents remained below 50 per week for the first 4 months of SFY 2020, then began to increase and peaked at over 200 in the week ending on December 20, 2020 (coincident with the Delta variant wave). Reported cases then declined even more steeply (coincident with the early rollout of COVID-19 vaccines to nursing facility residents and staff), reaching zero in some weeks of April 2021. Weekly cases remained below pre-vaccine levels for the subsequent 2 months, then rose again in June 2021.

**Exhibit 10.8. COVID-19 cases per 1,000 nursing facility resident weeks, Oregon and U.S., 2021**

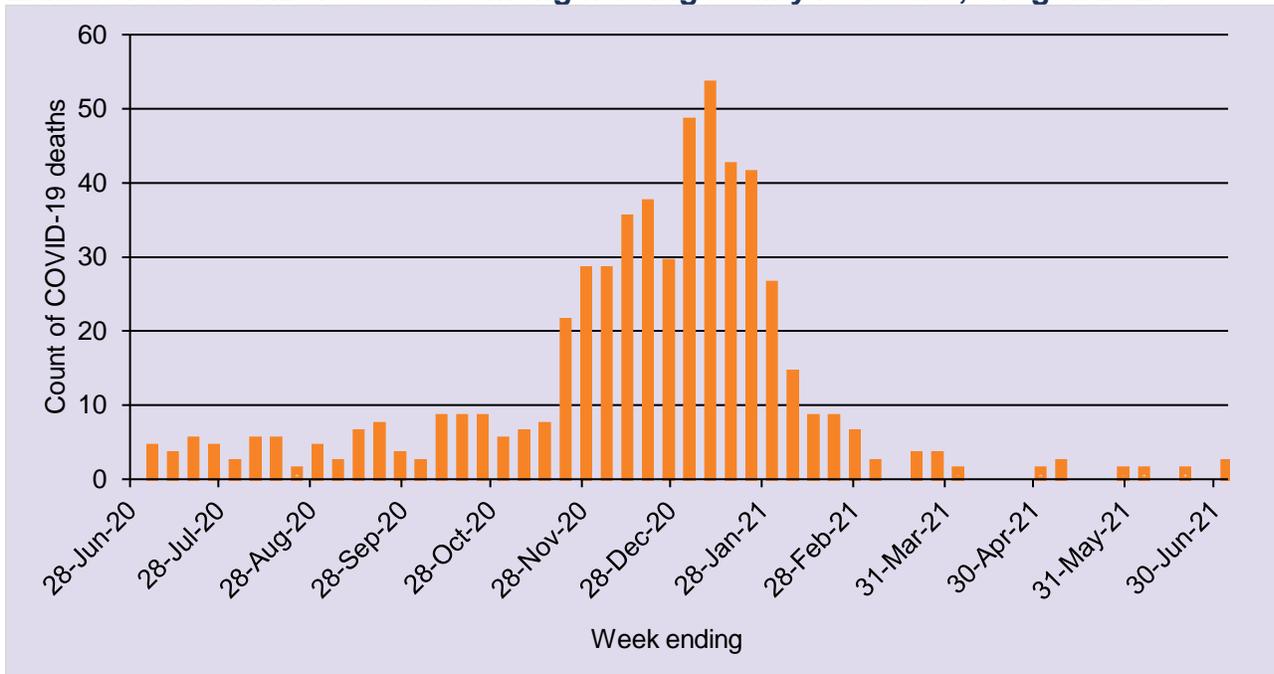


Source: CDC

Exhibit 10.8 presents the weekly trend of resident cases per 1,000 nursing facility resident-weeks in Oregon (orange line) and the United States (blue line). The trend in Oregon was similar to the US, except for a smaller peak and trough in the first 4 months of SFY 2021, and the above-mentioned increase in June 2021. Except for a few specific weeks Oregon’s rate was below the national rate for the first 10 months of SFY 2021.

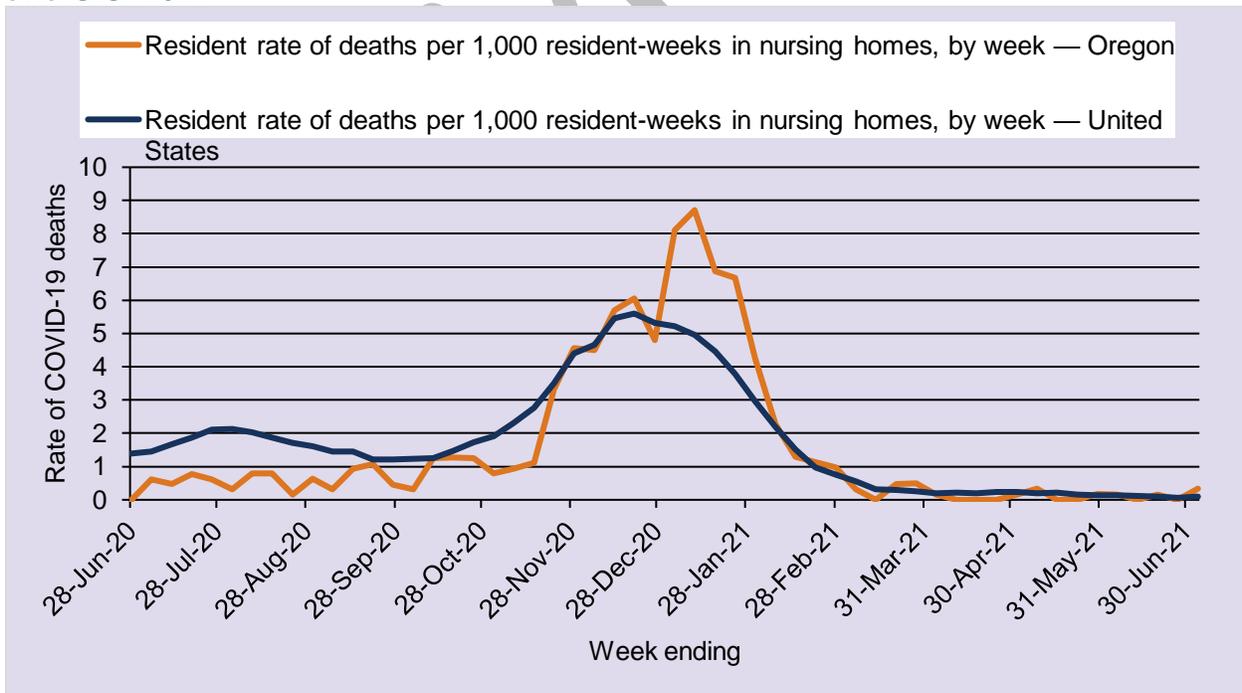
Exhibit 10.9 shows that the number of COVID-19 related deaths among Oregon nursing facility residents remained below 10 per week through mid-November 2020. It then rose steeply and peaked at over 50 in the week ending January 10, 2021. Weekly deaths then fell sharply and remained below 5 per week through the end of SFY 2021. This decline in deaths coincided with vaccines being made available to nursing facility residents as part of Group 1 in Phase 1A of Oregon’s vaccine sequencing program (Oregon Health Authority, 2021).

**Exhibit 10.9. COVID-19 deaths among nursing facility residents, Oregon 2021**



Source: CDC

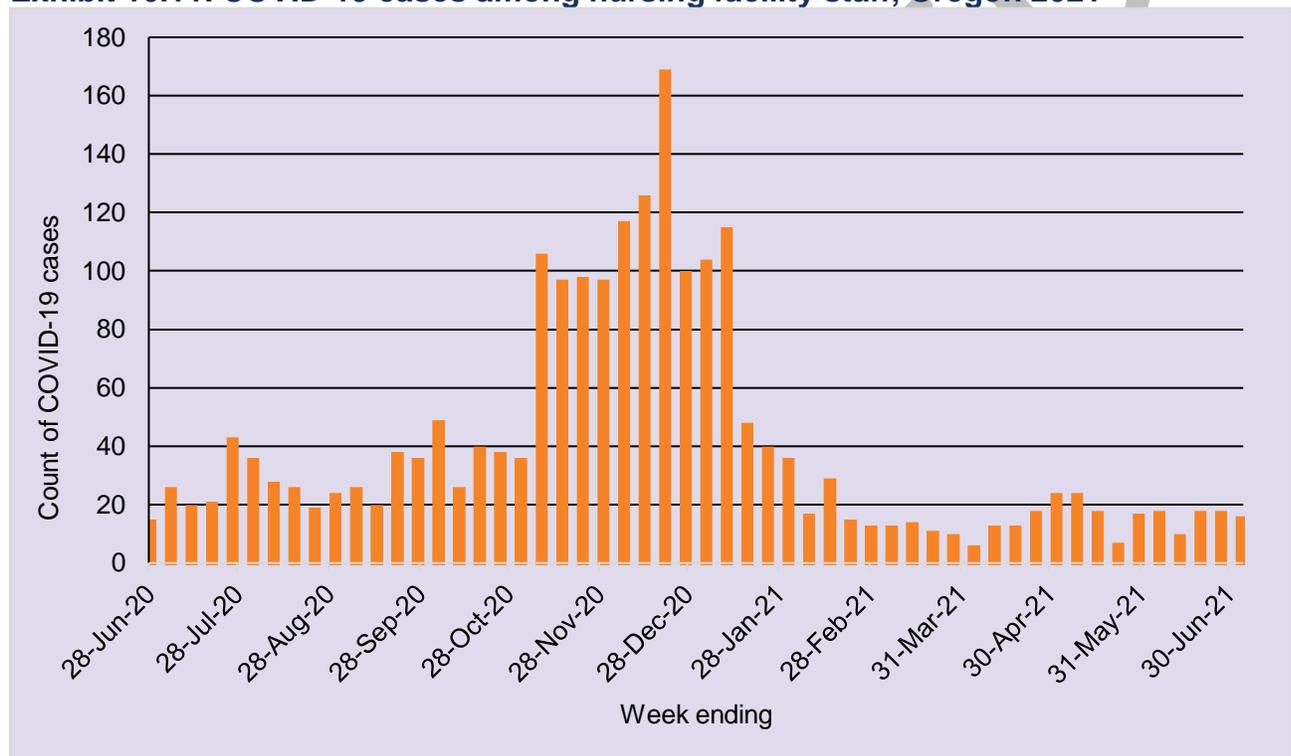
**Exhibit 10.10. COVID-19 deaths per 1,000 nursing facility resident weeks, Oregon and U.S. 2021**



Source: CDC

Exhibit 10.10 presents the weekly trend of resident COVID-19 deaths per 1,000 nursing facility resident-weeks in Oregon (orange line) and the United States (blue line). The trend in Oregon was similar to the US, except for a smaller peak and trough in the first 4 months of SFY 2021. Oregon’s rate of resident deaths was below the national rate for the first 5 months of SFY 2021, but then exceeded the national rate for several weeks in January and February 2021; the Oregon and national rates were similar for the rest of SFY 2021.

**Exhibit 10.11. COVID-19 cases among nursing facility staff, Oregon 2021**



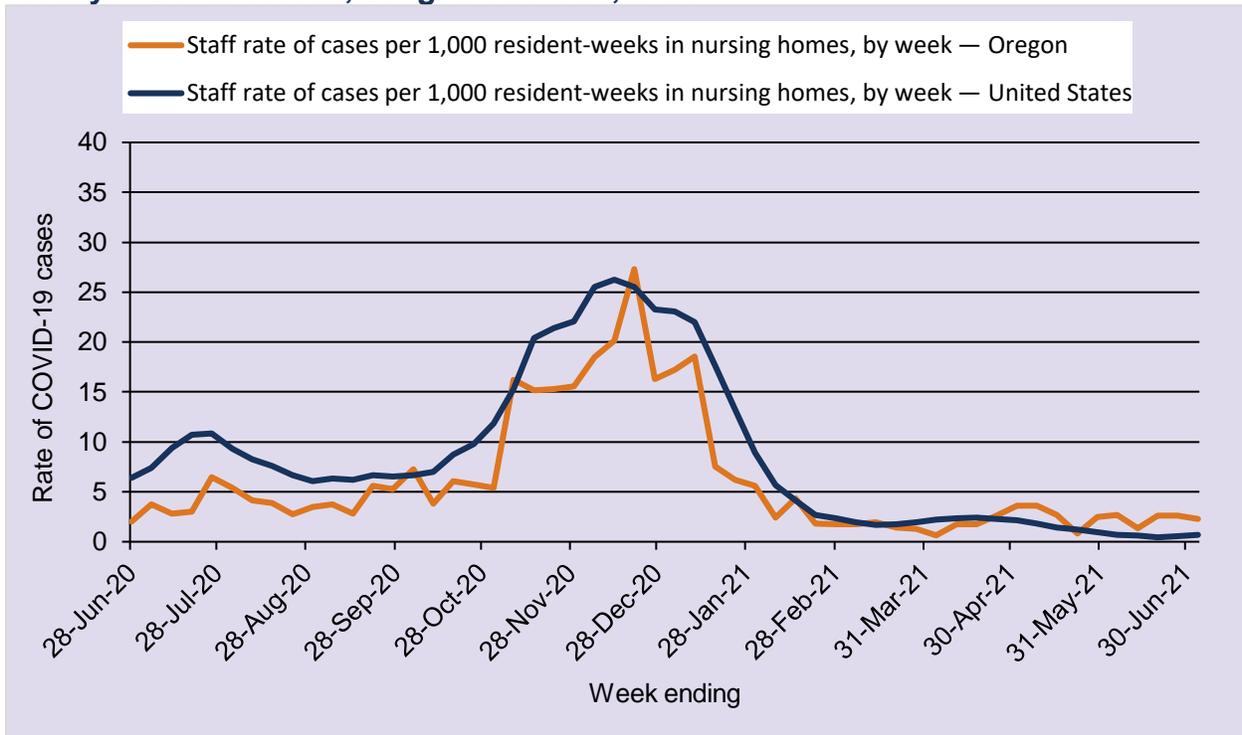
Source: CDC

Exhibit 10.11 shows the weekly number of COVID-19 cases among nursing facility staff. The trend is broadly similar to the trend in cases among residents, with a very steep rise in November 2020 and a steep fall in January 2021, with cases rates remaining below pre-vaccine levels for the rest of SFY 2021.

Exhibit 10.12 compares the weekly trend of staff cases per 1,000 nursing facility resident-weeks in Oregon (orange line) and the United States (blue line). The trend in Oregon was similar to the US, with the Oregon rate remaining below the national rate through mid-February 2021. For the remainder of SFY 2021, the Oregon rate was similar to or somewhat higher than the national rate.

There were 5 deaths due to COVID-19 among Oregon Nursing facility staff during SFY 2021, with one occurring in November 2020 and four in January 2021. The small number of staff deaths means that comparisons to national rates are not meaningful.

**Exhibit 10.12. COVID-19 cases among nursing facility staff per 1,000 nursing facility resident weeks, Oregon and U.S., 2021**



Source: CDC

Rates of COVID-19 vaccination among nursing facility residents and staff were reported to CDC beginning in late May 2021, with complete reporting not available until mid-June 2021. At the end of SFY 2021, 79.8% of Oregon nursing facility residents had received 2 vaccine doses, slightly below the national rate of 81.3%. Rates of complete vaccination among Oregon nursing facility staff were 68.3% at the end of SFY 2021, higher than the national rate of 58.8%.

# 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 2021**

County	Licensed beds per 1000 75+	Set-up beds per 1000 75+	% Beds that are set-up	Occupancy rate	Resident days
Benton	19	15	78%	48%	23,639
Clackamas	26	21	78%	63%	249,321
Clatsop	19	18	96%	36%	9,327
Columbia	33	30	92%	50%	20,868
Coos	33	21	64%	46%	44,060
Crook	16	13	82%	63%	10,065
Curry	18	18	100%	40%	8,532
Deschutes	15	13	84%	57%	46,152
Douglas	19	19	100%	62%	61,043
Grant	35	18	53%	33%	4,883
Hood River	59	46	78%	45%	16,571
Jackson	16	15	95%	59%	120,772
Jefferson	11	8	75%	76%	25,355
Josephine	38	35	92%	63%	96,513
Klamath	15	14	99%	74%	25,602
Lake	27	21	75%	84%	7,389
Lane	35	30	86%	61%	266,861
Lincoln	9	9	100%	74%	13,989
Linn	44	43	97%	73%	130,041
Marion	34	26	77%	64%	236,688
Multnomah	63	55	87%	69%	703,514
Polk	29	25	86%	57%	43,936
Tillamook	19	17	92%	53%	9,644
Umatilla	45	38	84%	46%	38,489
Union	30	23	78%	34%	9,480
Wasco	126	102	81%	56%	70,308
Washington	28	24	88%	64%	247,854
Yamhill	47	36	76%	58%	79,474
<b>Oregon</b>	<b>33</b>	<b>28</b>	<b>86%</b>	<b>62%</b>	<b>2,620,370</b>

Sources: Cost Reports, American Community Survey estimates for 2019

Note: Baker, Gilliam, Harney, Malheur, Morrow, Sherman, Willamette, and Wheeler counties not shown because they have no nursing facilities.

**Table B. Admission source as percentage of total admissions, Oregon 2012 – 2021**

Admission source	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Percent									
Acute hospital	93.81	93.21	93.23	93.35	94.09	94.72	95.13	95.44	95.37	94.17
Community	4.51	4.69	4.29	4.15	3.82	3.38	3.33	3.04	2.95	3.27
Another nursing facility	1.05	1.34	1.44	1.56	1.41	1.23	1.04	1.05	1.11	2.26
Other	0.18	0.22	0.41	0.43	0.19	0.17	0.10	0.10	0.13	0.07
Hospice	0.19	0.18	0.22	0.17	0.19	0.21	0.16	0.21	0.23	0.06
Psych hospital	0.14	0.15	0.19	0.14	0.09	0.11	0.11	0.05	0.08	0.05
Inpatient rehab	0.11	0.14	0.11	0.13	0.09	0.08	0.08	0.06	0.10	0.08
Long-term care hospital	0.01	0.07	0.11	0.08	0.13	0.10	0.05	0.05	0.03	0.04
Intellectual and developmental disabilities	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Died	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>100%</b>									

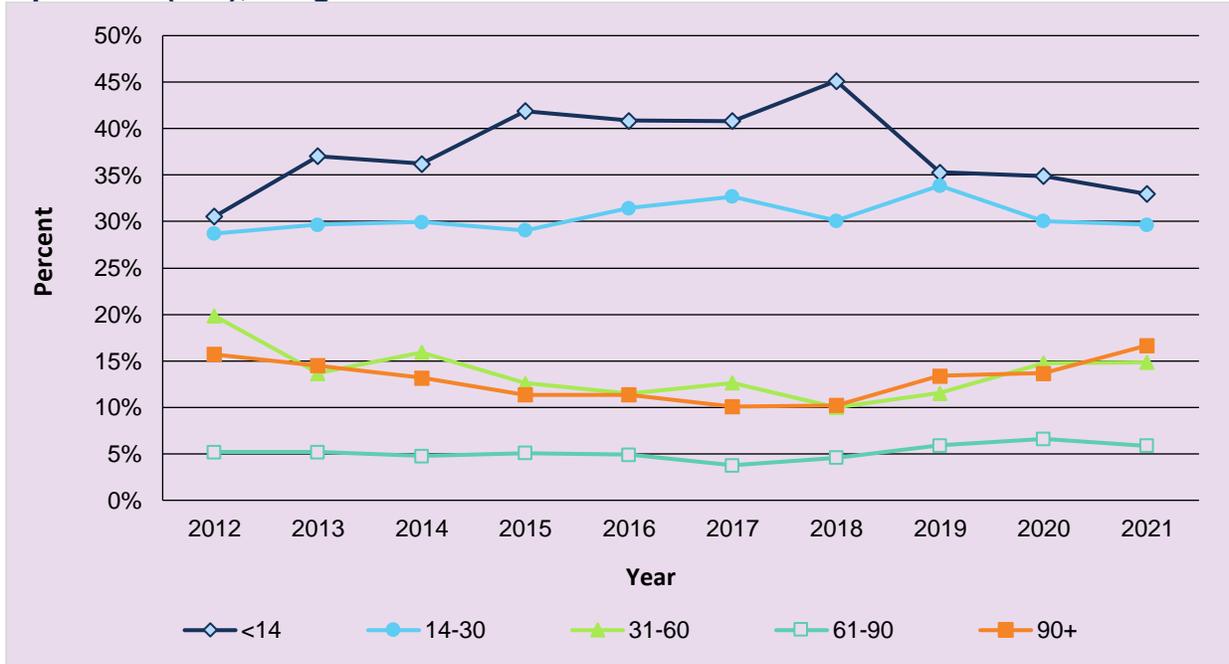
Source: CMS Minimum Data Set

**Table C. Discharge destination as percentage of total discharges, Oregon 2012 - 2021**

Destination	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Percent									
Community	67.96	69.25	68.72	68.28	70.59	71.07	71.39	70.5	70.8	68.81
Acute hospital	28.50	26.47	26.50	26.74	25.19	25.47	25.59	26.89	26.40	27.02
Another nursing facility	1.88	2.13	2.37	2.48	2.12	1.91	1.72	1.61	1.82	3.43
Other	0.58	0.96	1.44	1.55	1.16	0.71	0.50	0.30	0.30	0.27
Inpatient Rehab	0.48	0.60	0.53	0.49	0.49	0.40	0.38	0.28	0.30	0.26
Hospice	0.24	0.29	0.26	0.30	0.32	0.32	0.32	0.34	0.33	0.16
Psych hospital	0.14	0.13	0.11	0.09	0.07	0.08	0.07	0.04	0.03	0.04
Long-term care hospital	0.01	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.02	0.02
Intellectual and developmental disabilities	0.01	0.02	0.02	0.03	0.02	0.01	0.02	0.01	0.01	0.00
Died	0.20	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>100%</b>									

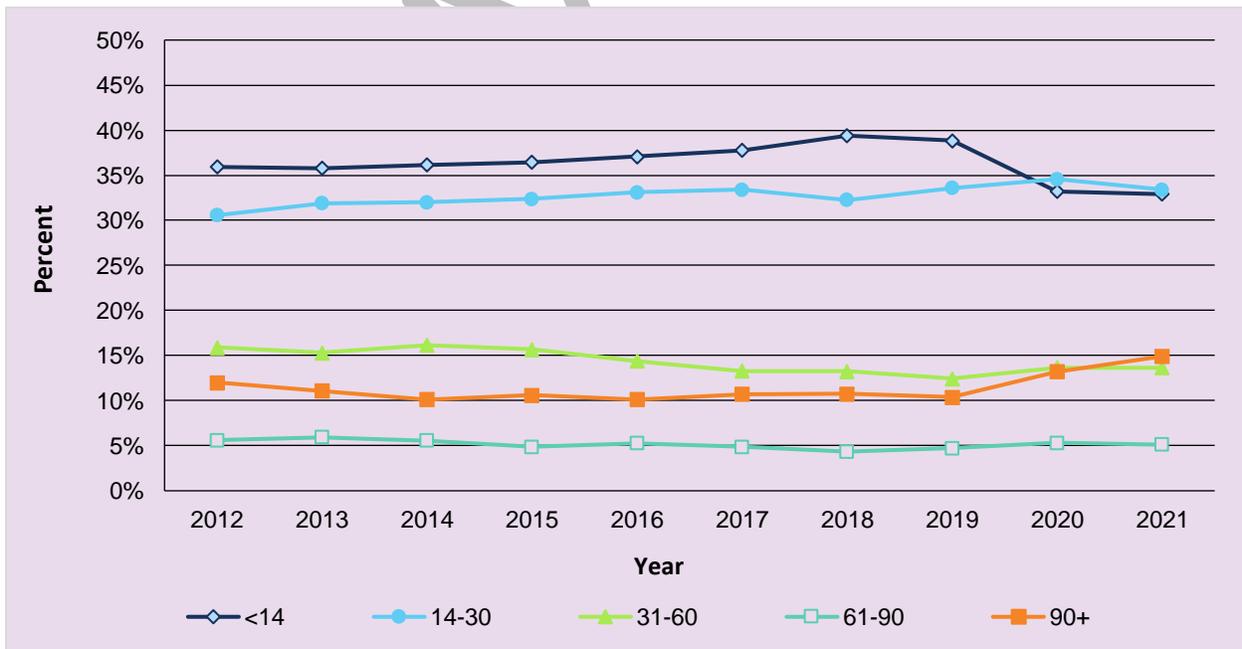
Source: CMS Minimum Data Set

**Figure 1. Trend in average lengths of stay (days) among the nonelderly population (<45), Oregon 2012–2021**



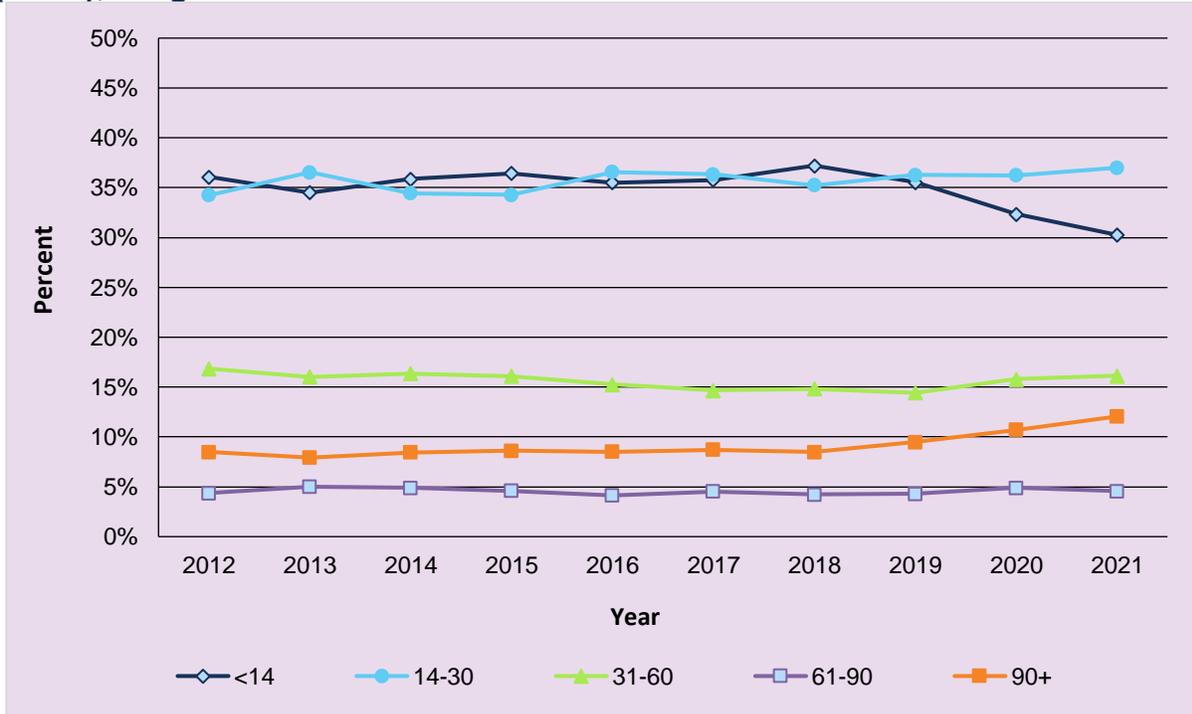
Source: CMS Minimum Data Set

**Figure 2. Trend in average lengths of stay (days) among the nonelderly population (45-64), Oregon 2012–2021**



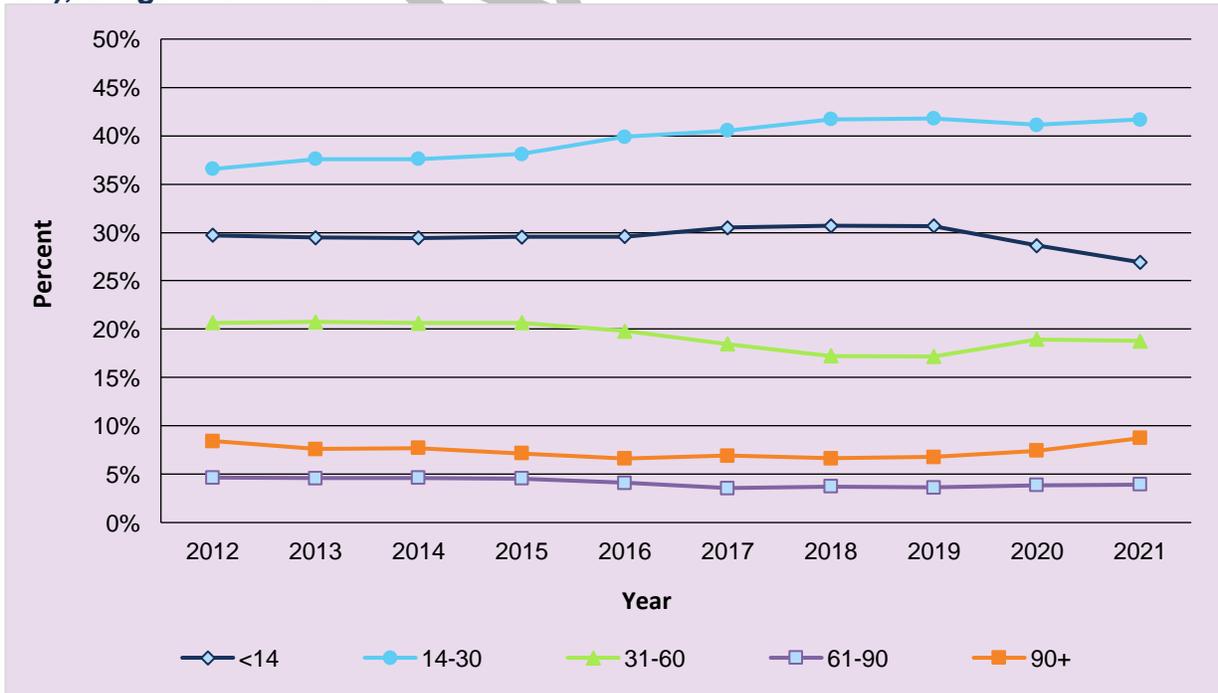
Source: CMS Minimum Data Set

**Figure 3. Trend in average lengths of stay (days) among the elderly population (65-74), Oregon 2012–2021**



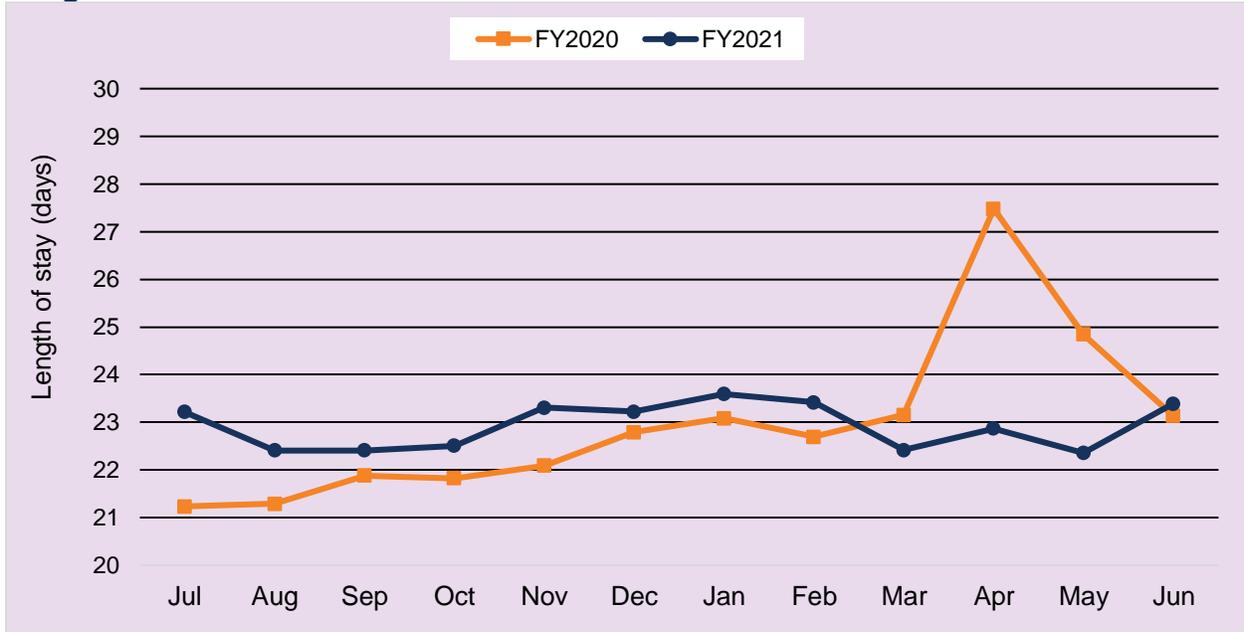
Source: CMS Minimum Data Set

**Figure 4. Trend in average lengths of stay (days) among the elderly population (75+), Oregon 2012–2021**



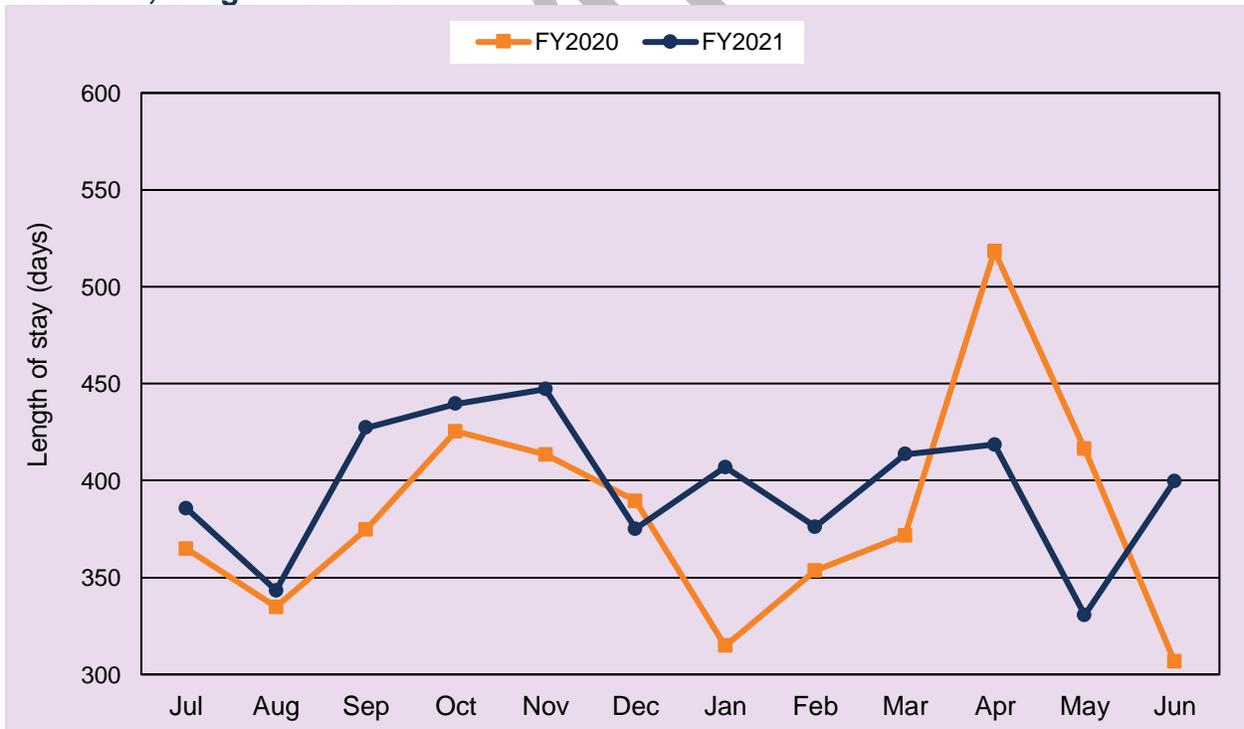
Source: CMS Minimum Data Set \*

**Figure 5. Monthly trend of average length of stay (days), short stay residents, Oregon 2020-2021**



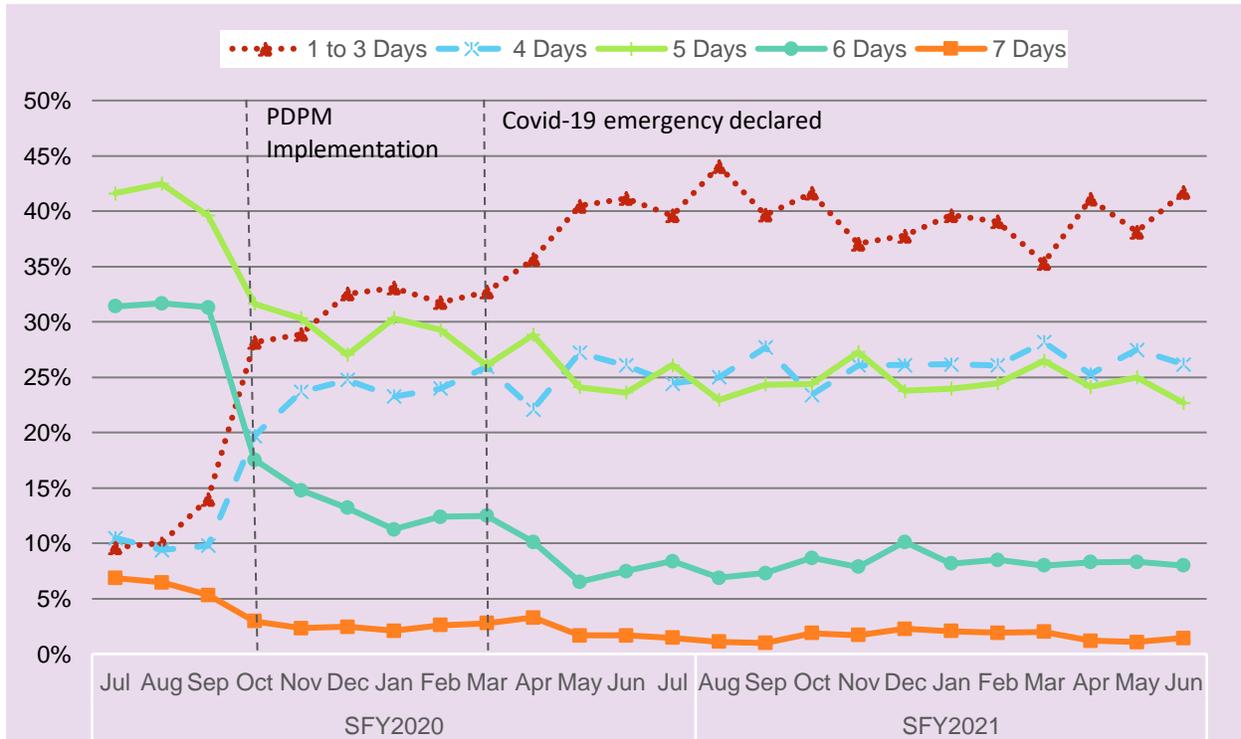
Source: CMS Minimum Data Set \*

**Figure 6. Monthly trend of average length of stay (days), mid- and long-stay residents, Oregon 2020-2021**



Source: CMS Minimum Data Set \*

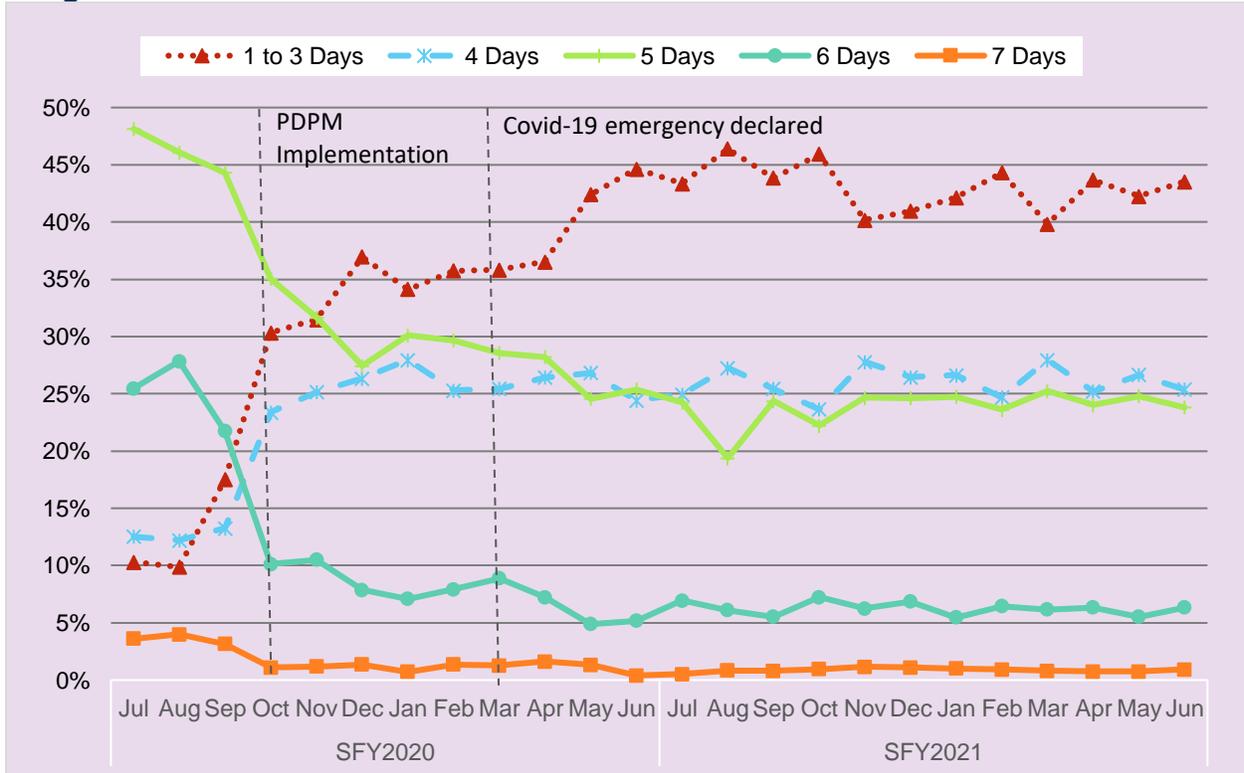
**Figure 7. Number of days of physical therapy per week, short stay residents, Oregon 2020-2021**



Note: The number of days of physical therapy was defined as “the number of days this therapy was administered for at least 15 minutes a day in the last 7 days”. The measure was calculated as the average per month per short stay based on 22,109 short stays in SFY 2020 and 18,177 short stays in SFY 2021. PDPM refers to Patient Driven Payment Model.  
 Source: MDS Minimum Data Set.

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**Figure 8. Number of days of occupational therapy per week, short stay residents, Oregon 2021**



Note: The number of days of occupational therapy was defined as “the number of days this therapy was administered for at least 15 minutes a day in the last 7 days”. The measure was calculated as the average per month per short stay based on 21,791 short stays in SFY 2020 and 17,697 short stays in SFY 2021. PDPM refers to Patient Driven Payment Model. Source: MDS Minimum Data Set.

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# Technical notes

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## 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 Care Compare 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.

## ODHS Cost Reports and Revenue Statements

Each Oregon nursing facility that contracts with ODHS to receive Medicaid reimbursement must submit an annual Cost Report that contains data including numbers of beds, resident days, costs, and revenues. ODHS uses data from these reports to establish and update Medicaid payment rates. Numbers of setup beds were estimated based on other facilities of similar size if set up beds data are missing.

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 Care Compare (see below).

The reporting period for Cost Reports and Revenue Statements is the State Fiscal Year (SFY), which begins July 1<sup>st</sup> and ends June 30<sup>th</sup>. This report focuses on SFY 2021, which ended June 30<sup>th</sup>, 2021, but also includes data for SFYs 2009 through 2020. 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 Care Compare July 2020 through June 2021 (see below). Facilities in operation for less than two 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 similar-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 of occupancy rates and of payer sources.

Population data used to calculate nursing facility bed availability rates were obtained from the United States Census Bureau: State Population by Characteristics: 2010-2020. 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 seven 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 three months. If the resident is discharged within seven days, only one assessment need be performed.

The Patient Driven Payment Model (PDPM) for Medicare FFS stays was implemented effective October 1, 2019, with the goal of improving payment accuracy. PDPM introduced a new and simpler assessment schedule. Beginning in October 2019, the number of MDS assessments per month dropped significantly. However, this change in the number of assessments did not reflect changes in the actual number of nursing facility admissions or discharges.

MDS data files were provided to Oregon State University (OSU) by ODHS. These data files included assessments reported to ODHS through December 3, 2021, which permitted analyses of nursing facility stays that extended past the end of SFY 2021. The data received by OSU were de-identified, so that resident names or other unique identifiers had been removed. ODHS 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 ODHS 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 3, 2021 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,<sup>27</sup> because while only the final assessment of a stay 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.<sup>28</sup> Residents still enrolled at the time the MDS dataset was created for OSU, December 3, 2021, were assigned this date as their discharge date for the purpose of counting entries and reentries.

Reentries were counted based on the MDS definition of a reentry: if a person was discharged from a nursing facility and then reenters the same facility within 30 days, it was considered a reentry.<sup>29</sup> To mitigate possible mis-incentives, PDPM includes an “interrupted stay policy”: If a person was discharged after October 2019 from a nursing facility and then reenters the same facility within three days, it is not considered a reentry.

Nursing facility length of stay (LOS) was calculated from the resident’s entry or reentry date and discharge date. If a resident was discharged from a nursing facility and subsequently re-entered that facility within 30 days, this was treated as two separate

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<sup>27</sup> This methodology was first implemented for the SFY 2015 report.

<sup>28</sup> 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 entry or reentry dates. However, this method was determined to undercount total stays because it did not capture all discharges.

<sup>29</sup> The 2014 report counted as reentries only assessments coded as such in MDS.

stays.<sup>30</sup> To accurately present trends trend based on multiple years of MDS data, LOS in Section 6 was reported based only on stays that had a discharge in the reported SFY.<sup>31</sup>

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.

The Activities of Daily Living (ADL), diagnoses, and treatment data presented in Section 7 were based on the first assessment of each resident who was enrolled in SFY 2021.<sup>32</sup> This approach allowed us to use information from all stays in SFY 2021. It thereby characterized acuity among short and mid-length stays at those time residents entered the nursing facility, and among long stay residents at the time of their annual reassessment. However, a resident who had more than one entry or reentry in SFY 2021 may have been counted more than once in these analyses.<sup>33</sup>

## Care Compare data

The Care Compare reports data collected by CMS during periodic surveys of nursing facilities, which must happen at least every 15 months. Because Oregon facilities that only submit Revenue Statements do not include information on the number of licensed or set up beds, Care Compare data on licensed beds were used instead. July 2020 Care Compare data were utilized to fill in beginning of SFY licensed bed numbers for these facilities, and June 2021 data were used to fill in end of SFY licensed bed numbers. These data are for each facility's survey date closest to the relevant SFY.

Care Compare also reports the percentage of each facility's residents who meet each of several quality measures for each calendar quarter. Quality measure definitions can be found at [https://data.cms.gov/provider-data/sites/default/files/data\\_dictionaries/nursing\\_home/NH\\_Primary\\_Data\\_Dictionary.xlsx](https://data.cms.gov/provider-data/sites/default/files/data_dictionaries/nursing_home/NH_Primary_Data_Dictionary.xlsx)

Section 9 of this report presents MDS-based quality measures for Oregon nursing facilities in SFY 2021,<sup>34</sup> derived from the April 2022 data release from Care Compare. Long-stay data for this report includes quarters Q3 of calendar 2020 through Q2 of

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<sup>30</sup> 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.

<sup>31</sup> In the 2014 and 2015 reports, LOS calculations included all residents who spent at least one day in a nursing facility during the report year. For residents who remained in the facility through December 5, their LOS truncated as of that date. However, this method did not produce LOS results that were fully comparable across years, and was therefore replaced by the current approach.

<sup>32</sup> 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.

<sup>33</sup> In the 2014 report, an individual could have only one ADL score.

<sup>34</sup> A three-quarter average was used in the SFY 2016 report.

calendar 2021. Short stay data for this report includes quarters Q3 of calendar 2020 through Q2 of calendar 2021. We use the weighted four-quarter average for each measure and calculate the simple average across all Oregon nursing facilities.

Two long stay and two short stay measures (for hospitalizations and emergency department visits) are called “claims-based” because the measures calculated from MDS data are risk adjusted based on data reported to CMS from hospitals. Data for these measures describe the 4 quarters that make up Oregon SFY 2021 (i.e. for this report data include July 2020 through June 2021). Definitions for the claims-based measures can be found at:

<https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandCompliance/Downloads/Nursing-Home-Compare-Claims-based-Measures-Technical-Specifications.pdf>

In SFY 2021, no measures were removed or added by CMS.

Facilities that reported a measure for fewer than 20 short stay residents or 30 long stay residents during SFY 2021 are excluded from analyses for that measure. This report presents the average of values for all facilities for which NHC reports data for that measure.

## **Hospital Discharge Data (HDD)**

Hospital Discharge Data (HDD) collected by the Oregon Association of Hospitals and Health Systems (OAHHS) capture 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, the Oregon Health Authority (OHA) probabilistically matched persons who, per MDS, had entered or discharged from a nursing facility in SFY 2014 through SFY 2021 to persons who, per the HDD, were discharged from a hospital during calendar years 2008 through 2021. Matching was based on first name, last name, middle initial, date of birth, and sex. Second, we aligned these matched persons by hospital discharge dates and nursing facility admission dates. These nursing facility admissions need to have a discharge date in SFY 2021. To account for the effect of the interrupted stay policy, an alignment margin of plus or minus two days was expanded to three days since SFY 2020. Hospitals considered in this analysis are acute care hospitals and psychiatric hospitals only. At the end of these steps, 21,589 of the eligible 28,292 nursing facility discharges in SFY 2021 were linked to hospital discharges. For 1,319 of the unlinked nursing facility discharges, MDS indicated that the resident had not entered from a hospital; these discharges were excluded from the denominator in calculating the linkage rate. Overall, therefore, we achieved an 80.0% linkage rate between HDD discharges and MDS

admissions for SFY 2021. This is very similar compared to linkage rates in SFY 2019 and 2020.

To measure in-hospital mortality after discharge from nursing facilities, we performed a separate linkage of MDS and hospital discharge data using nursing facility discharge dates and hospital admission dates. Using a linkage margin of nursing facility discharge date plus or minus one day, 6,022 (79%) of 7,626 nursing facility discharges to a hospital in SFY 2021 were linked to hospital admissions. The SFY 2021 linkage rate between MDS discharges and hospital admissions is similar that in SFY 2019-2020 (77%-78%) but somewhat lower than the linkage rates for SFY 2014-2017 (82%-85%). To link nursing facility discharges to hospital admissions in years before SFY 2019, we concatenated data from multiple prior data years, yielding a set of hospital discharge data slightly different from that use for linking hospital discharges and nursing facility admissions

## **COVID-19**

On April 19, 2020, The Centers for Medicare & Medicaid Services (CMS) issued a memorandum requiring all nursing homes to notify State or Local health departments about residents and staff with suspected or confirmed COVID-19 infection. By May 17, 2020 nursing homes were to report data related to COVID-19 including retrospective data back to January 1, 2020. The facilities were allowed to submit and correct their data on the CDC's National Healthcare Safety Network (NHSN) website. Thus, numbers for week ending 05/24/2020 may include reporting for any time between 01/01/2020 through 05/24/2020 and cannot be used to perform trend analysis and longitudinal analyses. Reporting for subsequent weeks was done on a weekly basis.

The count and rate of COVID-19 cases and deaths for nursing facility residents and staff were gathered from the Centers for Disease Control and Prevention (CDC) Nursing Home Data Dashboard (last reviewed in January 2022). To present the data for SFY 2021 from the CDC, we isolated the counts from weeks ending between the beginning of June 2020 and the end of June 2021. These data were transferred into a new spreadsheet and organized into counts and rates for the cases and deaths. Nursing facility residents and staff were counted separately. The United States' rates of COVID-19 cases and deaths were collected for the same time period and then overlaid on top of Oregon's rates to generate exhibits for comparison. Rates for COVID-19 cases and deaths were displayed per 1,000 resident weeks to account for the population

differences between Oregon and the U.S. This data set reported on a weekly basis, following the data format provided by the CDC.

## 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 changes.<sup>35</sup> 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  $\leq 29\%$  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

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<sup>35</sup> 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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*“Primary Flow”*: the primary commuting destination; assigned by the first digit

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

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## Definitions used in this report

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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.

Stay: A stay occurs when an individual resides in a NF for at least one day during a period beginning with an admission and ending with a discharge.

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