



COMMUNITY-BASED CARE RESIDENT AND COMMUNITY CHARACTERISTICS REPORT

**Assisted Living
Residential Care
Memory Care**

Spring 2017

Paula C. Carder, PhD

Ozcan Tunalilar, PhD

Sheryl Elliott, MUS

Sarah Dys, MPA

Margaret B. Neal, PhD

Acknowledgments

This report was prepared in collaboration with the following stakeholders:

Oregon Department of Human Services
Oregon Health Care Association
Leading Age Oregon
Concepts in Community Living, LLC

Additional Contributors from Portland State University:

Tanya Kindrachuk, Angela Rausch, Rachel Steele, Max West, Cat McGinnis

Special thanks to all of the community-based care providers throughout the state of Oregon who contributed to this effort, especially those who welcomed us into their communities to discuss this project.

Suggested citation:

Carder, P.C., Tunalilar, O., Elliott S., & Dys, S., (2017). *Oregon Community-Based Care Survey: Assisted Living, Residential Care, and Memory Care*. Portland, OR: Portland State University. Final Report of Study Funded by Oregon Department of Human Services.

Contact:

Paula C. Carder, Ph.D.	
Institute on Aging	p. 503.725.5144
Portland State University	f. 503.725.5100
PO Box 751	carderp@pdx.edu
Portland, Oregon 97207	www.pdx.edu/ioa

Table of Contents

Contents

EXECUTIVE SUMMARY	i
KEY FINDINGS.....	i
<i>Communities</i>	i
<i>Community Services and Policies</i>	ii
<i>Staff</i>	ii
<i>Payer Sources</i>	ii
<i>Private Pay Rates and Fees</i>	ii
<i>Medicaid</i>	iii
<i>Residents</i>	iii
<i>Survey Method</i>	i
BACKGROUND.....	1
ASSISTED LIVING, RESIDENTIAL CARE, AND MEMORY CARE COMMUNITIES.....	2
Number of Community-Based Care Settings	2
Change in Number of CBC Settings and Occupancy, over Time	3
Capacity and Occupancy	4
Change in Capacity and Occupancy by Setting over Time	4
COMMUNITY SERVICES AND POLICIES	6
<i>Move-Out Notices</i>	6
<i>Use of Residents' Fall Risk Assessment</i>	7
<i>Quality Improvement Activities</i>	9
<i>Medicaid-Financed Transportation Services</i>	9
Communicating with Primary Care Providers.....	10
HIPAA Challenges.....	12
COMMUNITY-BASED CARE STAFF.....	13
Care-Related Staff.....	13
Use of Contract/Agency Staff for Unplanned Absences	15
Staff Absenteeism	15
Staffing Level.....	16
Staff Training Topics.....	17
Strategies for Retaining Staff	18

RATES, FEES, AND MEDICAID USE.....	20
Private Pay Rate Structure	20
Changes in Private Pay Rate Structure over Time	20
Private Pay Charges.....	20
Changes in Private Pay Rates over Time	21
Payer Sources.....	22
Changes in Payer Sources over Time	22
Additional Private Pay Fees.....	23
Medicaid Payment Acceptance and Rates.....	23
Changes in Medicaid Reimbursement Rates over Time	24
Estimated Profession Charges	24
RESIDENTS.....	26
Move-In and Move-Out Locations	26
Length of Stay	28
Change in Length of Stay over Time	29
Personal Care Needs	30
Assistance with Behavioral Health.....	31
Resident Health & Health Service Use	32
Resident Falls	33
Health Service Use	35
<i>Medications and Treatments</i>	35
<i>Assistance with Medications and Treatments</i>	35
<i>Multiple Medications</i>	36
<i>Antipsychotic Medication Use</i>	36
POLICY CONSIDERATIONS AND CONCLUSIONS	37
Appendix A: Methods	A1
Data Collection Instrument.....	A1
Sample Selection and Survey Implementation.....	A1
Survey Response	A2
Non-response.....	A3
Data Analysis.....	A3
Inflation Adjustments for Trend Data	A3
Profession Charges.....	A4

Appendix B: Additional Tables	B1
Appendix C: References	C1
Appendix D. Questionnaire.....	D1

EXECUTIVE SUMMARY

In Oregon, community-based care (CBC) communities include assisted living (AL), residential care (RC), and memory care (MC) communities. These settings provide residential, personal care, and health-related services, primarily to older adults. As the population of Oregonians aged 65 and older is estimated to increase from 16 percent in 2015 to nearly 23 percent in 2050¹, the availability of CBC settings will continue to be an important source of long-term services and supports.

This report provides an in-depth look at Oregon's CBC settings. Because no central dataset of CBC services, staff, and residents is available, as opposed to nursing facilities, information for this report was collected using a questionnaire that CBC providers (e.g., administrators, directors) were asked to complete. CBC settings provide long-term services and supports to many older Oregonians and their families. These services include daily meals, housekeeping and laundry, assistance with personal care needs, medication administration, monitoring of health conditions, communication with residents' health care providers, and social and recreational activities.

Of the 517 AL, RC, and MC communities licensed as of fall 2016, 60 percent (308) returned a questionnaire. The data described in this report are based upon these 308 communities unless noted otherwise.

The goals of the project described in this report included:

1. Describe assisted living, residential care, and memory care community characteristics, including staffing types and levels, policies, and monthly charges and fees
2. Describe current residents' health and social characteristics
3. Compare current results with prior Oregon surveys and national studies of similar setting types to identify changes and possible trends
4. Compare setting types for differences that might affect access, quality, or costs

KEY FINDINGS

Communities

- The number of CBC communities in Oregon ranges from none in two counties (Lake and Sherman) to 78 in Multnomah County, with an average of 14 per county statewide.
- The number of CBC communities increased from 431 in 2006 to 517 in 2017, with the largest increase in MC communities.
- The licensed capacity increased from 22,204 residents in 2006 to 26,261 in 2017.
- The capacity per 1,000 population age 75 years and older in Oregon is 103, ranging from 0 to 218 depending on the county.

¹ Oregon Office of Economic Analysis (2016). Forecasts of Oregon's County Populations by Age and Sex, 2010-2050. Retrieved from <https://www.oregon.gov/das/OEA/Pages/forecastdemographic.aspx>

- Based on the licensed capacity provided by DHS and provider responses, an estimated 21,133 adults lived in a CBC setting.
- 179 of the 517 AL/RCs have a memory care endorsement, with a capacity for 6,268 persons.

Community Services and Policies

- 10 percent or fewer CBC settings gave a move-out notice in the prior 90 days to residents who needed two-person transfer assistance (10 percent), who wandered outside (6 percent), for a lease violations (two percent), or who needed sliding scale insulin (0.2 percent).
- 14 percent of CBC settings gave a move-out notice in the prior 90 days to a resident for hitting others/acting in anger; the rate was 18 percent in both MC and RC, and 9 percent in AL.
- 56 percent of CBC facilities use a falls risk assessment tool as standard practice with every resident, and 24 percent do so on a case-by-case basis.
- 33 percent of CBC facilities use a cognitive impairment screen as part of standard practice.
- 60 percent of CBC facilities conducted a satisfaction survey of residents or families.

Staff

- The total number of staff (e.g., administration, facilities, housekeeping, kitchen staff, caregivers) employed by the 317 responding CBC facilities was 9,560.
- The number of care-related staff, including licensed nurses, personal care staff (includes any unlicensed/certified care staff), CNA/CMAs, social workers, and activities staff, was 6,072. Of these, 4,827 were personal care staff and 400 were nurses.
- 80 percent of personal care staff and 64 percent of RNs were employed full-time.
- The ratio of all employees to residents was higher for RC (1.12) and MC (1.10) compared to AL (.84).
- 12 percent of CBC facilities hired contract care staff to cover unplanned staff absences in the prior 90 days.
- The top reasons staff missed work in the prior 90 days were personal health problems, family illness or issues, and transportation problems.
- 77 percent of facilities indicated that they had a strategy to retain staff and reduce turnover.

Payer Sources

- The two most common payer sources were private pay (55 percent) and Medicaid (41 percent).

Private Pay Rates and Fees

- Total monthly charges, including services, for a single person living in the smallest unit and receiving the lowest level of services ranged from \$3,667 in AL to \$5,410 in MC communities. Annual charges based on these rates would be \$44,004 in AL, \$45,240 in RC, and \$64,920 in MC.

- Monthly private pay rates (base and services) increased between 2008² and 2017. The 2008 rates are adjusted for 2016 dollar amounts, below:
 - AL from \$3,243 to \$3,667
 - RC from \$3,378 to \$3,770
 - MC from \$5,112 to \$ 5,410
- Some CBC facilities charge additional fees for services. 81 percent of ALs charged a fee for routine meal delivery to resident rooms, compared to 31 percent of RC and 20 percent of MC communities.
- ALs were less likely to charge an all-inclusive monthly rate (3 percent) compared to RC (14 percent) or MC (26 percent).
- We estimate that private pay charges for all private pay residents totalled \$637,834,250 in 2016.

Medicaid

- Oregon had a much higher rate of Medicaid use among AL, RC, and MC facilities (41 percent) compared to the national average (19 percent).
- 79 percent of all CBC communities had a contract with DHS to accept Medicaid beneficiaries, for a potential capacity of 21,323 Medicaid beds.
- In 2016, DHS paid CBC providers a total of \$208,675,434 on behalf of Medicaid-eligible AL, RC, and MC residents.

Residents

- 19 percent of residents who moved out had reported lengths of stay from one to 90 days compared to 23 percent who stayed 90 or fewer days reported in 2015.
- 62 percent of residents who moved out in the prior 90 days died. More residents in MC died (74 percent), compared to RC (58 percent) and AL (56 percent).
- Overall, 18 percent of residents received assistance to eat. The percent of residents receiving assistance to eat differed considerably across facility types, with 39 percent of MC residents, compared to 7 percent of AL and 24 percent of RC residents.
- 68 percent of CBC residents did not experience a fall in the prior 90 days, and a higher percentage of MC residents fell at least one time (44 percent) compared to AL (27 percent) and RC residents (28 percent).
- 17 percent of CBC residents had an emergency department visit, and 9 percent were hospitalized overnight in the prior 90 days.
- Overall, 8 percent of CBC residents received hospice care in the prior 90 days.
- 57 percent of CBC residents take nine or more medications, with little variation across settings.
- 27 percent of residents took an antipsychotic medication. This included 47 percent of MC residents compared to 33 percent of RC and 17 percent of AL residents.

² The report published by the Office for Oregon Health Policy and Research in 2009 indicates that many providers did not answer the questions about monthly rates and that the figures might not be representative of all facilities in the state.

The typical CBC resident is a white, non-Hispanic woman over age 85 who needs support with bathing, dressing, and incontinence. She takes 9 or more medications with staff assistance and has at least one chronic health condition.



The study findings are intended to provide information that state agency staff, legislators, community-based care providers, and consumers might use to guide their decisions. In addition, where available, comparisons are made to national surveys conducted by the National Center for Health Statistics. Due to state variation in licensure categories across the United States, the national surveys typically combine residential and assisted living settings and use the term residential care to describe both. It should also be noted that regulatory standards and the types of residents that can be served in AL and RC settings vary by state.

Survey Method

This report is based on a questionnaire mailed to the 517 licensed assisted living (AL) and residential care (RC) facilities, which includes 179 that were endorsed for memory care (MC) (both stand-alone MC communities and those combined with AL or RC facilities). Between January and March 2017, 308 facilities, representing 60 percent of all settings, completed a questionnaire. The study methods are described in Appendix A of the full report.

BACKGROUND

The number of Community-Based Care (CBC) settings has increased since the 1980s, in part due to the increasing numbers of older adults who need or want assistance with long-term services, but also because Oregon's Department of Human Services (DHS) Aging and People with Disabilities has overseen a system that provides CBC options throughout the state. Oregon has long been a national leader in the development of CBC policies and settings.

This report intends to provide policy makers needed information about CBC settings, including who lives and works in these settings. Collecting information directly from CBC providers is important because there is no central data source about residents, staff, facility services, rates, and policies. DHS, the licensing authority for Oregon's CBC facilities, collects information on Medicaid-funded beneficiaries in these settings. However, unlike nursing facilities, CBC facilities are not required to use a standardized tool to collect and report on resident characteristics and staffing. HB3359, proposed in the 2017 Oregon legislative session, included a set of quality metrics for assisted living (AL) and residential care (RC) communities that require facilities to report incidence of falls with injury, staff retention, compliance with staff training requirements, the use of antipsychotic medications for nonstandard purposes, and resident satisfaction. These quality measures would be reported to DHS, and reported publicly. The data would be analyzed, and findings would be published annually.

In January 2017, all 517 AL, RC, and memory care (MC) communities licensed as of December 2016 received a questionnaire (see Appendix D) that asked about residents' health-related needs, demographic characteristics, health service use, and move-in and move-out locations; information about staffing types and levels, staff training, staff competency and turnover; monthly rates and fees for additional services; and satisfaction with primary care office staff.

This report complements two prior reports available at <https://www.pdx.edu/ioa/oregon-community-based-care-project> and <https://www.oregon.gov/DHS/SENIORS-DISABILITIES/Documents/ARM%20Summary%20Report%20for%20DHS%20-%202016.pdf>. The research methods are described in Appendix A. In addition, PSU surveyed a statewide sample of adult foster care homes; that separate report is also available from the PSU website.

ASSISTED LIVING, RESIDENTIAL CARE, AND MEMORY CARE COMMUNITIES

What are they, how many are there, what is their capacity and occupancy?

Assisted living and residential care facilities are authorized by Oregon Administrative Rules (OAR 411-54). The rules establish standards, including the provision that these facilities promote the availability of a wide range of individualized services for older adults and persons with disabilities in a homelike environment. A primary difference between AL and RC is that ALs consist of fully self-contained individual living units, defined as a private apartment with living and sleeping space, kitchen area, bathroom, and storage. The design of RCs is more varied because Oregon rules do not require RCs to provide private bathrooms, living quarters, or kitchenettes. Older RCs might have shared bathrooms, while newer construction RCs may have a combination of these building configurations. Facilities are licensed for a specific number of residents (capacity) based on the number of living units in the building. In ALs, a unit may be designated for one or two persons who live together by choice (usually married or partnered couples) and in RCs, a unit may be shared by two individuals previously unknown to each other (e.g., roommates).

Memory care communities provide services to adults who have a dementia diagnosis, including Alzheimer’s disease, and are authorized under OAR 411-057. A MC community must receive an “endorsement” from DHS to operate within either a licensed AL, RC, or a nursing facility. This report includes only MC units with an AL or RC license. The endorsement means the community has met requirements, including training staff in dementia care practices, and physical environment standards such as controlled exits.

Number of Community-Based Care Settings

Table 1 describes the number of licensed settings and the total capacity as of December 2016. The 517 total AL/RC settings includes 179 MC communities. A stand-alone MC is licensed to provide memory care only and “combination” includes settings that have MC units and either AL or RC units that are not designated as MC.

Table 1. Number of Licensed Settings and Licensed Capacity

Type of Licensed Setting	No. of Settings	Licensed Capacity	No. of Units
Assisted Living (AL)	225 ^a	15,035	12,615
Residential Care (RC)	292 ^a	11,226	9,176
Total of Assisted Living and Residential Care	517	26,261	21,791
Total of AL and RC with a MC endorsement	179	6,268	—

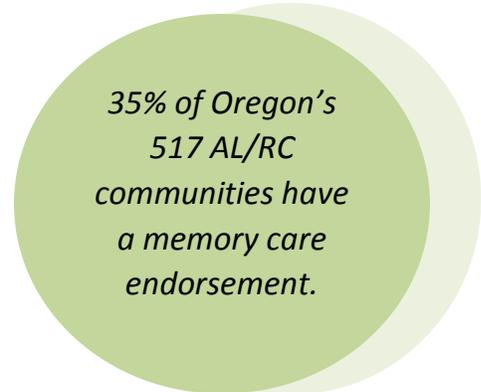
^aThis figure includes all AL or RC settings, including those that have an MC endorsement.

The number of CBC facilities throughout Oregon increased by 24 since the 2016 report. Twenty-six new facilities were licensed, and two closed. Of newly licensed communities, sixteen were licensed as memory care, eight as assisted living, and two as residential care. Of existing

communities, eight RCs added a MC endorsement. The total number of MC communities increased by 19 (from 160 to 179). Thus, the primary growth in the AL/RC sector occurred among memory care.

Similar to Oregon, there has been steady growth in the number of settings designated for memory care in the United States (U.S.). A 2014 national survey identified approximately 30,200 RC settings in the U.S., and of these, 22 percent were designated entirely for dementia care or had a dementia care unit co-located within a larger building or campus (Harris-Kojetin et al., 2016).

Dementia is characterized by a decline in mental ability severe enough to interfere with daily life. Alzheimer's disease is the most common type of dementia (Alzheimer's Association, 2017). Dementia progression results in disability and dependence among older adults (Sousa et al., 2009), and is a major driver of long-term service use, including assisted living and residential care (Zimmerman, Sloane, & Reed, 2014). Memory care communities are an important part of assisted living and residential care. Nationally, an estimated five million adults have Alzheimer's disease or a related form of dementia. It is the sixth leading cause of death in the nation and in Oregon. Today, an estimated 63,000 Oregonians aged 65 and older are living with Alzheimer's disease. That number is expected to increase by more than 30 percent to 84,000 by 2025 (Alzheimer's Association, 2016).

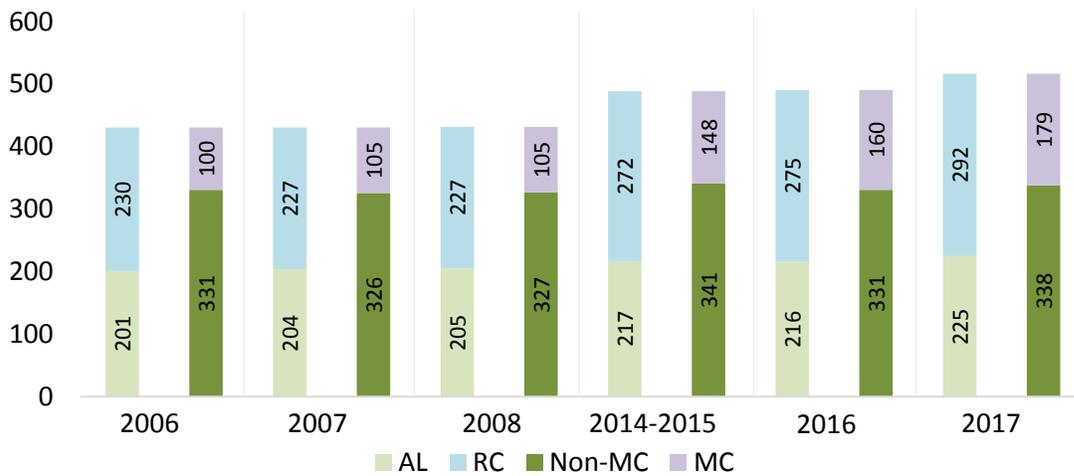


*35% of Oregon's
517 AL/RC
communities have
a memory care
endorsement.*

Change in Number of CBC Settings and Occupancy, over Time

The DHS licensed AL/RC/MC provider list for 2017 shows that the number of CBC facilities increased by 24 since the 2016 report. Twenty-six new facilities were licensed, and two closed. The number of CBC settings has increased over time, with the fastest growth in recent years seen in the MC sector (see Figure 1). Specifically, the percentage increase in the number of ALs was 12 percent compared to 27 percent in RCs and 79 percent in MC communities between 2006 and 2007.

Figure 1. Change in Number of CBC Settings, by Type, 2006-2017



Capacity and Occupancy

Each CBC setting is licensed for a specific number of occupants—this is the licensed capacity. The licensed capacity is typically larger than the number of units since some units will be shared by two persons. The occupancy rate is a measure of utilization relative to licensed capacity. The occupancy rates described in Table 2 are calculated by dividing the number of current occupants by the licensed capacity. This approach differs from the method used by some CBC providers, who typically calculate occupancy rates as a percentage of occupied units rather than total occupants. Information related to occupied units was not collected, therefore the rates reported here might appear to be lower than calculations based on occupied units. Of the 308 communities that completed a questionnaire, the highest occupancy rate was reported by MC communities, at 86 percent (see Table 2). The National Investment Center (NIC), a professional group that does research on the senior housing market, reports that the national occupancy rate was 87.2 percent during the first quarter of 2017 (NIC, 2017). Differences in occupancy rates could be due to regional variation, methods used to calculate occupancy rate, or other unknown factors.

Table 2. Licensed Capacity and Occupancy Rates of Responding Communities, 2017

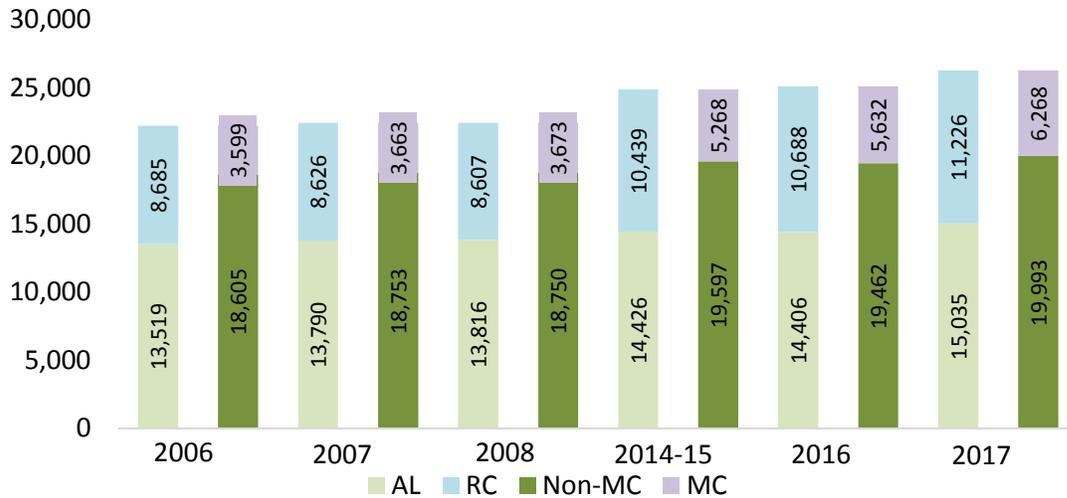
Setting Type	Capacity	No. of Current Occupants	Occupancy Rate
AL	8,680	6,823	79%
RC	1,936	1,523	79%
MC	3,354	2,873	86%
Total	13,970	11,219	80%

Change in Capacity and Occupancy by Setting over Time

Based on information provided by DHS, the licensed capacity of all CBC settings in Oregon has increased since 2006 (see Figure 2). As with the change in number of settings, most of the

growth since 2006 was in the MC sector. Specifically, the percent change in capacity between 2006 and 2017 was 11 percent for AL, 29 percent for RC, and 75 percent for MC.

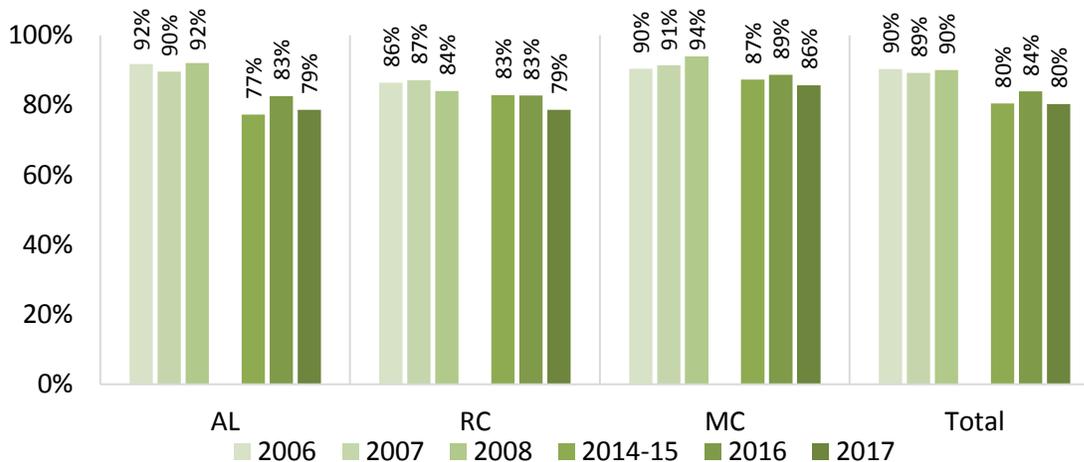
Figure 2. Change in Licensed Capacity by Setting, 2006-2017



Note: Capacity rates are for all licensed facilities based on information provided by DHS.

Overall occupancy rates appear to have declined since 2006, with the rate of decline in MC communities slower compared to AL and RC rates (Figure 3). We can speculate that reasons for these declines could be any of the following, or a combination of these and other factors: differences in the ways that occupancy rate is calculated; competition from other long-term services and supports, including home health care; licensed capacity is higher than necessary; or impact of the moratorium placed on licensing new AL/RC units in the 2000s.

Figure 3. Change in Occupancy by Setting, 2006-2017



Note: Occupancy rates for 2006-2008 are based on number of occupied rooms divided by number of licensed rooms, and the 2014-2017 rates are based on number of current residents divided by total number of licensed capacity.

COMMUNITY SERVICES AND POLICIES

What are common services and policies?

Several questions were asked about CBC community policies and practices regarding resident services and staffing. The topics listed below were identified by the DHS and PSU research team, with input from stakeholders. As possible, questions used in national or other state studies were described for comparison. The topics included:

- Move-out notices
- Use of fall risk assessment
- Use of cognitive screening tool
- Quality improvement activities
- Medicaid transportation
- Communicating with primary care providers
- HIPAA

Move-Out Notices

Oregon defines seven circumstances under which a resident might be asked to move out: needs exceed the level of care provided;

- Resident's behaviors repeatedly and substantially interfere with other resident's rights, health or safety;
- Resident has a medical condition that exceeds available health services;
- The facility cannot evacuate the resident in an emergency;
- Resident's behavior poses a danger to self or others;
- Resident engages in criminal activity;
- and non-payment of charges.



Facilities are encouraged to support a resident's choice to remain in the setting, but state rules indicate that some residents might not be appropriate for continued placement due to safety and medical reasons [OAR 411-054-0080].

Providers were asked which of the following six circumstances had resulted in a move-out notice being given to a resident in the prior year: hitting/acting out with anger, two-person transfer, wandering outside, lease violations (excluding non-payment), non-payment; and need for sliding scale insulin injections. The three most common reasons for giving a move-out notice were (Table 3):

1. Hitting/acting in anger
2. Non-payment
3. Two-person transfer

However, there were noticeable differences by setting type, with a larger percentage of AL compared to RC and MC giving a notice for two-person transfers and wandering outside. A larger percentage of RC and MC gave a move-out notice for hitting/acting in anger. Rates for move-out notices given for non-payment were similar across settings, and only one setting gave a notice to a resident requiring sliding-scale insulin injections.

Fifty-two providers offered 55 detailed responses when asked if there were other reasons for a move-out notice. Many (47 percent) reported that residents’ physical needs required a higher level of care than the community provided, followed by the inability to manage behavioral expressions; suicide risk, drug use, inappropriate sexual responses, or presented a danger to self and others (23 percent).

Table 3. Resident Needs and Behaviors that Prompted a Move-Out Notice*

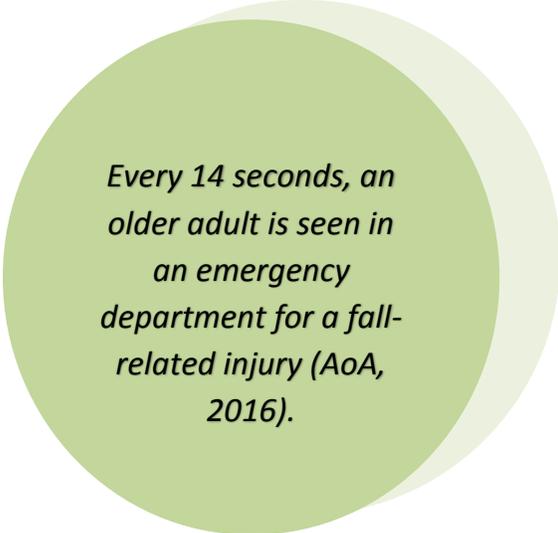
	AL % (n)	RC % (n)	MC % (n)	Total % (n)
Hitting/acting out with anger	9% (13)	18% (12)	18% (18)	14% (43)
Two-person transfer	14% (21)	6% (4)	7% (7)	10% (32)
Wandering outside	12% (18)	3% (2)	0% (0)	6% (20)
Lease violations (excluding non-payment)	1% (2)	6% (4)	0% (0)	2% (6)
Non-payment	12% (18)	13% (9)	11% (11)	12% (38)
Sliding scale insulin	0% (0)	0% (0)	1% (1)	0% (1)

*Note: % = Percent of facilities that gave a move out notice to a resident; n = Number of facilities that gave a move-out notice to a resident

Use of Residents’ Fall Risk Assessment

Falls among older adults are an important public health issue. Falls are the eighth leading cause of unintentional injury for older Americans and are responsible for more than 16,000 deaths in a year (Oliver, Healy, & Haines, 2010).

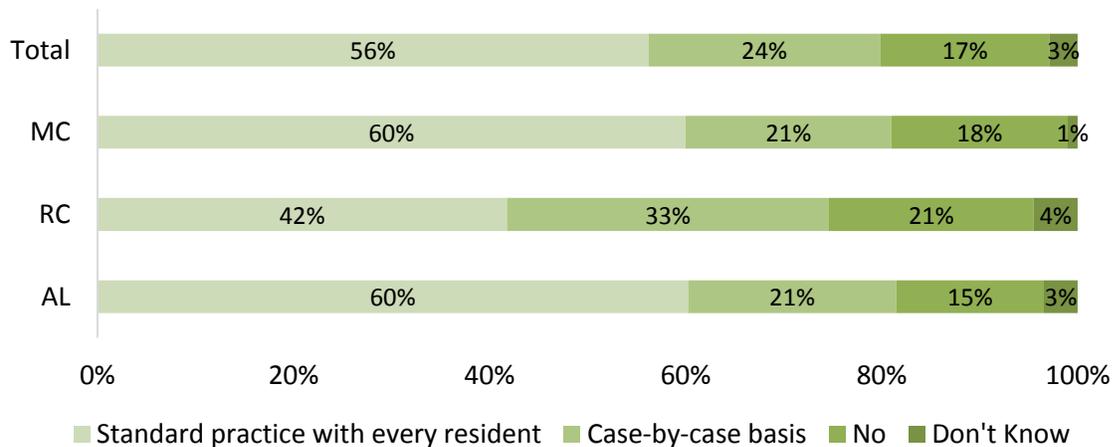
Oregon’s DHS encourages CBC providers to use a validated fall risk assessment tool such as the Centers for Disease Control’s STEADI (Stop Elderly Accidents, Deaths and Injuries) tool, the TUG (Timed Up and Go) test, or another tool that reliably assesses fall risk among older adults. Most communities (80 percent) used a fall risk assessment tool as either standard practice or on a case-by-case basis (see Figure 4). Over half of CBC settings used a validated falls risk assessment tool to assess every resident as standard practice. A larger percentage of MCs and ALs reported



using a fall risk assessment; MCs also reported a larger percentage of residents who had fallen in the past three months (see Resident Section, page 34).

Providers who reported using a fall risk assessment were asked how many residents were assessed for fall risk but did not fall. Overall, 47 percent of residents assessed did not fall, and this rate was similar across settings (not shown).

Figure 4. Use of Fall Risk Assessment by Setting



Use of Cognitive Screening Tool

The benefits of recognizing and treating dementia include enabling providers to deliver better care and allowing individuals and families to prepare for and manage the disease (Alzheimer’s Association, 2015). Cognitive screening is an important first step in determining the need for further evaluation (Alzheimer’s Association, 2017).

Oregon administrative rules require that AL and RC communities conduct an initial screening before a resident moves in to determine service needs and resident preferences and whether the facility is able to meet those needs and preferences (411-054-0034). Memory care communities must implement policies and procedures to evaluate resident behavioral symptoms, interests, abilities and skills, emotional and social needs, physical limitations, and medication needs (411-057-0140).

In 2013, an estimated 5 million Americans aged 65 and older were diagnosed with dementia; by 2050, the number is projected to rise to 14 million (CDC, 2017).

Overall, 33 percent of providers used a standard cognitive screening tool as regular practice, while 31 percent did so on a case-by-case basis. Slightly more AL communities used a tool as regular practice (37 percent) than MC (36 percent) and RC (24 percent). Thirty-three percent of RC and AL used an assessment tool on a case-by-case basis, and 26 percent of MC did so in this way.

Quality Improvement Activities

Oregon requires ALs and RCs to have a quality improvement program that evaluates services, resident outcomes, and resident satisfaction (OAR 411-054). A satisfaction survey is one way to meet this requirement. Providers were asked whether they conducted an annual satisfaction survey of resident/family concerns, and if so, to describe the most recent results. Sixty percent of facilities reported conducting this type of survey, with ALs more likely to do so (69 percent) compared to MC (58 percent) and RC communities (44 percent).

Among the 60 percent of facilities that conducted an annual satisfaction survey, the top three concerns raised by residents and families were:

1. Dissatisfaction with food
2. Quality of care
3. Activities

Thirty-three percent of CBC communities did not conduct an annual satisfaction survey. Most of these providers reported that because they communicate regularly with residents and family members, and resident satisfaction is high, a survey was unnecessary. Others reported that they lack time or resources to do so, and some stated they are planning to do so in the future.

Medicaid-Financed Transportation Services

Medicaid beneficiaries are eligible for non-emergency and emergency transportation to and from medical providers' offices and the hospital for Medicaid-approved care (CMS, 2016). The Oregon Health Authority provides non-emergency and emergency medical transportation for eligible Oregon Health Plan recipients, those enrolled in other prepaid health plans, and those enrolled with coordinated care organizations (OR 410-136-3160).

Providers were asked whether Medicaid-financed third-party transportation services were available to eligible residents and, if so, what the quality of the service was. In total, 80 percent of facilities indicated that this option was available, and 20 percent either did not, or "probably" did not offer Medicaid-financed transportation services. The responses were similar for AL and MC communities, with RC facilities slightly less likely (73 percent) compared to AL (83 percent) and MC (80 percent) to report that Medicaid-financed transportation was available. Providers who indicated the service was available were asked to rate the quality of service. Of the 232 facilities that responded, 45 percent indicated the service was good, 36 percent said fair, 13 percent said poor, and 6 percent were not certain. Some variation was noted, with more MC communities (51 percent) compared to AL (44 percent) and RC (35 percent) rating the transportation service as good.

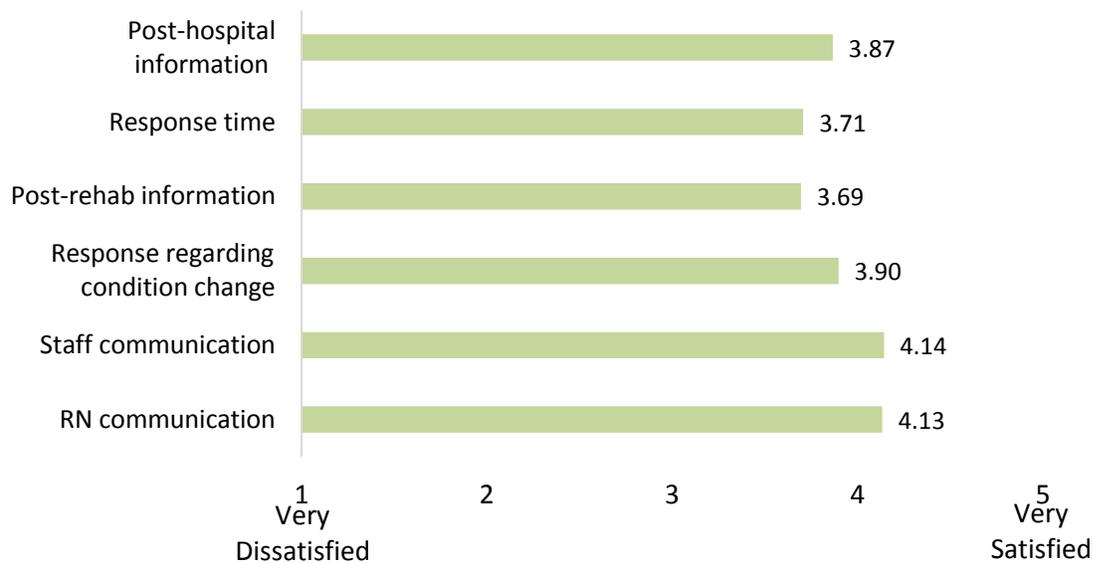
Communicating with Primary Care Providers

Community-based care staff must coordinate with residents' primary care providers (PCPs), before a new resident moves in and throughout the resident's life in the facility. Oregon Administrative Rules require CBC settings to document each resident's diagnoses, medications, and other prescribed treatments from the resident's PCP (OAR 411-54-0000). In addition, information about changes in condition, medication changes, hospitalizations, medical appointments, and other health-related information must be exchanged between the PCP office and CBC staff.



CBC providers were asked several questions about any concerns they had and strategies for communicating with PCP offices. Responses indicate that most CBC providers are somewhat satisfied with their residents' PCP office staff (see Figure 5). The lowest scores were for response time and information received after a post-acute rehabilitation stay.

Figure 5. CBC Staff Satisfaction with Residents' Primary Care Providers



Providers were also asked to describe, in writing, concerns their staff had about communicating with resident's PCP office staff, how CBC staff partnered with PCP office staff to address resident's health, and advice for improving communication between CBC and PCP staff. The majority of providers answered these questions, summarized below.

What concerns have your staff raised about communicating with resident's PCP office staff?

The top three responses among the 276 received were:

- Slow response time: *“Lack of timely response via FAX or phone.”* (63 percent of responses)
- Clarity or completeness of physician orders: *“Physicians not including all necessary information in orders.”* (7 percent of responses)
- PCPs do not understand CBC rules for staffing and paperwork: *“Doctor does not understand the requirement we face and doesn’t respond when they think we should already know.”* (5 percent of responses)

Other concerns raised by staff included PCP staff being rude to CBC staff, difficulty communicating with PCP front office staff, and physicians not understanding dementia.

How have your staff and PCP staff partnered to address residents health needs?

The top three responses among the 236 received were:

- Multiple forms of communication: *“Through the exchange of regular correspondence (both phone and fax) as needed.”* (44 percent of responses)
- Frequency of communication: *“Communicate the quarterly assessment, change of conditions, and faxing after incidents.”* (17 percent of responses)
- Building and sustaining relationships: *“We have 47 residents and 31 different primary care providers. These providers work out of many different locations. We have tried to create good working relationships with each provider and their staff.”* (10 percent of responses)

In addition to these responses, some CBC providers described going with residents to medical appointments, visiting offices to meet staff, and physicians who come to the facility to visit multiple residents as examples of partnering to meet residents’ health care needs.

What advice do you have about communicating with resident’s primary care office staff?

The top three responses from the 229 received were:

- Be efficient and organized: *“Have your facts prepared before calling. Communicate resident needs concisely and appropriately.”* (26 percent of responses)
- Develop respectful relationships with PCP staff: *“It is important that we build a relationship based on person-centered care—teamwork facilitates best care for residents”* and *“Find out what their preferred communication method is.”* (25 percent of responses)
- Be persistent and follow-up with PCP office: *“Stay on top of the communication—if they don’t return your call, be sure to call back,” “respond to phone calls urgently, faxes within three days, sign and note that faxes are read by PCP and fax back.”* (24 percent of responses)

In addition to this advice, some CBC providers indicated that PCP office staff should carefully listen to CBC staff and read information sent from the facility. One provider suggested that PCP offices should designate a specific line for urgent calls so they know a rapid response is needed.

HIPAA Challenges

The U.S. Health Insurance Portability and Accountability Act (HIPAA) established guidelines on the sharing of patient's personal health information. These guidelines can create perceived barriers to sharing information between medical care providers and those who need the information, such as AL, RC, and MC communities. Providers were asked whether HIPAA ever created a barrier in communicating with residents' primary care providers. Generally, just 10 percent of CBC communities indicated that this was a problem.

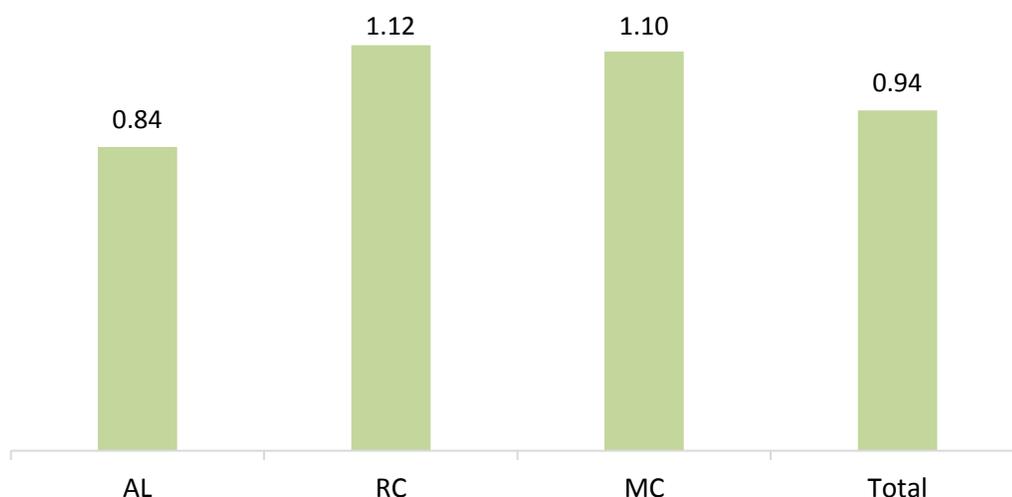
COMMUNITY-BASED CARE STAFF

Who works in assisted living, residential care, and memory care?

Community-based care employees provide assistance with activities of daily living, medication administration, resident focused activities, supervision, and various types of support, including health, social, and emotional. This section includes staff directly employed by facilities.

The total number of persons employed (e.g., administration, facilities, housekeeping, kitchen staff, caregivers) by the responding CBC facilities was 9,560. Based on the reported number of current residents for each setting type (Table 2), we calculated the ratio of total employees to residents (Figure 6). The ratio of all employees to residents was similar for RC and MC, and both of these were higher than AL.

Figure 6. Ratio of All Employees to Current Residents



Care-Related Staff

Providers were asked for the number of full-time and part-time care-related staff, defined as the following: registered nurses (RNs), licensed practical nurses (LPNs), certified nursing assistants (CNAs), certified medication aides (CMAs), personal care staff, social workers, and activities staff (Table 4). The 259 responding facilities employed a total of 6,072 care-related staff, who represented 63 percent of all CBC employees (see Part-Time and Full-Time columns, Table 4).

Of all care-related staff, 21 percent were employed part-time and 79 percent were employed full-time. A total of 4,827 (non-certified) personal care staff and 400 licensed nurses (RN, LPN) were employed. Most—80 percent—of the personal care staff were employed full time, and 64 percent of RNs were employed full time. Oregon rules require facilities to employ personal care staff 24-hours daily and registered nurses as needed, so it is not surprising that the largest share of all full-time care-related staff are (non-certified) staff (see Table 4).

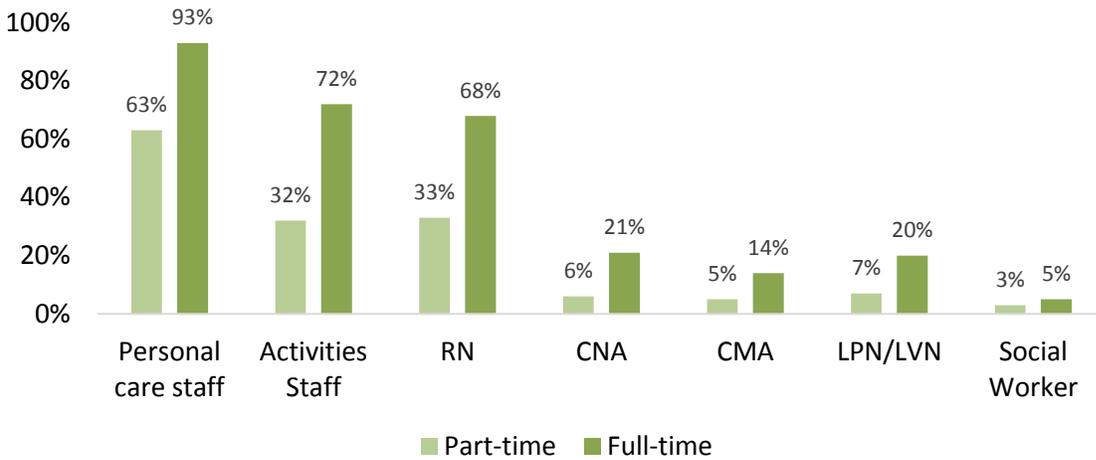
Table 4. Percentage of Care-Related Staff Employed Part-Time or Full-Time, by Employee Categories

	Part-time % (n)	Full-time % (n)	Total % (n)
RN	36% (110)	64% (199)	5% (309)
LPN	29% (26)	71% (65)	1% (91)
CNA	25% (56)	75% (165)	4% (221)
CMA	14% (27)	86% (171)	3% (198)
Personal care staff	20% (959)	80% (3,868)	79% (4,827)
Social worker	30% (7)	70% (16)	<1% (23)
Activities staff	27% (110)	73% (293)	7% (403)
Total	21% (1,295)	79% (4,777)	6,072

Oregon does not require CBC facilities to hire CNAs or CMAs. However, 21 percent of facilities in our sample employed at least one full-time CNA, and six percent employed at least one part-time CNA. Just 14 percent of facilities employed at least one full-time CMA (see Figure 7 and Table B1 in Appendix B). The majority of facilities (72%) reported employing at least one full-time activities staff person. Facilities are not required to employ social workers, though a small number did.

Assisted living and RC facilities are required to employ or contract with a licensed nurse (RN or LPN/LVN). Of all facilities, 68 percent employed at least one full-time RN and 20 percent employed at least one full-time LPN/LVN. There was variation in employment of RNs and LPN/LVNs across settings. A greater percentage of ALs (78 percent) compared to RCs (45 percent) and MCs (67 percent) employed at least one full-time RN, while a larger percentage of MCs (22 percent) compared to ALs (18 percent) and RCs (20 percent) employed at least one full-time LPN/LVN (see Table B1, Appendix B). Nationally, 40 percent of RC communities employ at least one RN, and 36 percent employ an LPN/LVN, either full or part time (Harris-Kojetin et al., 2016).

Figure 7. Percentage of Facilities With At Least One Part-Time or Full-Time Staff, by Employee Category



Oregon is experiencing a nursing shortage impacting all health care settings, including CBC (Oregon Center for Nursing, 2016). Providers were asked if they experienced difficulty hiring RNs. Memory care communities reported more difficulty hiring an RN (38 percent) compared to AL (33 percent) and RC facilities (27 percent). Providers were also asked to describe reasons why they experienced difficulty hiring RNs. One hundred six providers responded to this optional, open-ended question. The top three reasons reported were:

1. Few or no applicants responded to job postings
2. Limited availability of RNs in the area
3. Inability to fulfill salary and benefit requests

Other reasons given were that RNs lacked experience, were not qualified, or were not interested in the duties required in working with the elderly.

Use of Contract/Agency Staff for Unplanned Absences

Providers were asked if they had hired contract care staff (including licensed nurses) to cover unplanned staff absences in the prior 90 days. Overall, 12 percent of facilities did so, with 18 percent of MC compared to 9 percent of AL and 10 percent of RC facilities hiring contract staff. Nationally, the 2010 residential care community survey data reported 16 percent of RC communities used contract workers to supplement their regular employees (Khatutsky et al., 2016).

Staff Absenteeism

Worker absenteeism can have a negative impact on residents as well as other staff (Harris-Kojetin, Lipson, Fielding, Kiefer, and Stone, 2004). Providers were asked if staff had missed work in the prior 90 days due to any of the below reasons, listed in rank order:

1. Personal health problems (90 percent)
2. Family illness or family issues (83 percent)
3. Transportation problems (66 percent)

More AL staff missed work due to transportation problems (71 percent) compared to RCs (58 percent) and MCs (65 percent). Approximately one-third of facilities offered a transportation benefit to their employees (see Strategies for Retaining Staff section, page 27). Forty-four providers offered 45 detailed responses when asked for other reasons staff missed work. Most (87 percent) reported winter weather conditions, and a few (11 percent) described staff personal scheduling conflicts as a reason staff missed work.

Staffing Level

Oregon requires CBC settings to hire qualified staff in sufficient numbers to meet the needs of each resident. Facilities must have a written system to determine the appropriate numbers of caregivers and general staff (or staffing plan) that accounts for resident acuity, total number of residents, the scheduled and unscheduled needs of residents, the building's physical structure, and fire and life safety evacuation plans (OAR 411-054-0070). There is no published standard for the meaning of "sufficient" staffing, so staffing level, as defined by National Center for Health Statistics (NCHS), was used for the purposes of comparing Oregon to national standards and for tracking staffing levels over time (Harris-Kojetin et al., 2016). However, it should be noted that staffing level is not a measure of the amount of actual care given to a specific resident.

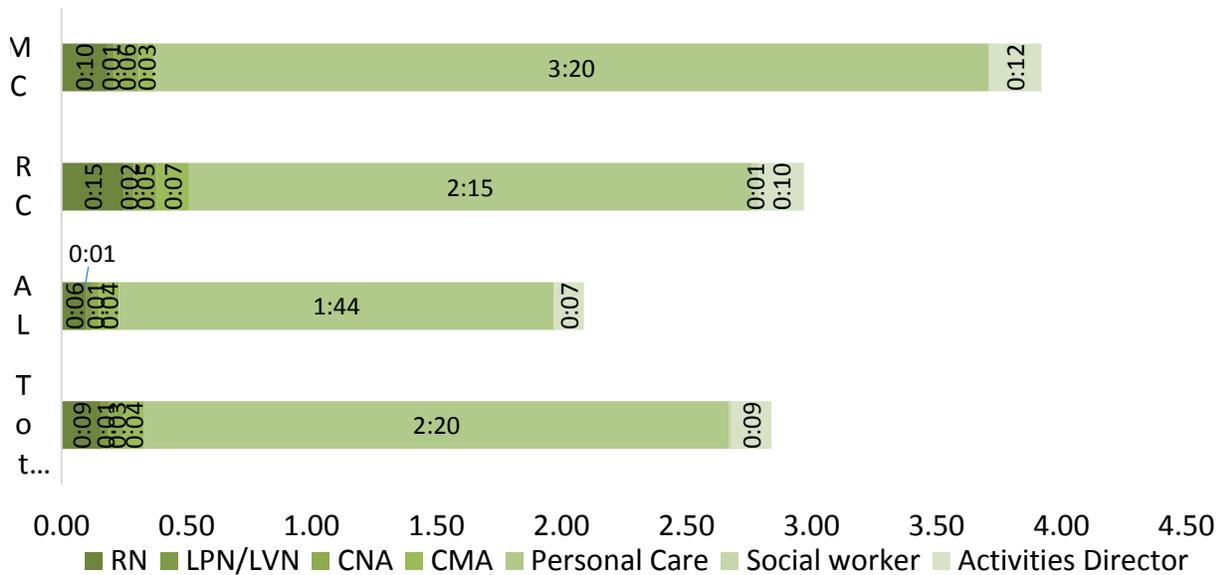
Staffing level provides an average of staff hours per resident per day, calculated as the total number of hours worked by care-related employees (licensed nurses, CNAs, CMAs, personal care staff, social workers, and activities staff) divided by the total number of residents. Only facility-employed (not contract) full-time and part-time staff are included in the NCHS calculation.

The combined staffing level for all care-related employees was 2 hours and 46 minutes (see Figure 8). This rate nearly identical to a 2014 national study that reported 2 hours and 53 minutes (Harris-Kojetin, 2016). Among Oregon CBC settings, personal care staff account for the largest number of staffing hours, at 2 hours and 20 minutes per resident per day. The staffing level for RNs was 9 minutes, the combined level for CNAs and CMAs was 7 minutes per resident per day, and the rate was 1 minute for LPNs.

The staffing levels were higher in MC communities compared to AL and RC settings (see Figure 8). The rate for MC was 3 hours and 52 minutes compared to 2 hours and 55 minutes in RC and 2 hours and 2 minutes in AL. The staffing level reported in the national study had similar findings, with a staffing level of 3 hours and 37 minutes per resident in RC communities where a majority of residents had dementia (Rome & Harris-Kojetin, 2016).

While Oregon rules allow for licensed nurses to be employed on a contract basis, we did not include contract RNs in staffing levels to ensure comparability with the national study and because the level of detail in our contract staff question did not allow for it. However, our additional analysis using last year's data shows that including contracted RNs increases the staffing level for RNs only minimally -- by .6 minutes for ALs and by 1.8 minutes for RCs and MCs since only a small number of facilities (n=33) reported they contracted with RNs.

Figure 8. Staffing Level in Hours, by Staff and Facility Type



Staff Training Topics

Staff knowledge and training affect resident quality of life and health-related outcomes (Beeber et al., 2014). Oregon regulations require CBC settings to provide staff training on residents' rights, abuse, infection control, and safety prior to staff beginning their job (OAR 411-54-070). In addition, personal care staff must demonstrate caregiving competencies on several topics within 30 days of hire. The rules indicate that facilities must have a training protocol and a way of evaluating staff performance capability through a demonstration and evaluation process.

Providers were asked about the topics covered in staff trainings during the prior year (Figure B2 in Appendix B). Over 90 percent of providers reported they had conducted training on the following six topics:

- Safety
- Residents' rights
- Abuse
- Alzheimer’s and related dementia
- Medication administration
- Preventing communicable disease

In addition, between 67 percent and 89 percent of providers had addressed the following seven topics during staff training:

- Person-directed care
- Communication/problem solving
- Disease-specific information
- Nutrition and food management
- Working with resident's families
- Mental illness
- Hospitality skills

Providers described other topics in response to an open-ended question including:

1. Resident care (e.g., fall prevention, harm reduction, safe lifting and transfers, how to shower a resident, pain management, wound care),
2. Community policy (e.g., incident reporting, workplace violence, work safety, confidentiality),
3. Work-life balance (e.g., budgeting, burnout, standard of conduct, team building), and
4. Recognizing aspects of the normal aging process (e.g., physical changes, body mechanics, increasing ADL needs, safe lifting and transfers, how to shower a resident, and dental, skin, and nail care).

Providers were asked how often they assessed personal care staff knowledge, skills, and abilities to do work. Some providers assess these skills several times a year, so some gave more than one response. Most facilities assess personal care staff on an as-needed basis (65 percent), or annually (62 percent). When asked what other time frames were used to assess direct care workers' competency, some providers reported they evaluated after an introduction period, then again after one week to one month, two months, or three months. After this initial probation period, staff were assessed according to community standards (e.g., annual, or as-needed).

Strategies for Retaining Staff

Staff turnover is recognized as a problem in long-term care settings nationally (IOM, 2008). Oregon administrative rules do not require AL/RC settings to have strategies to reduce staff turnover, but providers must maintain a staffing plan and have a sufficient and qualified number of employees. Most -77 percent- of facilities indicated they had a strategy to retain staff and reduce staff turnover. Of those, the three most commonly reported staff retention strategies included the following:

1. Compensation and benefits
2. Awards, recognition, or appreciation
3. Training and education

Examples of compensation and benefit strategies included offering above-standard wages, annual bonuses, raises, and benefits such as health insurance, paid time off, discounted

transportation passes, and tuition assistance. Additional strategies included flexible scheduling, collaborative staff meetings and team building activities, fostering an environment that promotes a supportive, respectful culture, and providing reasonable resident to staff ratios.

Team building activities can foster an environment of employee collaboration, build trust, and reduce problems with care staff retention (Duda, 2016). Providers were asked if they used team building activities in the prior year such as learning collaboratives, celebrating success, and idea sharing. Overall, 93 percent of communities reported using a team building activity.

As mentioned above, 66 percent of unplanned staff absences were due to transportation problems. Twenty-eight percent of communities reported that they offered a transportation benefit to their employees. When asked to describe the type of benefit offered, 101 providers offered 109 responses. A majority reported encouraging administrators and staff to carpool, or provided a ride on an as-needed basis (55 percent) while others offered cab fare, a transit pass, a transit pass discount, or cash to offset transit costs (45 percent).

RATES, FEES, AND MEDICAID USE

How much does community-based care cost?

The cost of AL, RC, and MC is important to state policymakers and to current and prospective residents. Providers were asked about the following topics: how private pay rates are structured, monthly base and total charges, payer sources (private resources, long-term care insurance, Veteran's Aid & Attendance, and Medicaid), and additional fees. This section also describes changes since 2006.

Private Pay Rate Structure

Community-based care facilities have various monthly rate structures for organizing fees. Some facilities charge a base monthly rate of all residents, but the majority charge a base rate and additional monthly fees based on the amount of services (e.g., assistance with activities of daily living, health monitoring, additional laundry or housekeeping) received by each resident. The rate structure refers to different ways that CBC communities assess service-related charges.

The most frequently used rate structure was described as a point system (47 percent of all facilities), followed by tiers (sometimes called levels, used by 33 percent), the amount of time it takes staff to provide assistance (12 percent), an all-inclusive (or flat) rate (12 percent), and an *a la carte* rate based on a list of services with associated fees (9 percent). Some providers reported more than one type of point system depending on residents' needs and payment types and so these percentages total more than 100 percent. There was some variation across setting types, with RCs more likely to use *a la carte* and less likely to use staff time, compared to AL and MC settings. In addition, ALs were less likely to use all-inclusive (3 percent) compared to RC (14 percent) or MC (26 percent) (see Figure B3 in Appendix B).

Changes in Private Pay Rate Structure over Time

In 2008, the primary rate structure type used was tiers/service levels (45 percent), followed by a flat fee (20 percent) or point system (20 percent), and *a la carte* (15 percent). The 2006-2008 questionnaires did not ask about rates based on time. As with the above results, there was some variation across setting types, with more RC (30 percent) and MC (26 percent) using a flat fee compared to AL (9 percent).

Private Pay Charges

Providers were asked to describe the average base monthly private-pay charge for a single resident living alone in the smallest unit and receiving the lowest level of care, and the average total monthly charge, including services (Table 5). On average, the total monthly charge for MC communities is \$1,743 more per month than AL, and \$1,640 more than RC. For both RC and MC, the highest base monthly charge exceeded \$9,000 per month—\$3,000 more than the highest base monthly charge for AL.

Table 5. Monthly Private-Pay Charges by Setting

	AL	RC	MC
Average base monthly charge	\$3,264	\$3,323	\$4,941
Minimum	\$733	\$1,400	\$2,850
Maximum	\$4,920	\$9,024	\$9,024
Average total monthly charge (including services)	\$3,667	\$3,770	\$5,410
Minimum	\$856	\$1,400	\$3,675
Maximum	\$6,000	\$9,024	\$9,024

The calculations for average monthly charges may be influenced by a relatively small number of facilities that have unusually high or low charges (e.g. outliers) compared to other fac facilities. Three ALs had very high (from \$5,730 to \$6,000) or low (from \$856 to \$930) average total monthly charges, and two RCs and three MCs had very high average monthly charges (from \$6,096 to \$9,024 in RC and from \$7,800 to \$9,024 in MC). See Table A5 in Appendix A for average values excluding these outliers. To better understand the range of monthly rates, we report average total and base monthly rates in \$2,000 increments (see Tables A3 and A4 in Appendix A).

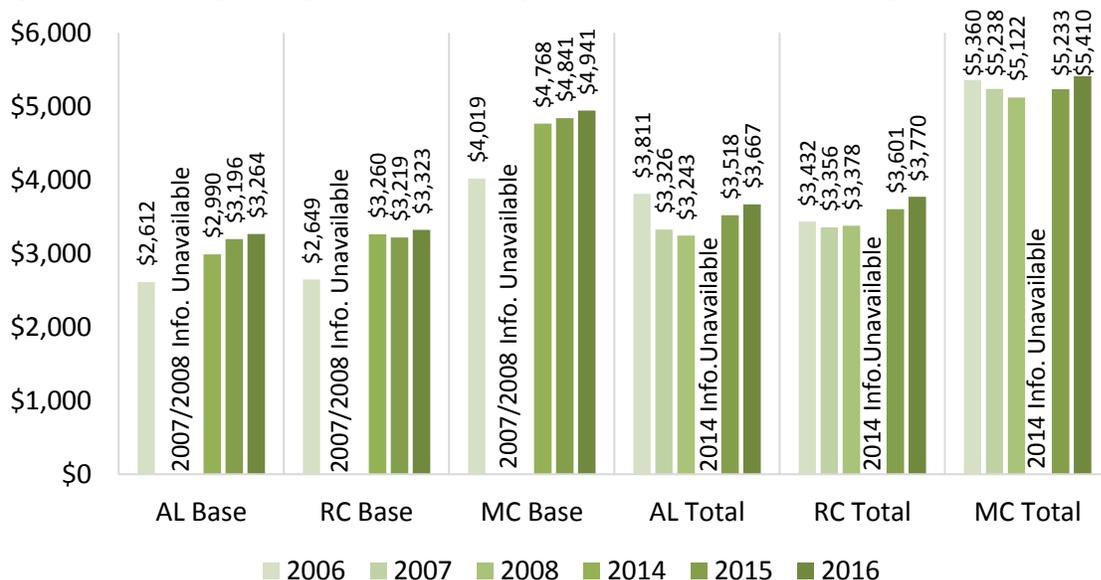
The Genworth Cost of Care survey is a national survey of long-term care costs in the U.S. In 2016, Genworth reported that the national average for assisted living was \$3,628 per month, and for Oregon it was \$4,065 (Genworth, 2016). A 2010 national survey found that the monthly base rate for a single room in a dementia care unit was \$3,843 (Zimmerman et al., 2014). In 2016 dollars, this rate would be \$3,990.

Changes in Private Pay Rates over Time

Figure 9 shows changes in base and total monthly private pay charges between 2006 and 2017 (including services). All values were adjusted to 2016 dollars. There were some years for which information is not available (noted in the graph where unavailable). Between 2006 and 2016, the average base monthly charge outpaced inflation. The inflation-adjusted percentage increase between 2006 and 2017 was 25 percent for AL and RC and 23 percent for MC communities.

In contrast, the changes in average total monthly charges in inflation-adjusted dollar terms were not uniform over time and did not exhibit an easily discernable trend. Declines in inflation-adjusted average total monthly charges between 2006 and 2008 were followed by increases in charges in real dollar terms. The inflation-adjusted percentage increases in average total monthly charges were 13 percent for AL, 12 percent for RC, and 6 percent for MC communities since 2008.

Figure 9. Monthly Changes in Private Pay Rates over Time, by Setting



Note: All charges are expressed as inflation-adjusted 2016 dollar amounts. Rates were calculated using the Bureau of Labor Statistics inflation calculator on April 12, 2017 [https://www.bls.gov/data/inflation_calculator.htm]

Payer Sources

The primary payer sources were residents’ personal funds (55 percent of residents) and Medicaid (41 percent). Residential care communities had a higher percentage of Medicaid beneficiaries (48 percent), compared to MC (42 percent) and AL (39 percent). In total, 61 percent of residents paid using private resources (personal funds plus long-term care insurance). Only two percent of current residents received Veteran’s Aid and Attendance payments; other payment sources, accounting for one percent of residents, included ElderPlace, private foundation funds, and worker’s compensation.

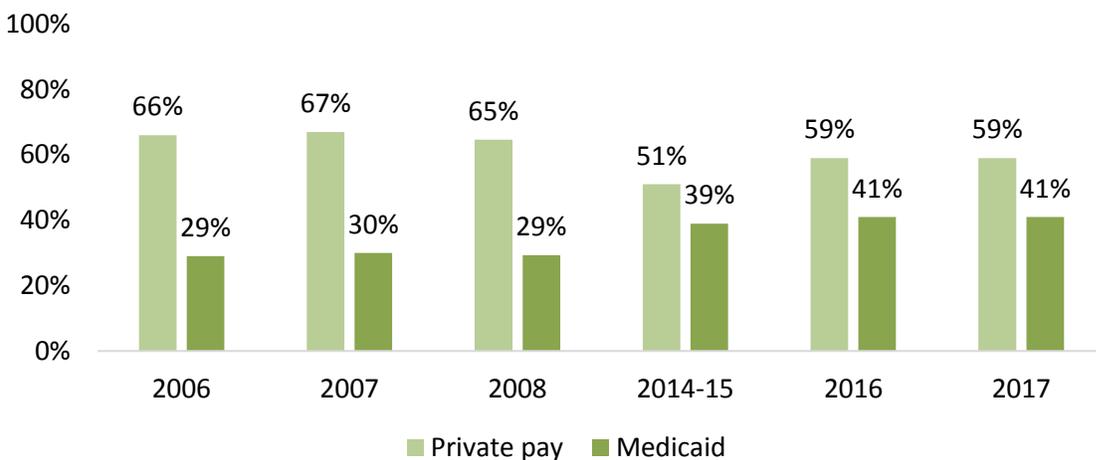
Changes in Payer Sources over Time

Payer sources have changed since 2006. However, the six questionnaires that were used to collect this information since 2006 did not always include the same set of payer sources. In each study year, information about the number of private payers and Medicaid beneficiaries was collected. Other sources, including long-term care insurance, Veteran’s Aid and Attendance, or any other source, were not consistently asked. In addition, in 2006-2008, the primary payer source was calculated as a percentage of the facilities’ total revenue, and the response rate to these questions was low. Since 2014, providers were asked for the number of residents paying by each of the different sources. Thus, results for this question need to be taken cautiously.

Figure 10 below includes only private and Medicaid as payer sources since these two categories were asked each year. Although it appears that the percent of residents who were Medicaid beneficiaries increased after 2008, some of this increase is likely due to differences in how payment sources were measured (number of residents vs. percent of revenue). The observed increase in the percent of Medicaid beneficiaries after 2008 can be attributed to differences in

how payment sources were measured (number of residents vs. percent of revenue) as well as structural (e.g., changes in eligibility criteria) and demographic (aging population) changes that occurred in Oregon.

Figure 10. Change in Payer Source by Setting, 2006-2017



Note: In 2017, facilities were able to report multiple payer sources for each resident. Consequently, “private pay” reflects percentage of all residents who paid using sources other than Medicaid.

Additional Private Pay Fees

Providers were asked whether they charge additional fees for specific services or deposits. The top five most commonly reported additional fees were for the following:

1. Meals regularly delivered to the resident’s unit (51 percent)
2. Use of a pharmacy other than the community-preferred pharmacy (48 percent)
3. Community fees (43 percent)
4. Transfer assistance requiring two staff (35 percent)
5. Staff escort of a resident to a medical appointment (30 percent)

There was some variability across setting types in the use of additional fees and deposits. Assisted living facilities were far more likely (81 percent) compared to RCs (31 percent) or MCs (20 percent) to charge a fee for regular meal delivery. Residential care facilities were more likely to charge a cleaning deposit (26 percent) than AL (17 percent) or MC (9 percent), but RCs were less likely to charge an administrative fee (8 percent) than either AL (12 percent) or MC (20 percent). See Table B4 in the Appendix B for additional fees by community type.

Medicaid Payment Acceptance and Rates

Oregon uses Medicaid funds to pay for CBC, and other long-term services and supports. Based on information received from DHS in the fall of 2016, 79 percent (411) of all AL and RC facilities had a contract to accept Medicaid beneficiaries, which accounted for a licensed capacity of 21,323 Medicaid beds. Of the 308 facilities that completed the survey, 84 percent accepted Medicaid.

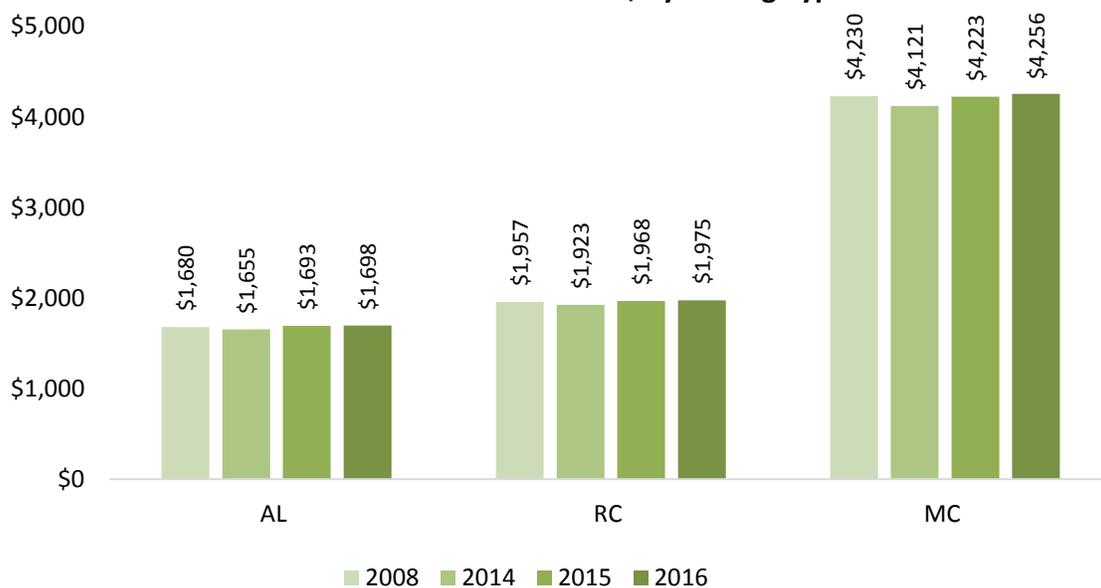
Based on a 2014 national survey, 47 percent of all RC communities in the U.S. accepted Medicaid payments on behalf of eligible residents (Harris-Kojetin et al., 2016), and the 2010 survey of RC residents found that 19 percent of all residents were Medicaid clients (Caffrey et al., 2012).

Nationally, RC settings with dementia care units are less likely to accept Medicaid clients (37 percent accept Medicaid) than those without dementia care units (52 percent) (Caffrey et al., 2012). However, in Oregon, out of a total of 179 MCs, 142, or 79 percent, accepted Medicaid.

Changes in Medicaid Reimbursement Rates over Time

Figure 11 (below) shows the changes in inflation-adjusted (2016 dollars) reimbursement rates between 2008 and 2016. Since 2008, Medicaid reimbursement rates remained fairly constant in real (inflation-adjusted) dollar terms across all facilities, even though the rates have increased in nominal (unadjusted) terms. Overall, this pattern suggests that Medicaid reimbursement rates kept up with inflation, but probably not with the increases in real charges (see Figure 9, p. 30). Medicaid rates kept up with inflation due to cost of living adjustments allocated by the legislature.

Figure 11. Medicaid Reimbursement Rates over Time, by Setting Type



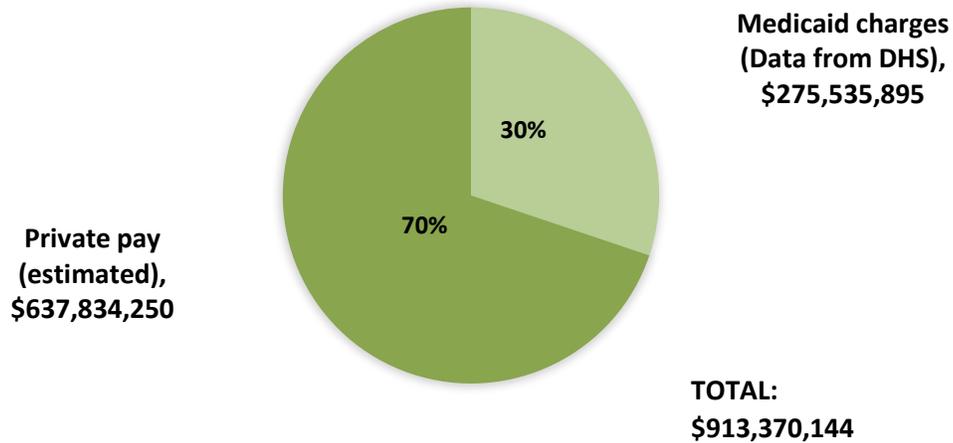
Note: these rates include room and board and are for the lowest service level. All rates have been adjusted for inflation.

Estimated Profession Charges

Based on the average monthly charge for private pay residents reported by CBC providers, in addition to the amount billed to DHS for Medicaid services, we estimated the total annual charges for these CBC settings (see Appendix A, Table A2 for a description of the calculations). As indicated in Figure 12, the total charges were approaching one billion, at \$913,370,144. Of

this figure, 70 percent was from private pay sources and 30 percent was Medicaid charges (including room and board charges) paid by DHS on behalf of Medicaid-eligible residents.

Figure 12: Estimated Total Annual Charges for AL, RC, and MC in Oregon



The 2016 total industry charges, adjusted for inflation, were \$879,068,753 of which \$619,478,159 was from private payers, and \$259,590,594 was payments made by DHS on behalf of Medicaid-eligible residents. The percentages are the same as for 2017—70 percent private pay and 30 percent Medicaid.

After adjusting for inflation, Medicaid payments increased by 3 percent and private pay increased by 6 percent in real dollars between 2016 and 2017.

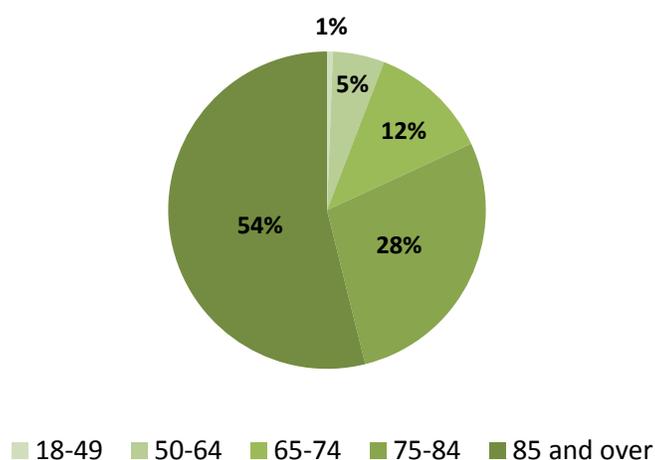
RESIDENTS

Who lives in assisted living, residential care and memory care communities?

Based on licensed capacity and provider responses, an estimated 21,133 adults lived in a CBC setting in Oregon (see Table A2 in the Appendix for calculations).

The majority of residents were female (70 percent), White (90 percent), and age 85 or older (54 percent) (see Figure 13). The average age for all residents across settings was 82 years of age and the median age was 84. Overall, MC and AL residents were older than RC residents (Table B5 in Appendix). A national study based on data from 2014 reported that 53 percent of residents were aged 85 and older, 70 percent were women, 84 percent were White (non-Hispanic) (Harris-Kojetin, et al., 2016).

Figure 13. Age Distribution of Residents across All Community-Based Care Settings



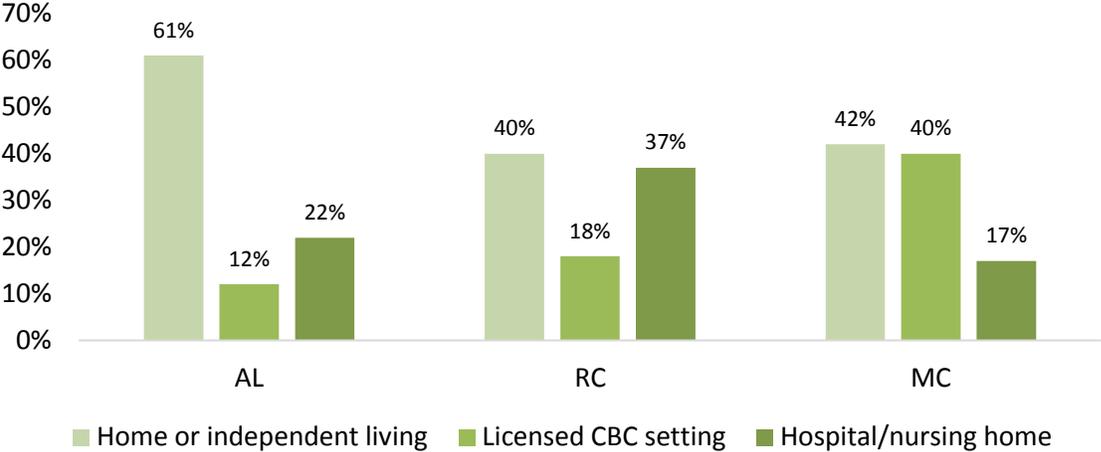
The following ethnic/racial categories were reported at one percent or less in all settings: Asian, Black, Hispanic or Latino, American Indian/Alaska Native, Native Hawaiian or other Pacific Islander, and mixed (Table B6 in Appendix B). Other residents identified as other or unknown ethnic or racial background, including six percent of AL residents, seven percent of RC residents, and four percent of MC residents. The national study found that 4 percent were Black (non-Hispanic), 3 percent were Hispanic (any race), and 9 percent were another race (Harris-Kojetin, et al., 2016). In general, Oregon CBC settings are less diverse than the national average. Statewide approximately 6 percent of adults ages 65 and older are a ethnic/racial minority compared to approximately 21 percent nationally (United States Census Bureau, 2017).

Move-In and Move-Out Locations

Providers were asked to describe residents' move-in and move-out locations during the prior 90 days (Figures 14 and 15 & Table B7 in Appendix B). This topic is important for understanding transitions between home, health care settings, and CBC settings. Residents who moved into CBC settings were most likely to move from home (33 percent), though there was variation across setting types.

AL residents were most likely to move from home (40 percent), followed by independent living (12 percent). RC residents were most likely to move from home or a nursing facility (at a rate of 19 percent for each location; Table B7, Appendix B), or from a hospital stay (18 percent). MC residents were most likely to move from home (28 percent) or from an AL or RC (27 percent; Table B7). Fewer residents moved to an MC community from a hospital stay (10 percent; Table B7).

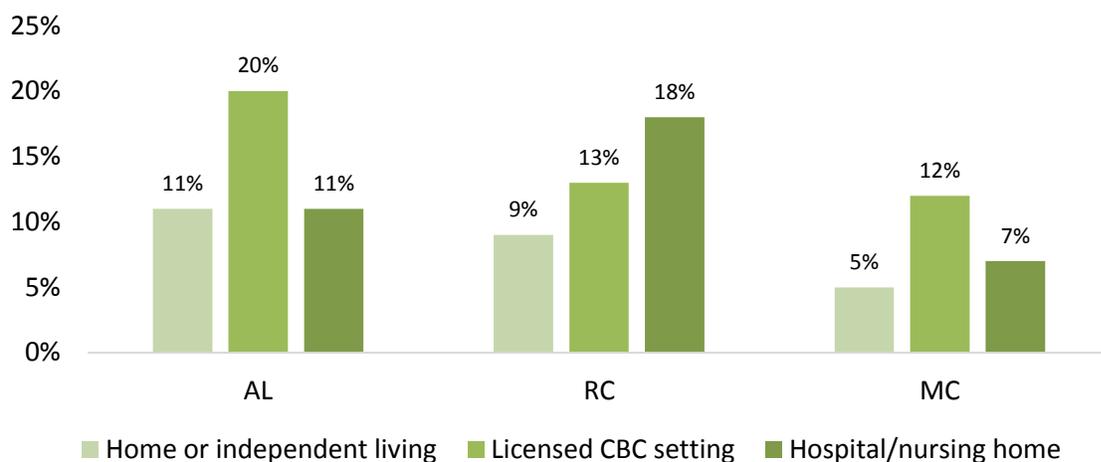
Figure 14. Most Common Resident Locations Prior to Move-In, by Setting Type



The primary reason for a resident leaving any of the three CBC settings was death (62 percent). Approximately three-quarters of discharges in MC were due to resident death (74 percent), with lower rates in AL (56 percent) and RC (58 percent; Table B7).

Among residents who moved out of a CBC setting, the most common locations were a MC community (nine percent) or nursing facility (nine percent; Table B7). Among residents who moved out of AL, 20 percent moved to a licensed CBC setting (AL/RC, MC, Adult Foster Home), 11 percent moved to home or independent living, and 11 percent moved to a hospital or nursing home. Moves from RCs were most commonly to a nursing facility or hospital (18 percent), to another CBC setting (13 percent), or to home or independent living (nine percent). Moves from MCs were to another CBC setting (12 percent), to a hospital or nursing facility (seven percent), or to home or independent living (five percent) (See Figure 15 and Table B7 in Appendix B).

Figure 15. Most Common Resident Move-Out Locations



Length of Stay

A variety of factors can determine residents’ length of stay in a CBC setting, including the resident’s health and personal care needs and their quality of life. In Oregon, more than half (56 percent) of CBC residents who moved out in the prior 90 days had stayed for one year or longer (Table 6). Sixty percent of AL residents stayed for one year or longer, followed by MC residents (52 percent) and RC residents (49 percent). Nationally, the median length of stay is just under two years (Caffrey et al., 2012).

Table 6. Resident Length of Stay, by Setting

	AL % (n)	RC % (n)	MC % (n)	Total % (n)
1-7 days	2% (14)	7% (13)	4% (19)	3% (46)
8-13 days	1% (11)	4% (8)	2% (8)	2% (27)
14-30 days	3% (23)	7% (13)	3% (13)	3% (49)
31-90 days	8% (66)	8% (16)	16% (76)	11% (158)
91-180 days (3-6 months)	11% (88)	17% (33)	10% (45)	11% (166)
181 - 1 year (6-12 months)	15% (119)	7% (14)	13% (61)	13% (194)
	Total under one year			44% (446)
1-2 years	18% (142)	13% (24)	19% (89)	18% (255)
2-4 years	23% (181)	19% (37)	18% (86)	21% (304)
More than 4 years	19% (149)	17% (32)	15% (68)	17% (249)
	Total over one year			56% (1002)
Total	793	190	465	1,448

Overall, 44 percent of CBC residents had lengths of stay of one year or less. This rate varied by setting, with 50 percent of RC residents, followed by 48 percent of MC, and 40 percent of AL residents remaining at their community for one year or less. Of those residents who moved out in the previous 90 days, 19 percent had stays of one to 90 days. Nationally, nine percent of RC residents had a stay of less than 90 days (Harris-Kojetin et al., 2016).

In addition to calculating the percent of residents who moved out in the prior 90 days and who had a stay of less than 90 days, we calculated the percent of facilities with these short-stay residents. Fourteen percent of AL, 26 percent of RC, and 25 percent of MC facilities reported residents with stays of one to 90 days.

Short-stay respite care provides temporary living and services in CBC communities and can be used, for example, by older people recovering from a health-related circumstance, or by informal caregivers who are unable to provide care for a short period of time. Overall, providers reported that six percent of residents who moved out in the prior 90 days were there for a planned short-stay. This rate varied by setting: 17 percent of RC residents, five percent of AL residents, and three percent of MC residents.

Seventeen percent of facilities served residents needing planned short-stay respite care. More RC (25 percent), than AL (17 percent), or MC (14 percent) communities cared for these residents.

Change in Length of Stay over Time

Length of stay appears to be fairly consistent over time. Figure 16 shows the changes in short- and long-term stays from 2006 through 2017. The percent of residents staying longer appears to have increased recently, although this could be due to a modification in the way the question was asked. Specifically, from 2006 to 2014-15, providers were asked to report the length of stay of all residents who moved out in the prior year, while in 2016 and 2017 providers were asked to report resident length of stay for the prior 90 days. This change was made because providers had reported that a 12-month look back was overly burdensome, and because the shorter time frame is used by the National Center for Health Statistics and is considered more reliable. Length of stay for the prior 90 days will again be tracked in 2018.

Providers were asked to describe lengths of stay from shortest being one to seven days, and the longest two or more years. Figure 16 and Figure B8 in Appendix B shows percentages for lengths of stay from 2006 to 2017.

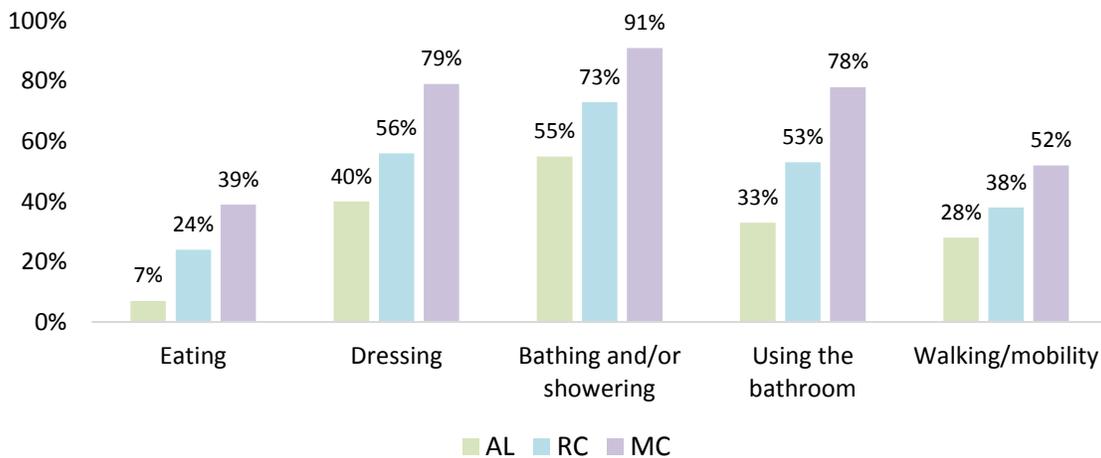
Figure 16. Change in Length of Stay for Short- and Long-term Stays, 2006-2017



Personal Care Needs

Providers were asked how many of their residents needed staff assistance with five activities of daily living (ADLs): eating, dressing, bathing and/or showering, using the bathroom, and walking/mobility. Nearly two-thirds of residents required staff assistance with at least one ADL (see Figure 17). Since ADL needs can vary greatly, this question refers to residents’ need for any level of full or standby staff assistance.

Figure 17. Staff Assistance with ADL



Across all CBC settings, the most commonly provided assistance was with bathing and/or showering, followed by assistance with dressing. MC residents were about 5 times more likely to receive staff help with eating compared to AL residents. A larger percentage of MC residents needed assistance with all five activities (see Table B9 in Appendix B). Overall, 35 percent of CBC residents received staff assistance with mobility. Seventy-two percent used a mobility aid of some type and 25 percent of residents received staff assistance to use a mobility aid (e.g., walker, wheelchair) (not shown in table).

Nationally, the rates of residents who received staff assistance with ADLs were as follows: 62 percent received help with bathing, 47 percent with dressing, 39 percent with toileting, 29 percent with walking/mobility, and 20 percent with eating (Harris-Kojetin et al., 2016).

Oregon requires that all CBC facilities have sufficient staff to respond to scheduled and unscheduled needs of residents throughout the day and night (411-054-0070 and 411-057-0150). Providers were asked how many residents received assistance from the night shift staff (e.g., 11 pm to 6 am). Overall 42 percent of residents needed assistance during the night, including 79 percent of MC, 44 percent of RC, and 27 percent of AL residents.

Assistance with Behavioral Health

Behavioral health services may be provided to individuals who have dementia and/or a diagnosed mental illness. As the number of adults ages 65 and older in the U.S. continues to grow, the prevalence of dementia is projected to increase rapidly, potentially tripling to 13.8 million people by 2050 (CDC, 2017). As noted above, the number of Oregonians living with dementia is also increasing. In long-term care settings, identifying, monitoring, and addressing behaviors associated with dementia that risk residents' safety and quality of life is recommended (Tilly & Reed, 2009). In addition, 15 to 20 percent of older adults ages 55 and older experience depression or anxiety that can affect health and well-being (NIH, 2017).

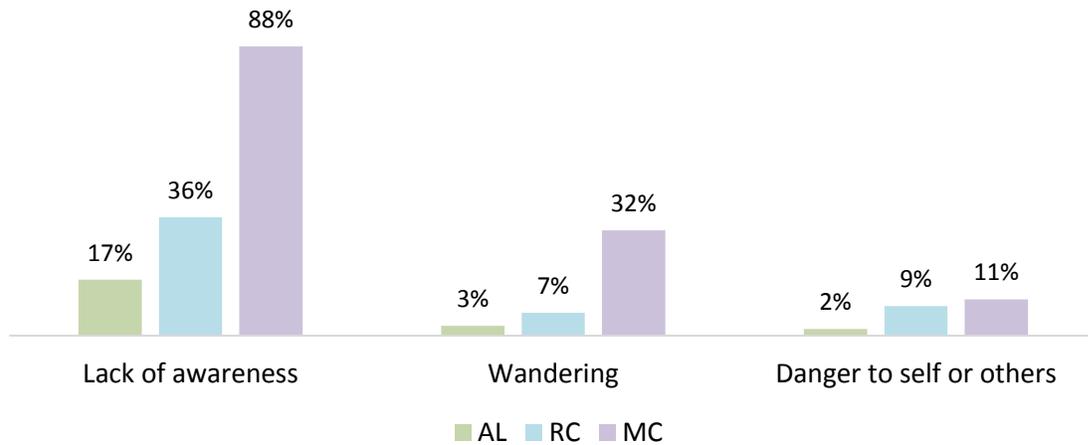
Providers reported that few residents (seven percent) exhibited serious mental illness - five percent of AL residents, 17 percent of RC residents, and seven percent of MC residents. (See Table B10).

Providers were asked how many of their current residents received staff assistance for three behavioral health symptoms:

1. Lack of awareness to safety, judgement and decision-making, or the ability to orient to surroundings
2. Wandering
3. Danger to self or others

The majority of residents receiving staff assistance with each of these behavioral symptoms reside in MC communities. Lack of awareness was the most common behavioral symptom requiring staff assistance.(see Figure 18).

Figure 18. Residents Receiving Staff Assistance for Behavioral Symptoms



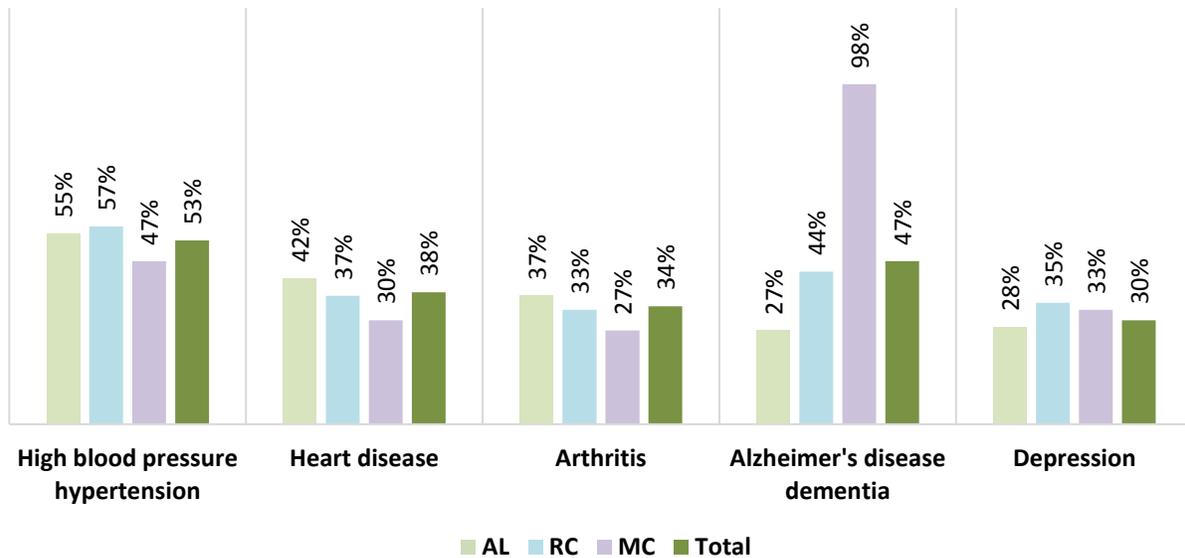
Across all CBC settings, 11 percent of residents regularly received assistance with physical and/or cognitive health needs from two staff. However, there was variation across CBC settings with 28 percent of MC residents, 10 percent of RC residents, and five percent of AL residents regularly receiving such assistance [not shown in chart].

Oregon Aging and People with Disabilities may provide behavioral health services, including mental health treatment or addiction services, to persons who have severe and persistent mental illness in NH and RC communities. Case managers, long-term care ombudsman, and other Oregon DHS support service staff assess service level needs, offer and authorize service choices, and respond to the need for protection from abuse (OAR 411-028-0010). Older adult behavioral health specialists coordinate service providers and services, consult on difficult or complex cases, and assist with planning and problem solving on behalf of those in need of services (DHS, OHA, 2015). Few residents received assistance from a State or County behavioral health specialist or other service provider: three percent in AL, 11 percent in RC, and four percent in MC.

Resident Health & Health Service Use

Older persons are likely to have one or more diagnosed chronic diseases that affect their daily life, including the ability to be independent (Federal Interagency Forum on Aging-Related Statistics, 2012). The five most common diagnosed chronic conditions among CBC residents were hypertension (53 percent), Alzheimer’s disease or other dementias (47 percent), heart disease (38 percent), arthritis (34 percent), and depression (30 percent) (Figure 19 & Table B10 in Appendix B). As would be expected, Alzheimer’s and other dementias were highest in memory care at 98 percent. The percent of people living in MC with dementia was not 100 percent because a spouse or other relative might live in the unit if the facility applied for and received a waiver from DHS. The rates of residents with heart disease or arthritis were highest among AL residents, while the rates of high blood pressure or depression were highest among RC residents.

Figure 19. Most Common Diagnosed Chronic Conditions by Setting



A national survey reported on the same five chronic conditions among residents in RC (Khatutsky et al., 2016). Rates of high blood pressure were slightly higher in the national sample, at 59 percent compared to 53 percent in Oregon. The percent of persons with Alzheimer’s disease and other dementias was similar nationally and in Oregon, with 46 percent in the national sample and 47 percent in Oregon. However, other studies have reported rates of dementia and cognitive impairment among AL and RC residents from 40 to 90 percent (Harris-Kojetin, Sengupta, Park-Lee, & Valverde, 2016; Rosenblatt et al., 2004; Wiener, Feng, Coats, & Johnson, 2014; Zimmerman, Sloane & Reed, 2014). Depression rates were the same in the national study and in Oregon, at 30 percent. Arthritis rates were slightly higher in Oregon, at 34 percent compared to 29 percent nationally.

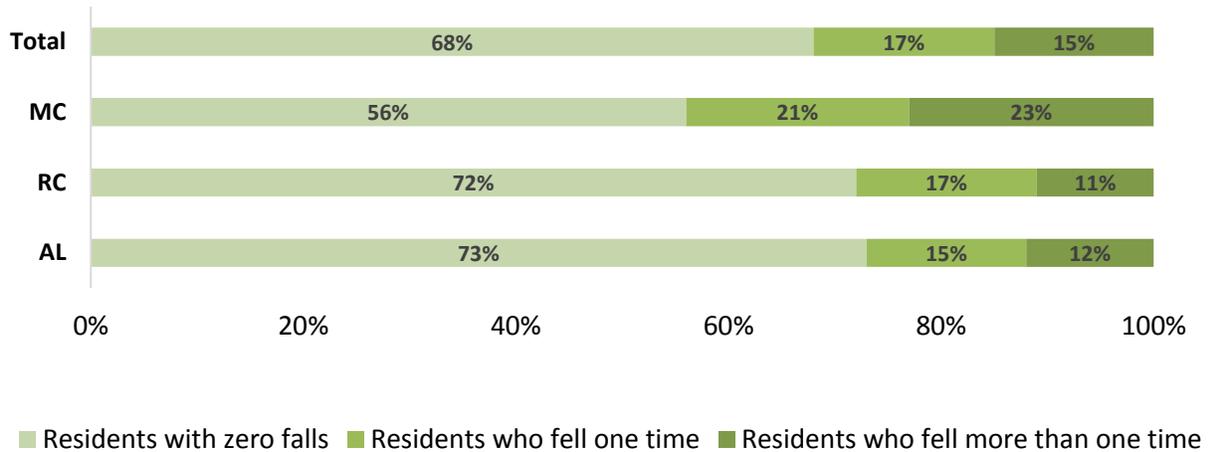
Aside from the top five most common chronic conditions, diabetes rates were slightly higher in Oregon, at 19 percent compared to 16 percent nationally. Rates of osteoporosis were also higher in Oregon at 20 percent versus 15 percent nationally. The rate of Chronic Obstructive Pulmonary Disease (COPD) was lower in Oregon at 14 percent compared to 22 percent in the national study. Cancer rates were lower in Oregon, at eight percent compared to 11 percent nationally among RC residents. The percent of residents with an intellectual or developmental disability was the same nationally and in Oregon, at one percent.

Resident Falls

Yearly, 1.6 million older U.S adults are treated in emergency departments for falls-related injuries and falls are the primary cause of fractures, hospital admissions, loss of independence, injury, and death for the elderly (NIH, 2017). In 2015, Medicare costs associated with falls totaled over \$31 billion (CDC, 2017). Most CBC residents—68 percent—did not experience a fall in the prior 90 days (Figure 20 & Table B11 in Appendix). Overall, 32 percent of residents fell, though the rates varied by setting type, with a higher percent of MC residents (44 percent) falling one or more times, compared to 28 percent of RC and 27 percent of AL residents. These rates were higher than the national rate—21 percent—of RC residents who experienced a fall in

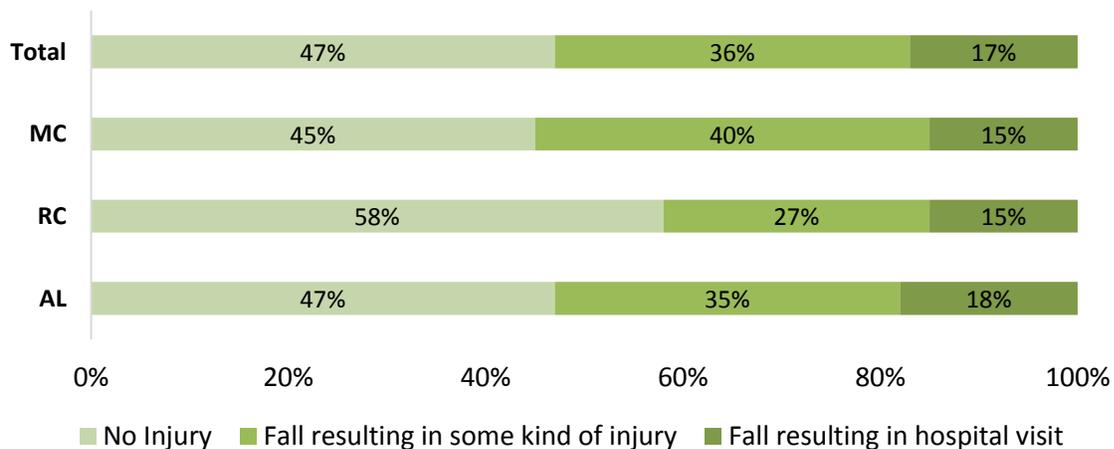
the prior 90 days (Harris-Kojetin et al., 2016). Considering that individuals with dementia are at a high risk of falls due to changes in spatial perception and brain function (van der Wardt et al., 2015; Mirelman, et al., 2012), it is not surprising more residents in MC communities were reported to have experienced one or more falls than in AL or RC communities.

Figure 20. Resident Falls by Setting



Providers were asked to report the number of residents who fell and either had no injury, any injury, or if a resident had a fall that resulted in a hospital visit. Overall, 47 percent of CBC residents who fell were not injured, and 36 percent were injured (see Figure 21). Across all three CBC setting types 17 percent of residents went to the hospital because of the fall. Memory care residents were most likely to have a fall resulting in an injury (40 percent), followed by AL (35 percent), and RC (27 percent) residents. AL residents were more likely to have a fall-related hospital visit (18 percent) than RC and MC residents (15 percent each); (Figure 21 & Table B12 in Appendix B).

Figure 21. Falls Resulting in Injury or Hospitalization by Setting



Health Service Use

Health service use includes hospital department visits, overnight hospital stays, and hospice care in the prior 90 days. Research shows that older persons, especially those who have dementia, might be distressed by hospital admission and emergency department use (Becker, Boaz, Ansel, & DeMuth, 2012; Mitchell et al., 2007). Understanding hospitalization rates among CBC residents can inform policy and program decisions about coordinated care and transitional care planning that meets resident needs.

Across all CBC setting types, 17 percent of residents were treated in an emergency department in the prior 90 days (see Table B13 in Appendix B). This figure is higher than the national average of 12 percent among RC community residents treated in an emergency room department in the prior 90 days (Harris-Kojetin et al., 2016). Overall, 9 percent of CBC residents had an overnight hospital stay in the prior 90 days, with little variation across settings. This rate is lower than the national average of 12.4 percent of residents having an overnight hospital stay (Harris-Kojetin et al., 2016). In Oregon CBC settings, 27 percent of residents returned to the hospital within 30 days, but there was variation by setting type. More AL residents were rehospitalized within 30 days (31 percent), compared to both RC (28 percent), and MC (18 percent) residents.

Hospice care provides a team-based approach to medical, personal care, and spiritual services to individuals with a terminal illness. Hospice services may be offered in the individual's home, as well as a CBC setting.

Eight percent of CBC residents had received hospice care in the previous 90 days. The rate was highest for MC residents at 12 percent, and lowest for AL residents, at 6 percent (Table B9 in Appendix).

Medications and Treatments

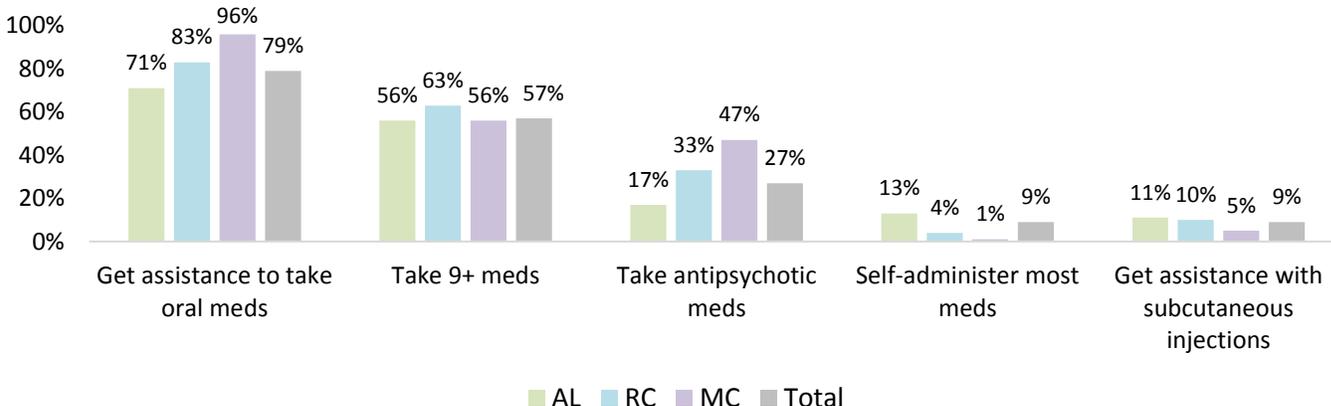
CBC communities in Oregon administer medications to residents who need or request this assistance. Residents who are assessed as capable of self-administering medications may do so if they want. Oregon permits CBC settings to administer medications prescribed by a medical doctor or other health care professional licensed to prescribe, and unlicensed care staff may administer medications with training and oversight from a registered nurse (OAR 411-054-0055). Trained staff may administer injectable medications by the subcutaneous but not intramuscular route. The questionnaire included these topics, as well as questions about the number of medications taken, use of antipsychotic medications, and use of nurse treatments other than medications.

Assistance with Medications and Treatments

Nearly all CBC residents take at least one prescribed medication—only one percent did not take any medications. Overall 79 percent of residents received staff assistance to take oral medications (Figure 22 and Table B14 Appendix). Nearly all MC residents (96 percent) received assistance. The following treatment types were less frequently used: receiving assistance with

subcutaneous injection medications, receiving nurse treatments from a licensed nurse, and receiving injections from a licensed nurse (see Table B14 in Appendix).

Figure 22. Medication Assistance by Setting



Multiple Medications

Polypharmacy means taking multiple medications. The Centers for Medicare and Medicaid Services uses clinical management of nine or more medications as a quality indicator to assess health and health risks of nursing facility residents (CMS, 2013). Over half—57 percent—of CBC residents take nine or more medications, with a larger percent of RC compared to AL and MC residents taking this number (Figure 22 & Table B14 in Appendix). The National Nursing Home Survey (Dwyer, Han, Woodwell, & Rechtsteiner, 2010) reported that 40 percent of nursing home residents take nine or more medications.

Antipsychotic Medication Use

Antipsychotic medications are sometimes prescribed to treat behaviors associated with dementia, but this practice is not supported clinically and is considered off-label by the Food and Drug Administration (CMS, 2015; FDA, 2008). Generally, 27 percent of CBC residents took an antipsychotic medication, though the rate was 47 percent for MC residents (Figure 16 and Table B14 in Appendix). A 2010 national survey found that 22 percent of RC residents were prescribed antipsychotic medications (Zimmerman, Sloane, & Reed, 2014). Additional study is needed to assess how antipsychotic medications are prescribed and used. For example, neither the Oregon nor the national study has information on the reason for the prescription (e.g., to treat behavioral symptoms), whether medications are prescribed as routine or given only as needed (PRN), and whether medications prescribed as PRN are actually used. In addition, the terms psychotropic and antipsychotic are sometimes used interchangeably, and these terms need to be clarified for policy and practice.

The National Center for Assisted Living's (NCAL) quality initiative set a goal of reducing antipsychotic medication use in AL settings by 15 percent, or achieving an off-label usage rate of five percent (NCAL, 2015).

POLICY CONSIDERATIONS AND CONCLUSIONS

Community-based care settings represent an important part of the long-term care landscape of Oregon, providing an alternative to nursing home care for some adults. Many residents have physical and cognitive impairments and receive ongoing assistance with their daily personal care and with chronic health conditions. Based on this study, the following policy considerations were identified:

1. Differences between AL, RC, and MC communities in terms of the number of units, staffing levels, resident needs, and monthly costs;
2. Change over time in CBC private payer costs and the Medicaid reimbursement rate paid to providers;
3. Length of stay and reason for move-out; and
4. CBC quality

Understanding the differences between the three CBC setting types is important. Overall, differences between AL and MC were common, with distinctions between RC and MC and between AL and RC less consistent. The number of MC communities has increased more rapidly than AL and RC since 2006. While MC communities charge a higher monthly rate and receive a higher Medicaid reimbursement compared to AL and RC settings, MCs have the highest staffing levels as well as the largest percentage of residents who receive staff assistance with activities of daily living and with behavioral health. In addition, a larger percentage of MC residents used hospice services, and more of them took an antipsychotic medication. Fewer MC settings compared to AL gave a move-out notice for two-person transfer or wandering outside.

Community-based care costs are impacted by a variety of factors, including employee costs, food costs, insurance fees, and other external factors. To understand the full impact of these factors on private pay rates would require additional study. Increases in the average total private pay charges for all CBC settings outpaced inflation between 2008 and 2016. In contrast, while the Medicaid reimbursement rate has increased, it remained fairly constant in real nominal dollars. Whether these realities will affect the supply of affordable CBC communities in the future should be monitored.

The length of stay for CBC residents has remained fairly consistent since 2006, with roughly equal percentages of residents either less than or more than one year. The 2017 results indicate that some residents who had recently moved were there for a planned short-term stay. The primary reason that a resident moved out, for all CBC settings, was due to death.

This study describes AL, RC, and MC community characteristics. However, some questions also provide information about CBC services and policies that relate to quality. For example, the majority of settings used a falls risk assessment tool, conducted a resident or family satisfaction survey, had a staff retention strategy, and had a full-time RN. About one-third used a cognitive screening tool, and a similar number reported difficulty hiring RNs.

In conclusion, Oregon DHS has asked PSU's Institute on Aging to collect information from AL, RC, and MC settings again in 2018. Some questions will be new, and other questions will be repeated to allow for comparison over time. We recognize that completing the questionnaire

requires staff time and investment, and thank the 60 percent of Oregon providers who returned the questionnaire this year.

Appendix A: Methods

Data Collection Instrument

This project is the third annual questionnaire conducted by PSU's Institute on Aging as a follow-up to previous questionnaires administered by the Office for Oregon Health Policy and Research. The questionnaires (see the 2015 and 2016 reports) were used to develop this effort in partnership with stakeholders from the following:

- DHS, Division of Aging and People with Disabilities
- Oregon Health Care Association (OHCA)
- Oregon assisted living, residential care and memory care providers
- Leading Age Oregon

Questionnaire topics included facility information, resident demographics, resident activities of daily living (ADLs), facility rates and fees, staffing, additional services, and facility policies. Most of the questions ask for a number or include a list of possible responses. A few open-ended questions were included so that providers could explain an answer or give additional information (see attached questionnaire). Some provider information reported in 2016 was not asked again because few changes were expected, decrease respondent burden, and to be able to gather other information about increasingly relevant topics including cognitive impairment, behavioral symptoms, two-person staff assistance, and care workers' training evaluation.

The majority of questions described in the 2016 and the 2017 report asked questions based on the prior 90 days. The national surveys of residential care conducted by the National Center for Health Statistics use a three-month look-back period for these and similar questions (Khatutsky, 2016). To further support providers, this year in October, PSU sent a tracking tool to assist in collecting relevant data three months prior to receiving the questionnaire. The tool was offered as an option to log move-in, move-out, hospital admissions, falls, and hospice use on a daily, weekly, or monthly basis.

Sample Selection and Survey Implementation

The total population for this study includes all 517 assisted living, residential care, and memory care communities in Oregon that were licensed as of December, 2016. Of these 517, 225 were licensed for AL, 292 were licensed for RC, and of this total, 179 held a memory care endorsement.

As MCs receive an endorsement to offer memory care in addition to their AL or RC license, they can be divided into two categories: stand-alone or combination. Stand-alone MCs offer solely memory care, and combination MCs offer memory care units and additional units under their primary licensure type. For example, a community can be licensed to provide 40 RC units and receive an endorsement for 10 memory care units. For the purposes of data collection, we asked combination communities to complete two questionnaires: one for their AL or RC units and one for their MC endorsed units. MC questionnaires were counted separately from the AL and RC totals because of the licensing overlap. Therefore, the total number of cases (316)

exceeded the total number of licensed communities (308) who responded to the questionnaire. This allowed us to isolate data from MC communities.

The questionnaire was mailed to facility administrators during the first week of January, 2017. Providers were asked to complete the questionnaire and return it to PSU’s Institute on Aging via fax, scan and email, or US postal service. Returned surveys were checked for missing information and responses. As needed, providers were contacted to clarify missing or confusing responses. Data collection continued until mid-March, 2017.

To increase the response rate, we called all providers who had not returned a questionnaire within two weeks of the original mailing. Each provider was called at least 3 times. In addition, we called corporate offices for those that owned more than 8 communities, DHS posted a provider alert, and OHCA and LeadingAge published information about the project in their newsletters.

Survey Response

A total of 308 communities responded, for a response rate of 60 percent (Table A1). For example, 57 percent (n=44) of assisted living facilities in Portland Metro area. Similarly, 74 percent of all facilities in Eastern Oregon region responded. Some questionnaires were returned with some questions unanswered. Although all providers were called multiple times to request such missing information, we were not able to retrieve all missing information for all facilities (see data analysis section below). Some providers reported difficulty with reporting some of the resident data requested because they did not regularly track some of these items, such as length of stay and race/ethnicity of residents. When data availability was a challenge, providers were encouraged to give their best estimate.

Table A1: Response by Region

	AL % (n)	RC % (n)	MC % (n)	Combined % (n)	Total % (n)
Portland Metro	57% (44)	39% (21)	61% (31)	29% (5)	51% (101)
Willamette Valley	66% (46)	70% (14)	56% (29)	17% (2)	59% (91)
Southern Oregon	67% (20)	62% (13)	71% (17)	100% (1)	67% (51)
Eastern Oregon	75% (33)	73% (16)	76% (16)	0% (0)	74% (65)
Total	65% (143)	55% (64)	63% (93)	26% (8)	60% (308)

Portland Metro = Counties of Clackamas, Columbia, Multnomah, Washington

Willamette Valley = Counties of Benton, Clatsop, Lane, Lincoln, Linn, Marion, Polk, Tillamook, Yamhill

Southern Oregon = Counties of Coos, Curry, Douglas, Jackson, Josephine

Eastern Oregon = Counties of Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco, Wheeler

Non-response

A total of 209 facilities did not respond to the questionnaire; 80 were ALs and 129 were RC. The licensed capacity per non-respondent community ranged from six to 186. In 2016, 74 percent of non-respondents were contracted to accept Medicaid. Similar to last year, 73 percent of this year's non-respondents were contracted to accept Medicaid. Reasons given for non-response included business closure, survey not mandatory, change of ownership or major administrative changes, currently too busy, survey length, and administrator was unavailable.

Approximately 60 percent of this year's respondents previously responded in 2016. About 33 percent of those who responded in 2016 did not respond in 2017.

Data Analysis

Quantitative data were entered into SPSS, a statistical software program, then checked for errors (e.g., data cleaning). Quantitative data analysis entailed primarily descriptive statistics (counts and percentages). Responses to open-ended questions were summarized according to themes. Finally, for the six questions measuring community's satisfaction with primary care providers, responses were scored from one to five, with one representing very dissatisfied and five representing very satisfied. Finally, for the six questions measuring community's satisfaction with primary care providers, responses were scored from one to five, with one representing very dissatisfied and five representing very satisfied.

The percentage of missing information per question ranged from zero to 11 percent depending on the question. The questions with highest likelihood of having missing responses were those related to staffing information (11 percent) and facility charges (11 percent). These item nonresponse rates stand favorably compared to national surveys collecting information from similar communities, (e.g., National Study of Long-Term Care Providers) for which highest item non-response rates were over 30 percent for questions related to full-time staff information (Harris-Kojetin, et al, 2016).

Average staff hours per resident per day were computed by multiplying the number of FTE employees for each type of staff by 35 hours, and then multiplying the number of part time employees for each type of staff by 17.5. These two quantities were summed and the total staff hours were then divided by total number of residents which was further divided by seven to provide average staff hours/resident/day. That is, average hours per resident per day = ((FT staff type * 35) + (PT staff type * 17.5))/total number of residents/7

Inflation Adjustments for Trend Data

We calculated all inflation-adjusted dollar values using the Consumer Price Index Inflation Calculator provided by the Bureau of Labor Statistics (BLS). The calculator can be accessed using the following website: https://www.bls.gov/data/inflation_calculator.htm. We adjusted all historical dollar amounts to 2016 dollars. For the 2017 survey, since we asked communities to report on their charges in December 2016, no inflation-adjustment was needed.

Answers to open-ended responses were read and coded by the study team. The number of providers offering comments varied; some did not respond , and others gave more than one answer. The numbers of providers and their responses are noted in the text.

Profession Charges

The calculation of industry charges was inspired by a similar calculation conducted using data from the national survey of residential care communities (Khatutsky et al., 2016), resulting in total estimated industry charges nationally. Our study, focused only on AL, RC and MC in Oregon, uses the following method and data from DHS to reach an estimate for industry charges in Oregon. In the following calculations, the estimated percentage of Medicaid residents was determined by applying the ratio of facilities with a Medicaid contract among respondents with those of non-respondents and assumes the same ratio of residents who are Medicaid beneficiaries. Fewer Medicaid contracts among non-respondents likely results in fewer Medicaid beneficiaries among non-respondent facilities. Rates of respondent facilities were applied to non-respondents for occupancy rate and average monthly private pay charges.

Table A2: Estimated Annual Profession Charges for Oregon AL, RC, MC

Questionnaire Respondent Facilities	AL	RC	MC	Totals
Private Pay				
Total current residents	6,823	1,523	2,873	11,219
- Total current Medicaid beneficiaries	2,660	733	1,201	4,594
= Total of current private pay residents	4,163	790	1,672	6,625
x Average total monthly charge incl. services	\$3,667	\$3,770	\$5,410	
= Total private pay charges	\$15,265,721	\$2,978,300	\$9,045,520	\$27,289,541
Other Facilities in Oregon (non-respondents)				
Private Pay				
Licensed capacity	6,241	3,136	2,914	
x Occupancy rate*	0.79	0.79	0.86	
= Estimated total current residents	4,930	2,477	2,506	9,914
x Estimated % of Medicaid residents ^a	39%	38%	34%	
= Estimated total Medicaid beneficiaries	1,900	930	858	3,688
Estimated total current residents	4,930	2,477	2,506	9,914
- Estimated total Medicaid beneficiaries	1,900	930	858	3,688
= Estimated total private pay residents	3,030	1,547	1,648	
x Average total monthly charge incl. services. ^b	\$3,667	\$3,770	\$5,410	
Total est. charges for private pay residents	11,111,309	\$5,833,739	\$8,918,265	\$25,863,313
Estimated Total Annual Private Pay Charges				\$637,834,250
Total Annual Medicaid Charges Paid (data from DHS)				\$275,535,895
Total Annual Profession Charges				\$913,370,145

Note. AL = assisted living; RC = residential care; MC = memory care community.

^aEstimated proportion of Medicaid residents applies the ratio of facilities with a Medicaid contract among respondents with those of non-respondents and assumes the same ratio of residents who are Medicaid beneficiaries. Fewer Medicaid contracts among non-respondents likely results in fewer Medicaid beneficiaries among non-respondent communities.

^bRate of respondents applied to non-respondents.

Table A3. Average Base Monthly Charge

	AL	RC	MC	Total
	% (n)	% (n)	% (n)	% (n)
Less than \$2,000	5% (7)	9% (5)	0% (0)	4% (12)
\$2,001 to \$4,000	82% (119)	74% (42)	10% (10)	57% (171)
\$4,001 to \$6,000	13% (19)	14% (8)	80% (78)	35% (105)
\$6,001 to \$8,000	0% (0)	2% (1)	7% (7)	3% (8)
\$8,001 or more	0% (0)	2% (1)	2% (2)	1% (3)
Total	100% (145)	100% (57)	100% (97)	100% (299)

Table A4. Average Total Monthly Charge

	AL	RC	MC	Total
	% (n)	% (n)	% (n)	% (n)
Less than \$2,000	3% (4)	2% (1)	0% (0)	2% (5)
\$2,001 to \$4,000	65% (92)	61% (34)	4% (4)	44% (130)
\$4,001 to \$6,000	32% (46)	30% (17)	73% (70)	45% (133)
\$6,001 to \$8,000	0% (0)	5% (3)	21% (20)	8% (23)
\$8,001 or more	0% (0)	2% (1)	2% (2)	1% (3)
Total	100% (142)	100% (56)	100% (96)	100% (294)

Table A5. Monthly Private-Pay Charges by Setting *(Excluding outliers)

	AL	RC	MC
Average base monthly charge	\$3,309	\$3,105	\$4,836
Average total monthly charge (including services)	\$3,767	\$3,656	\$5,333

*A small number of outliers can affect the average. See https://docs.tibco.com/pub/spotfire/7.0.1/doc/html/stat/stat_adjacent_values_and_outliers.htm for a description of how outliers were determined for this analysis.

Appendix B: Additional Tables

Table B1: Percentage of Facilities With At Least One Part-Time or Full-Time Staff, by Employee Category

Employee Category	AL		RC		MC		Total	
	Part-time % (n)	Full-time % (n)						
RN	25% (32)	78% (98)	60% (33)	45% (25)	28% (23)	67% (55)	33% (88)	68% (178)
LPN/LVN	2% (3)	18% (23)	11% (6)	20% (11)	11% (9)	22% (18)	7% (18)	20% (52)
CNA	6% (7)	15% (19)	9% (5)	25% (14)	5% (4)	27% (22)	6% (16)	21% (55)
CMA	6% (7)	17% (21)	5% (3)	13% (7)	5% (4)	12% (10)	5% (14)	14% (38)
Personal Care Staff	59% (74)	94% (118)	73% (40)	85% (47)	62% (51)	96% (79)	63% (165)	93% (244)
Social Workers	2% (3)	3% (4)	5% (3)	11% (6)	1% (1)	2% (2)	3% (7)	5% (12)
Activities Staff	31% (39)	81% (102)	36% (20)	49% (27)	32% (26)	74% (61)	32% (85)	72% (190)

Note. AL = assisted living; RC = residential care; MC = memory care community.

Figure B2: Staff Training Topics Covered in the Prior 12 Months

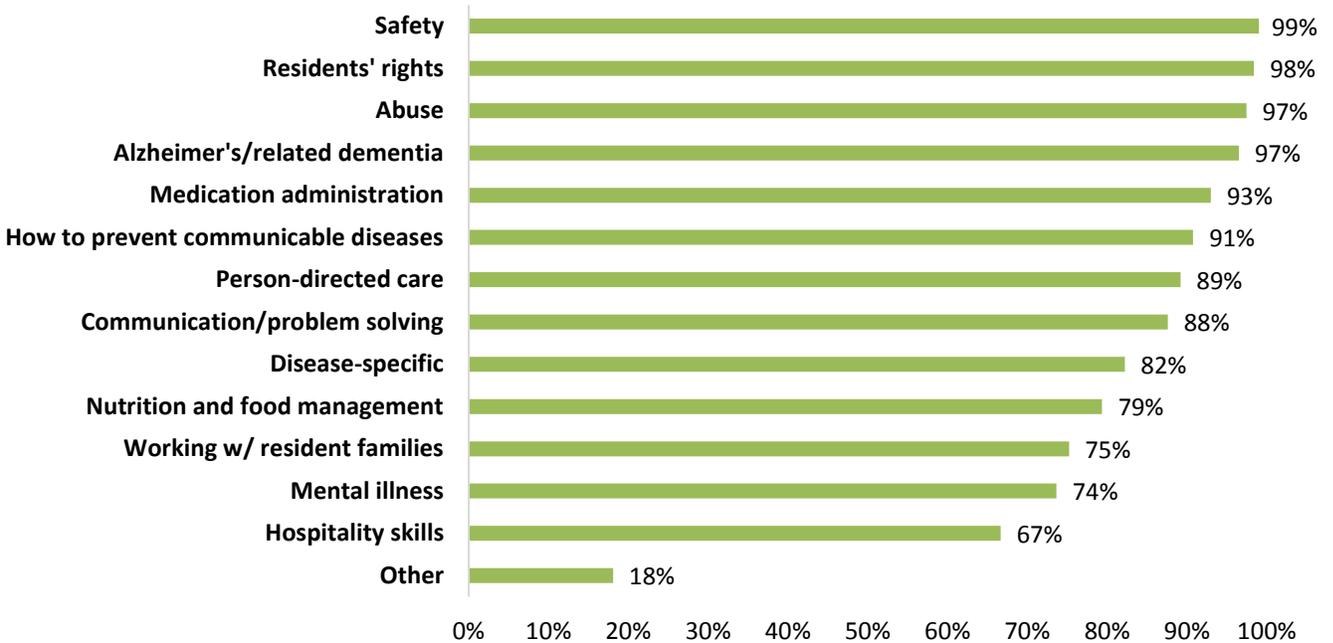
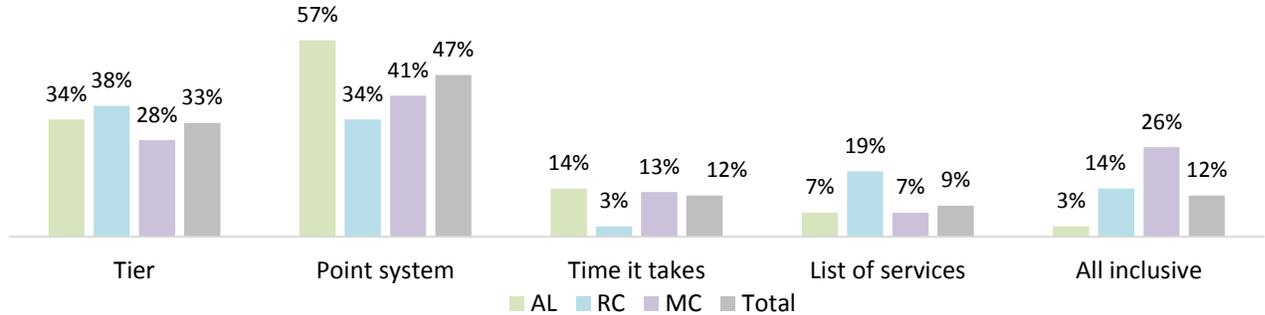


Figure B3: Private Pay Rate Structure



Note: Because 34 facilities (11.5 percent) selected multiple categories the total exceeds 100 percent.

Table B4: Additional Fees for Services

	AL % (n)	RC % (n)	MC % (n)	Total % (n)
Meals regularly delivered to resident's room	81% (107)	31% (19)	20% (18)	51% (144)
Transfer that requires 2 staff	33% (44)	31% (19)	39% (35)	35% (98)
Staff escort resident to medical appointments	30% (40)	39% (24)	30% (27)	32% (91)
Application fee	17% (22)	15% (9)	15% (13)	16% (44)
Transport to recreation	9% (12)	10% (6)	7% (6)	9% (24)
Security/damage deposit	31% (41)	23% (14)	22% (20)	27% (75)
Cleaning deposit	17% (22)	26% (16)	9% (8)	16% (46)
Administrative fee	12% (16)	8% (5)	20% (18)	14% (39)
Community fee	53% (70)	11% (7)	49% (44)	43% (121)
Assessment fee	4% (5)	3% (2)	6% (5)	4% (12)
Use of a pharmacy other than preferred	57% (75)	26% (16)	51% (45)	48% (136)

Note. AL = assisted living (n=132); RC = residential care (n=61); MC = memory care community (89).

Table B5: Gender and Age of Residents

		AL % (n)	RC % (n)	MC % (n)	Total % (n)
Gender					
	Male	27% (1,912)	41% (653)	26% (752)	30% (3,317)
	Female	72% (4,862)	59% (924)	74% (2,130)	70% (7,916)
	Transgender	<1% (1)	<1% (1)	-	<1% (2)
Age Groups					
	<18	-	-	-	-
	18-49	<1% (33)	2% (33)	<1% (2)	1% (68)
	50-64	4% (288)	15% (239)	2% (63)	5% (590)
	65-74	11% (749)	22% (353)	10% (276)	12% (1,378)
	75-84	28% (1,929)	19% (297)	32% (920)	28% (3,146)
	85 and over	56% (3,776)	42% (656)	56% (1,621)	54% (6,053)
Total		6,775	1,578	2,882	11,235

Table B6: Race of Residents

	AL % (n)	RC % (n)	MC % (n)	Total % (n)
Hispanic Latino	1% (54)	2% (30)	2% (45)	1% (129)
American Indian or Alaska Native	1% (55)	1% (19)	<1% (8)	1% (82)
Asian	1% (55)	1% (11)	2% (44)	1% (110)
Black	1% (56)	1% (23)	1% (34)	1% (113)
Native Hawaiian/other Pacific Islander	<1% (20)	1% (17)	<1% (8)	<1% (45)
White	90% (6,124)	86% (1,354)	91% (2,628)	90% (10,106)
Two or more races	<1% (11)	1% (10)	<1% (12)	<1% (33)
Other or Unknown	6% (400)	7% (114)	4% (103)	5% (617)
Total	6,775	1,578	2,882	11,235

Note. AL = assisted living; RC = residential care; MC = memory care community.

Table B7: Move-In and Move-Out Location of Residents

Locations	AL		RC		MC		Total	
	In % (n)	Out % (n)						
	40% (296)	5% (36)	19% (31)	6% (11)	28% (134)	3% (16)	33% (461)	4% (63)
Home of relative	9% (66)	4% (30)	4% (7)	1% (1)	9% (45)	2% (9)	9% (118)	3% (40)
Independent living	12% (90)	2% (15)	17% (28)	2% (4)	5% (23)	<1% (0)	10% (141)	1% (19)
AL/RC	10% (74)	5% (39)	13% (21)	3% (6)	27% (131)	3% (14)	16% (226)	4% (59)
Memory care	1% (11)	11% (85)	2% (3)	6% (11)	9% (43)	6% (29)	4% (57)	9% (125)
Hospital	4% (27)	1% (7)	18% (29)	5% (9)	10% (46)	3% (16)	7% (102)	2% (32)
Adult foster home	1% (9)	4% (27)	3% (5)	4% (7)	4% (19)	3% (15)	2% (33)	3% (49)
Nursing facility	18% (133)	10% (80)	19% (31)	13% (23)	7% (33)	4% (18)	14% (197)	9% (121)
Other	1% (9)	1% (9)	4% (6)	1% (2)	1% (3)	0% (2)	1% (18)	1% (13)
Died	-	56% (427)	-	58% (104)	-	74% (339)	-	62% (870)
Don't know	3% (21)	2% (14)	1% (2)	1% (1)	<1% (1)	<1% (2)	2% (24)	1% (17)
Total	736	769	163	179	478	460	1377	1408

Note. AL = assisted living; RC = residential care; MC = memory care community.

Figure B8: Resident Length of Stay

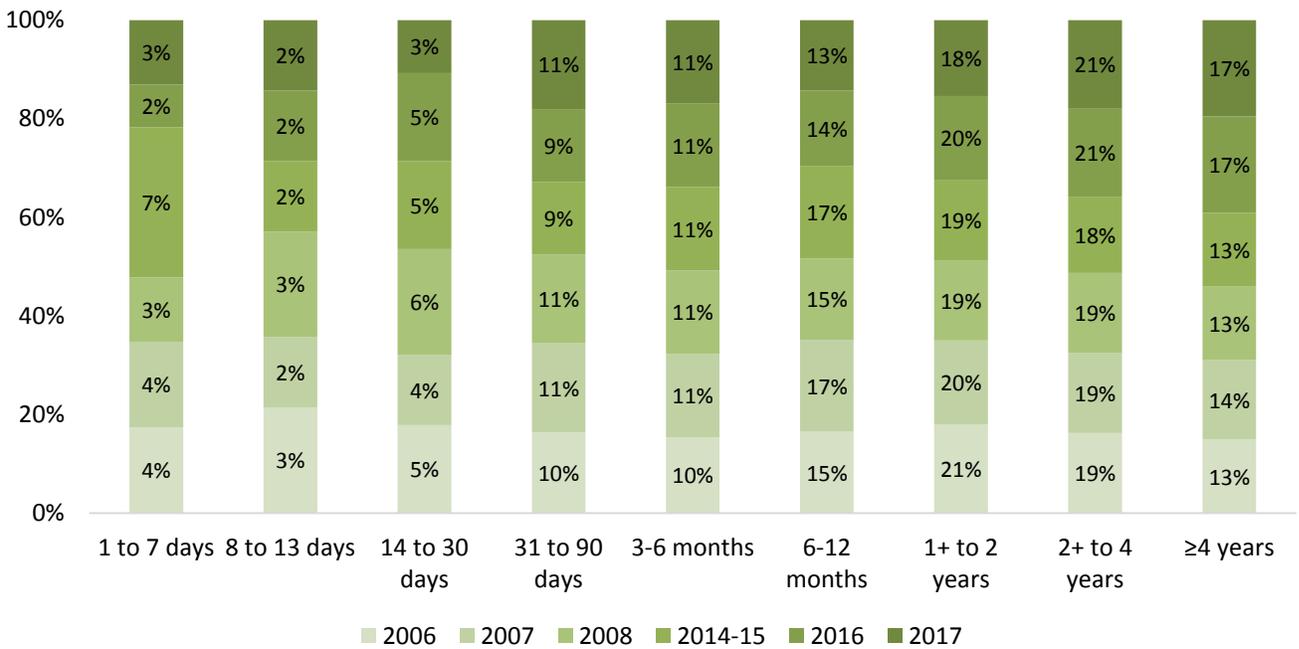


Table B9: Residents Receiving Assistance with Activities of Daily Living

	AL % (n)	RC % (n)	MC % (n)	Total % (n)
Eating	7% (473)	24% (338)	39% (1,115)	18% (1,926)
Dressing	40% (2,629)	56% (803)	79% (2,252)	53% (5,684)
Bathing and/or showering	55% (3,629)	73% (1,050)	91% (2,569)	67% (7,248)
Using the bathroom	33% (2,157)	53% (752)	78% (2,209)	47% (5,118)
Walking/mobility	28% (1,805)	38% (540)	52% (1,477)	35% (3,822)

Table B10: Resident Chronic Conditions

	AL % (n)	RC % (n)	MC % (n)	Total % (n)
Heart disease	42% (2,860)	37% (554)	30% (838)	38% (4,252)
Alzheimer's disease/dementia	27% (1,886)	44% (657)	98% (2,767)	47% (5,310)
High blood pressure/hypertension	55% (3,803)	57% (847)	47% (1,332)	53% (5,982)
Depression	28% (1,954)	35% (529)	33% (925)	30% (3,408)
Serious mental illness (bipolar, schizophrenia)	5% (324)	17% (253)	7% (211)	7% (788)
Diabetes	21% (1,427)	20% (302)	15% (430)	19% (2,159)
Cancer	9% (606)	7% (104)	7% (201)	8% (911)
Osteoporosis	19% (1,321)	20% (294)	21% (581)	20% (2,196)
COPD and allied conditions	15% (998)	17% (255)	11% (322)	14% (1,575)
Current drug and/or alcohol abuse	2% (138)	3% (49)	<1% (13)	2% (200)
Intellectual/developmental disability	2% (107)	2% (29)	1% (28)	1% (164)
Arthritis	37% (2,546)	33% (497)	27% (764)	34% (3,807)
Traumatic brain injury	2% (121)	5% (81)	2% (58)	2% (260)

Note. AL = assisted living; RC = residential care; MC = memory care community.

Table B11: Resident Falls by Setting

	AL % (n)	RC % (n)	MC % (n)	Total % (n)
Residents with zero falls	73% (3,531)	72% (763)	56% (1,206)	68% (5,500)
Residents who fell one time	15% (724)	17% (182)	21% (451)	17% (1,357)
Residents who fell more than one time	12% (595)	11% (117)	23% (492)	15% (1,204)
Total	4,850	1,062	2,149	8,061

Note. AL = assisted living; RC = residential care; MC = memory care community.

Table B12: Falls Resulting in Injury or Hospitalization

	AL % (n)	RC % (n)	MC % (n)	Total % (n)
Fall resulting in some kind of injury	35% (461)	27% (82)	40% (381)	36% (924)
Fall resulting in hospital visit	18% (242)	15% (44)	15% (140)	17% (426)

Table B13: Health Service Utilization by Setting

	AL % (n)	RC % (n)	MC % (n)	Total % (n)
Treated in a hospital emergency room (ER) in the last 90 days	17% (1,072)	17% (201)	17% (441)	17% (1,714)
Discharged from an overnight hospital stay in the last 90 days	9% (548)	10% (117)	9% (234)	9% (899)
Went back to the hospital within 30 days	31% (168)	28% (33)	18% (43)	27% (244)
Received hospice care in the last 90 days	6% (349)	8% (96)	12% (297)	8% (742)

Table B14: Medication Usage and Assistance by Setting

	AL % (n)	RC % (n)	MC % (n)	Total % (n)
No medication/injection	2% (127)	1% (11)	1% (23)	1% (161)
Nine or more medications	56% (3,635)	63% (903)	56% (1,604)	57% (6,142)
Antipsychotic medication	17% (1,070)	33% (478)	47% (1,362)	27% (2,910)
Self-administer most medications	13% (872)	4% (57)	1% (18)	9% (947)
Receive assistance to take oral medications	71% (4,572)	83% (1,201)	96% (2,781)	79% (8,554)
Receive assistance with subcutaneous injection medications	11% (711)	10% (140)	5% (131)	9% (982)
Receive injections for a licensed nurse	2% (119)	2% (36)	2% (60)	2% (215)
Receive nurse treatments from a licensed nurse	5% (338)	8% (116)	8% (227)	6% (681)

Appendix C: References

- Alzheimer's Association. (2017). Health Care Professionals and Alzheimer's: Cognitive Assessment. Retrieved from: <http://www.alz.org/health-care-professionals/cognitive-tests-patient-assessment.asp>
- Alzheimer's Association. (2016). 2016 Alzheimer's Disease Facts and Figures. *Alzheimer's & Dementia* 12(4). Retrieved from: http://www.alz.org/documents_custom/2016-facts-and-figures.pdf.
- Alzheimer's Association. (2015). Early Detection and Diagnosis of Alzheimer's Disease. Retrieved from: <https://www.alz.org/publichealth/downloads/policy-brief.pdf>
- Becker, M., Boaz, T., Andel, R., & DeMuth, A. (2012). Predictors of avoidable hospitalizations among assisted living residents. *Journal of the American Medical Directors Association*, 13(4), 355-359.
- Beeber, A. S., Zimmerman, S., Reed, D., Mitchell, C. M., Sloane, P. D., Harris-Wallace, B., & Schumacher, J. G. (2014). Licensed nurse staffing and health service availability in residential care and assisted living. *Journal of the American Geriatrics Society*, 62(5), 805-811. Black, C.L., Yue, X., Ball, S.W., et al. 2014. Influenza vaccination coverage among health care personnel – United States, 2013-2014 influenza season. *MMWR* 2014;63:805-827.
- Bureau of Labor Statistics. (2017). CII Inflation Calculator. Retrieved from: https://www.bls.gov/data/inflation_calculator.htm
- Caffrery, C., Sengupta, M., Park-Lee, E., Moss, A., Rosenoff, E., & Harris-Kojetin, L. (2012). Residents living in residential care facilities, United States, 2010. Washington, DC: National Center for Health Statistics. Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db91.pdf>.
- Caffrey, C., Harris-Kojetin, L., Rome, V., & Sengupta, M. (2014). Operating characteristics of residential care communities by community bed size: United States, 2012. Retrieved from: <http://www.cdc.gov/nchs/data/databriefs/db170.pdf>
- Centers for Disease Control and Prevention (CDC). (2017). Costs of Falls Among Older Adults. Retrieved from: <https://www.cdc.gov/homeandrecreationalafety/falls/fallcost.html>.
- Centers for Disease Control and Prevention (CDC). (2017). What is the burden of Alzheimer's disease in the United States. Retrieved from: <https://www.cdc.gov/aging/aginginfo/alzheimers.html>.
- Centers for Disease Control and Prevention (CDC). (2013). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.
- CMS (Center for Medicare & Medicaid Services). (2013). MDS 2.0 Public Quality Indicator and Resident Reports. Baltimore, MD: Centers for Medicare & Medicaid Services. Retrieved from <https://www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/MDSPubQlandResRep/index.html?redirect=/MDSPubQlandResRep/>

- CMS (Center for Medicare & Medicaid Services). (2014). CMS Manual System: Pub 100-02 Medicare Benefit Policy. Retrieved from: <https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R192BP.pdf>.
- CMS (Center for Medicare & Medicaid Services). (2015). Atypical antipsychotic medications: use in adults. Retrieved from <https://www.cms.gov/Medicare-Medicaid-Coordination/Fraud-Prevention/Medicaid-Integrity-Education/Pharmacy-Education-Materials/Downloads/atyp-antipsych-adult-factsheet11-14.pdf>
- CMS (Center for Medicare & Medicaid Services). (2017). Code of Federal Regulations: 431.53 Assurance of transportation. Retrieved from: <https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=cdb6a478293ced6a5371b84531517f63&rgn=div8&view=text&node=42:4.0.1.1.2.2.10.5&idno=42>
- CMS (Center for Medicare & Medicaid Services). (2016). Let Medicaid Give You a Ride. Retrieved from: <https://www.cms.gov/medicare-medicaid-coordination/fraud-prevention/medicaid-integrity-education/downloads/nemt-factsheet.pdf>
- Department of Human Services (2015). Long-term care 3.0/Senate Bill 21. Retrieved from <http://www.oregon.gov/DHS/SENIORS-DISABILITIES/LTC/LTC30/Pages/index.aspx>
- Department of Human Services, Oregon Health Authority Addictions and Mental Health (2015). Joint Report on Mental Health Services for Seniors and People with Disabilities. Retrieved from: <https://www.oregon.gov/DHS/ABOUTDHS/DHSBUDGET/20152017%20Budget/joint-report-mhs-spd.pdf>
- Department of Human Services, Aging and People with Disabilities, Oregon Administrative Rules. (2010). Residential Care and Assisted Living Facilities. Retrieved from: http://www.dhs.state.or.us/policy/spd/rules/411_054.pdf.
- Department of Human Services, Seniors and People with Disabilities Division, Oregon Administrative Rules. (2010) Memory Care Communities. Retrieved from: https://www.dhs.state.or.us/policy/spd/rules/411_057.pdf.
- Department of Human Services, Seniors and People with Disabilities Division, Oregon Health Authority. (2015) Joint Report on Mental Health Services for Seniors and People with Disabilities. Retrieved from: <https://www.oregon.gov/DHS/ABOUTDHS/DHSBUDGET/20152017%20Budget/joint-report-mhs-spd.pdf>
- Duda, A. (2016). Five tips for team building. Retrieved from: <https://www.pioneernetwork.net/test-post-1/#>
- Dwyer, L.L. Han., B., Woodwell, D.A., & Rechtsteiner, E.A., (2010). Polypharmacy in nursing home residents in the United States: Results of the 2004 National Nursing Home Survey. *American Journal of Geriatric Pharmacotherapy*, 8(1), 63-72.
- FDA (Food and Drug Administration). (2008). FDA requests black box warnings on older class of antipsychotic drugs. Retrieved from <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2008/ucm116912.htm>

- Federal Interagency Forum on Aging-Related Statistics. Older Americans 2012: Key Indicators of Well-Being. (2012) Federal Interagency Forum on Aging-Related Statistics. Washington, DC: U.S. Government Printing Office.
- Genworth. (2016). Compare long-term care costs across the United States. Retrieved from: .
- Harris-Kojetin L., Sengupta M., Park-Lee E., et al. (2016). Long-term care providers and services users in the United States: Data from the National Study of Long-Term Care Providers, 2013–2014. (2016). National Center for Health Statistics. Vital Health Stat 3(38). Retrieved from: https://www.cdc.gov/nchs/data/series/sr_03/sr03_038.pdf
- Harris-Kojetin L., Lipson, D., Fielding, J., Kiefer, K., Stone, R. (2004). Recent findings on frontline long-term care workers; a research synthesis. Washington, DC: DHHS. Retrieved from: <https://aspe.hhs.gov/basic-report/recent-findings-frontline-long-term-care-workers-research-synthesis-1999-2003>.
- IOM (Institute of Medicine). (2008). *Retooling for an aging America: Building the health care workforce*. Washington, DC: The National Academics Press.
- Joint Commission (2010). National Patient Safety Goals. Retrieved from: https://www.jointcommission.org/assets/1/6/2009_LTC_Overview_Combio_10_30_09.pdf.
- Khatutsky G., Ormond C., Wiener J.M., Greene A.M., Johnson R., Jessup E.A., Vreeland E., Sengupta M., Caffrey C., & Harris-Kojetin L. (2016). Residential care communities and their residents in 2010: A national portrait. DHHS Publication No. 2016-1041. Hyattsville, MD: National Center for Health Statistics.
- Mirelman, A., Herman, T., Brozgol, M., Dorfman, M., Sprecher, E., Schweiger, A., ... & Hausdorff, J. M. (2012). Executive function and falls in older adults: new findings from a five-year prospective study link fall risk to cognition. *PLoS one*, 7(6), e40297.
- NCAL (National Center for Assisted Living). (2015). The quality initiative for assisted living. Retrieved from <https://www.ahcancal.org/ncal/quality/qualityinitiative/Pages/default.aspx>
- NIH (National Institute on Health). (2017). NIH Senior Health; Falls and Older Adults. Retrieved from: <https://nihseniorhealth.gov/falls/aboutfalls/01.html>.
- National Investment Center (2017). Seniors housing occupancy falls to lowest rates since mid-2013. Retrieved from <http://www.nic.org/news-press/seniors-housing-occupancy-falls-lowest-rate-since-mid-2013/>
- NIMH (National Institute of Mental Health). (2017) Older adults and mental health. Retrieved from: <https://www.nimh.nih.gov/health/topics/older-adults-and-mental-health/index.shtml>
- Office of Disease Prevention and Health Promotion (ODPHP). (2015). *Healthy People 2020*. Department of Health and Human Services. Washington, DC: U.S. Retrieved from: <https://www.healthypeople.gov/>
- Office of the Inspector General (OIG). (2016). Medicare hospices have financial incentives to provide care in assisted living facilities. Washington, DC: OIG. Retrieved from: <https://oig.hhs.gov/oei/reports/oei-02-14-00070.pdf>

- Oliver, D., Healy, F., & Haines, T.P. (2010). Preventing falls and fall-related injuries in hospitals. *Clinical Geriatric Medicine*, 26(4), 645-692.
- Oregon Center for Nursing. (2016). *The demand for nursing professionals in Oregon*. Retrieved from <http://oregoncenterfornursing.org/wp-content/uploads/2014/09/2016-OCN-TheDemandforNursingProfessionals-Web-NEW.pdf>.
- Oregon Department of Human Services. (2017). Rate Schedule. Retrieved April 8, 2017, from <http://www.dhs.state.or.us/spd/tools/program/osip/rateschedule.pdf>.
- Oregon Department of Human Services. (n.d.) Long-term care 3.0/senate bill 21 steering committee. Retrieved May 25, 2016, from: <http://www.oregon.gov/dhs/seniors-disabilities/LTC/LTC30/Pages/index.aspx>.
- Oregon Health Authority. (2016) Medical Transportation Services Administrative Rulebook, Chapter 410, Division 136. Retrieved from: <https://www.oregon.gov/oha/healthplan/Policies/136rb010116.pdf>
- Rome V., & Harris-Kojetin L.D. Variation in residential care community nurse and aide staffing levels: United States, 2014. (2016). National health statistics reports; no 91. Hyattsville, MD: National Center for Health Statistics.
- Rosenblatt, A., Samus, Q. M., Steele, C. D., Baker, A. S., Harper, M. G., Brandt, J., & Lyketsos, C. G. (2004). The Maryland Assisted Living Study: Prevalence, recognition, and treatment of dementia and other psychiatric disorders in the assisted living population of central Maryland. *Journal of the American Geriatrics Society*, 52(10), 1618-1625.
- Sousa, R. M., Ferri, C. P., Acosta, D., Albanese, E., Guerra, M., Huang, Y., & Rodriguez, M. C. (2009). Contribution of chronic diseases to disability in elderly people in countries with low and middle incomes: a 10/66 Dementia Research Group population-based survey. *The Lancet*, 374(9704), 1821-1830.
- Tilly, J., & Reed, P. (2009). Dementia Care Practice Recommendations for Assisted Living Residences and Nursing Homes. Retrieved from: https://www.alz.org/national/documents/brochure_DCPRphases1n2.pdf
- United States Census Bureau. (2017). American FactFinder. Retrieved from: <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>
- van der Wardt, V., Logan, P., Hood, V., Booth, V., Masud, T., & Harwood, R. (2015). The association of specific executive functions and falls risk in people with mild cognitive impairment and early-stage dementia. *Dementia and geriatric cognitive disorders*, 40(3-4), 178-185.
- Wiener, J. M., Feng, Z., Coots, L. A., & Johnson, R. (2014). What is the effect of dementia on hospitalization and emergency department use in residential care Facilities? RTI.
- Young, H. M., Sikma, S. K., Reinhard, S. C., McCormick, W. C., & Cartwright, J. C. (2013). Strategies to promote safe medication administration in assisted living settings. *Research in Gerontological Nursing*, 6(3), 161-170.

Zimmerman D. R., Karon S. L., Arling G., Clark B. R., Collins T., Ross R., & Sainfort F. (1995). Development and testing of nursing home quality indicators. *Health Care Financing Review* 16:107-127.

Zimmerman, S., Sloane, P. D., & Reed, D. (2014). Dementia prevalence and care in assisted living. *Health Affairs*, 33(4), 658-666.