

# An Analysis of Longevity Among Senior Housing Residents

Research funded by the National Investment Center on Seniors Housing & Care (NIC)

Final Report

Spring 2024



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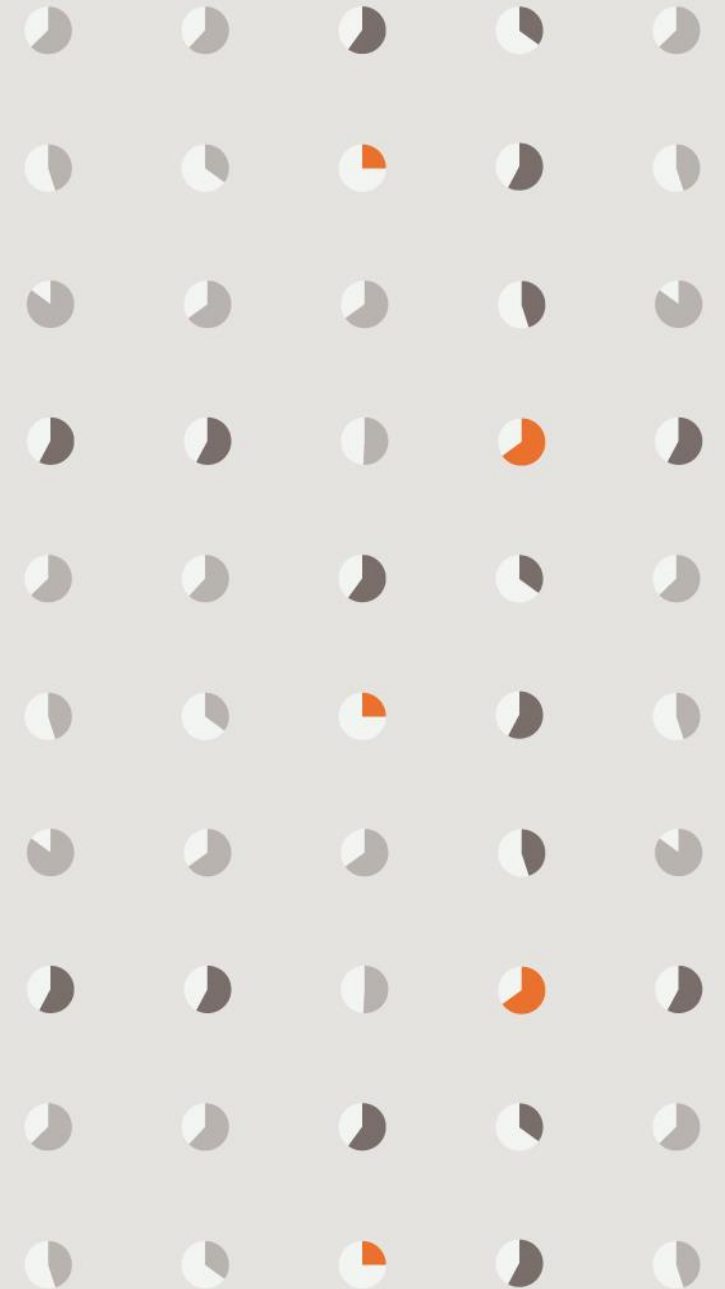
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## This research seeks to understand how moving into senior housing impacts longevity outcomes of residents compared to outcomes of older adults living in the community

- Senior housing has the potential to support both the **housing and healthcare needs** of vulnerable older adults.
- People move into senior housing for a multitude of reasons, often because they've become medically complex and **can no longer live independently**. Changes in relationship dynamics and living situations, like widowhood or dependents moving away, also impact older adults' ability to live independently.
- This is a **vulnerable time for older adults**—characterized by an increase in frailty, adverse health events, and a higher risk of mortality.
- Previous NORC analyses found that older adults who move into senior housing **experience decreased vulnerability and increased access to physician services**. This longevity analysis was designed to understand the relationship between move-in to senior housing and longevity-related outcomes for older adults.

The National Investment Center on Senior Housing & Care (NIC) commissioned NORC at the University of Chicago (NORC) to assess the relationship between senior housing and longevity outcomes for older adults

- NORC conducted a comparative analysis of **mortality, days away from home** due to adverse health events, and **preventative and rehabilitative health services days** to understand the impact of senior housing on longevity—the length and quality of older adults’ lives.
- The study **focuses on older adults who moved into senior housing properties in 2017** and resided in properties until their death, or the end of the two-year study period. We tracked individuals for **two years (730 days) following their move-in date**. *This study does not analyze longevity outcomes of residents who resided in senior housing properties before 2017. Furthermore, findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.*
- Individuals who moved into senior housing properties (“senior housing residents”) were **matched with a comparable non-congregate population** (“non-congregate peer group”) based on age, gender, frailty (claims-based frailty) level groups, and select chronic conditions.

Our research study builds a holistic picture of longevity for older adults who have recently moved into senior housing communities

***“Age is not a disease, it's a state to which we aspire.” Longevity is not just about adding years to life but enriching those years with health, happiness, and fulfillment.<sup>1</sup>***

### **Mortality**

Risk of death during the study period.

### **Days Alive**

Time-to-death, or until the end of the 2-year study period.



### **Days Away**

Days spent in a hospital, skilled nursing facility (SNF), or on antipsychotic medication(s).\*

### **Preventative and Rehabilitative Health Services**

Days receiving E&M care, nursing, therapy, or other home health.

<sup>1</sup> Andrew Huberman, Ph. D., a distinguished Stanford University neuroscientist and longevity expert; [Source](#).

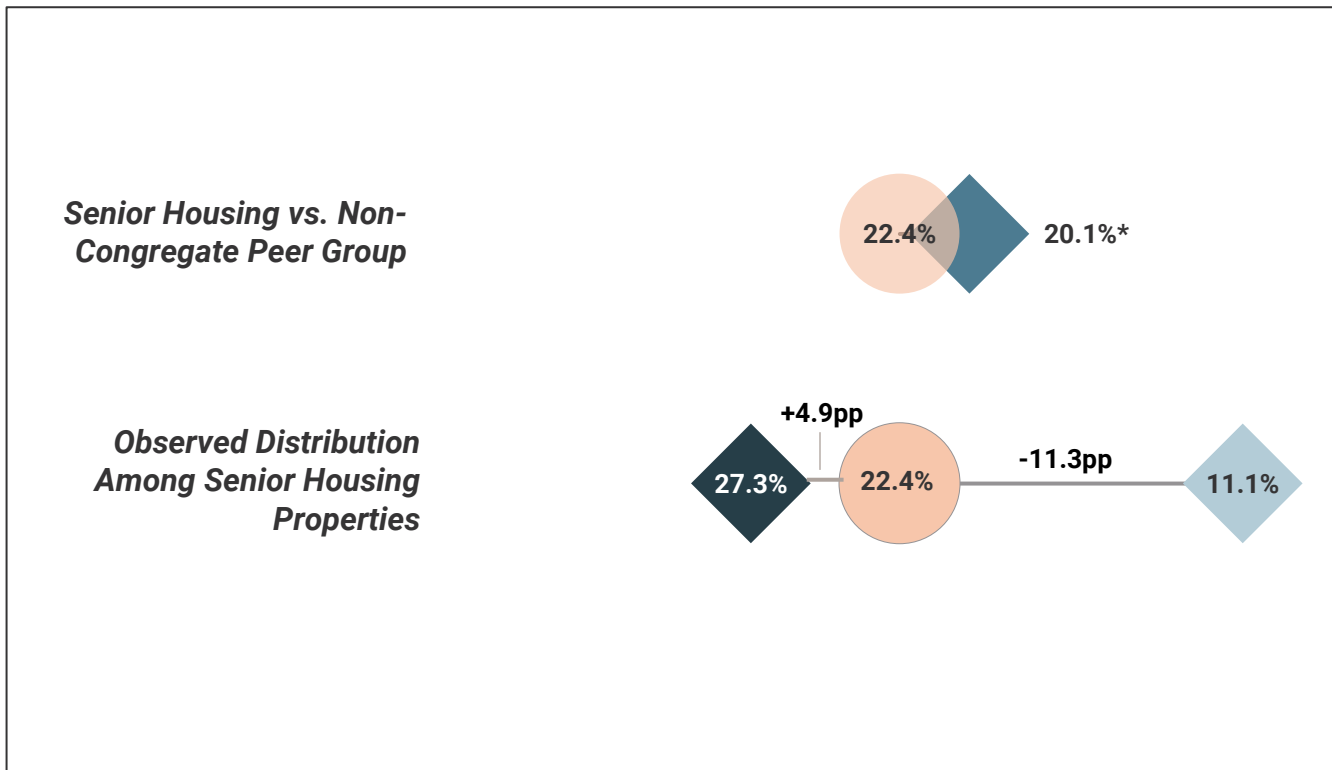
\* See appendix for full list of antipsychotic drugs included in the study.

# Executive Summary

1. The Longevity study tracks longevity outcomes for **individuals who moved into a senior housing property** in 2017 for two years (2017-2019, or until death) compared with a matched community-dwelling peer group.<sup>1</sup>
2. On average, senior housing residents **experience greater longevity** than the non-congregate comparison group in the first two years following move-in across all but one measure, overall and by setting.
3. Furthermore, senior housing residents **receive more preventative and rehabilitative care** in the first two years following move-in, compared with community-dwelling peers.
4. There is **wide distribution across private pay senior housing properties**; further research is necessary to parse out the driving factors of this observed variation.

<sup>1</sup> Please see Appendix for details about the methodology, data sources, and study limitations.

By property-level average and among those who moved into a senior housing property, senior housing residents have a **lower** mortality rate than their non-congregate peer group



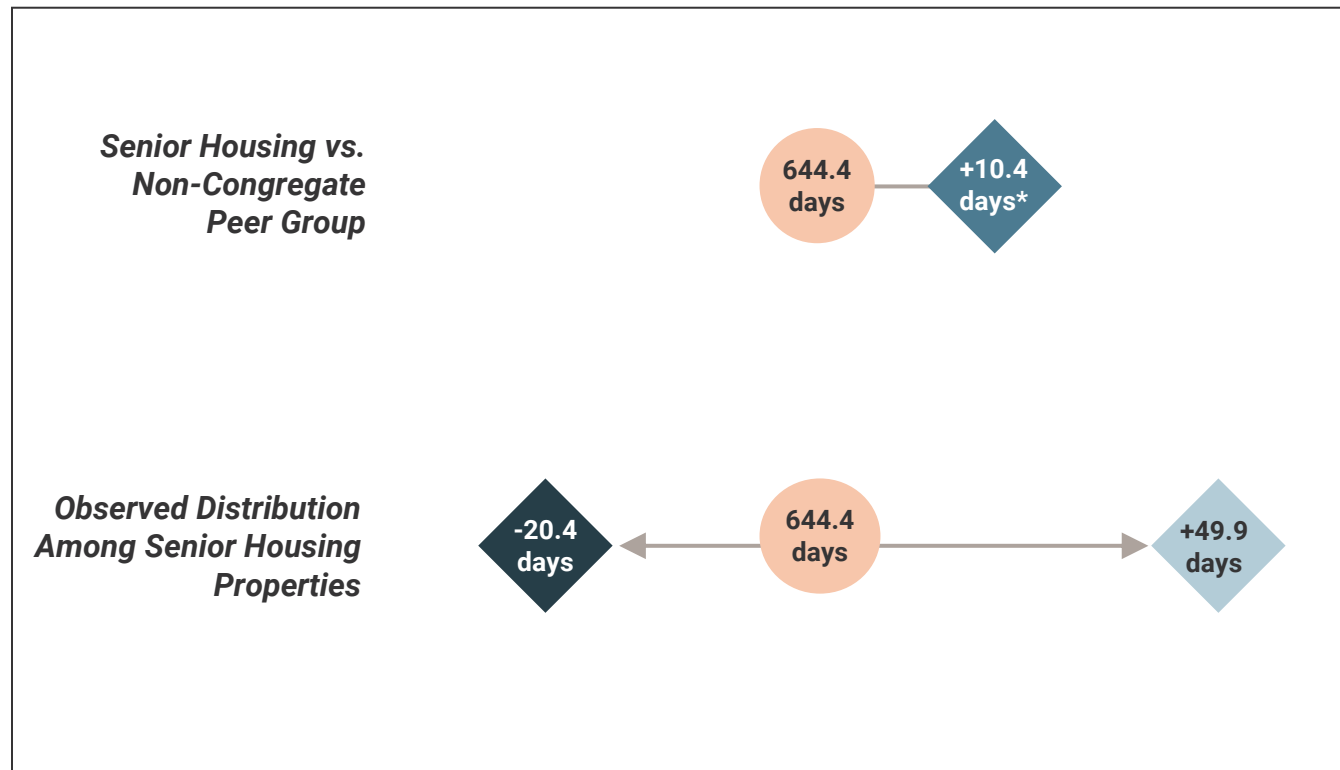
There is wide distribution of property-level mortality: **top-quartile properties have a mortality rate below 11.1%**, while bottom-quartile properties have a mortality rate greater than 27.3%.

◆ Senior Housing Properties ● Matched non-Congregate Peer Group — % point (pp) difference

\* Statistically significant at the 99 percent confidence level  
Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

Consistent with mortality rates in the two years following move-in to congregate settings, senior housing residents **outlive** their community-dwelling peer group by more than a week on average



Residents in top-quartile properties live **70 days longer** than bottom-quartile properties.

◆ Senior Housing Properties    ● Matched non-Congregate Peer Group

\* Statistically significant at the 99 percent confidence level  
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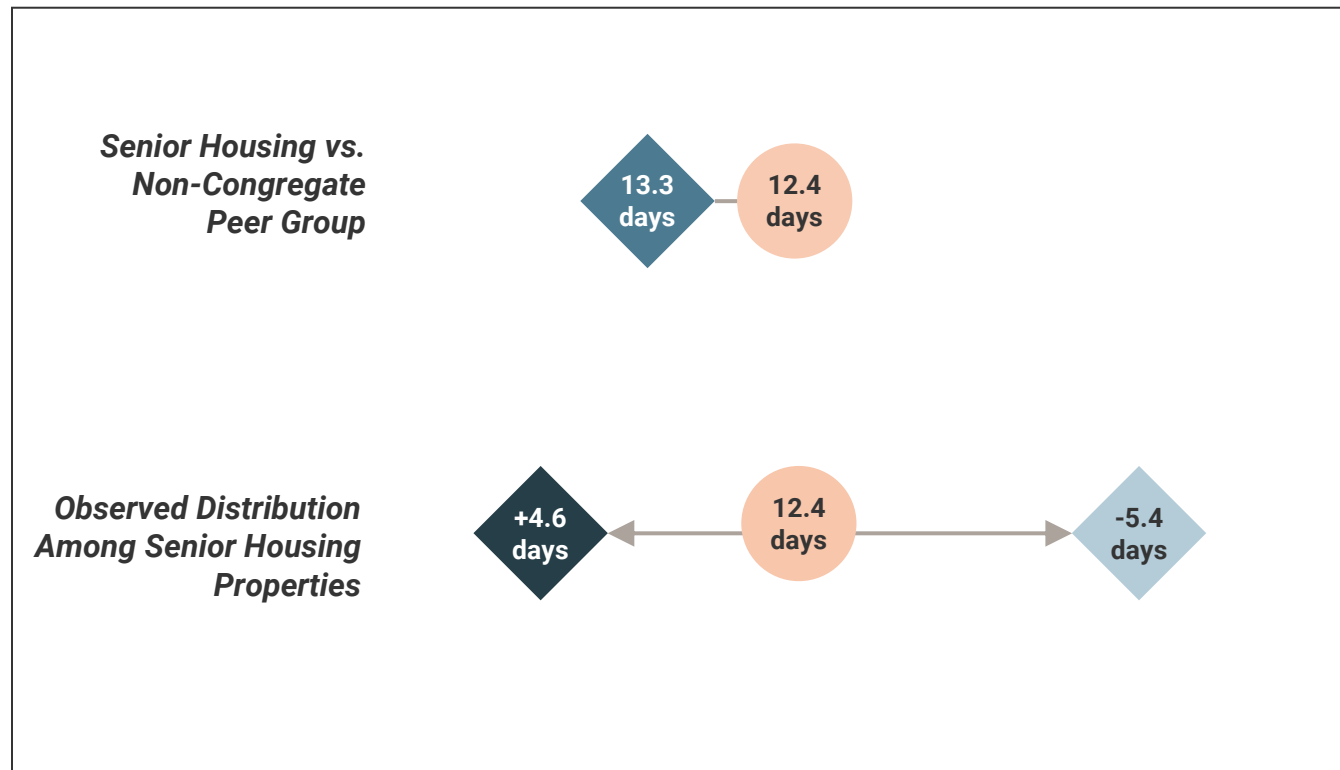
As individuals age and experience significant changes in their support structures, the risk of experiencing adverse events increases

**Adverse events are likely to occur in this aging population**, leading to “days away” from home to receive high-acuity care.

"Days away" is defined as **time spent in a hospital, in a skilled nursing facility (SNF) setting**, or on **anti-psychotic medication**.

Notably, **70 percent of senior housing properties outperform the non-congregate average for anti-psychotic prescription drug usage**. This result signals a commitment among senior housing properties to promoting residents' well-being through **intentional medication management**.

# Senior housing residents and older adults in the community experience **comparable** days away from home for medical care



This difference of **10 days away due to adverse events** between the top and bottom quartiles of senior housing properties is noteworthy since hospital and SNF stays are very costly to payers and residents

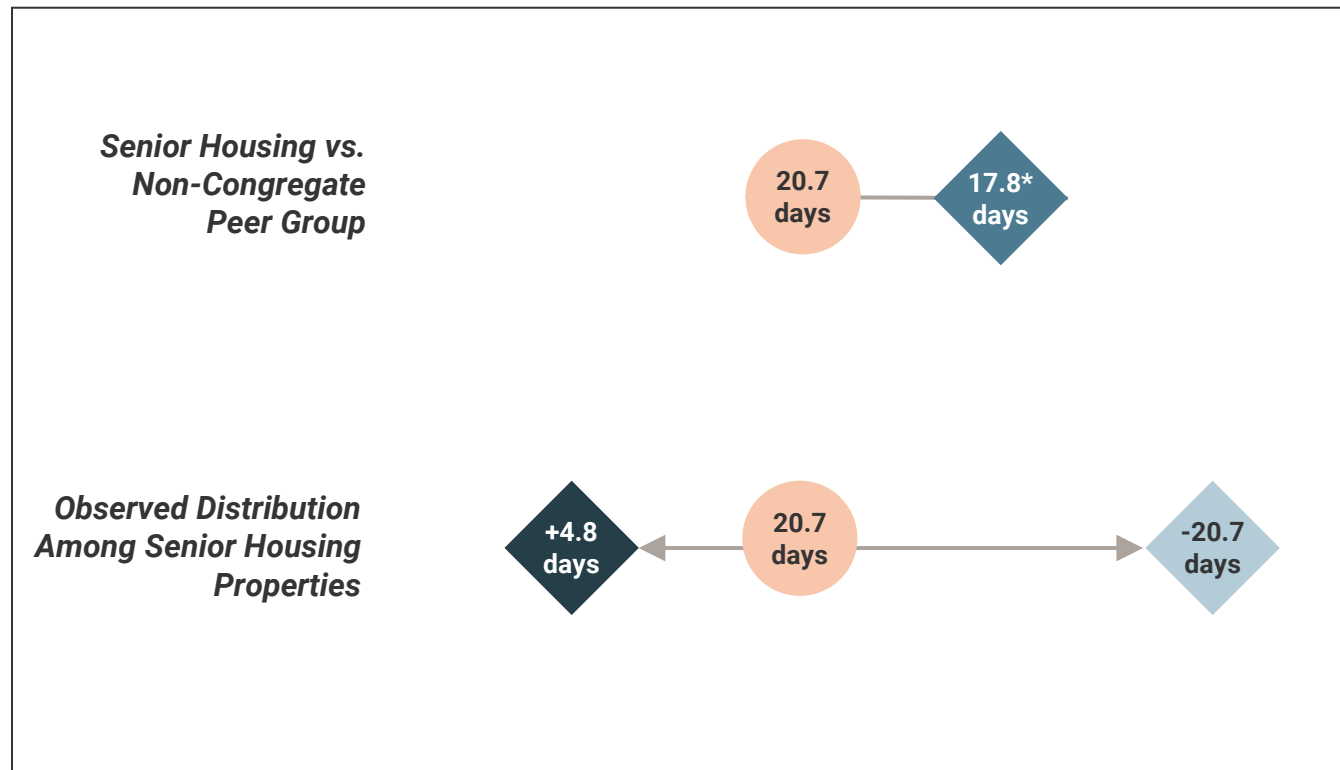
◆ Senior Housing Properties    ● Matched non-Congregate Peer Group

Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

# Senior housing residents spend **less days** on anti-psychotic medications<sup>+</sup> than older adults who live in the community

<sup>+</sup>For the full list of anti-psychotic medications, see slides 31 and 32



Residents in the top quartile of properties accrued **25.5 fewer days on antipsychotic medications** than residents in the bottom quartile properties.

◆ Senior Housing Properties    ● Matched non-Congregate Peer Group

<sup>\*</sup> Statistically significant at the 99 percent confidence level  
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NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

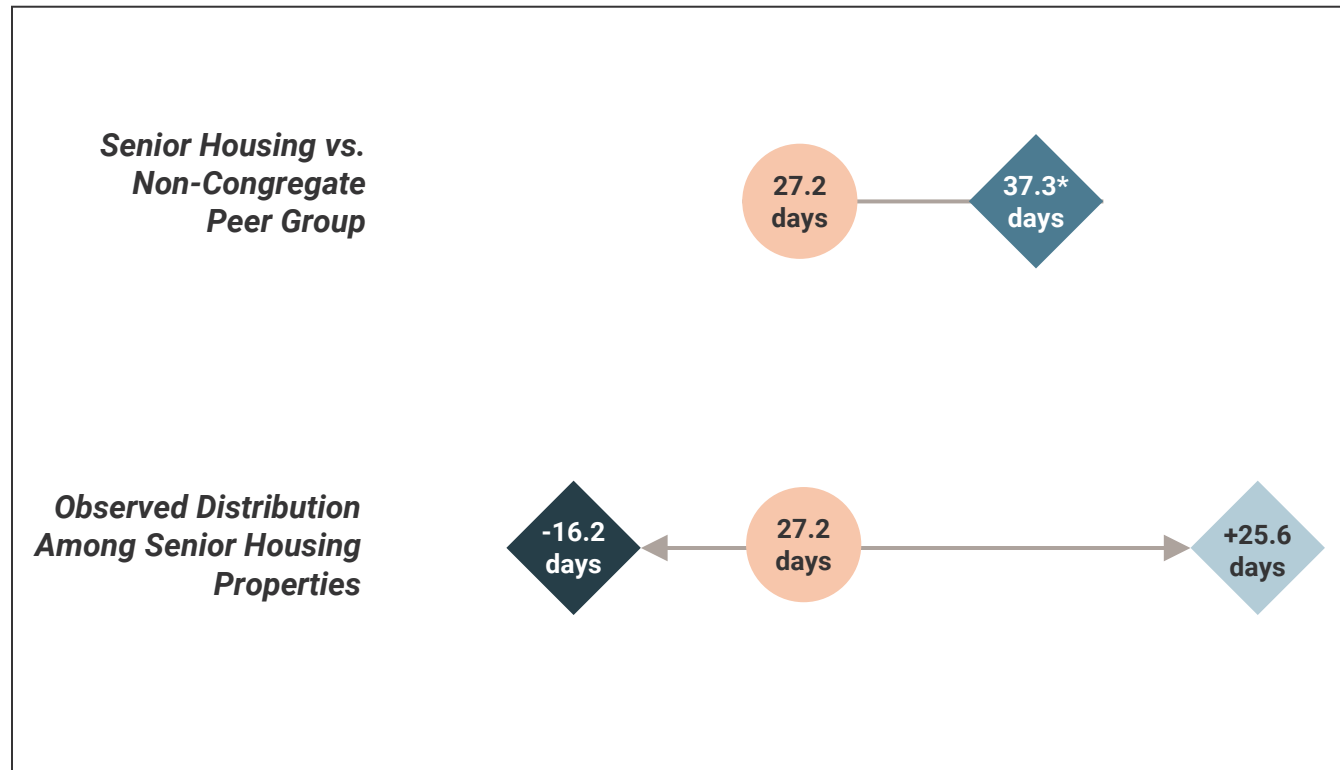
Senior housing operators have an opportunity to increase access to, and provision of, preventative and rehabilitative services

As the proportion of America's older adults increases, there is a **growing demand for comprehensive health and wellness support** within senior housing.

Operators can capitalize on the growing demand and **strengthen the appeal of senior housing properties** by differentiating the scope of preventative health services available in their community relative to what's available to community-dwelling older adults.

Property-level differences across longevity measures highlight opportunities for improvement, and **opportunities for senior housing operators to share best practices** that may improve the overall health and satisfaction of senior housing residents.

More than half of senior housing properties studied have **higher rates** of home health use than their non-congregate peers



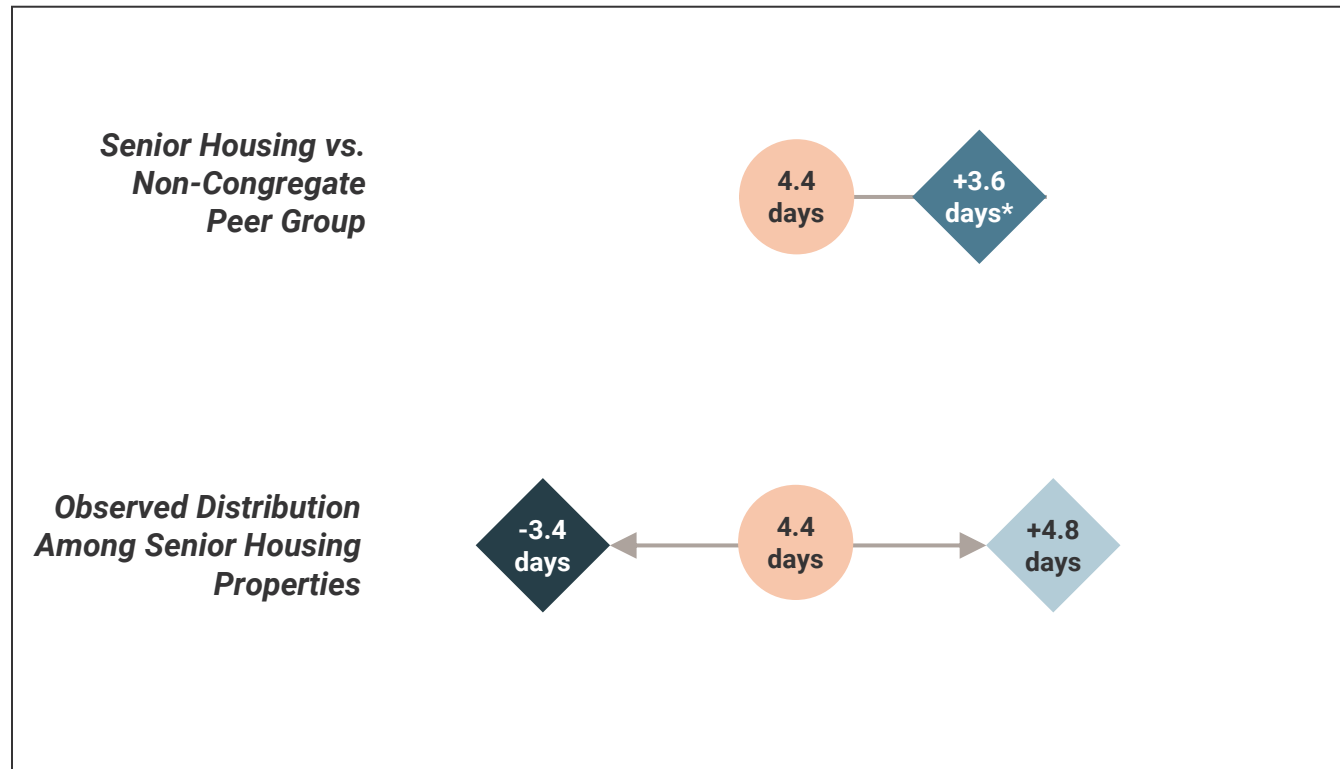
Senior housing residents in the top quartile of properties spent **more than 40 days receiving home health care** compared to their peers in the bottom quartile of properties.

◆ Senior Housing Properties    ● Matched non-Congregate Peer Group

\* Statistically significant at the 99 percent confidence level  
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NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

Senior housing residents receive **almost four more** rehabilitative and preventative service days than older adults in the community



Residents in the top quartile of properties accrued more than **a week of additional preventative and rehabilitative health service days** than beneficiaries in the bottom quartile of properties.

◆ Senior Housing Properties    ● Matched non-Congregate Peer Group

\* Statistically significant at the 99 percent confidence level  
Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.


NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.



# Thank you.

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 Research You Can Trust™

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 **NORC** at the  
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Chicago

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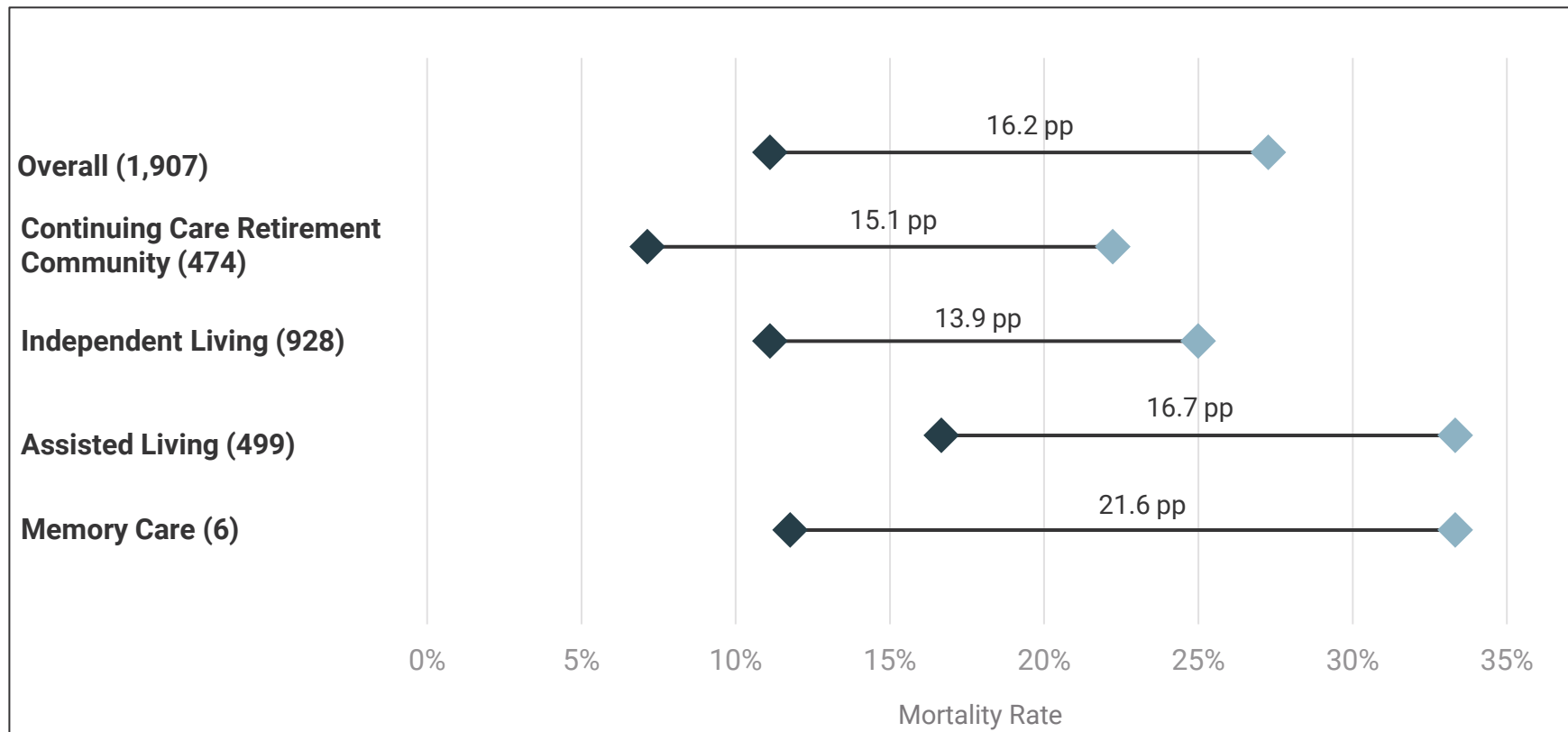
# Appendix



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# Property Level Results

Overall, senior living properties exhibit a 16-percentage point (pp) variation in mortality rates between top and bottom quartiles



Assisted Living (AL) and Memory Care (MC) properties exhibit large variation in mortality rates.

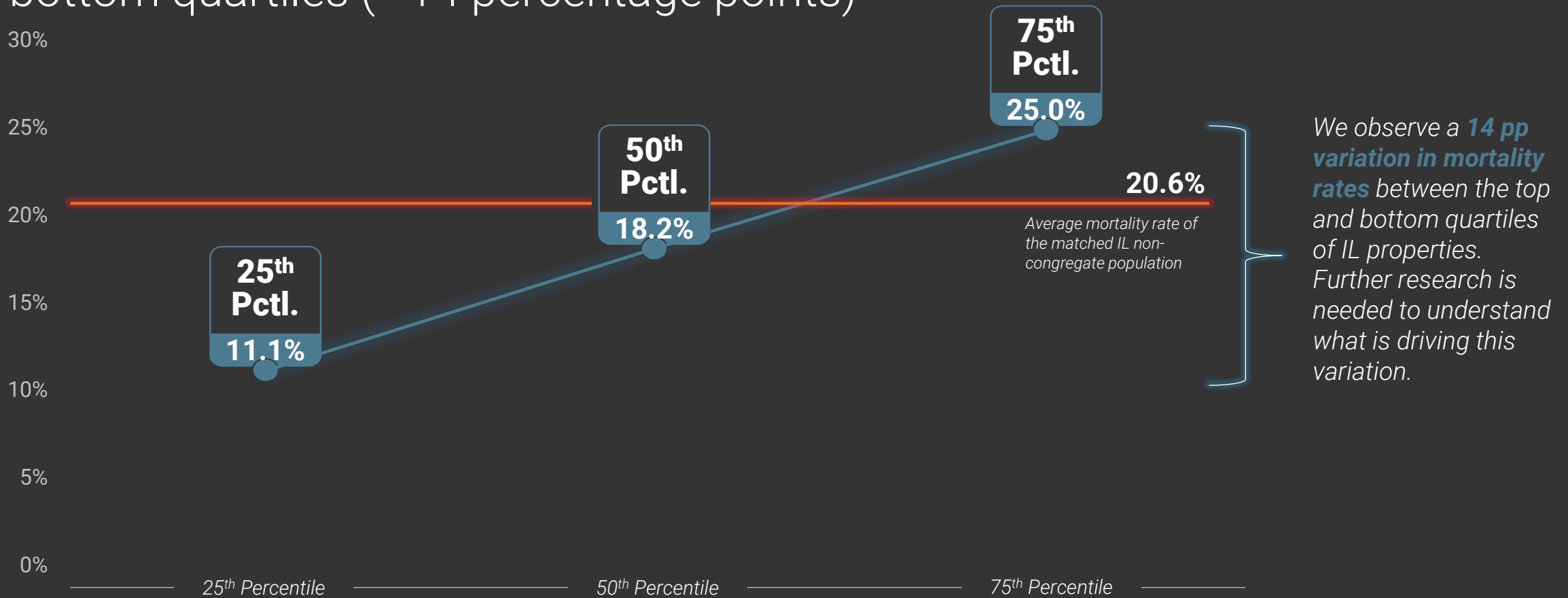
The bottom quartile of both AL and MC properties have a **two-year mortality rate greater than 33%.**

Senior Housing Properties ◆ 25<sup>th</sup> Percentile ◆ 75<sup>th</sup> Percentile

Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

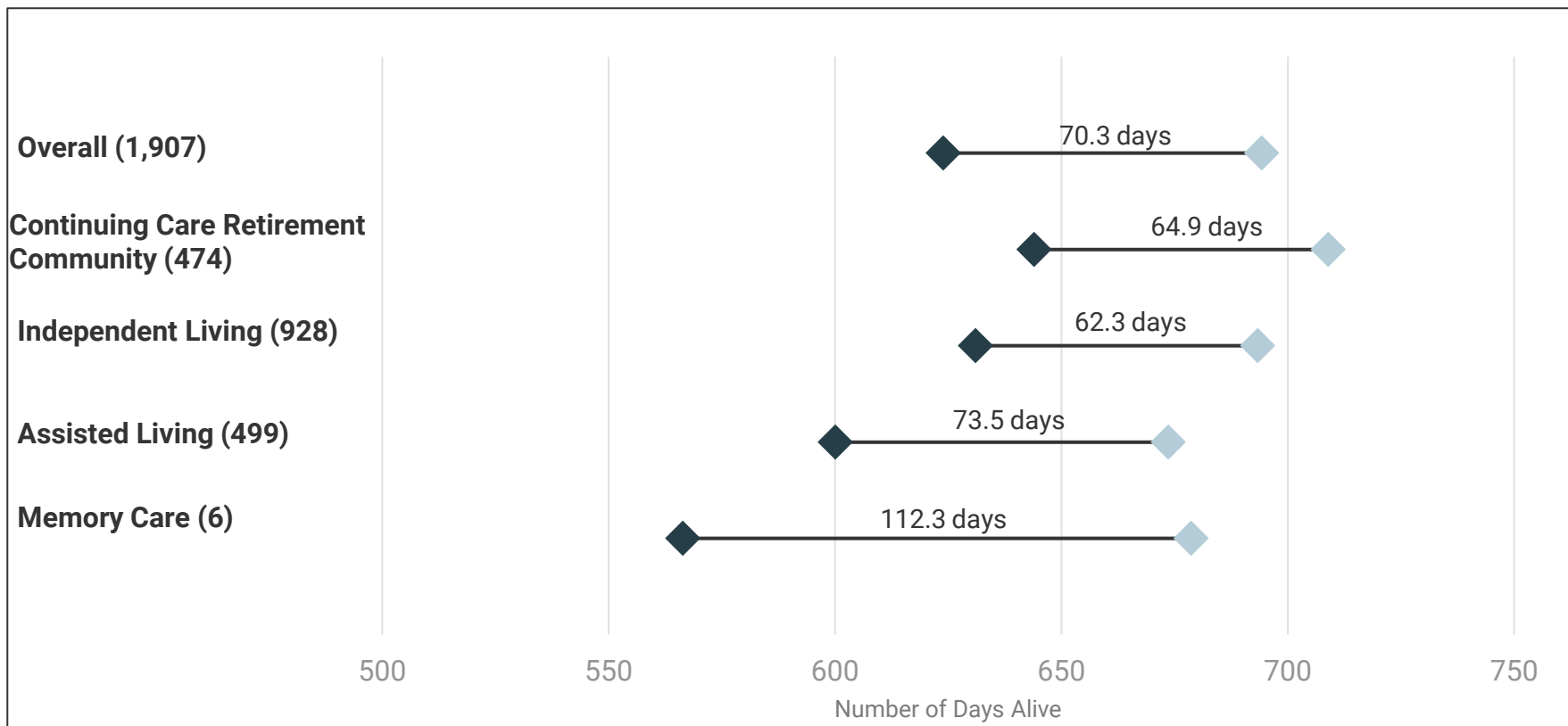
Compared to other senior housing property types, independent living (IL) properties exhibit the lowest variation in mortality between top and bottom quartiles (~14 percentage points)



Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

Residents in the top 25% of senior housing properties live more than **two months longer** than residents in the bottom 25% of properties



Approximately two thirds of senior housing properties **outperform** the non-congregate average for days alive.

Senior Housing Properties ◆ 25<sup>th</sup> Percentile ◆ 75<sup>th</sup> Percentile

Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

Residents in Continuing Care Retirement Communities (CCRC) live **almost two weeks longer** than their matched non-congregate peers

*CCRC Days Alive vs. Matched Non-Congregate Peer Group*



*Observed Distribution Amongst CCRC Properties*



Residents in the top quartile of CCRC properties live more than **two months longer** than the bottom quartile of properties.

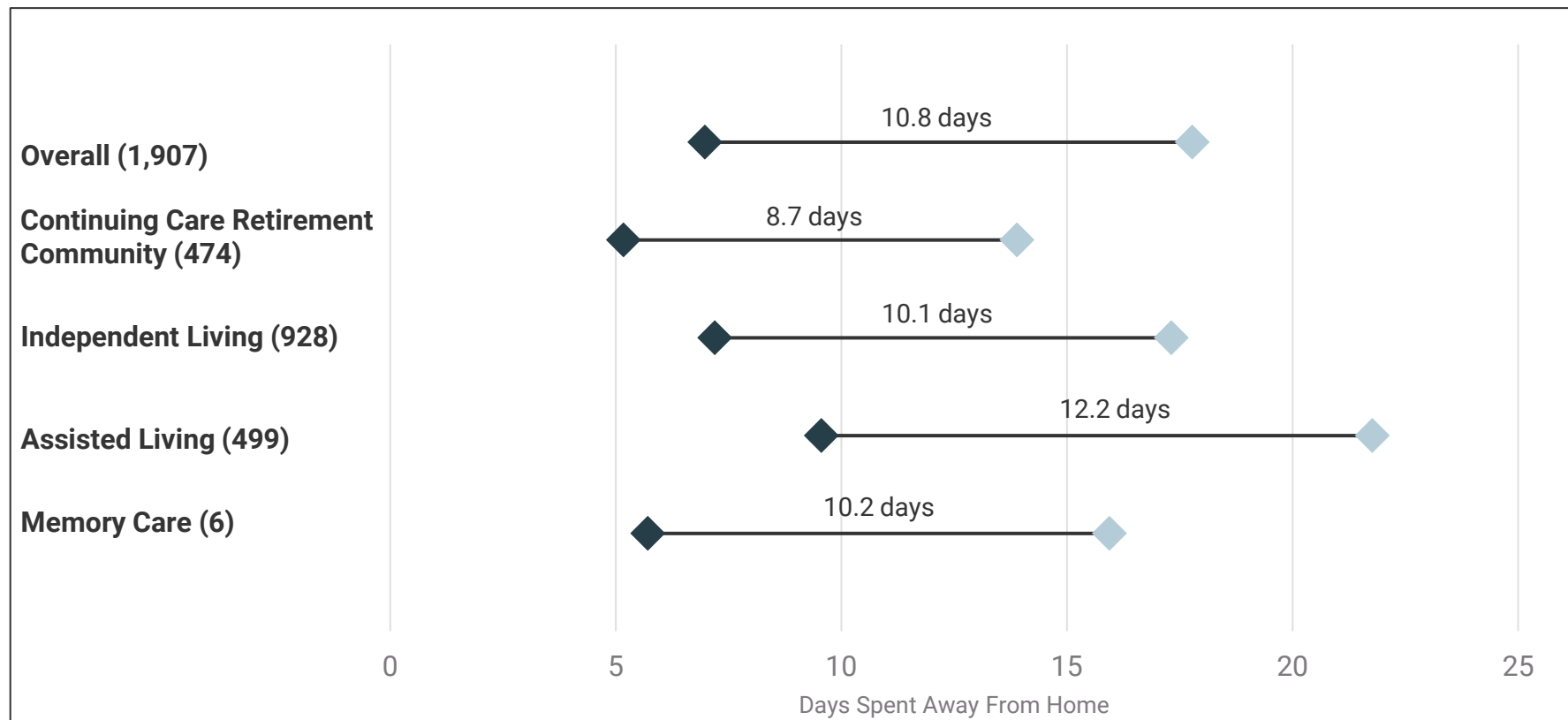
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Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

Overall, residents in top 25% properties spend over a **week and a half less time away** from home than peers in bottom 25% properties



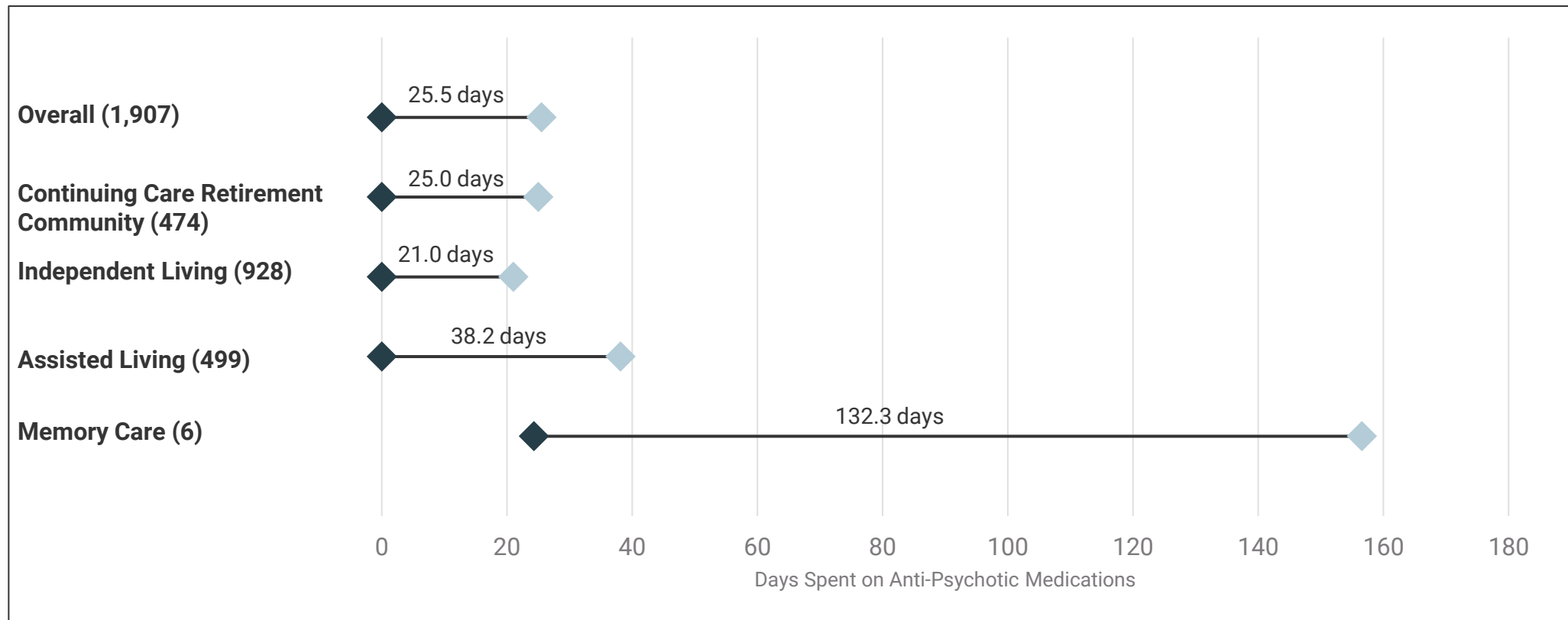
Continued Care Retirement Community properties exhibited the least variation between top and bottom quartiles, with a difference of **fewer than nine days away from home.**

Senior Housing Properties ◆ 25<sup>th</sup> Percentile ◆ 75<sup>th</sup> Percentile

Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

At least 25% of Assisted Living (AL) residents were not administered anti-psychotic medications in the 2 years following move-in

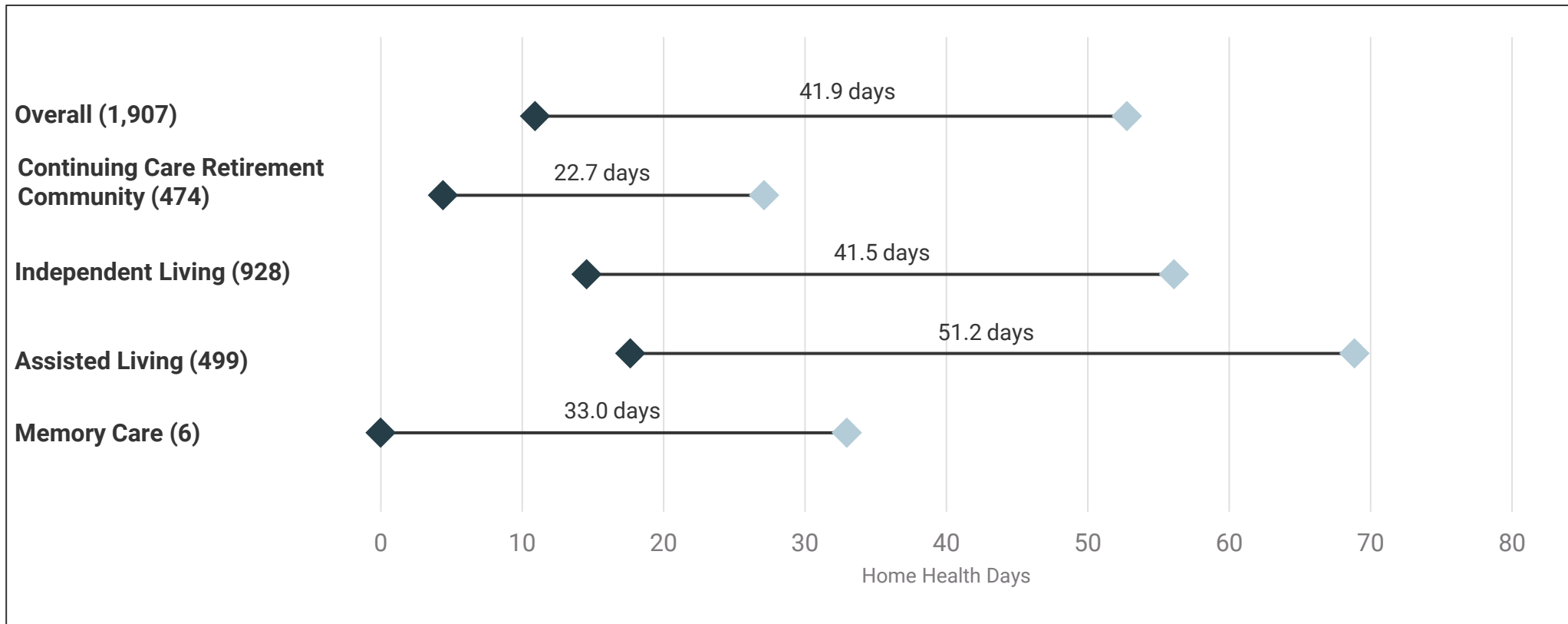


Senior Housing Properties    ◆ 25<sup>th</sup> Percentile    ◆ 75<sup>th</sup> Percentile

Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

Residents in top 25% of IL and AL properties receive at least **40 more days** of home health days in their property than peers in bottom 25% properties



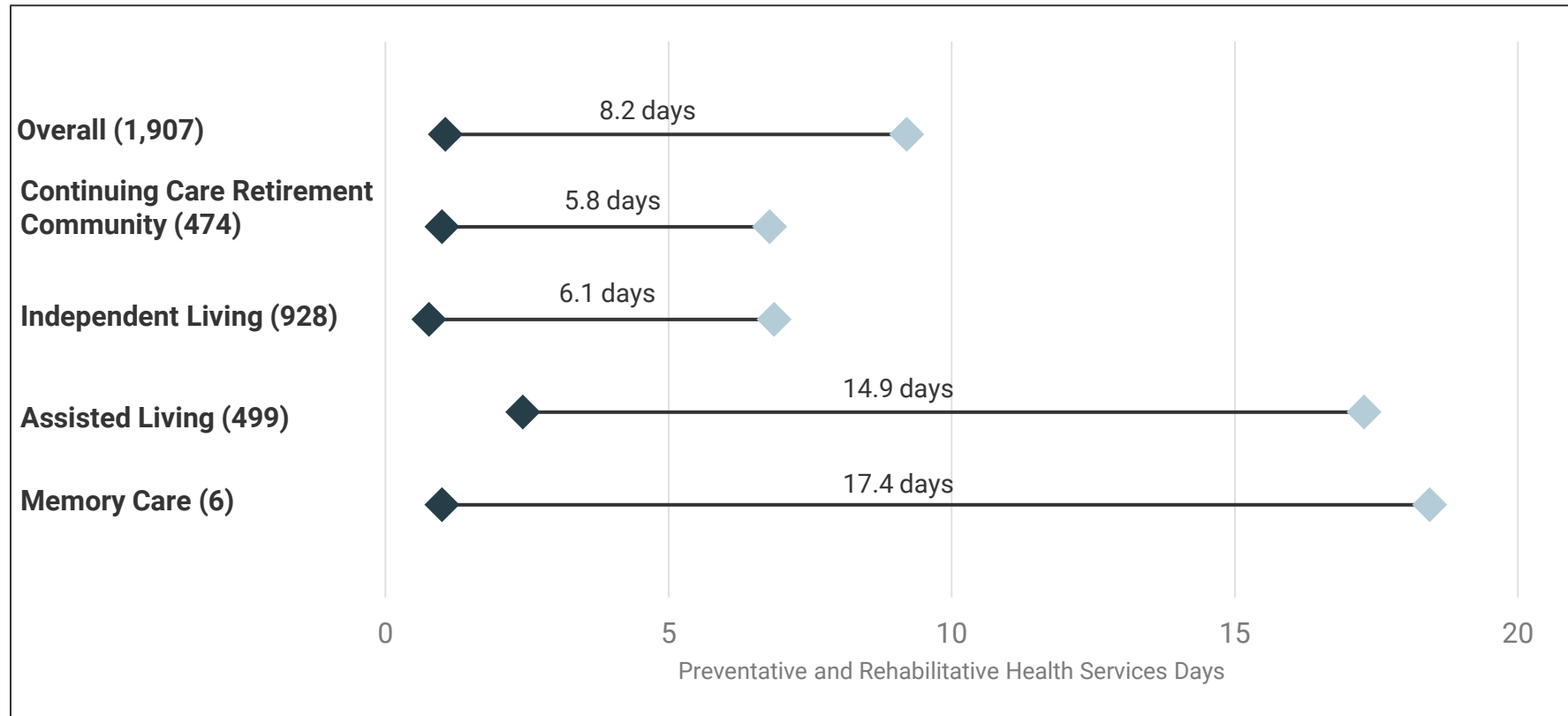
Senior Housing Properties ◆ 25<sup>th</sup> Percentile ◆ 75<sup>th</sup> Percentile

Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.



# Assisted Living (AL) and Memory Care (MC) properties had the greatest variation in days with preventative and rehabilitative health services



CCRC and IL residents in the highest-quartile of properties accrued **nearly a week of additional preventative and rehabilitative health services days** compared to their peers in the lowest-quartile properties

Senior Housing Properties ◆ 25<sup>th</sup> Percentile ◆ 75<sup>th</sup> Percentile

Findings are not risk-adjusted for individual-level demographic or clinical characteristics such as age, race, gender, or health status.

NOTE: This study tracks longevity for individuals who moved into senior housing in 2017 only. Senior housing averages and quartiles are among properties with 11+ move-ins.

Assisted living (AL) residents receive **more than 2x as many** preventative and rehabilitative health service days than those living in the community

- AL residents in the top quartile of senior housing properties **received almost 15 more preventative and rehabilitative health services days** compared to residents in the bottom quartile of properties
- Residents in more than 50 percent of AL properties experience **more preventative and rehabilitative health service days** than the non-congregate average

### Preventative and Rehabilitative Health Services Days

Preventative and Rehabilitative Health Services Days (Average)

14.6

Non-Congregate Preventative and Rehabilitative Health Services Days (Average)

5.7

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# Methodology

## Data Sources & Purpose

### **NIC MAP Vision Database**

Identify senior housing communities using 9-digit ZIP code.

### **CMS Enrollment Database (EDB)**

Use change-of-address data to identify senior housing move-ins.

### **CMS Master Beneficiary Summary File (MBSF)**

Calculate mortality and days-alive measures.

### **CMS Research Identifiable Files (RIF)**

Calculate claims-based frailty (CFI) and utilization-based longevity measures.

## Methodology to Create the Non-Congregate Comparison Group

**NORC used a weighting approach to create an analogous non-congregate comparison group. The specific approach used is called “entropy balancing”.**



1. Attribute Medicare beneficiaries to NIC property (“senior housing”) or non-NIC comparison group (“non-congregate peer group”)
2. Remove beneficiaries who do not meet study inclusion criteria (e.g., must live in a NIC property zip, not have hospice in prior year, etc.)
3. This approach assigns a weight to every member of the non-NIC group based on how similar they are to the NIC group
  - Frailty (CFI) groups
  - Demographics (e.g., age, gender)
  - Enrollment information (e.g., Duals status)
  - Select Condition groups
4. Multiply weights against each observation’s outcomes measures to form an average weighted outcome to give the most apt population comparison

## Study Limitations

The study is limited to senior housing properties included in the NIC MAP Vision Database.

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The study is limited to properties that had 11 or more new residents in 2017 who continued to live in that community for the duration of the study period (730 days) or until their death.

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The study is limited by property type. The study includes Continued Care Retirement Community, Independent Living, Assisted Living, and Memory Care properties and non-congregate comparison groups. The study does not include Nursing Care properties or a non-congregate comparison group for this population.

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## Full list of medications included in Anti-psychotic Rx measure (1/2):

Abilify	Compazine	Haloperidol Decanoate
Abilify Discmelt	Compro	Haloperidol Lactate
Abilify Maintena	Fanapt	Invega
Abilify Maintena Prefilled Syringe	FazaClo	Invega Sustenna
Adasuve	FluPHENAZine Decanoate	Invega Trinza
Aripiprazole	FluPHENAZine Hydrochloride	Latuda
Aristada	Geodon	Loxapine Succinate
ChlorproMAZINE Hydrochloride	Haldol	Loxitane
CloZAPine	Haldol Decanoate	Molindone Hydrochloride
Clozaril	Haloperidol	Olanzapine

## Full list of medications included in Anti-psychotic Rx measure (2/2):

Orap	RisperDAL	Trifluoperazine Hydrochloride
Paliperidone ER	RisperDAL Consta	Versacloz
Perphenazine	RisperDAL M-Tab	Vraylar
Pimozide	RisperiDONE	Ziprasidone Hydrochloride
Prochlorperazine	SEROquel	ZyPREXA
Prochlorperazine Edisylate	SEROquel XR	ZyPREXA Relprevv
Prochlorperazine Maleate	Saphris	ZyPREXA Zydys
QUetiapine Fumarate ER	Saphris Black Cherry	Fluoxetine Hydrochloride-Olanzapine
Quetiapine Fumarate	Thioridazine Hydrochloride	Perphenazine-Amitriptyline
Rexulti	Thiothixene	Symbyax