

CENTER FOR HEALTH INFORMATION AND ANALYSIS

**BASELINE REPORT:
TRENDS IN THE MASSACHUSETTS
NURSING FACILITY INDUSTRY
2013-2017**

NOVEMBER 2019



Key Findings

- From 2013 to 2017, utilization of nursing facilities in the Commonwealth declined 5.4%.
- Among the three largest payer categories, Medicare resident days declined the greatest percentage from 2013 to 2017 (-14.8%), compared to Medicaid (-3.4%), and self-pay (-4.8%).
- Across nursing facilities, the median operating margin declined from -0.8% in 2013 to -3.9% in 2017.
- On a per-resident day basis, revenue increased across the three largest payer categories: Medicare (+10.1%), Medicaid (+5.5%), and self-pay (+7.4%).
- In 2017, 67.8% of resident days were provided at facilities with quality rated as average or above, with the remaining 32.2% provided by facilities rated as below or much below average.
- In 2017, nursing facilities with a five-star health inspection rating spent a median of \$115 on nursing expenses per resident day, compared with one-star rated facilities, which spent \$107.

Introduction

More than half of the Commonwealth's 1.1 million residents over the age of 65 are projected to need some form of long-term care during their lives, with an estimated 14% having needs that extend beyond five years.^{1,2} These services, also called long term services and supports (LTSS), include both medical care, such as rehabilitative therapy after a hospital stay, as well as non-medical support for residents needing 24-hour care. LTSS may be provided across different settings, including within the home, or in assisted living facilities, adult day health centers, or nursing facilities.

Nursing facilities serve an important role in the continuum of health care services in Massachusetts, providing over 14 million patient days of service in 2017; an average of over 39 thousand individuals received care from nursing facilities on a daily basis. Annual spending for these services totaled nearly \$4 billion in 2017. To better understand this component of the health care system, this report examines Massachusetts nursing facilities on measures of utilization, financial performance, and quality of care over a five-year period (2013–2017).³ This executive summary focuses on industry level indicators, and is followed by a [chartbook](#) that includes more detailed analytic cohorts. In addition to this report, CHIA has also developed an [analytic dashboard](#) that facilitates a profile view of each of the 393 nursing facilities in Massachusetts.⁴

1 Based on the U.S. Census 2017 estimate of Massachusetts residents 65 years and over (16.2%), and 2018 estimate of the total Massachusetts population (6.9 million). Available at <https://www.census.gov/quickfacts/ma>.

2 U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (2016). Long Term Services and Supports for Older Americans: Risks and Financing Research Brief. Available at <https://aspe.hhs.gov/basic-report/long-term-services-and-supports-older-americans-risks-and-financing-research-brief>.

3 CHIA annually collects data directly from nursing facilities that serve publicly funded residents. This data serves as the primary data source for this report. For more information on submission requirements and data specifications, see this report's [technical appendix](#), or data submission instructions and templates at <http://www.chiamass.gov/nursing-facility-cost-reports-2/>.

4 For more information see "About this Report" inset on page xiv.

Nursing Facility Services

The majority of nursing facilities primarily serve two distinct populations: (1) “short-stay” residents rehabilitating after a hospital inpatient stay and (2) “long-stay” residents who need ongoing support with basic activities of daily living (ADLs).^{5,6} Nationally, the average length of stay among all nursing facility residents was estimated to be 485 days in 2016, with 43% residents identified as short-stay and 57% as long-stay.⁷

Short-stay residents typically have their care paid for by the federal Medicare program, which covers rehabilitative skilled nursing facility care for up to 100 days after a medically necessary three-day inpatient stay.⁸ Short-stay residents may also pay for their care out-of-pocket (“self-pay”), with commercial insurance, or, if eligible, through the Medicaid program.

Long-stay residents in Massachusetts typically have their care paid for by the Commonwealth’s Medicaid program (“MassHealth”), which provides coverage for long-term services for those residents who are determined to be eligible for MassHealth and are clinically eligible for nursing facility care. There is no limit on the length of care as long as the individual meets the eligibility criteria. Long-stay residents who do not qualify for MassHealth typically pay for their care out-of-pocket (“self-pay”), though a limited number of residents are enrolled in private long term care insurance.⁹

5 The terms short-stay and long-stay are used by CMS to differentiate between these two different populations for quality measurement. More detailed information can be found at: <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/NHQIQualityMeasures.html>.

6 Activities of daily living include eating, bathing, toileting, grooming, and functional mobility.

7 National Center for Health Statistics (2019). Long-Term Care Providers and Services Users in the United States: Data from the National Study of Long-Term Care Providers. Available at https://www.cdc.gov/nchs/data/series/sr_03/sr03_43-508.pdf.

8 However, Medicare overlays a medical necessity standard on which the actual payment is based and is often not more than 60 consecutive calendar days. For more information, see <https://www.medicare.gov/sites/default/files/2018-09/10050-medicare-and-you.pdf>.

9 The National Association of Insurance Commissioners (NAIC) estimates that approximately 70,000 private individual policies for long term care were in effect nationwide in 2017. From 2004 to 2017, enrollees and the number of insurers offering long-term care plans have declined significantly. See the NAIC website on long term care initiatives, available at https://www.naic.org/cipr_topics/topic_long_term_care.htm.

For both short and long-stay residents, the services delivered by nursing facility staff can range from assistance with daily activities to highly skilled medical care. Skilled care is provided by registered nurses, licensed practical nurses, or professional therapists pursuant to a physician's order. This may include intravenous therapy, restorative therapy, and administering medications, among other services. Staff may also provide custodial care which includes non-medical care such as assistance with eating and bathing. This type of care is typically provided by certified nursing aides (CNAs). Generally, short-stay residents tend to need more skilled medical care, while long-stay residents tend to need more custodial care, in addition to medical care.

Residents in nursing facilities, particularly long-stay residents, require support for a wide range of needs, including eating, bathing, toileting, respiratory care, psychiatric care, and medication management, among others. The average acuity (the number and types of these services that residents need) at Massachusetts nursing facilities was consistent from 2013 to 2016 (the most recent year available).¹⁰ However, nursing facilities serving special populations, like pediatric residents, had higher acuity compared with other nursing facilities.

¹⁰ Shaping Long Term Care in America Project at Brown University funded in part by the National Institute on Aging (1P01AG027296). Available at <http://ltcfocus.org/>.

Organizational Characteristics

The nursing facility industry is characterized by complex ownership and management arrangements, which may impact the financial performance and the overall operations of individual nursing facilities.¹¹ In Massachusetts, 293 facilities, providing 72.9% of resident days, were owned by for-profit entities in 2017. The remaining facilities were owned by non-profit organizations (98), accounting for 26.8% of resident days, and governmental entities (2), which accounted for 0.3% of resident days. Many of the non-profit organizations also had a religious affiliation.

Many nursing facilities hire management companies to perform direct day-to-day administrative functions for the facility. Among the 393 Massachusetts nursing facilities examined in 2017, 299 had management services provided by an external organization (78% of total resident days). Of these, 112 facilities were managed by national companies (30% of total resident days), while 187 were managed by regional companies (48% of total resident days).¹²

Massachusetts nursing facility management company affiliation is far less concentrated than other sectors of the health care industry such as acute hospitals and physician groups. The three largest management company chains in Massachusetts in 2017 were Genesis Health Care (29 facilities, 7.8% of total resident days), NextStep Health Care (23 facilities, 5.5% of resident days), and HealthBridge Management (15 facilities, 5.1% of resident days). Combined, the top ten management companies operated nursing facilities that provided 46% of total resident days in 2017.¹³

¹¹ For more information common terms and practices employed throughout the industry in Massachusetts, see sidebar *Nursing Facility Ownership and Management*.

¹² See *About this Report* for more information about how nursing facilities were assigned to ownership types and management company types.

¹³ In contrast, three health care systems accounted for 48.5% of total payments to acute hospitals in 2017. See CHIA's 2017 interactive graphic: *Provider Price Variation in the Massachusetts Commercial Market*, available at <http://www.chiamass.gov/relative-price-and-provider-price-variation/>.

Ownership

Nursing facilities are owned by for-profit, not-for-profit, and governmental entities. These include corporations that own single facilities, local chains that own a small number of facilities in the region, and national chains that own facilities across the country. In addition, nursing facilities frequently have multiple for-profit owners, with different organizations holding a certain percentage share.

Management Companies and Home Offices

Many nursing facilities hire management companies to perform direct day-to-day administrative functions for the facility. While these contracts vary in scope, the management companies typically provide multiple facilities with billing and accounting support, human resources, payroll services, and other clerical support duties. Management companies may also provide clinical support services, such as nurse managers or rehabilitation therapy services. The owners of the management company may also be full or partial owners of individual facilities. For facilities that are owned by a chain, the central office of the chain, or Home Office, will often provide similar management services to its facilities.

Realty Companies and Real Estate Investment Trusts (REITs)

Nursing facilities often do not own the physical property (i.e., the nursing facility building, land, or other related property). Commonly, a separate organization or organizations owns the property and the nursing facility owner pays rent to that organization. As with management company contracts, these arrangements vary, with some organizations or Limited Liability Corporations owning single properties, and others, such as publicly-traded REITs, owning hundreds of properties across the country. In some cases, the nursing facility owner may have initially owned the property, elected to sell it to a REIT, and negotiated a leaseback arrangement.

The owners or shareholders of a realty company or a REIT may also be full or partial owners of a nursing facility and/or management company.

Trends in Utilization

Consistent with national trends, overall resident days at Massachusetts nursing facilities have steadily declined since 2013, reaching the lowest point in 2017 with 14.3 million days, compared to 15.1 million in 2013.¹⁴ This represents a 5.4% decline in utilization over the five-year period. During this time, the number of Massachusetts nursing facilities that served publicly funded residents declined from 405 in 2013 to 393 in 2017.

In 2017, the three largest payers of nursing facility care, based on resident days, were MassHealth (69.0%), Medicare (12.7%), and self-pay (11.2%). Together, these three categories comprised 92.9% of resident days in 2017. The remaining payers include private insurance and other government programs. Self-pay residents are typically individuals needing long-term care who do not have health insurance that covers nursing facilities, and who do not qualify for MassHealth, or are Medicare beneficiaries needing care beyond 100 days.

Among the three largest payer categories, Medicare resident days declined the greatest percentage from 2013 to 2017 (-14.8%), compared to Medicaid (-3.4%), and self-pay (-4.8%). Nationally, research has suggested that declining utilization of skilled nursing facilities among traditional Medicare beneficiaries may be due, in part, to fewer hospital inpatient discharges among this population, reducing the need for post-acute care.¹⁵ These trends reflect a number of factors, including Medicare policy initiatives aimed at reducing unnecessary and avoidable hospitalizations, such as

¹⁴ National data sourced from National Center for Health Statistics (2019). Long-Term Care Providers and Services Users in the United States: Data from the National Study of Long-Term Care Providers. Available at https://www.cdc.gov/nchs/data/series/sr_03/sr03_43-508.pdf. Massachusetts data sourced from Nursing Facility cost reports filed with CHIA for calendar year 2017.

¹⁵ Commonwealth Fund (December 2018). *Trends in Postacute Care Spending Growth During the Medicare Spending Slowdown*. Available at <https://www.commonwealthfund.org/publications/issue-briefs/2018/dec/postacute-care-spending-growth-medicare>; see also Avalere Health (March 2018). *Medicare Patients Are Using Fewer Skilled Nursing Services*. Available at <https://avalere.com/press-releases/medicare-patients-are-using-fewer-skilled-nursing-services>.

promoting accountable care organizations, bundled payment arrangements, and readmissions penalties.¹⁶

Relatedly, the Health Policy Commission recently reported that across all payer categories, total inpatient discharges to institutional post-acute care (including nursing facilities) declined from 20.8% of all discharges in 2013 to 18.0% in 2017.¹⁷ This trend was accompanied by an increase of discharges to home health care from 22.3% in 2013 to 24.8% in 2017.¹⁸

In the Massachusetts nursing facility industry, it is common for facilities to change ownership. However, some facilities do close permanently, and this trend has increased in recent years. In 2017, there were three permanent closures, 18 in 2018, and 11 announced for 2019 as of this report's publication.

Even as nursing facilities permanently closed, occupancy rates across the industry fell by 1.4 percentage points from 2013 to 2017—from 87.8% in 2013 to 86.4% in 2017. Occupancy rates indicate the average number of beds in operation that are being used during the year. Across all regions of the United States, overall median occupancy was less than 85% in 2017.¹⁹ The decline in occupancy rates is directly related to declining revenues, and contributed to reduced profitability, within the industry.

¹⁶ McWilliams JM, Gilstrap LG, Stevenson DG, Chernen ME, Huskamp HA, Grabowski DC. Changes in Postacute Care in the Medicare Shared Savings Program. *JAMA Intern Med.* 2017;177(4):518–526. Available at <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2601418>

¹⁷ Massachusetts Health Policy Commission (February 2019). *2018 Report on Health Care Cost Trends*. Available at <https://www.mass.gov/files/documents/2019/02/20/2018%20Cost%20Trends%20Report.pdf>.

¹⁸ Ibid.

¹⁹ CliftonLarsenAllen (October 2018). *33rd SNF Cost Comparison Report — An Industry in Transition*. Available at <https://www.claconnect.com/resources/white-papers/2018/-/media/files/resources-supporting/33rd-edition-skilled-nursing-facility-cost-comparison-report-cla.pdf>.

Trends in Financial Performance

As nursing facility utilization has decreased, the industry has reported declining levels of profitability.²⁰ For each year since 2013, more facilities reported negative total margins than reported positive margins. While the median total margin had been declining since 2013, this trend accelerated from 2016 to 2017, dropping from -1.6% to -3.2%. Operating margins, measuring the profit or loss from delivering patient care services, have followed a similar trajectory as total margins, with a median operating margin of across the industry in 2013 of -0.8% falling to -3.9% in 2017. In comparison, the median operating margin among nursing facilities in the Northeast region²¹ was -0.9% in 2017. These downward trends in median operating margins were accompanied by faster increases in operating expenses (median rate of change of 4.0%) compared with revenue increases (median rate of change of 1.6%) between 2013 and 2017.

Nursing facility operating revenue is generated by payments for services by government programs, health plans, and residents. Across the three largest payer types, revenue per resident day differed considerably, in part reflecting the variation in resource-intensity of the services covered and the payment policies of each payer. In 2017, nursing facilities received the highest per-resident day income from Medicare (a median of \$604 per resident day) which included payments for higher-cost rehabilitative therapies that short-term Medicare residents receive. The median revenue from self-pay residents was \$367 per day while the median revenue from MassHealth was \$198 per Medicaid resident day. These lower payment amounts in part reflect lower-cost support services for ADLs that self-pay and MassHealth residents receive. Between 2013 and 2017, aggregate revenue from all payer types declined. In particular, aggregate

²⁰ To facilitate appropriate comparisons, CHIA excluded several nursing facilities from financial and quality analyses described in this section and the following Trends in Quality Performance section. For an explanation of exclusion criteria and a list of excluded facilities, please refer to the [technical appendix](#).

²¹ The northeast region includes the six New England states in addition to New York, Pennsylvania, New Jersey, Delaware, and Maryland. Full report available at: <https://www.claconnect.com/resources/white-papers/2018/-/media/files/resources-supporting/33rd-edition-skilled-nursing-facility-cost-comparison-report-cla.pdf>

Medicare revenue declined by 11.4% during this period, compared with Medicaid (-2.9%) and self-pay residents (-0.02%). On a per-resident day basis, however, revenue increased across these three payer categories: Medicare (+10.1%), Medicaid (+5.5%), and self-pay (+7.4%).

Nearly all of expenses reported by nursing facilities are for the operation of the nursing facility (93.3% in 2017). The remaining 6.7% of total expenses paid for other services provided by the facility, including assisted living, adult day health, and specialty care for pediatric residents, as well as for activities “not necessary for the care of publicly-aided residents in the nursing facility.”

Among operating expenses, nursing expenses comprised the largest share (a median of 37.2% across facilities), consisting of the salaries and benefits, or contracted rates, for directors of nursing, registered nurses (RNs), Licensed Practical Nurses (LPNs), and Certified Nursing Aides (CNAs). The next largest category was variable expenses—representing 35% of operating expenses based on median spending in 2017—which includes payments for wages (physicians, social workers, dieticians), and for services (food, laundry, housekeeping supplies, recreational activities) as well as some expenses not directly related to nursing care delivery.²² Administrative and general expenses (office supplies, administrative salaries) were 11.8% of operating expenses in 2017, followed by 8.4% for fixed expenses (building improvements, equipment, real estate taxes), and 7.6% for other expenses (income taxes, state assessments, and any fines or penalties). Across all of these categories, expenses for the direct care of residents accounted for a median of 67.0% of all operating expenses.²³

²² Variable expenses not directly related to nursing facility care delivery include expenses for other services provided such as assisted living, or adult day health, as well as taxes and fees, penalties, and other non-nursing facility expenses. See this report’s technical appendix for more information.

²³ “Direct care” was defined in accordance with the Massachusetts Executive Office of Health and Human Services (EOHHS) Administrative Bulletin 18-24. Available at <https://www.mass.gov/files/documents/2018/11/05/ab-18-24.pdf>.

Trends in Quality Performance

The Massachusetts Department of Public Health (DPH) is responsible for licensing nursing facilities and conducting routine inspections and resident clinical assessments to assure adequate quality of care. This data, along with direct reporting by nursing facilities, is used by the Centers for Medicare and Medicaid Services (CMS) to develop and publish quality ratings. This rating system aims to provide consumers with accessible information about nursing facility quality. CMS publishes an Overall Rating that reflects nursing facility performance across three domains: Health Inspections, Staffing, and Quality Measures. The health inspection domain includes measures based on outcomes from state health inspections, including information about deficiencies and substantiated complaints. The staffing domain measures staffing levels for nurses and aides providing direct care to residents. The quality measures domain blends results from clinical quality assessments and claims analysis, such as measuring the number of hospitalizations among residents, the percent of residents with urinary tract infections, or the percent of residents experiencing a fall or major injury.²⁴ The overall rating and component domain scores are reported based on a scale of 1 (indicating “much below average” relative to all facilities in the nation) to 5 (“much above average”), with three stars indicating “average.”²⁵

Across the 352 nursing facilities for which data was available for 2017, 67.8% of resident days were provided at facilities that achieved a three-star rating or better, with the remaining 32.2% of resident days provided by one or two-star facilities. Three-star facilities (indicating “average”) accounted for the highest share of resident days in

²⁴ Centers for Medicare & Medicaid Services (CMS). (April 2019). Design for Nursing Home Compare Five-Star Quality Rating System: Technical Users' Guide. Available at <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandCompliance/downloads/usersguide.pdf>

²⁵ See ratings for all Medicare and Medicaid certified nursing facilities in the country on Nursing Home Compare, available at <https://www.medicare.gov/nursinghomecompare>.

Massachusetts at 24.7% of total resident days. Five-star facilities—representing the highest rating—accounted for the next largest share of resident days at 22.4%. In 2017, nursing facilities with a five-star health inspection rating spent a median of \$115 on nursing expenses per resident day, eight dollars more than one-star rated facilities, which spent \$107 on nursing expenses per resident day.²⁶

Over the past 25 years, extensive research has documented that increased staffing is associated with improved quality of care for residents of nursing facilities.²⁷ Although federal nursing home staffing requirements have not changed since 1987, a 2001 CMS study recommended that nursing facilities provide 4.1 nursing hours per resident day (hprd), including 0.75 RN hprd and 2.8 CNA hprd.^{28,29} Across the industry, Massachusetts nursing facilities reported staffing levels totaling 3.95 hours per resident day in 2017, slightly below these recommendations, but above the national average (3.90).³⁰

In the Commonwealth, these 3.95 staffing hours included 2.42 for CNAs, 0.62 for RNs, and 0.91 for LPNs. Massachusetts' nursing facility staffing levels were also similar to neighboring states' trends; in 2017 across the northeast region, nursing hours per resident day were 2.45 for CNAs, 0.65 for RNs, and 0.88 for LPNs.³¹

²⁶ The CMS Overall Five Star Rating includes Staffing Rating and RN Staffing Rating as covariates. In order to avoid a confounding result when reviewing differences in spending, this report examined nursing expenses by Health Inspection Rating. The Health Inspection Rating is a component of the Overall Five Star Rating, and is calculated with results from the three most recent standard health inspections and 36 months of complaint inspections.

²⁷ Harrington, C, Schnelle, JF, McGregor, M, Simmons, SF. The Need for Higher Minimum Staffing Standards in U.S. Nursing Homes. *Health Serv Insights*. 2016;9:13-19. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4833431/>

²⁸ Omnibus Budget Reconciliation Act of 1987 (OBRA, 1987). Public Law 100-203. Subtitle C: nursing home reform, Washington, D.C., December 22, 1987.

²⁹ Centers for Medicare & Medicaid Services (CMS). (2001). Appropriateness of minimum nurse staffing ratios in nursing homes. Report to Congress: Phase II Final. Volumes I to III. Baltimore: CMS (prepared by Abt Associates). Available at <http://theconsumervoicework.org/uploads/files/issues/CMS-Staffing-Study-Phase-II.pdf>

³⁰ CliftonLarsenAllen (October 2018). *33rd SNF Cost Comparison Report — An Industry in Transition*. Available at <https://www.claconnect.com/resources/white-papers/2018/-/media/files/resources-supporting/33rd-edition-skilled-nursing-facility-cost-comparison-report-cla.pdf>

³¹ Ibid.

Conclusion

During the period of 2013 to 2017, nursing facilities in the Commonwealth reported substantial changes on a number of indicators. Overall resident days declined each year and overall across all three major payer types. Accompanying this decrease in utilization was reduced occupancy across all nursing facilities, despite permanent closures of facilities. These trends contributed to negative operating margins for more than two-thirds of nursing facilities examined in 2017. In addition, nursing staffing levels at Massachusetts nursing facilities were generally consistent with or slightly below national levels, while approximately 70 percent of residents received care in a facility with a CMS quality rating of three stars or above. CHIA will continue to monitor this important component of the health care system as the nursing facility industry continues to evolve to meet the changing needs of the residents of the Commonwealth.

About this Report

This publication includes the preceding narrative with baseline information about the nursing facility industry in Massachusetts, as well as:

- A chartbook highlighting key industry findings (following this section)
- [Interactive dashboards](#) to enable users to examine the reported metrics for individual facilities as well as among those with similar characteristics
- A [databook](#)
- A [technical appendix](#)

For this report, CHIA classified nursing facilities into a number of categories to facilitate comparison among similar facilities based upon ownership type, management affiliation, and payer mix. The table below outlines the criteria for inclusion in the analytic cohort. The list of attributes for each nursing facility can be found in the [databook](#).

Note that these attributes are assigned within a given year, so a given facility may be categorized in a different cohort across years.

Classification	Criteria	Number of Facilities/ Threshold, 2017
Tax Status: For-Profit	Legal Form = <ul style="list-style-type: none">• MA Corporation - Chapter 156B• Partnership• Sole Proprietorship• Other For-Profit	293

Classification	Criteria	Number of Facilities/ Threshold, 2017
Tax Status: Non-Profit	Legal Form = <ul style="list-style-type: none"> • MA Corporation - Chapter 156B with 501 c.3 tax exemption • MA Corporation - Chapter 180 • Other Non-Profit 	98
Ownership Type: Government	Legal Form = Governmental	2
Management Company Affiliation: National	Identified as a nursing facility with a management company with a home office outside of New England.	112 facilities
Management Company Affiliation: Regional	Identified as a nursing facility with a management company with a home office within New England – Massachusetts, Maine, Vermont, New Hampshire, Rhode Island, or Connecticut.	187 facilities
Management Company Affiliation: None	Identified as nursing facilities that did not have a management company in CY 2017 per the HCF-1.	94 facilities
Payer Mix: High Medicaid	Nursing facility's Massachusetts Medicaid payer mix is in the top quartile within a given year.	99 facilities had Medicaid payer mix greater than 79.7% of total resident days
Payer Mix: Higher Medicare	Nursing facility's Medicare payer mix is in the top quartile within a given year.	99 facilities had Medicare payer mix greater than 16.1% of total resident days
Occupancy Level: Lower Occupancy	Nursing facility's occupancy rate is within the bottom quartile within a given year.	98 facilities had an occupancy rate less than or equal to 81.2%
Occupancy Level: Higher Occupancy	Nursing facility's occupancy rate is within the top quartile within a given year.	99 facilities had an occupancy rate greater than or equal to 93.2%

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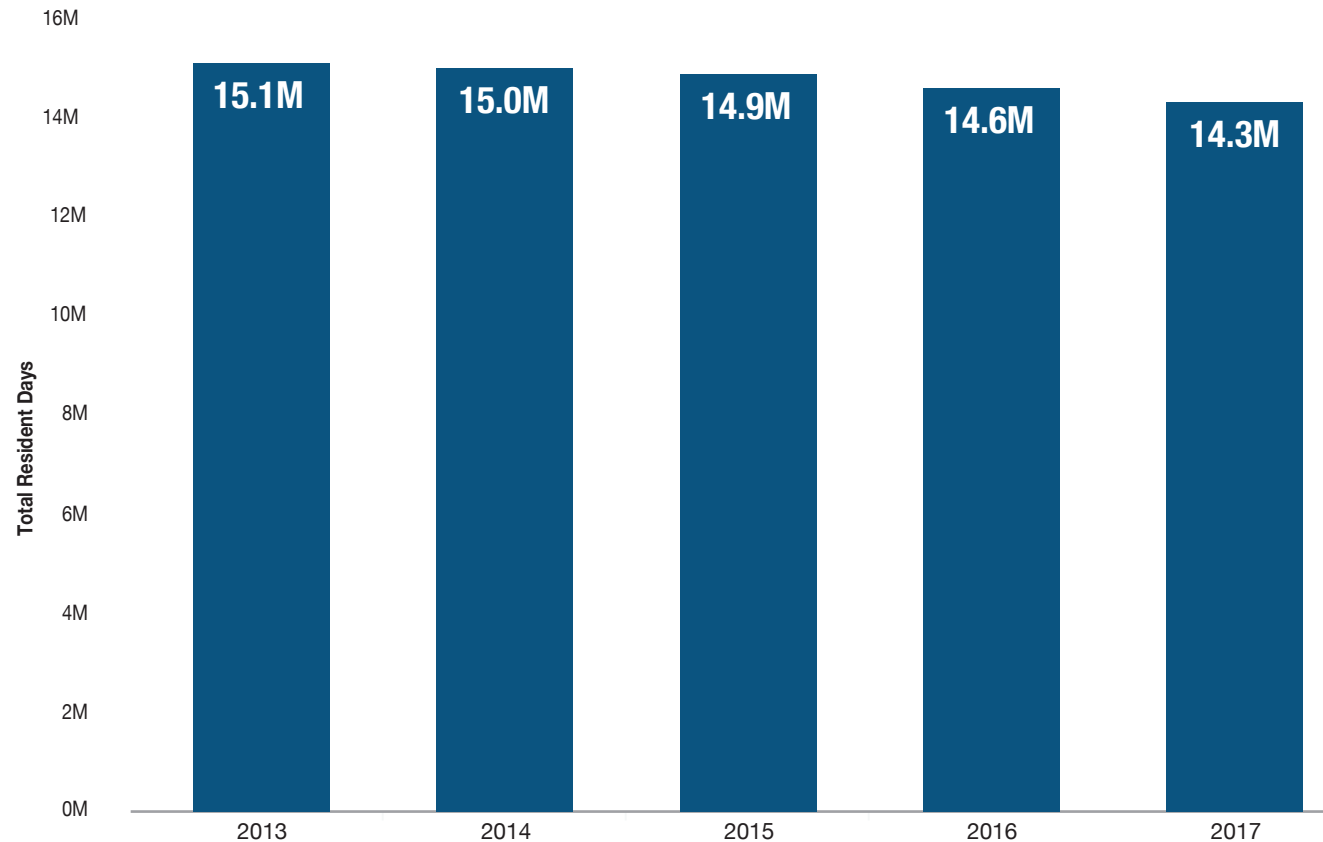
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UTILIZATION

Nursing facility utilization can be measured in resident days, which is calculated as the number of residents in a facility multiplied by the number of days they resided there. This measure accounts for utilization by both short and long-stay residents.

Total resident days declined by 5.4% from 2013 to 2017. In 2017, overall nursing facility resident days totaled 14.3 million, the lowest in the past five years, which includes a 2.0% decrease from 2016, the steepest decline reported during the period.

Overall Resident Days, 2013-2017



OVERALL RESIDENT DAYS HAVE STEADILY DECLINED SINCE 2013, REACHING THE LOWEST POINT IN 2017 WITH 14.3 MILLION DAYS.

Source: Nursing Facility Cost Reports filed with CHIA

UTILIZATION

Overall Resident Days by Cohort, 2013-2017

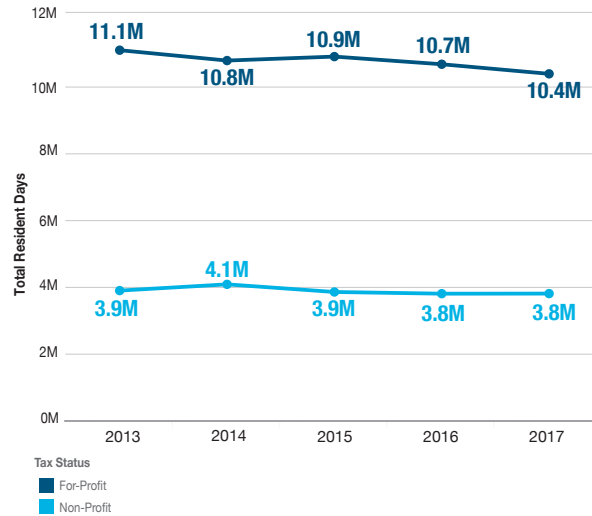
Resident days at for-profit facilities declined at a faster rate than non-profit days, decreasing by 6.4% and 2.3%, respectively, between 2013 and 2017.

The number of resident days for high-Medicaid facilities increased 2.1% from 2013 to 2017. Higher-Medicare facility resident days declined, but at a slower rate than other facilities, decreasing by 3.4% from 2013 to 2017.

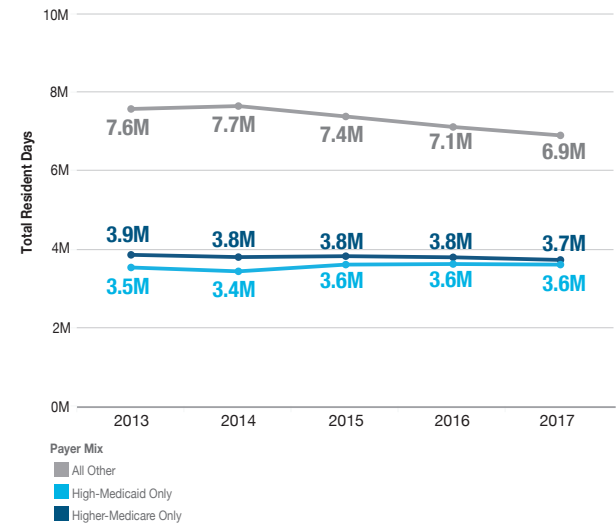
Among facilities with a higher-occupancy rate, resident days declined slightly (-0.2%) from 2013 to 2017, compared with lower-occupancy facilities, for which resident days declined by 9.5% during this period.

In 2017, 47.6% of resident days were provided by nursing facilities with a management company affiliated with a regional organization, while 29.9% were provided by a nursing facility associated with a national management company, and 22.5% resided at a nursing facility that did not have an external management company.

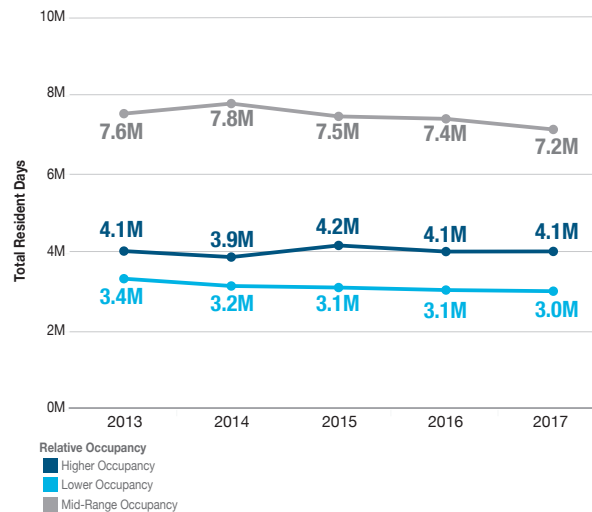
By Tax Status



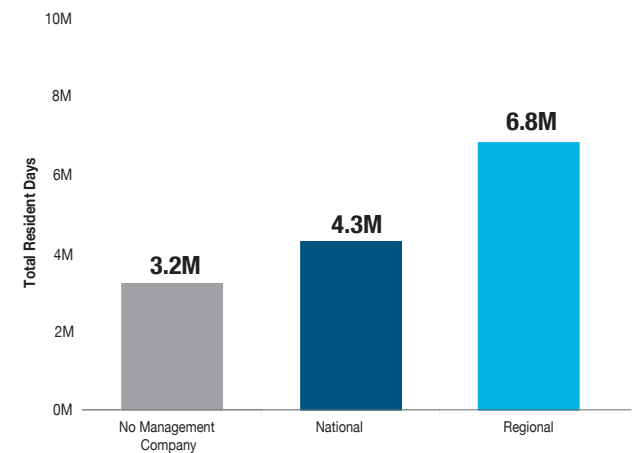
By Medicaid/Medicare Payer Mix



By Relative Occupancy



By Management Company Affiliation Type, 2017

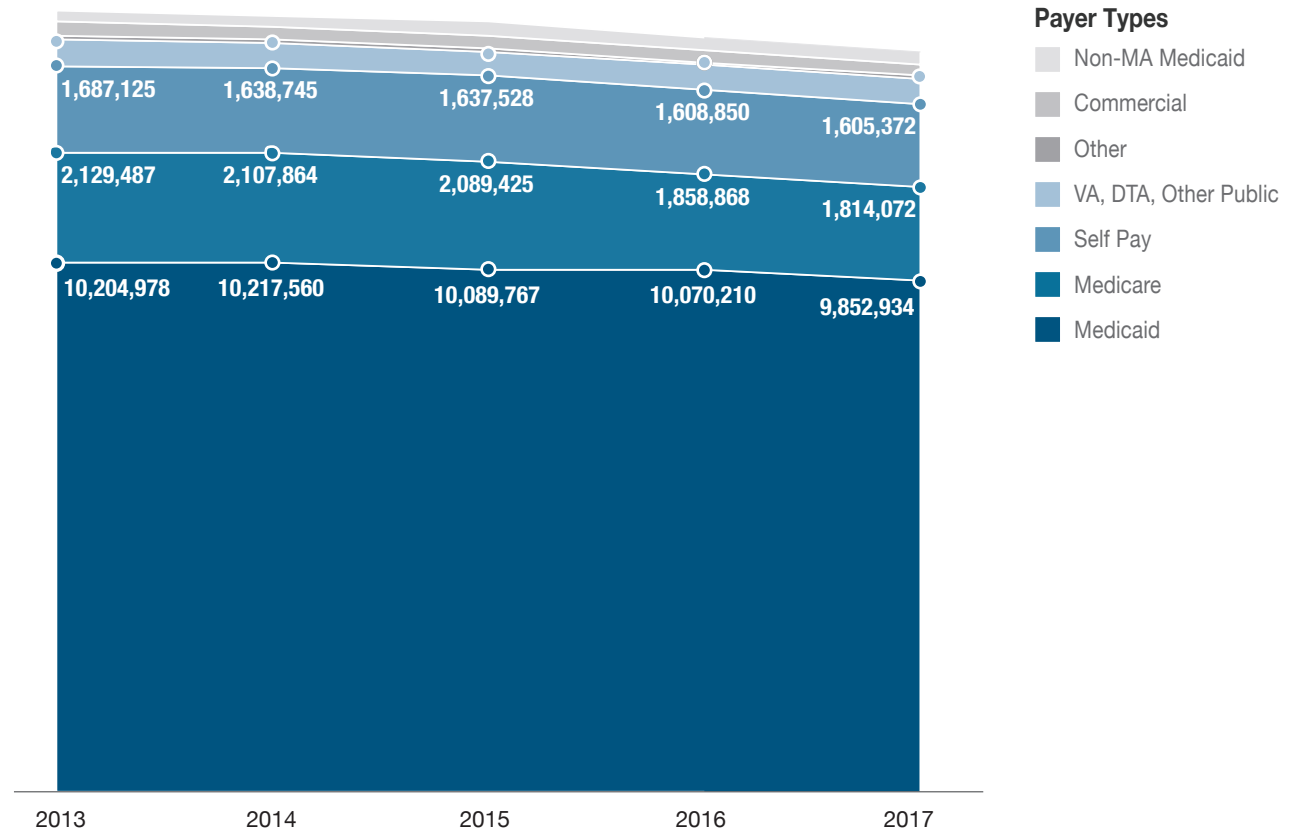


UTILIZATION

Of the 14.3 million overall resident days in 2017, 92.9% were covered by three payers. Medicaid, the largest payer, covered 9.9 million resident days in 2017, or 69.0% of all days. Medicare was the second largest payer in 2017, covering 12.7% of overall resident days. This was closely followed by self-pay residents, which comprised 11.2% of overall days. Private insurance and other government programs covered the remaining 7.1% of overall resident days.

Overall resident days declined year-over-year, but payers experienced this at different rates. Among the largest payer types, Medicare resident days had the greatest proportional decline (14.8%) from 2013 to 2017, while self-pay days declined by 4.8%, and Medicaid resident days decreased by 3.4%.

Overall Resident Days by Payer Type, 2013-2017



THE LARGEST PAYER FOR NURSING FACILITIES FROM 2013 TO 2017 WAS MEDICAID, COVERING 69.0% OF RESIDENT DAYS IN 2017.

Source: Nursing Facility Cost Reports filed with CHIA

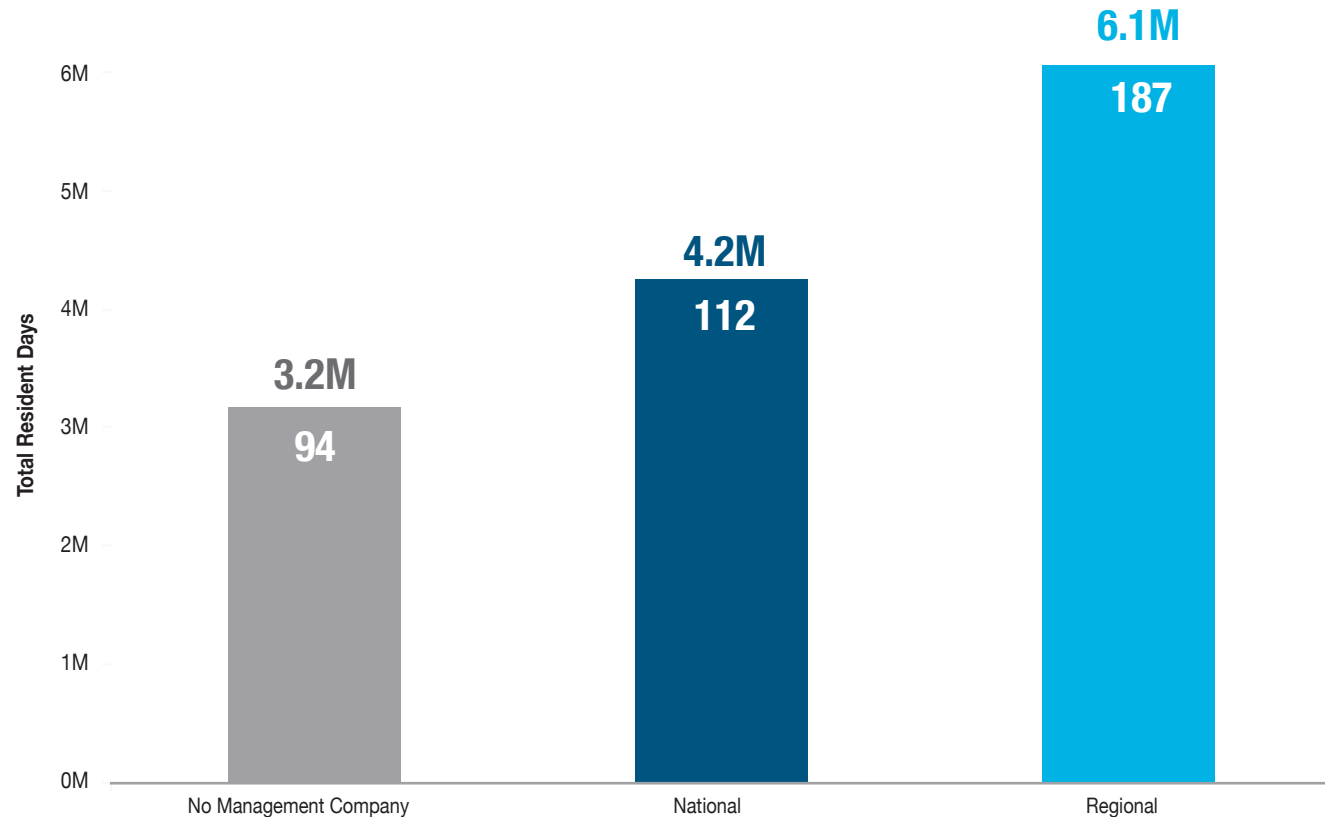
Notes: Resident days depicted in this graphic were adjusted to account for facilities that reported partial-year data for the reporting period due a change in ownership of the facility. See [technical appendix](#) for adjustment methodology.

UTILIZATION

In 2017 there were 94 nursing facilities with no management company, 112 with a national management company, and 187 with a regional management company.

Facilities with a regional management company had the highest number of resident days in 2017, totaling 6.1 million. Facilities with a national management company had 4.2 million resident days in 2017 and facilities with no management company had the lowest number of resident days with 3.2 million.

Resident Days by Management Company Type, 2017



FACILITIES WITH A REGIONAL MANAGEMENT COMPANY HAD THE HIGHEST NUMBER OF RESIDENT DAYS IN 2017.

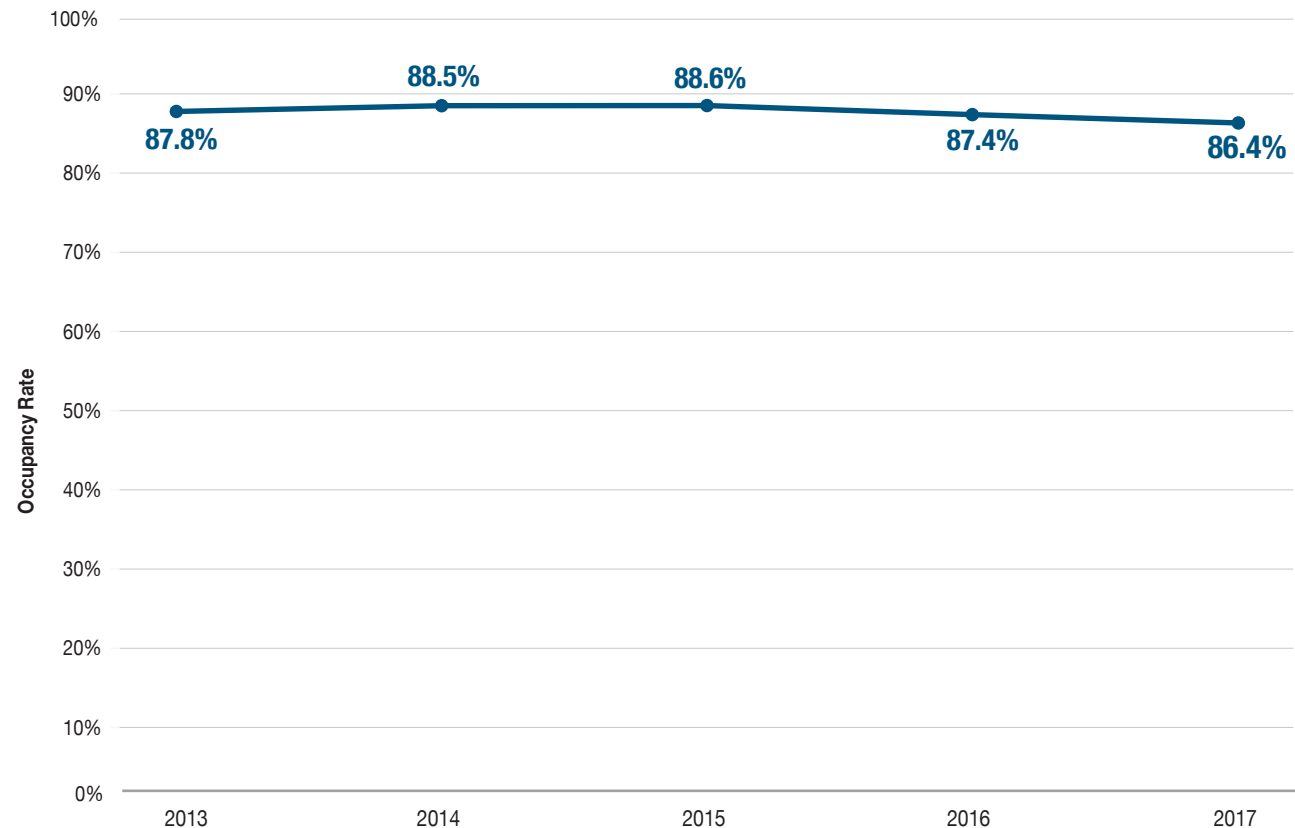
Source: Nursing Facility Cost Reports filed with CHIA

UTILIZATION

Occupancy rates are used to examine the actual utilization of a facility compared to capacity. Occupancy rates can be an indicator of financial stability; higher occupancy generates increased income to offset both fixed and variable expenses.

The system-level occupancy rates depicted here measure the percentage of filled beds across all nursing facilities for a given year. Nursing facility occupancy across the industry decreased by 1.5 percentage points between 2013 and 2017, falling from 87.8% to 86.4%.

System Occupancy Rates, 2013-2017



NURSING FACILITY OCCUPANCY DECREASED FROM 87.8% IN 2013 TO 86.4% IN 2017.

Source: Nursing Facility Cost Reports filed with CHIA

UTILIZATION

Median occupancy was slightly higher for non-profit facilities than for-profit facilities across all years, totaling 89.8% and 85.5%, respectively, in 2017.

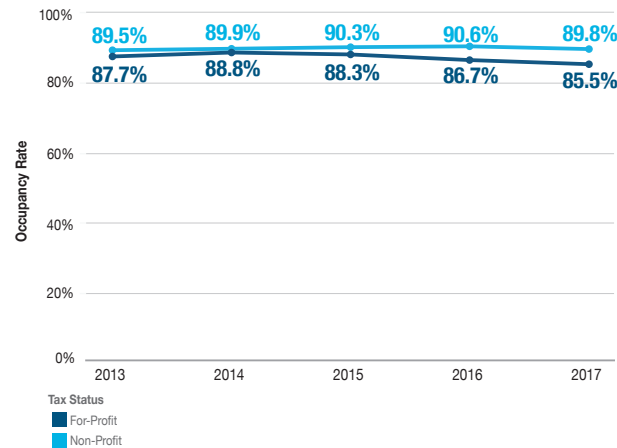
High-Medicaid facility occupancy was the lowest among the payer mix cohorts across all years, with a 2017 median of 84.3%, while occupancy for higher-Medicare facilities was 89.8%.

The median occupancy rate for higher-occupancy facilities was 95.2% in 2017, while the median occupancy rate for lower-occupancy facilities was 72.3%.

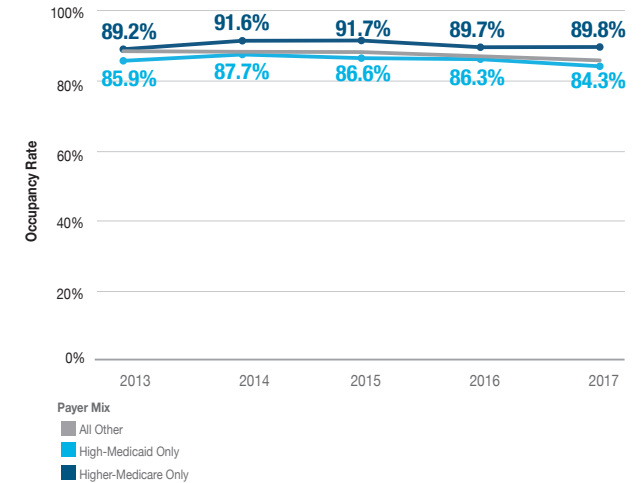
Facilities with a regional management company had the highest occupancy rate among the management company analytic cohorts, totaling 87.6% in 2017. Occupancy for facilities with no management company was 87.5%, and for those with a national management company, the median occupancy was 84.6%.

Median Occupancy Rates by Cohort, 2013-2017

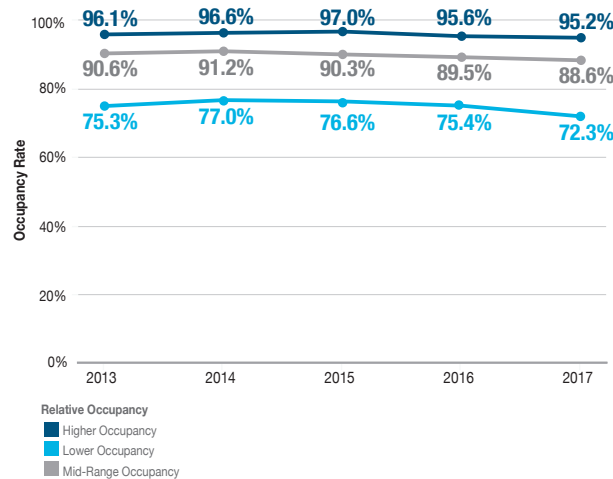
By Tax Status



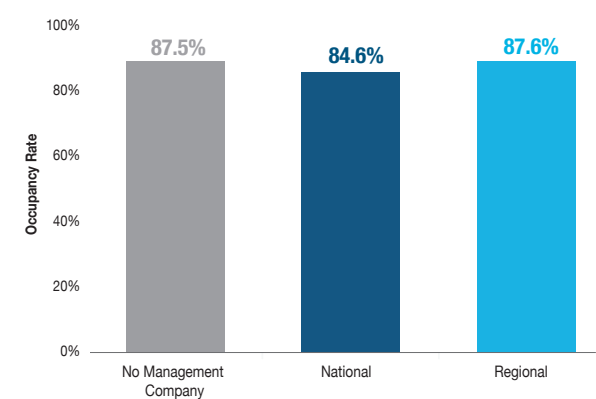
By Medicaid/Medicare Payer Mix



By Relative Occupancy



By Management Company Affiliation Type, 2017



UTILIZATION

In 2017, there were 393 total nursing facilities that served publicly funded residents in Massachusetts. The overall system occupancy rate was 86.4%.

Excluding the two counties with only one facility each, Franklin County had the fewest nursing facilities and operating beds, with five total facilities and 483 beds in 2017. Franklin County also had the second-highest median occupancy rate, at 91.3%. Middlesex County had the highest number of total facilities and operating beds, totaling 78 nursing facilities and 9,060 beds. Worcester, Essex, and Norfolk counties followed Middlesex with 54, 47, and 42 total nursing facilities, respectively.

Hampshire County had the lowest median occupancy rate among all counties in 2017, at 81.3% for six nursing facilities. Excluding the two counties with only one facility each, Barnstable County followed Hampshire, with a median occupancy of 85.7% across 17 facilities in 2017.

Total Facilities, Total Operating Beds, and Occupancy by County, 2017

County	Total Facilities	Operating Beds	Median Occupancy
Barnstable	17	1,803	85.7%
Berkshire	14	1,464	88.4%
Bristol	39	4,208	91.9%
Dukes	1	74	82.1%
Essex	47	5,065	88.6%
Franklin	5	483	91.3%
Hampden	30	3,215	88.9%
Hampshire	6	784	81.3%
Middlesex	78	9,060	87.9%
Nantucket	1	44	88.6%
Norfolk	42	4,378	86.6%
Plymouth	31	3,354	88.5%
Suffolk	28	2,962	90.5%
Worcester	54	5,851	91.3%

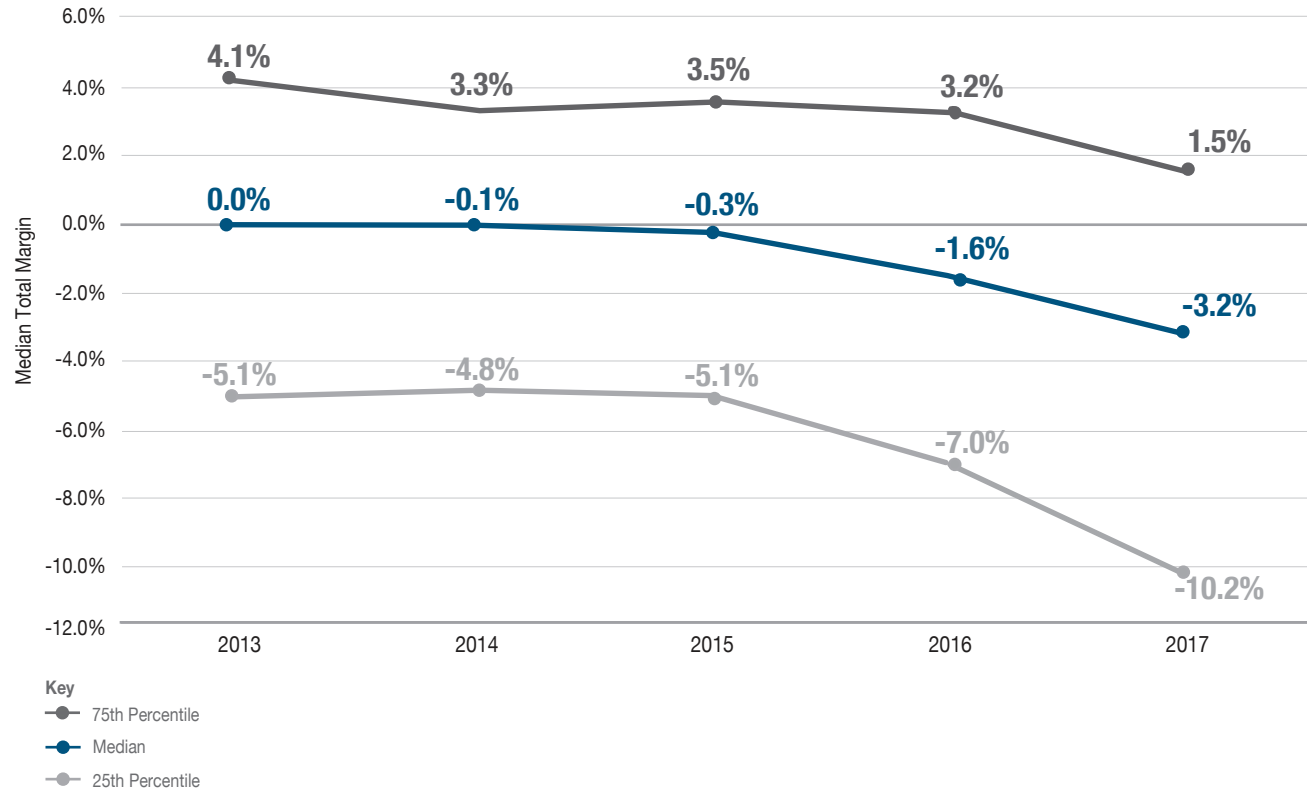
MIDDLESEX COUNTY HAD THE HIGHEST NUMBER OF TOTAL FACILITIES AND OPERATING BEDS IN 2017, WHILE FRANKLIN COUNTY HAD THE LOWEST AMONG COUNTIES WITH MORE THAN ONE FACILITY.

Source: Nursing Facility Cost Reports filed with CHIA

FINANCIAL METRICS

Total margin evaluates the overall profitability of a nursing facility, reflecting income and expenses from both primary, patient care activities of the facility, as well as other unrelated business activities, such as investment income, sale of assets, among others. Median total margins declined in each year between 2013 and 2017, ranging from 0.0% in 2013 to -3.2% in 2017.

Median Total Margin, 2013-2017



TOTAL MARGINS WERE NEGATIVE FROM 2014 TO 2017, REACHING THE LOWEST POINT IN 2017 AT -3.2%.

Source: Nursing Facility Cost Reports filed with CHIA

Median Total Margin by Cohort, 2013-2017

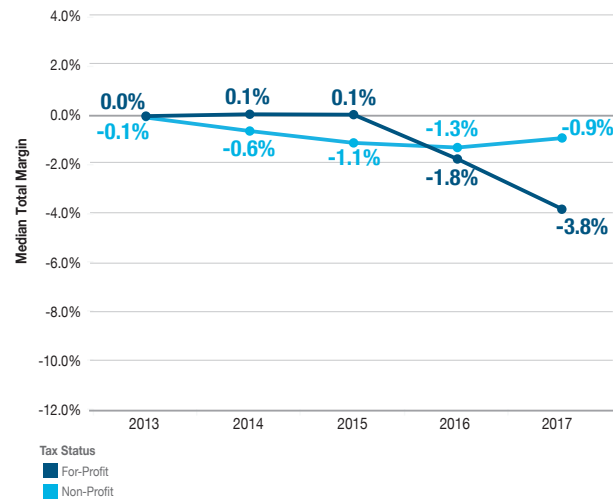
The median total margin for for-profit facilities was negative in 2016 and 2017, decreasing by two percentage points from 2016 to -3.8% in 2017. The median total margin for non-profit facilities was negative for all five years, increasing slightly between 2016 and 2017, from -1.3% to -0.9%.

High-Medicaid facilities experienced the lowest median total margin among payer mix cohorts across all five years, falling to -6.2% in 2017. Higher-Medicare facilities had a positive median total margin from 2013 to 2016 but fell to -0.7% in 2017.

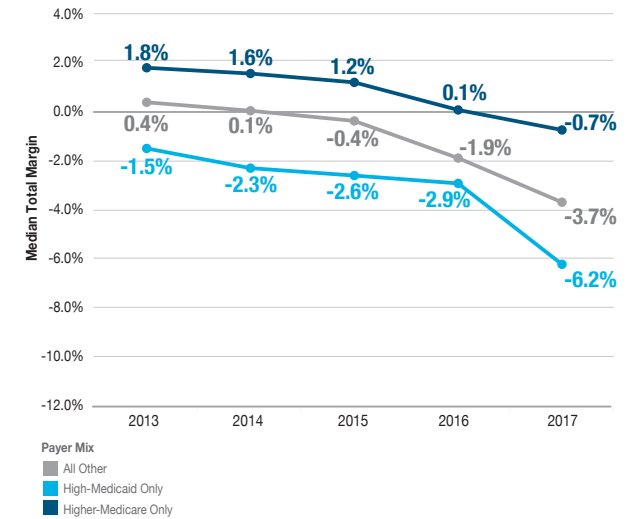
Facilities with lower occupancy had the lowest median total margin of all analytic cohorts, dropping to -11.1% in 2017. Facilities with higher occupancy experienced positive total margins for all five years, with a median of 0.9% in 2017.

Facilities with a national management company had a median total margin of -6.0% in 2017, lower than facilities with a regional management company, -2.9%, and with no management company, -0.6%.

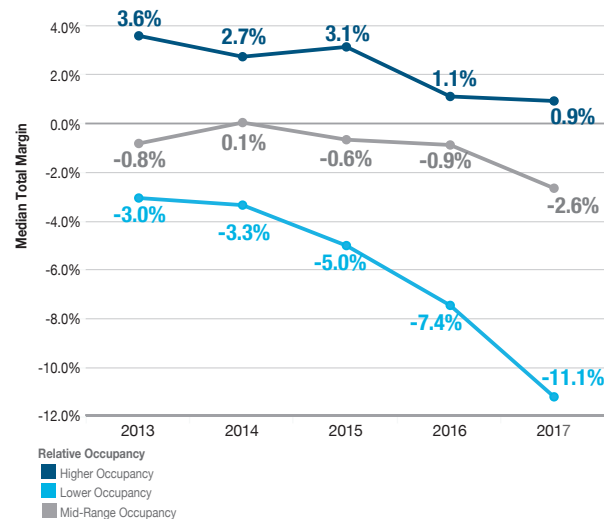
By Tax Status



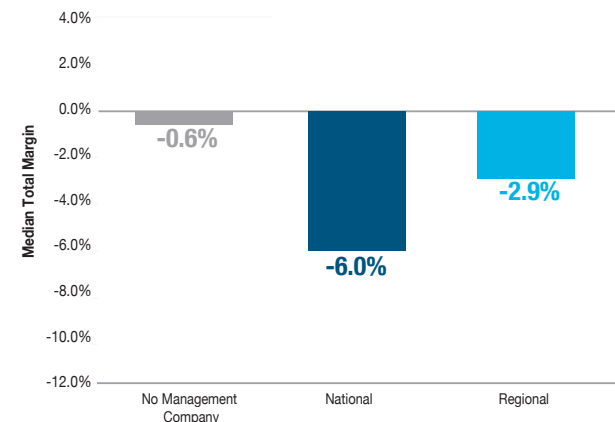
By Medicaid/Medicare Payer Mix



By Relative Occupancy



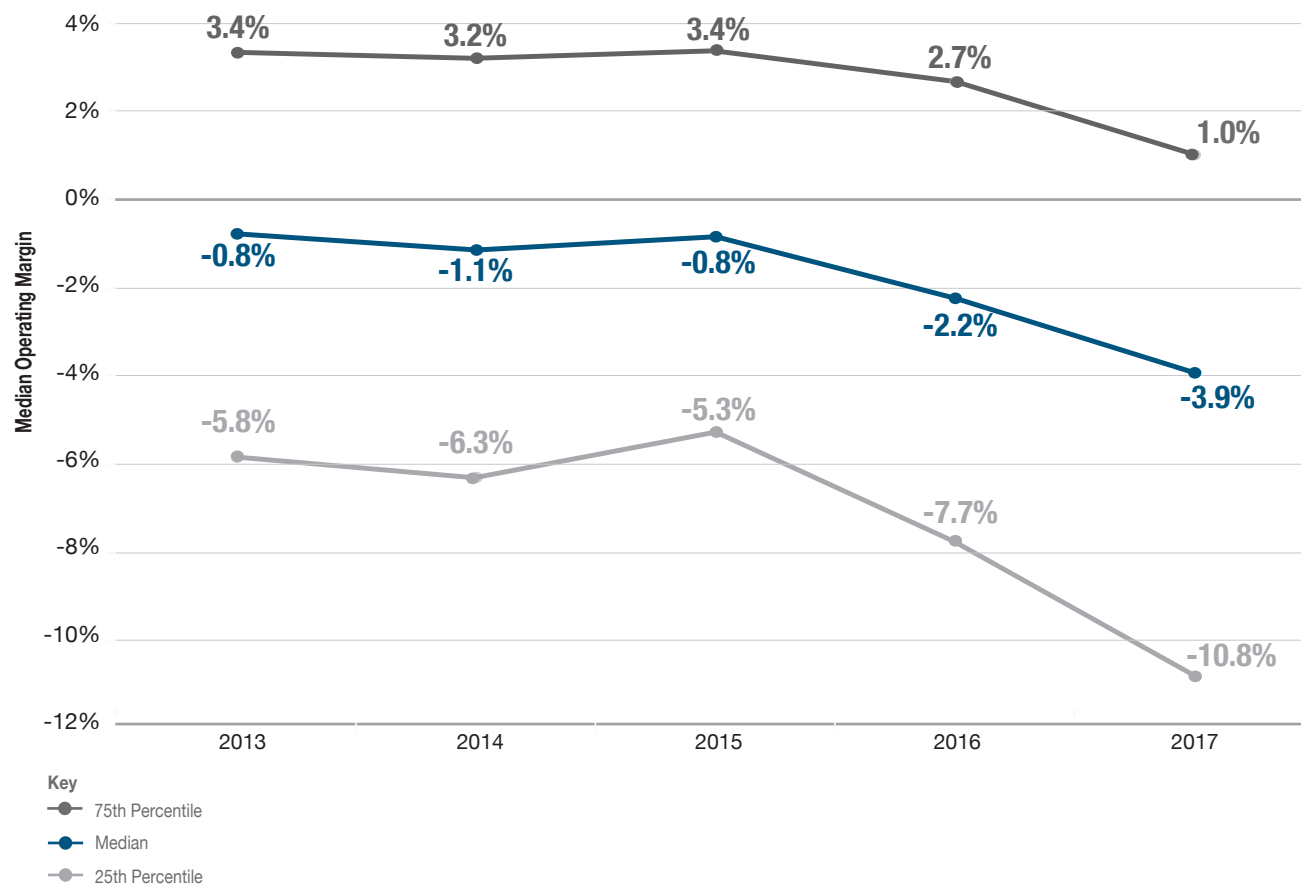
By Management Company Affiliation Type, 2017



FINANCIAL METRICS

Operating margin measures the financial performance of a nursing facility's primary, resident care activities. The median nursing facility operating margin was negative for all five years, reaching the lowest point in 2017 at -3.9%.

Median Operating Margin, 2013-2017



THE MEDIAN NURSING FACILITY OPERATING MARGIN WAS -3.9% IN 2017, A DECLINE FROM -2.2% IN 2016.

Source: Nursing Facility Cost Reports filed with CHIA

FINANCIAL METRICS

The median operating margin among for-profit facilities was flat or negative in all years from 2014 to 2017, falling to -3.6% in 2017. The median non-profit facility operating margin was lower than that of for-profit facilities in all years, and declined to -4.2% in 2017.

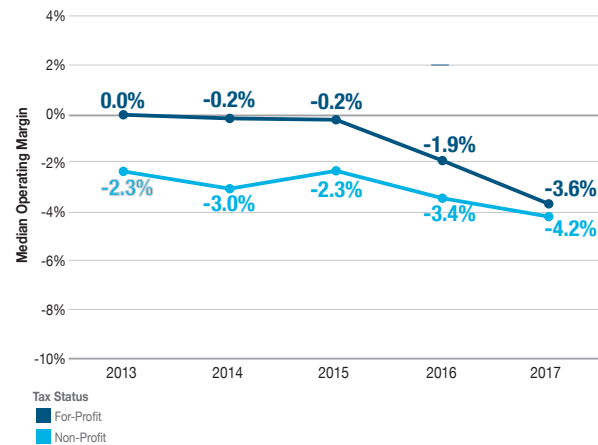
The median operating margin of high-Medicaid nursing facilities was the lowest of all payer mix cohorts across the five-year period, falling to -6.7% in 2017, a 3.2 percentage point decrease from the prior year. The median operating margin of higher-Medicare nursing facilities reached the lowest point in 2017 at -1.2%.

Across lower-occupancy facilities, the median operating margins declined each year to reach a low of -11.3% in 2017. Among higher-occupancy facilities, the median operating margin was positive in all five years, but declining; the 2017 median operating margin among these facilities was 0.2% in 2017.

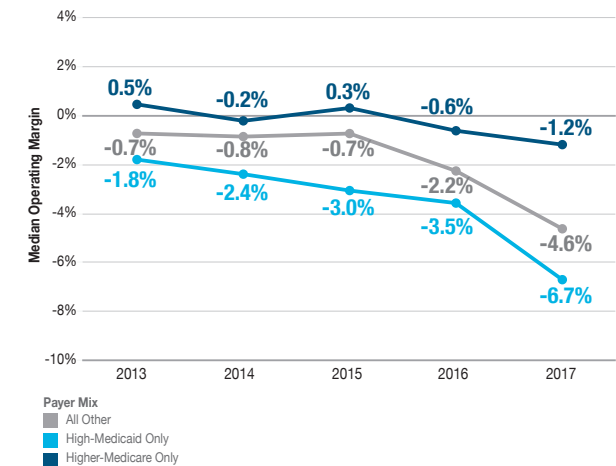
The median operating margin of nursing facilities with a regional management company (-3.4%) was slightly higher than that of both national management companies (-5.9%) and facilities with no management company (-3.5%).

Median Operating Margin by Cohort, 2013-2017

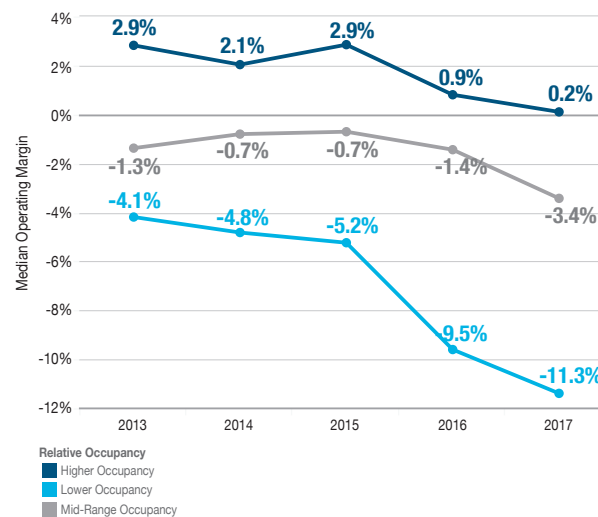
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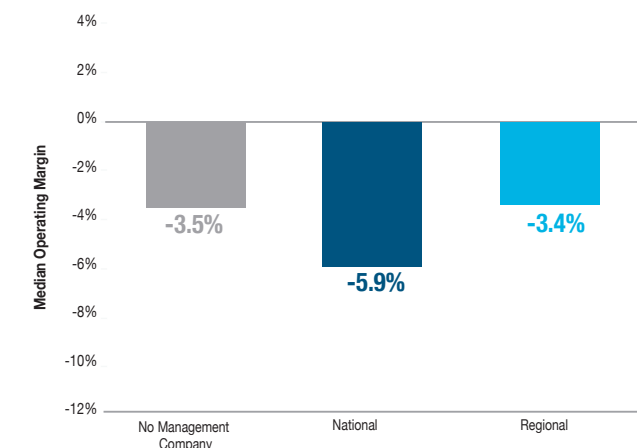
By Medicaid/Medicare Payer Mix



By Relative Occupancy



By Management Company Affiliation Type, 2017

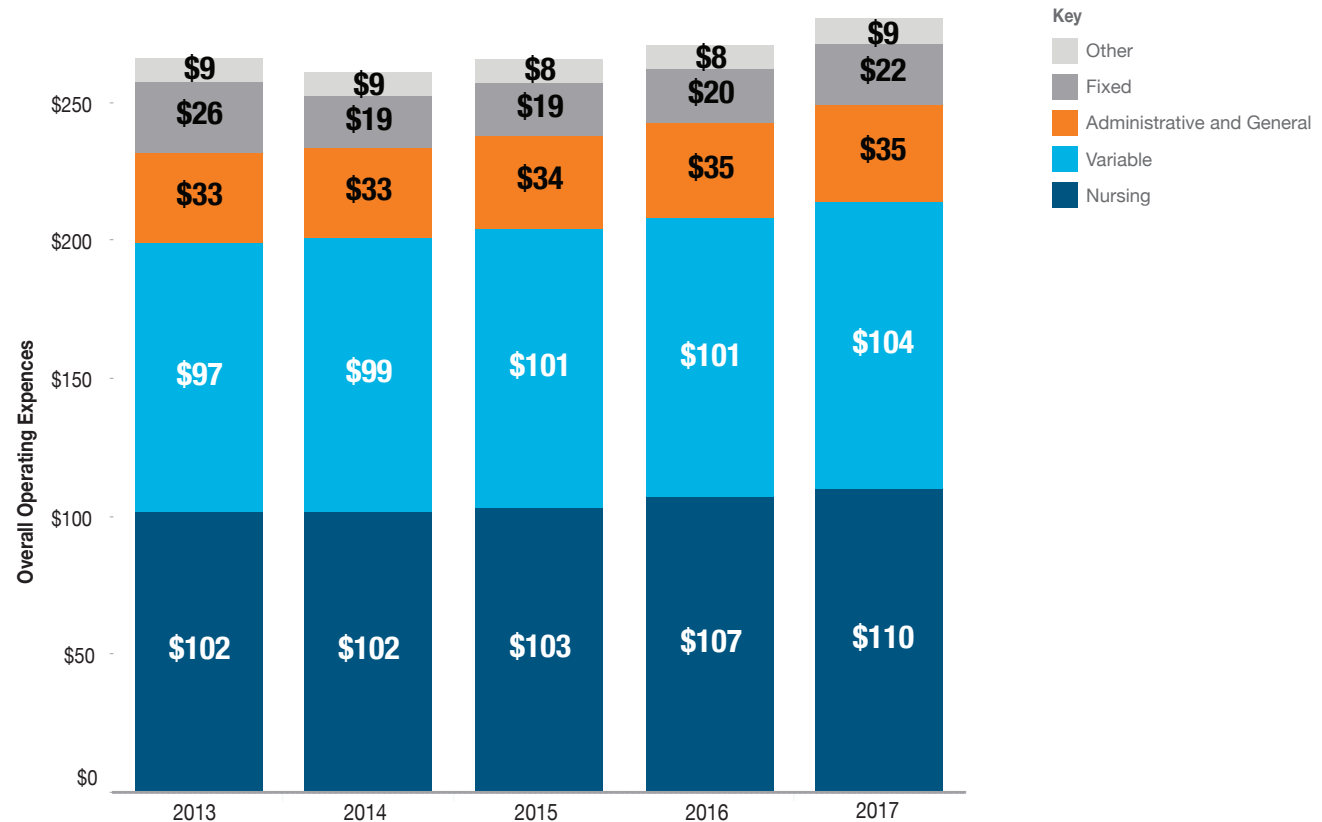


FINANCIAL METRICS

Components of Operating Expenses, 2013-2017

At the industry level, the distribution of spending on the components of operating expenses has not changed notably from 2013 to 2017. However, operating expenses per resident day increased by 5.1%, from \$282 in 2013 to \$297 in 2017. Among the components, nursing expenses per resident day across all facilities increased faster than other components, growing 8.5% from 2013 to 2017.

Among operating expenses, nursing expenses comprised the largest share (\$110 per resident day in 2017), consisting of the salaries and benefits, or contracted rates, for nursing staff, including RNs, CNAs, and LPNs. The next largest category was variable expenses (\$104 per resident day), which includes payments for wages (physicians, social workers, dietitians), and for services (food, laundry, housekeeping supplies, recreational activities) as well as some expenses not directly related to nursing care delivery. The remaining dollars were spent on administrative and general expenses (\$35), fixed expenses (\$22), and other expenses (\$9).



IN ALL YEARS, THE MAJORITY OF OPERATING EXPENSES WERE FOR NURSING, FOLLOWED CLOSELY BY VARIABLE EXPENSES.

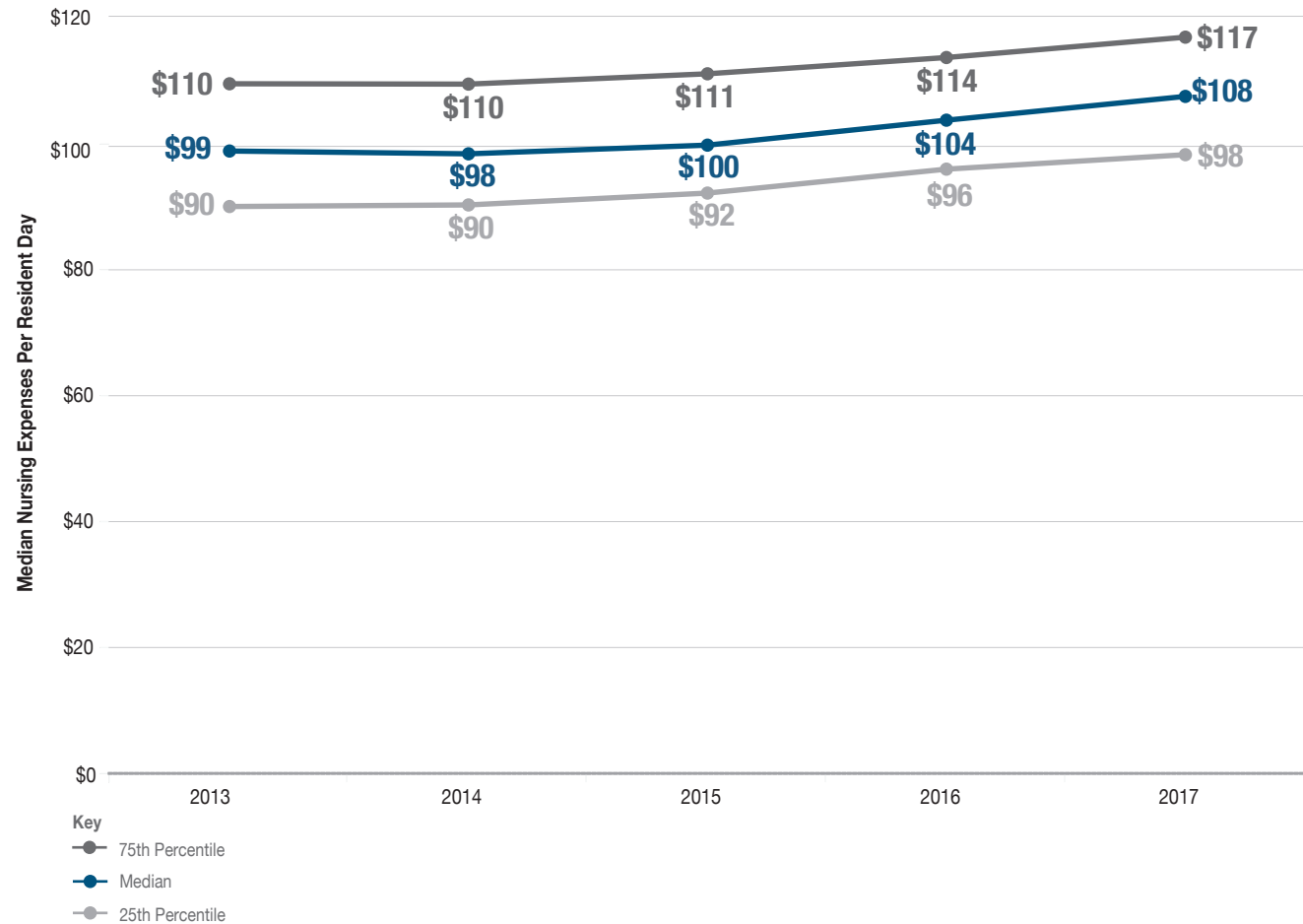
Source: Nursing Facility Cost Reports filed with CHIA

Notes: The operating expenses per patient day by component reported in this chart reflect the sum of dollars and resident days across all facilities, while the next graphic illustrates medians within a given analytic cohort. Administrative and general expenses are comprised of administrator and clerical staff salaries and benefits. Fixed expenses include items such as land, software, and building costs. Other expenses include interest on late payments and special program expenses, among others.

FINANCIAL METRICS

This chart illustrates the median amount that nursing facilities spent on nursing staff on a resident day basis. From 2013 to 2017, the median nursing expenses per resident day increased by \$9 (8.8%), from \$99 to \$108.

Median Nursing Expenses per Resident Day, 2013-2017



NURSING EXPENSES PER RESIDENT DAY INCREASED BY \$9 BETWEEN 2013 AND 2017.

Source: Nursing Facility Cost Reports filed with CHIA

FINANCIAL METRICS

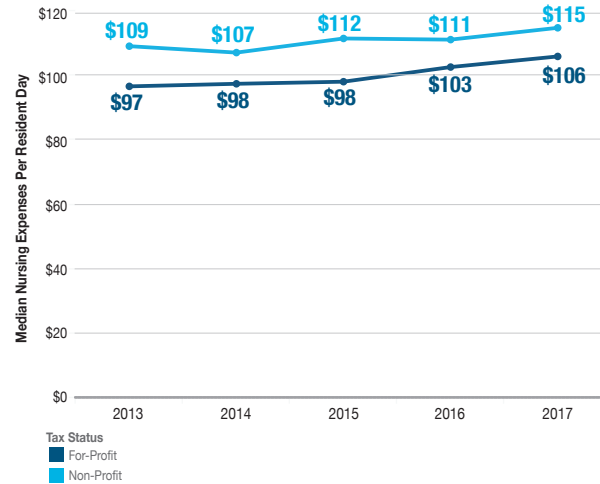
Median Nursing Expenses per Resident Day by Cohort, 2013-2017

Median nursing expenses were over 8% higher at non-profit facilities than at for-profit facilities between 2013 and 2017. In 2017, non-profit facilities median spending was \$115 per resident day compared to \$106 for for-profit facilities, a difference of \$9.

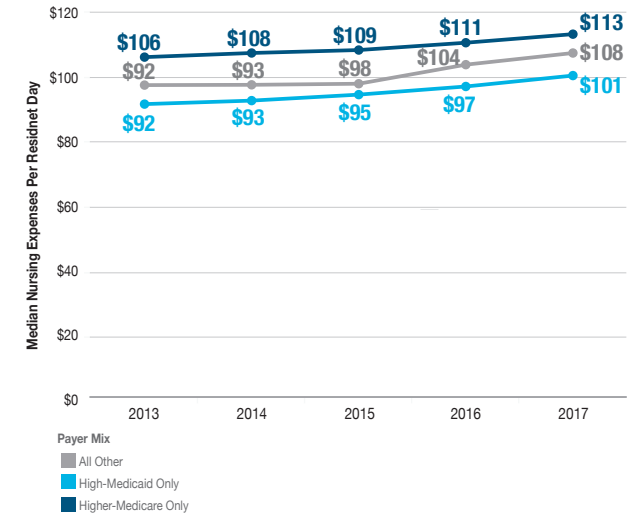
The median nursing expense per resident day was greater for higher-Medicare facilities than other payer mix cohorts for all five years, spending \$113 in 2017 compared to \$108 for other facilities and \$101 for the high-Medicaid payer mix cohort.

Median nursing expenses per resident day did not vary notably by relative occupancy level across all years, or by management company affiliation in 2017.

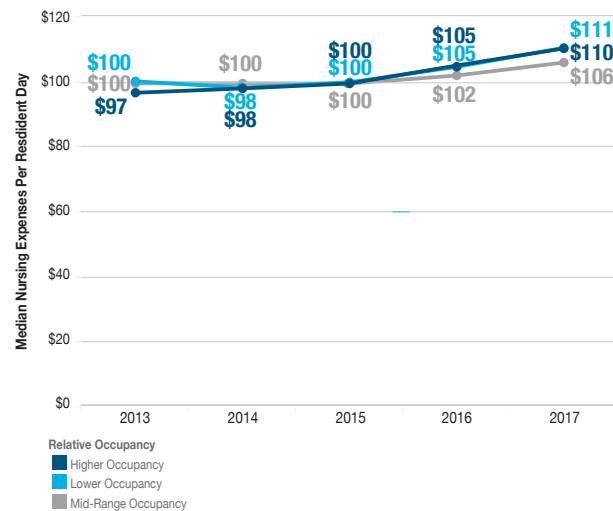
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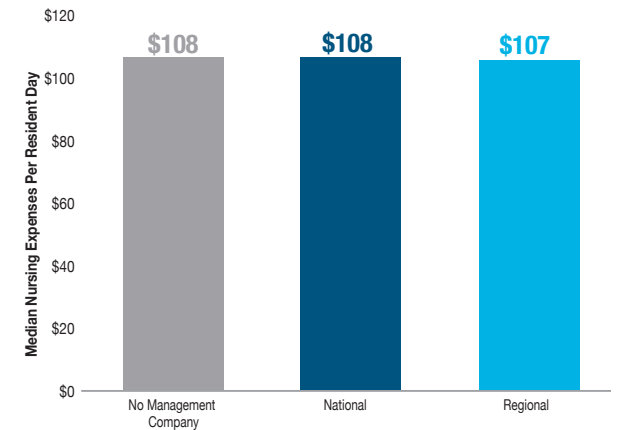
By Medicaid/Medicare Payer Mix



By Relative Occupancy



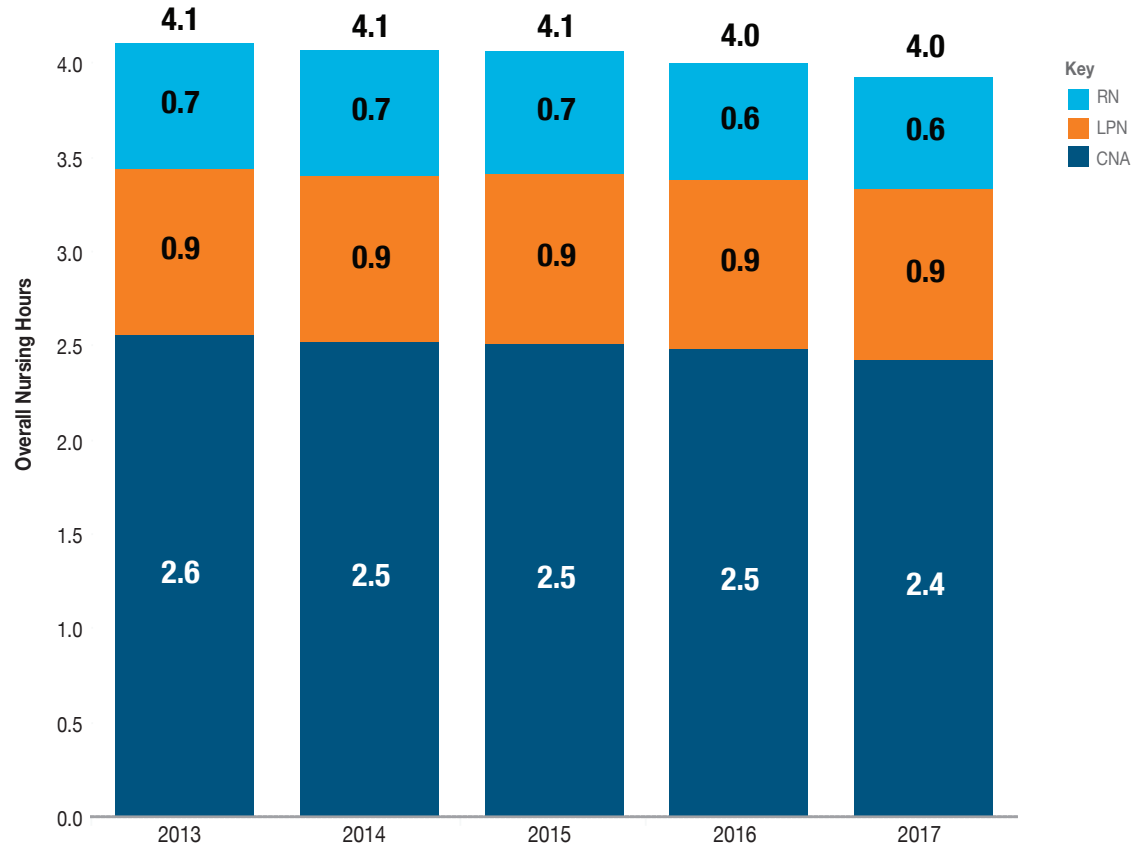
By Management Company Affiliation Type, 2017



QUALITY METRICS

Over the past 25 years, research has documented that increased staffing is associated with improved quality of care for residents of nursing facilities. Care in nursing facilities is primarily provided by three types of providers: Registered Nurses (RNs), Licensed Practical Nurses (LPNs), and Certified Nursing Aides (CNAs). In Massachusetts, total nursing hours per resident day remained fairly steady between 2013 and 2017, with a slight decline in RN hours and CNA hours since 2013.

Nursing Hours per Resident Day, 2013-2017



CNA HOURS COMPRISED THE LARGEST PORTION OF NURSING HOURS PER RESIDENT DAYS FROM 2013 TO 2017.

Source: Nursing Facility Cost Reports filed with CHIA

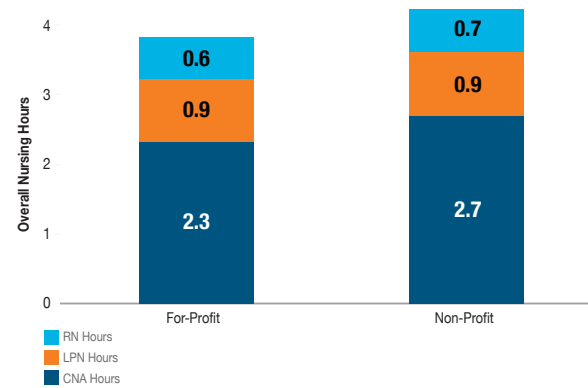
Nursing Hours per Resident Day by Cohort

CNA hours were higher at non-profit than at for-profit facilities in 2017, at 2.7 and 2.3 hours per resident day, respectively. RN hours were also higher at non-profit than at for-profit facilities though by a smaller margin, at 0.7 and 0.6 hours, respectively. Both RN and CNA hours were 0.2 hours higher at higher-Medicare facilities compared to high-Medicaid facilities, and 0.1 higher compared to other facilities.

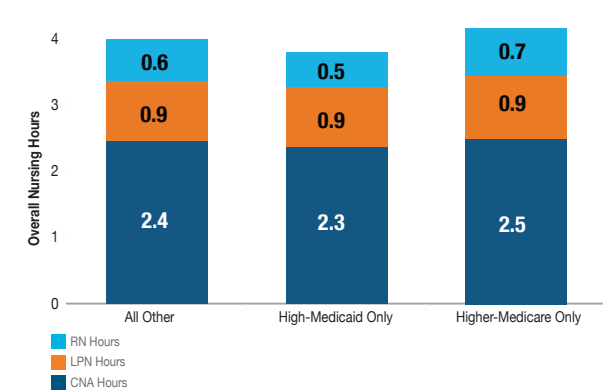
While RN and LPN hours did not differ across occupancy cohorts, higher-occupancy facilities reported 2.5 CNA hours per resident day, while lower-occupancy facilities reported 2.3 CNA hours per resident day.

CNA hours were highest at facilities with no management company (2.6 hours), followed closely by facilities with regional management (2.5 hours); facilities with national management reported 2.3 CNA hours per resident day. LPN and RN hours did not vary notably by management company type.

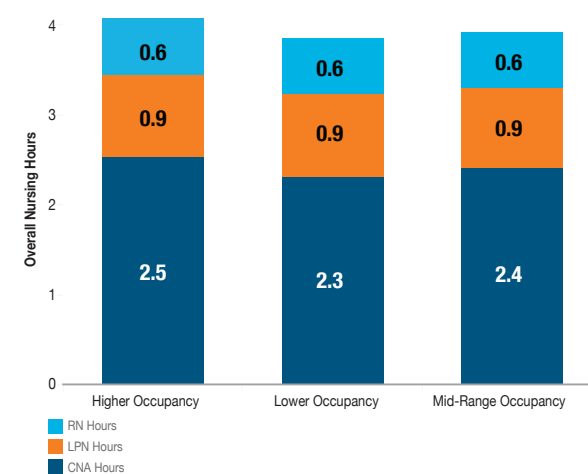
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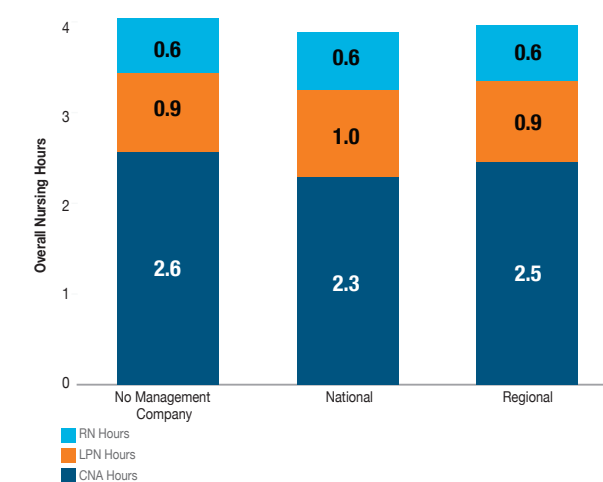
By Medicaid/Medicare Payer Mix



By Relative Occupancy



By Management Company Affiliation Type, 2017

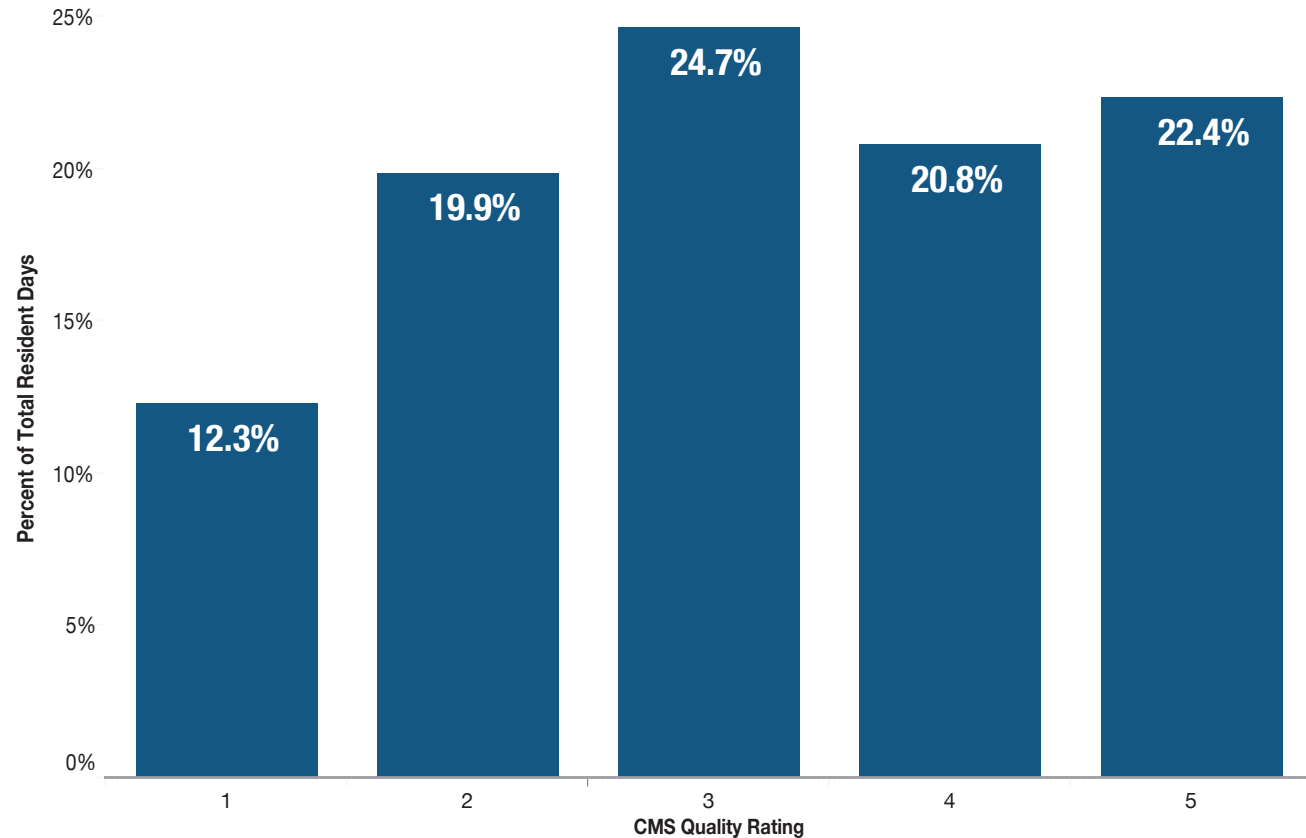


QUALITY METRICS

The Centers for Medicare and Medicaid Services (CMS) publishes quality information about nursing facilities on the Nursing Home Compare website. The Overall Rating reflects nursing facility performance across three domains: health inspections, staffing, and quality measures, and is reported based on a scale of 1 (indicating “much below average” relative to all facilities in the nation) to 5 (indicating “much above average”), with three stars indicating “average.”

In 2017, the highest share of resident days in Massachusetts was in three-star facilities (24.7%) followed closely by five-star facilities (22.4%). Three, four, and five star facilities accounted for 67.8% of resident days while one and two-star facilities accounted for 32.2%.

Share of Resident Days by CMS Quality Rating, 2017



THREE STAR FACILITIES ACCOUNTED FOR THE HIGHEST SHARE OF RESIDENT DAYS IN 2017.

Source: Nursing Facility Cost Reports filed with CHIA

Share of Resident Days by CMS Quality Rating by Cohort, 2017

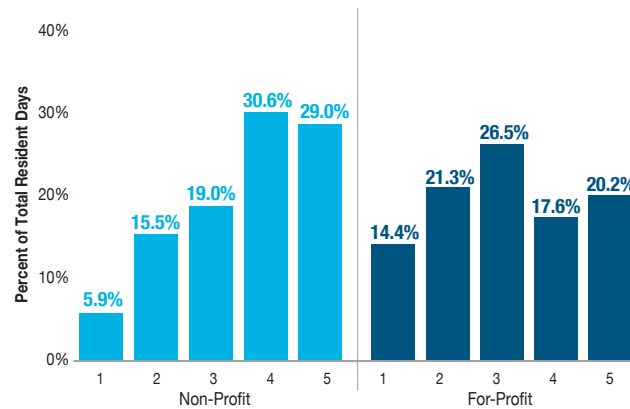
In 2017, 78.6% of resident days at non-profit facilities were in three, four, and five-star quality facilities, compared to 64.3% at for-profit facilities.

Among facilities classified as higher-Medicare, 87.0% of resident days in 2017 were in facilities rated three, four, or five stars on overall quality, with 38.3% in five-star facilities. 13.0% of higher-Medicare resident days were in one and two-star facilities. Among facilities classified as high-Medicaid, 50.4% of resident days were in three-, four-, and five-star facilities, while 49.6% of resident days were concentrated in one- and two-star facilities.

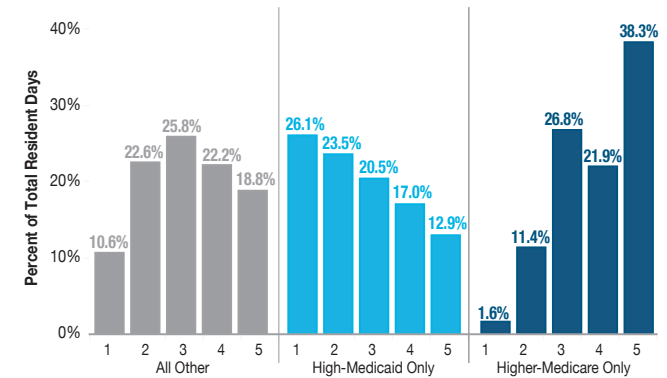
Higher-occupancy facilities reported 42.6% of resident days at five-star facilities, and 1.6% at one-star facilities. In contrast, lower-occupancy facility resident days were concentrated in three-star facilities (34.5%) and two-star facilities (26.7%).

Facilities with a national management company had 71.4% of resident days in three, four, and five-star quality facilities, compared to 64.3% for those with a regional management company. Facilities with no management company had the highest percentage of resident days in a five-star facility among the management company cohort, totaling 29.7% in 2017.

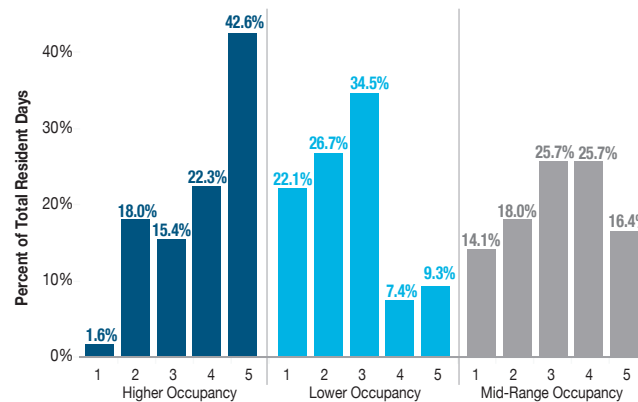
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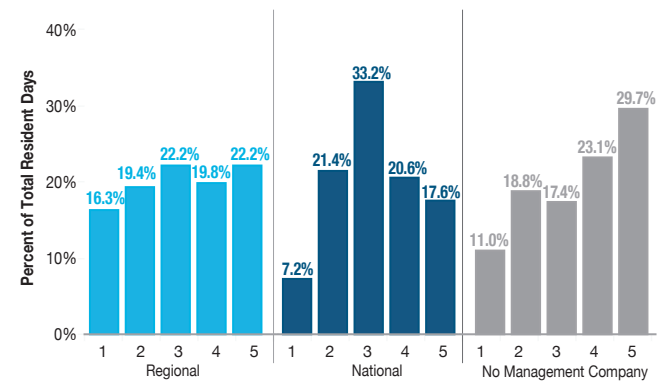
By Medicaid/Medicare Payer Mix



By Relative Occupancy



By Management Company Affiliation Type, 2017

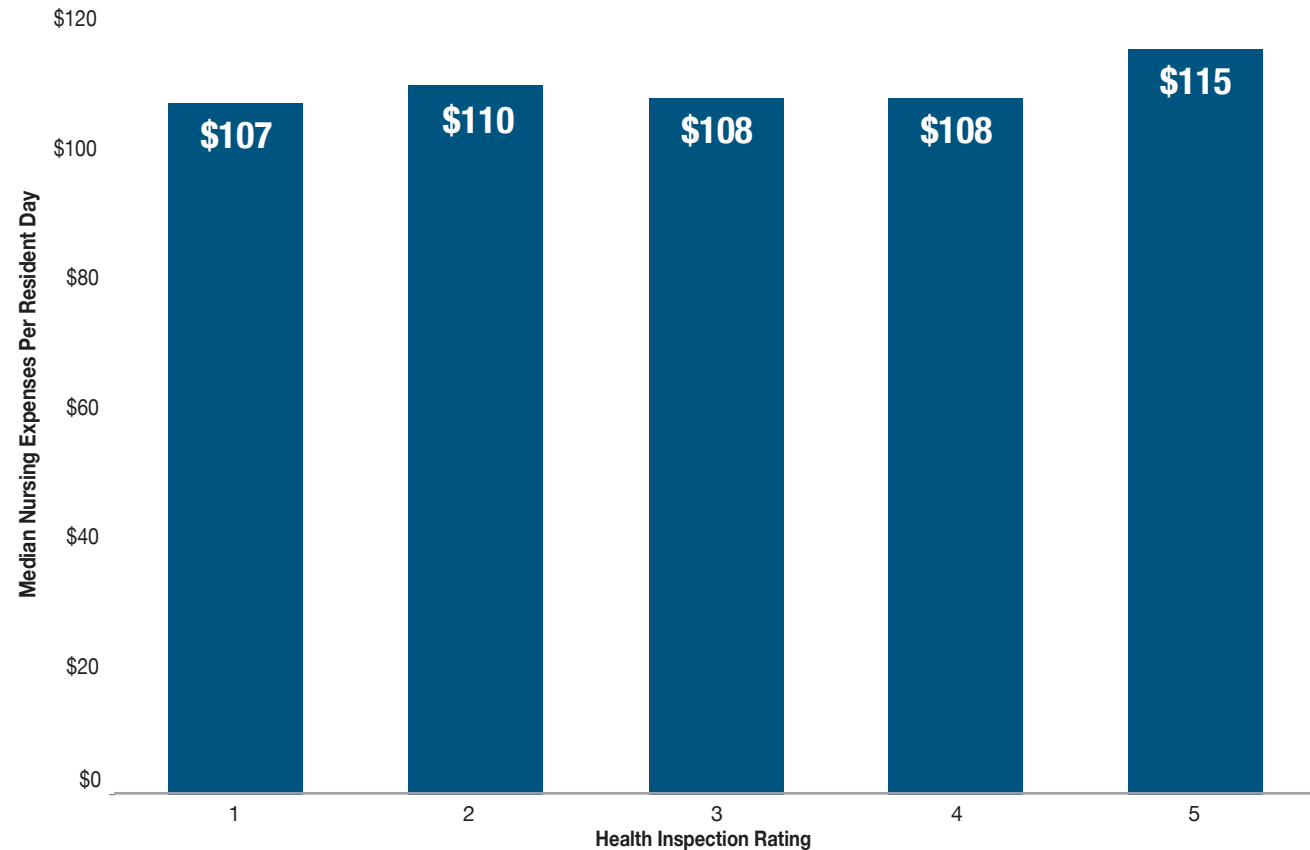


QUALITY METRICS

The health inspection rating, a component of the overall CMS five-star quality rating, is a measure based on the number, scope, and severity of deficiencies identified in state health inspections. Like the CMS quality rating, the health inspection rating is measured on a five-star scale.

In 2017, facilities that received a five-star health inspection rating spent \$115 on nursing expenses per resident day, \$8 more than one-star facilities (median of \$107). There were also differences in spending between four and five-star facilities, with five-star facilities spending \$7 more than four-star. The differences in median nursing spending among one to four-star facilities was \$3 or less per resident day.

Median Nursing Expenses per Resident Day by Health Inspection Rating, 2017



NURSING FACILITIES WITH A FIVE-STAR HEALTH INSPECTION RATING SPENT \$8 MORE ON NURSING EXPENSES PER RESIDENT DAY THAN ONE-STAR RATED FACILITIES IN 2017.

Source: Nursing Facility Cost Reports filed with CHIA; CMS Nursing Home Compare



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