healthcare insights report

POST-ACUTE CARE:

disruption (and opportunities) lurking beneath the surface

ALVAREZ & MARSAL

A&M

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The Story of the Wrinkled Little Man...

By Lee Thomas

It's been told that the little boy
clasped the wrinkled hand
of the little wrinkled man and asked,
"Mr, is this what happens when we grow old?"

The little wrinkled man smiled.
He said, "Little child,
the little wrinkles around my eyes,
were carved from many, many years of tears.
But these around my lips, brow and cheeks,
came long after many, many years of laughter.
So you see, if you cry and laugh long enough,
you too will one day look like me."

Then, the little boy looked into the eyes
of the wrinkled little man and realized
that inside that wrinkled little old man,
was a little boy just like the one,
clasping the old man's wrinkled little hand.

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HEALTHCARE:
POST-ACUTE CARE: DISRUPTION (AND OPPORTUNITIES) LURKING BENEATH THE SURFACE

Foreword

In this report, Alvarez & Marsal (A&M) provides a synopsis of its perspective on the rapidly aging U.S. population, the evolution of payment reform and the implications of all the changes to the post-acute care sector. The U.S. healthcare system is not yet prepared for the influx of aging Baby Boomers and their medical, behavioral, functional and social needs. Embedded inefficiencies exist. Facility-centric care predominates. However, a glimmer of change driven by patient-centric payment reform has begun to emerge.

In 2025, the population of those >65 years old will reach 65.1 million and represent 18.8% of the total. Growth is most rapid in the 75–84 age cohort, followed by those 65–74 years old and, to a far lesser extent, the >85 group. Each age cohort has distinct population health needs that are treated differently in each local market. Post-acute care spending is forecast to increase from $646 billion to $1.312 billion, reflecting a compound annual growth rate of 7.3%, during the next decade. Variation in the utilization of post-acute care services accounts for 73% of the total cost of care variation in Medicare spending.

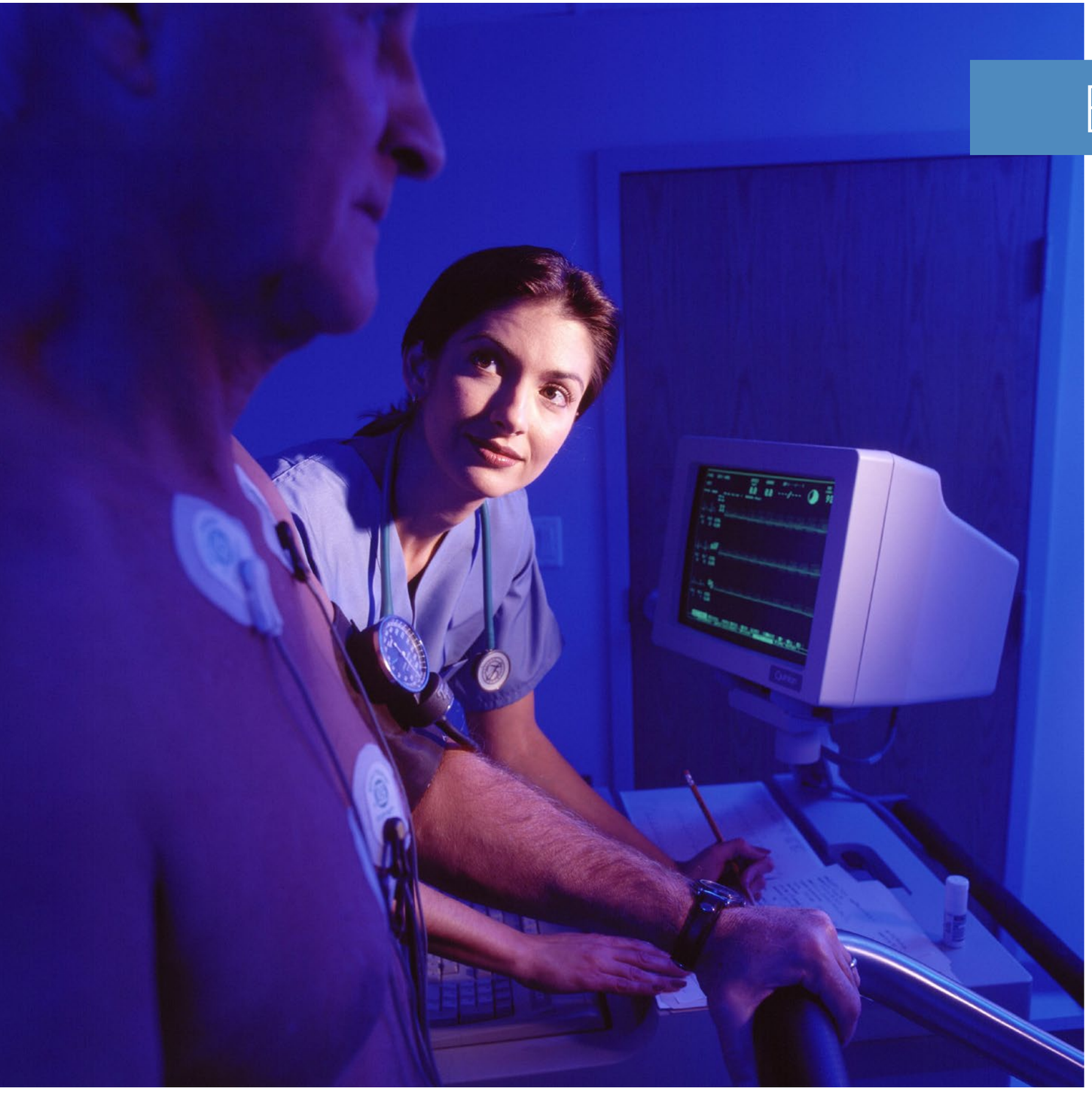
Variation implies opportunities to increase the efficiency and effectiveness of care delivery. The Centers for Medicare & Medicaid Services (CMS) has taken a leading role in reforming Medicare and, by default, the entire healthcare system. U.S. Department of Health & Human Services Secretary Sylvia Mathews Burwell has stated her objective is to have alternative payment models account for 50% of payments by 2018, and to have quality and value metrics linked to 90% of all Medicare fee-for-service payments by the same year.

Value-based purchasing, hospital readmissions, hospital-acquired conditions, accountable-care organizations and payment bundling represent CMS' initial attempt to link reimbursement to outcomes.

The IMPACT Act of 2014 will fundamentally restructure post-acute care with use of a standardized data collection instrument across the entire continuum of post-acute care, focus on enhanced analytics and create a unified post-acute care payment system that establishes payment rates according to characteristics of individuals instead of setting. The growth of Medicare Advantage poses another challenge to post-acute care providers.

Post-acute care stakeholders have benefitted from a facility-centric reimbursement system. The advent of capitated and episode-of-care payments (as per the Comprehensive Care Joint Replacement model) will facilitate the creation of a patient-centric care delivery system focused on "the right treatment at the right time for the right patient in the right place." Winners and losers will emerge.

Martin McGahan
Managing Director
Head of A&M Healthcare Industry Group



EXECUTIVE SUMMARY

Alvarez & Marsal (A&M) believes the post-acute sector will be transformed during the next 10 years, driven by the IMPACT Act of 2014, the Comprehensive Care Joint Replacement (CJR) model, other payment reform initiatives and increasing Medicare Advantage plan participation. The shift from facility-centric (reimbursement-driven) to patient-centric (outcome-driven) care will fundamentally alter provider focus from reimbursement maximization to cost and quality management.

The rapid growth of the >65-year-old population, and especially the 75 to 84-year-old cohort, suggests an increased demand for healthcare services. However, given the consolidation of health systems and hospitals, and the emergence of alternative payment systems, the basis of competition is expected to change. Critical success factors include:

- **Scale:** Consolidating health systems (hospitals) have expressed an intention to reduce the number of post-acute care "partners" within local markets. Scale is also required for leverage of fixed investments in technology, analytics, regulatory compliance and administration.
- **Efficiency (low cost):** An accelerated Medicare transition from fee-for-service to capitation and episode of care reimbursement, combined with increased Medicare Advantage penetration, highlight the importance of site-specific costs (for the same risk-adjusted condition) in a value-oriented ecosystem.
- **Quality:** Avoiding re-hospitalizations is essential to reducing the total cost of care. Medicare Compare ratings for hospitals, nursing homes and home care, inclusive of outcomes, experience of care and process measures, represent opportunities for competitive differentiation.
- **Data-driven analytics and risk management:** Patient and process-of-care data will provide insights into clinical effectiveness and operational efficiency. Continuous improvement is required. Data is also required to identify high-risk patients, limit the frequency of at-risk events and better manage occurrences.
- **Business intelligence:** All healthcare is local, based on proximity, a willingness by patients and their caregivers to travel and brand equity. Post-acute care providers require an external focus to better understand the strategic intent, execution capabilities and competitive position of health systems and hospitals, inclusive of referral patterns.
- **Integrated continuum of post-acute care offerings:** Horizontal integration or preferred provider relationships may allow for the better "matching" of patient requirements with the optimal (highest value) site of care if integrated (interoperable) data systems can facilitate transition management, team-based case management, evidence-based guideline management and cost management.
- **Patient and caregiver engagement (self-management):** A preference for aging in place, and home-based medical and end-of-life care, has been expressed by patients and their caregivers. Engagement requires enhanced patient-provider interaction, the self-monitoring of symptoms and responding with appropriate actions (e.g., adjust medications, call nurse or MD) when symptom levels indicate a problem. Technology potentially serves as an enabler of

home-based monitoring and intervention; home modification potentially reduces the risk of falls and related injuries.

- **Management acumen:** The transfer of reimbursement risk to providers during the ongoing transitional period and thereafter will challenge management historically focused on providing facility-based care rather than utilization management across the continuum. Management will need to adapt to the new reality or be at risk for failure.

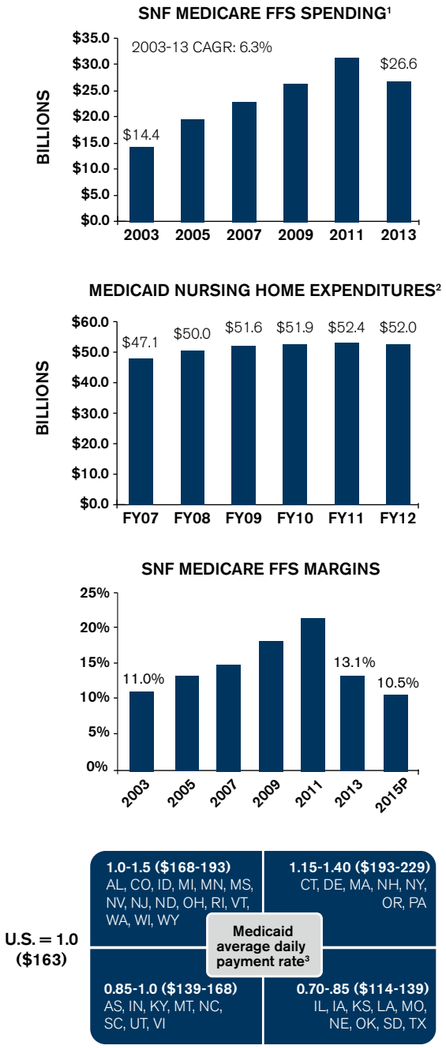
Marketplace changes alter the prospects of specific segments. A&M believes longer-term investment opportunities are best for home care and worst for long-term acute care hospitals; selective opportunities also appear to exist for inpatient rehabilitation facilities, hospice and skilled nursing facilities (SNFs).

A. SKILLED NURSING FACILITIES: EXECUTION, EFFECTIVENESS AND SIZE

Skilled nursing facilities are increasingly dependent upon post-acute Medicare Part A and private pay referrals and admissions for profitability. Short-term stays account for 38.5% of occupied bed days, whereas long-term (institutional) stays account for the remainder. A broad range of Medicare operating margins exist, from <4.8% in the lowest quartile to >23.0% in the highest quartile, reflecting efficiency, intensity of services and the case-mix index.[177]

The quality of skilled nursing facility care is measured in a multitude of manners, including hospital readmissions, self-reported quality and staffing metrics, and inspection results. In 2013, the Centers for Medicare & Medicaid Services (CMS) reported a potentially avoidable hospitalization rate of 15.1%, with the 25th quartile at 10.1% and the 75th quartile at 18.9%.[178] A

Figure 1 - Skilled Nursing Facility Growth Trends



Source: SNF margin in 2011 reflects implementation of new case mix groups (RUGS) and inappropriate use of an adjustment factor. 2013 also reflects impact of sequester.[1] Table A Medicaid Expenditures for Long-Term Services and Supports: 2007-2012. http://www.medicaid.gov/medicaid-chip-program-information/by-topics/long-term-services-and-supports/downloads/ltss-expenditures-2012.pdf[2] Table A Medicaid Expenditures for Long-Term Services and Supports: 2007-2012. http://www.medicaid.gov/medicaid-chip-program-information/by-topics/long-term-services-and-supports/downloads/ltss-expenditures-2012.pdf [3] MedPAC 2011. Table 7-18

March 2014 Office of Inspector General (OIG) report highlighted 33% of nursing home Medicare beneficiaries experienced either an adverse event (22%) or temporary-harm event (11%), with 59% of the total being preventable and resulting from substandard treatment, inadequate resident monitoring and failure or delay of necessary care.[179] Re-hospitalization rates and adverse events will gain increasing importance to hospital and health system providers participating in bundled payment programs and Accountable Care Organizations.

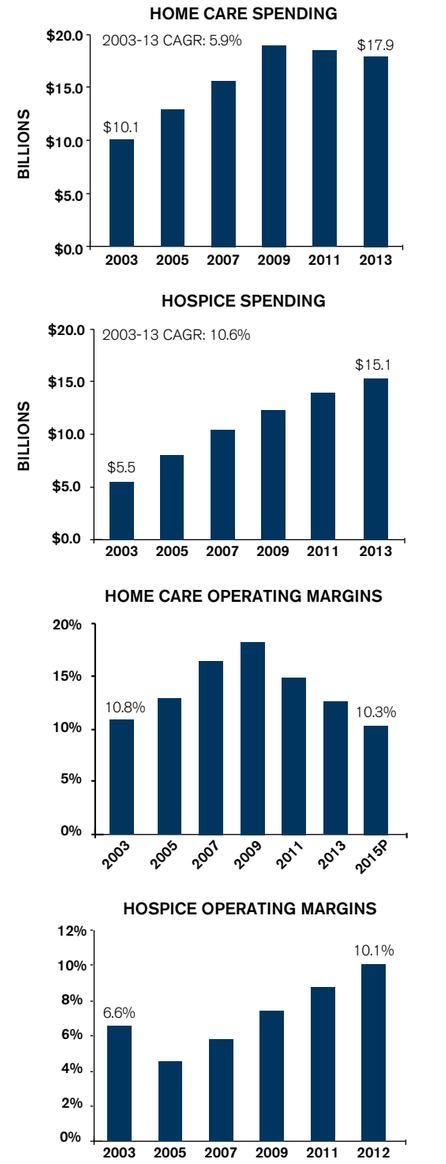
Major concerns about the accuracy of self-reported data and the variability of state survey inspection citations have been highlighted by the Center for Integrity and the OIG; components of Nursing Home Compare data may actually be invalid.

Size, referrals, efficiency and effectiveness, the latter inclusive of quality, are emerging as critical success factors for a risk-based and continuum-oriented market.

B. HOME CARE: A COST-EFFECTIVE ALTERNATIVE TO FACILITY-BASED CARE

Home care represents a cost-effective alternative to facility-based care. The IMPACT Act is expected to better match patient acuity with service needs, likely resulting in increased downstream patient flow from skilled nursing facilities and elsewhere. Home care may also benefit from shorter hospital and post-acute care facility stays driven by the growth of at-risk contracts. Near-term reimbursement pressures are expected to abate, resulting in the normalization of operating margins. A possible increase in the minimum wage as mandated by municipal and / or state governments requires monitoring. Favorable demographics will result in sustainable growth for agencies that are efficient, effective and able to generate referrals.

Figure 2 - Medicare FFS Home Care and Hospice Growth Trends



Source: SNF margin in 2011 reflects implementation of new case mix groups and inappropriate adjustment factor. 2013 also reflects impact of sequester

C. HOSPICE: TOO SHORT, TOO LONG

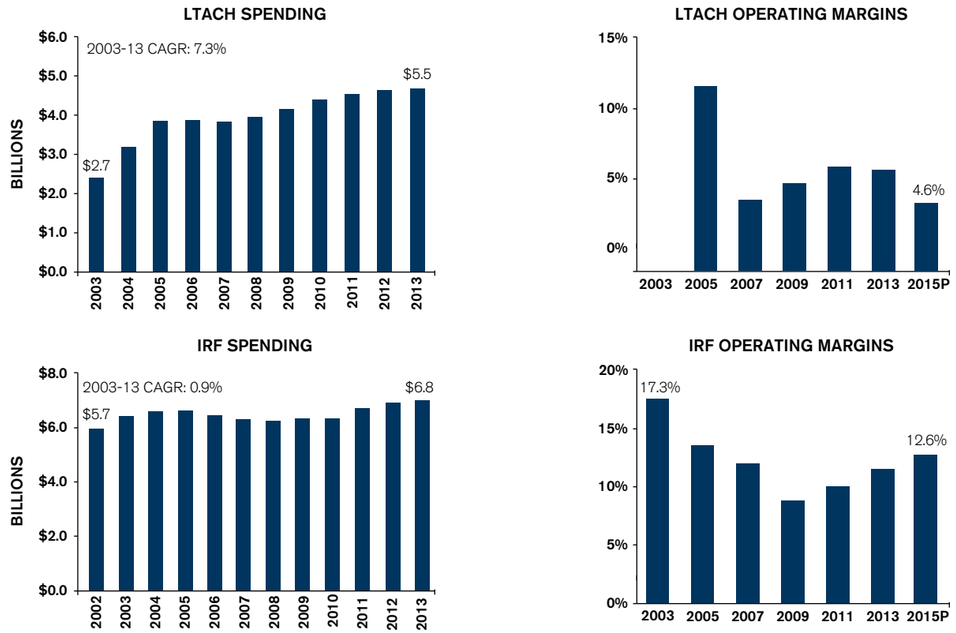
More than one-third of hospice patients, 34.5%, receive care for <7 days, whereas another 11.5% exceed the 180-day threshold of presumed life expectancy. The data reflects the inadequacy of palliative and end-of-life care, i.e., a failure of shared decision-making among the patient, primary caregiver and physician. It also reflects the growing impact of non-cancer patients to hospices (patient mix) and potentially an excess of patients with indeterminate life expectancy (exceeding six months).

A clear patient preference for dying at home, combined with an increased use of advanced directives, increasing Medicare Advantage penetration and growing acceptance of palliative care, is likely to result in sustainable growth. Fraud among a small percentage of providers with an excess of outlier (extended duration) payments remains a concern.

D. LONG-TERM ACUTE CARE HOSPITALS: GROWTH, STAGNATION AND POSSIBLE DECLINE

Long-term acute care hospitals (LTACHs) grew rapidly between 2003 and 2010 and then stagnated due to a flattening of reimbursement growth and a construction moratorium imposed by CMS. Beginning in FY16 (beginning October 2016) and phased in over two years, Medicare will pay LTACH rates only for patients who (a) had a preceding hospital discharge that included at least three days in an intensive care unit or coronary care unit or (b) are assigned an MS-LTC-DRG for cases receiving at least 96 hours of mechanical ventilation services in the LTACH. All other lower acuity cases will receive "site-neutral" payment rates. The net result will be a reduction in volume and lower reimbursement. Historical patient-mix trend data suggests an opportunity to further refine patient admission criteria. Comparative analysis continues to suggest no incremental improvement in outcomes relative to treatment in lower cost settings, i.e., skilled nursing facilities and elsewhere.[227] LTACHs are at a crossroad in their evolution.

Figure 3 - Medicare FFS LTACH and IRF Growth Trends



Source: http://MedPAC.gov/documents/reports/chapter-11-long-term-care-hospital-services-(march-2015-report).pdf?sfvrsn=0

E. INPATIENT REHABILITATION FACILITIES: FREESTANDING FACILITIES AND SCALE YIELD HIGH PROFITS

The number of inpatient rehabilitation facilities (IRFs) and IRF admissions has remained relatively constant during the past five years. Medicare fee-for-service (FFS) spending resumed modest growth after eight years of stagnation. Divergent operational performance is clearly evident between nonprofit, primarily hospital-based IRFs and for-profit, largely freestanding facilities with operating margins of 0.3–1.5% vs. 23.4–24.1%; the overall industry margin is 11.4%.

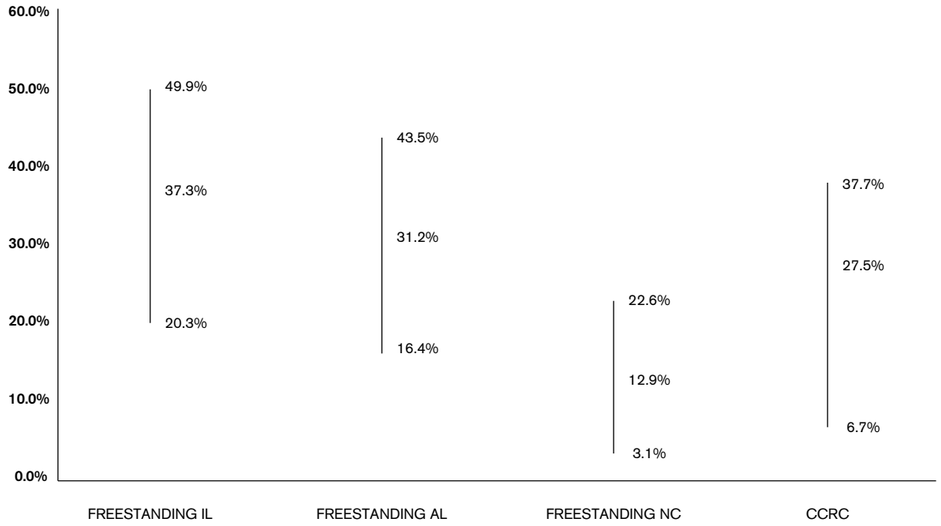
The differential in profitability is largely driven by differences in the mean-adjusted cost per discharge. The possible advent of site-neutral reimbursement, combined with stricter CMS "presumptive compliance" with the 60% rule further substantiates the competitive advantage of freestanding, largely for-profit facilities. An accelerated market share shift from hospital-based, nonprofit to freestanding, for-profit facilities is possible. The projected FY15 Medicare FFS operating margin for IRFs (12.6%) exceeds that of the projections for SNFs (10.5%), home care (10.3%) and LTACHs (4.6%).

F. SENIOR HOUSING: EXTENSION OPPORTUNITIES FOR PREVENTIVE CARE

Senior housing includes a broad range of independent living, assisted living and nursing care properties operated as stand-alone, multi-property and continuing-care communities. Occupancy rates, rentals and new construction have increased since the bottom of the Great Recession from 2009 to 2011. Labor costs and turnover rates, especially for low-wage healthcare aides, remain a concern, though given the private pay nature of senior housing, they are subject to pass through rental increases.

Longer-term demographic trends are favorable. A&M estimates an increase in unit demand of 35% for independent living and assisted living between 2015 and 2025. This potentially translates into 30,000–35,000 units per annum. A major opportunity exists to better engage residents in preventive care, focusing on ambulatory care sensitive conditions such as asthma, chronic pain, chronic obstructive pulmonary disease (COPD), diabetes (complications), hypertension, congestive heart failure, pneumonia and urinary tract infections. The advent of capitated reimbursement offers providers an opportunity to partner with senior housing organizations in care management.

Figure 4 - Operating Margins (EBITDAR) by Property Type* - Lower Quartile, Median and Upper Quartile



Source: NIC. EBITDAR excludes operating lease payments, ground lease payments, debt services, depreciation, amortization, income taxes, partnership expenses, capital expenditures and replacement reserves. FY2012 except for Nursing Care FY2010

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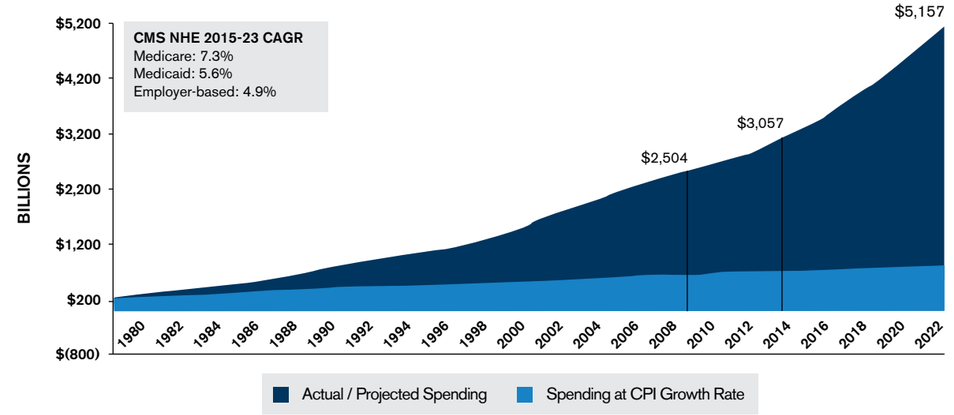
AGING BABY BOOMERS: INCREASING FUTURE DEMAND FOR SERVICES

After a five-year "quiet" period of annual healthcare spending increases of 3.6-3.8%, expenditure growth is forecast by CMS to accelerate during the next five to 10 years.[1] The moderation in healthcare spending growth reflects the lingering impact of the Great Recession, below-average Medicare and Medicaid reimbursement growth, higher generic drug penetration and payment reform spurred by the Patient Protection and Affordable Care Act (PPACA). Fundamental structural changes, though, touted by the Council of Economic Advisors as secondary to the PPACA, so far appear limited.[2]

Figure 5 - National Healthcare Expenditures: 1980-2023; 2015-23E CAGR: 5.9%



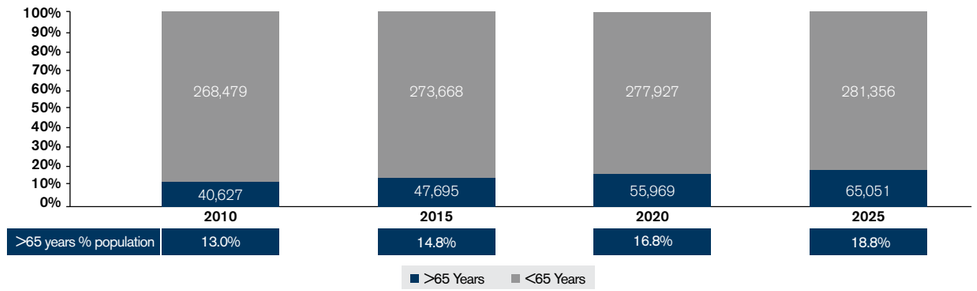
Source: CMS National Health Expenditures, BLS CPI Inflation Calculator. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html

Spending increases of 4.9-6.6% per year are forecast between 2015 and 2023 by CMS, driven by increased Medicaid coverage, a rapidly aging baby boomer population, provider and insurance industry consolidation, and rising technology costs. Medicare, funded solely by the federal government, is forecast to increase from $603 billion in 2014 to $1.087 billion in 2024, reflecting a compound annual growth rate (CAGR) of 6.1%.[3] Medicaid, funded by federal and state governments, is forecast to increase from $507 billion in 2014 to $947 billion in 2024, reflecting a CAGR of 6.5%; the federal government, through its Federal Medical Assistance Percentages (FMAP) program, accounts for 50-74% of state Medicaid spending.[4,5] The vast majority of Medicare spending is for the aging population.

Nearly 25% of Medicaid expenditures ($107 billion in 2014) are being spent on nursing facilities, and home care and personal care.[6]

During the next decade, the U.S. population is forecast to increase from 321.4 million in 2015 to 346.4 million, a growth of 8.1% by 2025. A significant demographic shift is forecast, as the Medicare-eligible population, those >65 years old, will increase by 17.4 million (36.4%) to 65.1 million, and represent 18.8% – nearly one-fifth – of the total population. The <65 population remains relatively unchanged during the decade with an increase of 7.7 million (2.8%) to 281.4 million. The demand for healthcare services increases with age.[7]

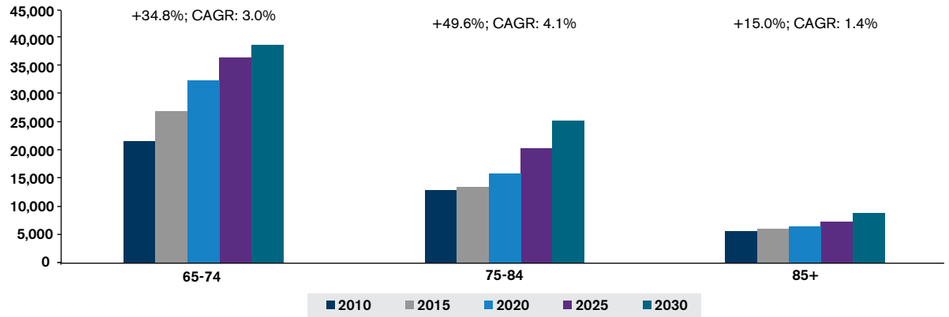
Figure 6 - Population Growth by Age, 2010-2025



The Institute of Health Improvement defines population health as "the health outcomes of a group of individuals, including the distribution of such outcomes within the group." The population health needs of the >65 population are not homogenous. As a result, it is important to make differentiations among the medical, social and community needs of different age cohorts. It is also important to recognize that the respective age cohorts are of different sizes in 2015 (65-74: 27.0 million; 75-84: 13.6 million; >85: 6.3 million) and will increase at different rates during the next 10 years (65-74: 34.8%; 75-84: 49.6%; >85: 15.0%); the respective compound annual growth rates are 3.1%, 4.1% and 1.4%.[8]

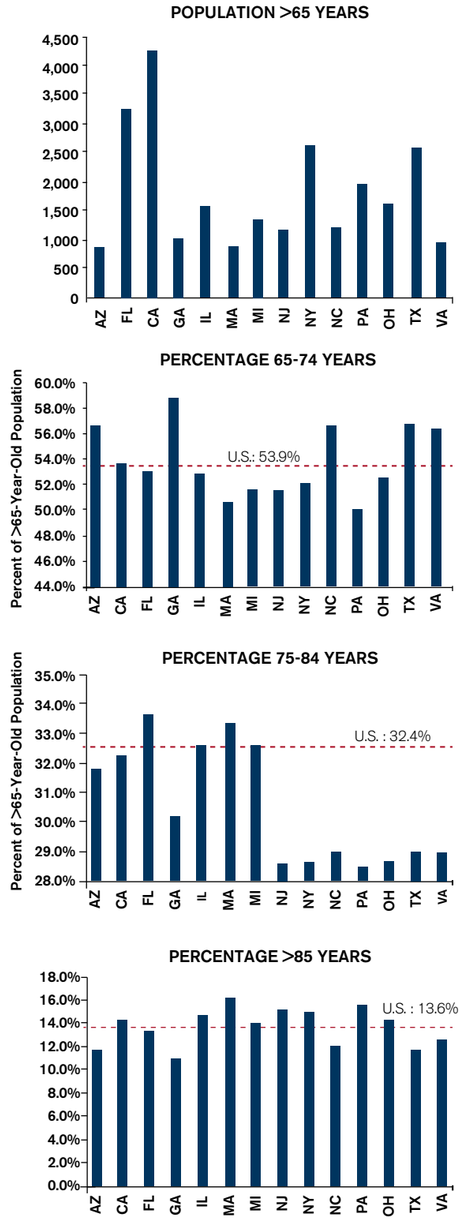
Demand for services is largely driven by aging demographics. Among the major states, Florida has the highest percentage of residents >65 years (17.4%), whereas Texas has the lowest (10.3%).[9] A more nuanced analysis of the population mix by age cohort is required to generate insights into the demand for specific types of resources, e.g., senior housing, inclusive of skilled nursing facilities.

Figure 7 - Population Growth by Age Cohort, 2010-2030



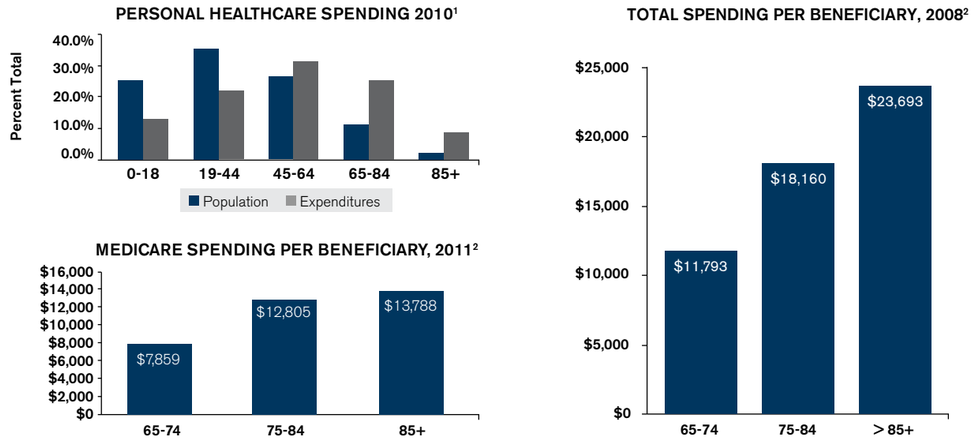
Source: U.S. Census Bureau. The first Baby Boomers (1946-1964) turned 65 in 2011. Significant growth in 85+ population forecast to begin by 2030+

Figure 8 - Population >65 by Age Cohort for Major States, 2010



Source: http://www.census.gov/compendia/statab/cats/population.html

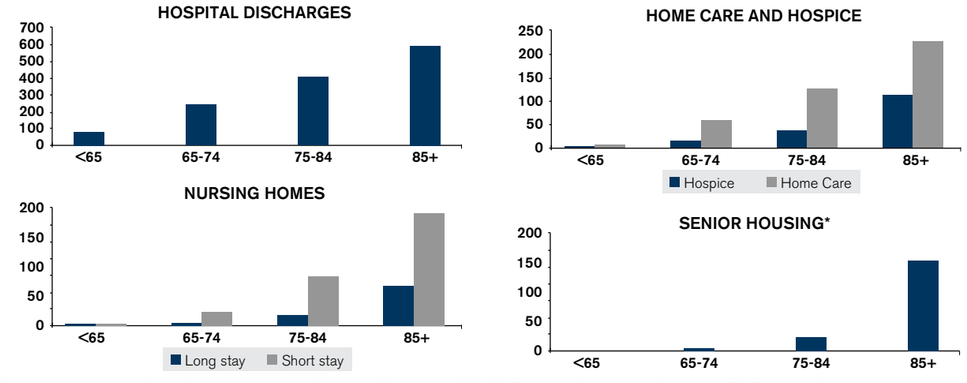
Figure 9 - Healthcare Expenditures by Age Cohort



Source: [1]http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/2010GenderandAgeTables.pdf. Table 8. Personal healthcare spending excludes administration, public health, investment (research, construction, equipment) [2]MedPAC Data Book. Health Spending & the Medicare Program, June 2015.

Healthcare expenditures and resource utilization per beneficiary increase within each of the respective age cohorts. Americans >65 years represent 13% of the population and a disproportionate 34% of expenditures. Medicare spending per beneficiary increases from $7,859 to $12,805, +63% between the ages of 65-74 and 75-84, consistent with the impact of an increase in the number and severity of co-morbid chronic conditions and the high cost of end-of-life care. The incremental rise in spending for the >85 population can be largely attributed to cognitive decline, with Alzheimer's disease and other forms of dementia affecting nearly one-third of the population, often leading to institutionalization and / or other forms of community-based support (paid by Medicaid and out-of-pocket).

Figure 10 - User Rates by Age Cohort (per 1,000)

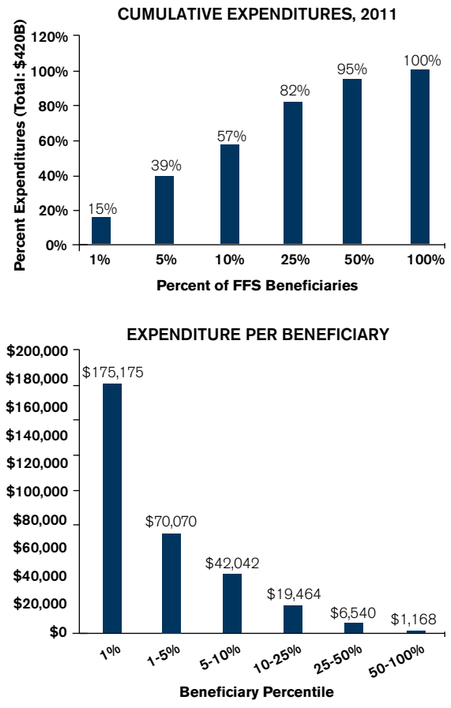


Source: Long-term Care Services in the U.S.: 2013 Overview. NCHS Reports, Number 1. Appendix B. Tables 4: Number and Percentage of users of long-term care services, by selected characteristics and provider types, 2012; U.S. Census
**Includes independent living, assisted living and memory care*

The Medicare cost data, combined with population health (epidemiologic) data suggest that aging begins at 75 – 10 years later than the retirement age.

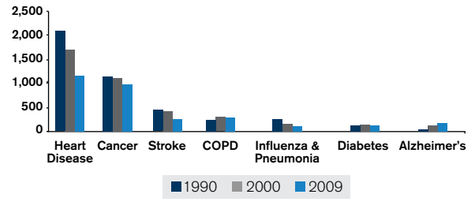
Spending among the elderly is highly concentrated. In Medicare FFS, 5% of beneficiaries account for 39% of expenditures, and 25% of beneficiaries account for 82% of the total. Dual eligible (Medicare and Medicaid) beneficiaries are often included in these figures. Conversely, 75% of beneficiaries account for 18% of expenditures. The vast majority of high-cost beneficiaries (71%) have five or more chronic conditions.[10]

Figure 11 - Concentration of Medicare FFS Spending



Source: http://MedPAC.gov/documents/data-book/june-2015-databook-health-care-spending-and-the-medicare-program.pdf?sfvrsn=0

Figure 12 - Mortality rates in population >65 (Per 100,000)



	1999	2000	2009
Population > 65	31,242,851	34,992,753	37,788,000
Deaths in population > 65	1,563,527[1]	1,803,322	1,797,345
Life expectancy at 65[2]	17.2	17.6	19.1

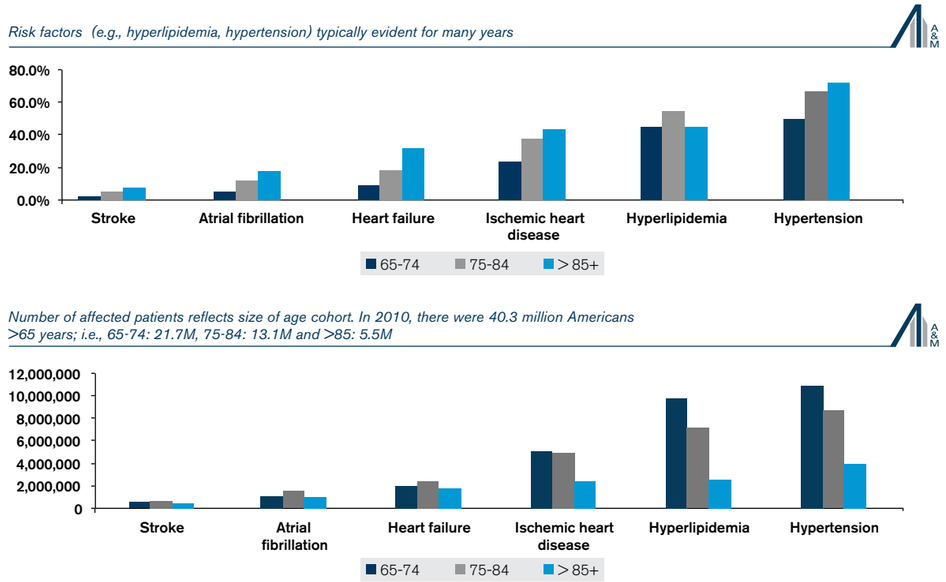
Source: http://www.agingstats.gov/agingstatsdotnet/Main_Site/Data/2012_Documents/Docs/EntireChartbook.pdf. Indicator 15: Mortality. U.S. Census Bureau
[1] 1991 data. https://www.census.gov/prod/1/pop/p23-190/p23-190.pdf
[2] http://www.cdc.gov/nchs/data/hus/2011/022.pdf

Since 1980, the life expectancy of an individual reaching 65 years of age has increased from 16.3 to 19.3 years or 17.7% (from 81.3 to 84.3 years old), whereas that of a 75-year-old increased from 10.4 to 12.2 years or 17.3% (from 85.4 to 87.2 years old).[11]

Cardiovascular disease remains the leading cause of death. Prevalence increases with age, reflecting the long-term impact of potentially controllable risk factors such as hypertension, hyperlipidemia, diabetes, obesity, smoking, lack of physical activity, an unhealthy diet and stress. Non-controllable factors include age, gender and family history.[12]

Despite rising obesity and diabetes, partially offset by declining rates of smoking, the age-adjusted death rate from cardiovascular disease has declined by nearly 60% from

Figure 13 - Cardiovascular Disease by Age Cohort

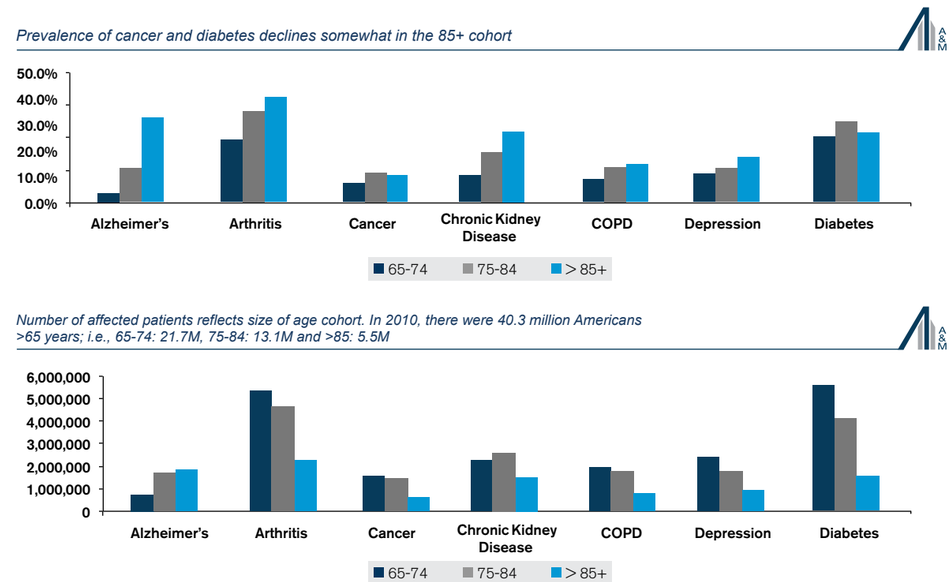


Source: http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Dashboard/Chronic-Conditions-Region/CC_Region_Dashboard.html

412.1 per 100,000 in 1980 to 169.8 per 100,000 in 2013; cerebrovascular disease (stroke) death rates also declined 62% during this period.[13] The decline in cardiovascular deaths has been the primary driver of increased longevity. Growing use of anti-hypertension and cholesterol-lowering drugs, combined with the advent of new cardiac procedures and devices, have lowered mortality rates.

Non-cardiovascular chronic disease conditions also increase with age, at least through ages 75-84. Diabetes and arthritis are widespread, affecting 27.2% and 30.4% of the population >65 years, respectively. Arthritis is the leading cause of activity limitations, an independent driver of costs.[14] Cancer prevalence rises from 7.3% in the 65-74 cohort to 11.3% in the 75-84 age group. The prevalence of chronic kidney disease (CKD) increases 2.6 times to affect 27.5% of the >85 population. CKD raises the complexity of patient management, worsened by the lack of diagnostic clarity associated with its non-specific symptom complex (e.g., nausea, vomiting, fatigue, itching), difficult-to-control elevations in blood pressure, sudden rise in potassium levels and potential for fluid retention (ankle swelling, chest pain, shortness of breath).[15] Depression represents another independent driver of costs as reported by Milliman Research; patients with chronic disease and depression had a 30-80% higher level of medical spending, as compared to those with only chronic disease.[16] And lastly, Alzheimer's disease and other types of dementia affect nearly one-third of the population >85 years.

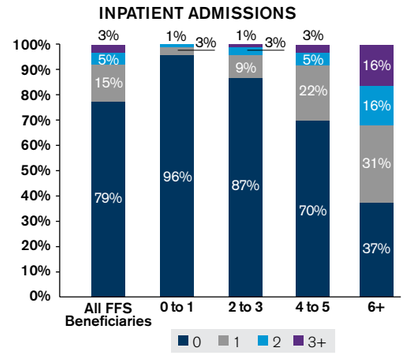
Figure 14 - Chronic Disease by Age Cohort



Source: http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Dashboard/Chronic-Conditions-Region/CC_Region_Dashboard.html

Increased longevity results in a higher chronic disease burden; on average, 65 to 74-year-olds have 2.4 chronic conditions, as compared to 75 to 85-year-olds (3.4) and those >85 years old (4.0).[17] The demand for healthcare services, as shown below for costly hospital admissions, is associated with the number and type of chronic conditions, their inter-relationships (e.g., hypertension with cardiovascular and renal disease), severity and duration, as well as the quality of medical care and patient treatment adherence. It has been shown that opportunities exist to reduce the risk of hospitalization for ambulatory care sensitive conditions subject to timely and effective outpatient care.

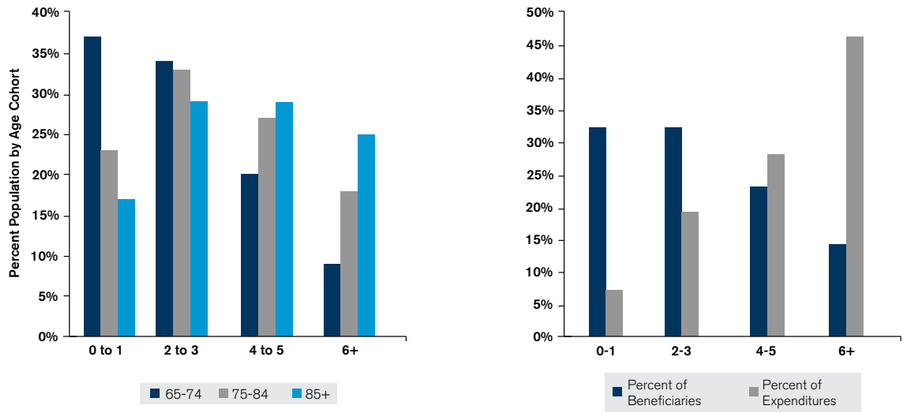
Figure 15 - Inpatient Admissions by Number of Chronic Conditions*, 2010



>65 Years Percent of Population	NA	31.4%	31.0%	22.1%	15.5%

*Source: *Medicare FFS. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf Figure 2.1*

Figure 16 - Number of Chronic Conditions and Medicare Expenditures, 2010



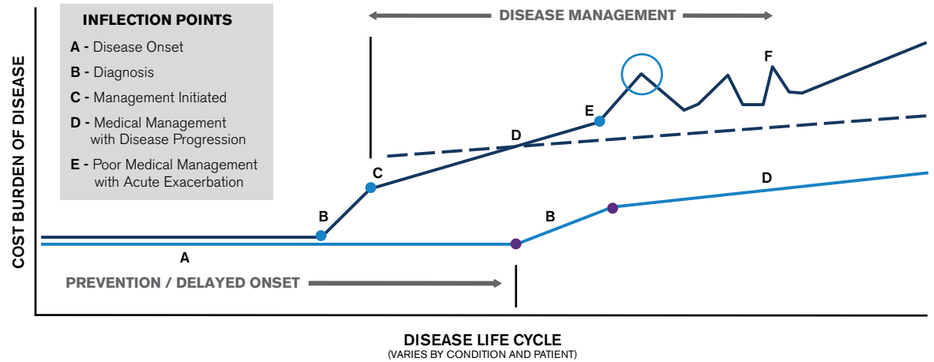
Source: Figure 1.2 B http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf

Patient outcomes are affected by the number of co-morbidities. Chronic conditions may be coincident and unrelated (e.g., arthritis and cancer) or may commonly co-occur (e.g., hypertension, diabetes and ischemic heart disease). The percentage of individuals with >4 chronic conditions, the threshold for rising costs, increases with age; i.e., 65-74: 29%, 75-84: 45% and >85: 54%. Conversely, the majority of 64 to 75-year-old people are relatively healthy and have one to three chronic conditions, possibly including hypertension and / or hyperlipidemia.

The chronic disease life cycle is typically progressive and subject to acute, intermittent events. Exacerbations may occur due to failure to comply with the treatment regimen, inclusive of diet, activity and medications; inadequate medical management; or infection and other organic events. CMS already measures the number of hospitalizations (by physician group) for ambulatory care sensitive conditions per 1,000 Medicare beneficiaries ages 65+ for a myriad of chronic conditions including diabetes, heart failure, COPD and asthma, as well as dehydration, bacterial pneumonia and urinary tract infections. CMS is also measuring the timing of post-discharge visits and all-cause readmissions.

The key to effective chronic care management rests within altering the disease life cycle by focusing on prevention, executing precisely timed intervention and increasing patient (and caregiver) engagement. In 1998, Edward Wagner, MD, lead developer of the

Figure 17 - Chronic Disease Life Cycle Management



Chronic Care Model, introduced an evidence-based framework for healthcare that delivers safe, effective and collaborative care to patients, and recognized the supremacy of primary care, care coordination (team-based care), site transition management and self-management. Directional progress has been made by policymakers and health systems toward implementation of the Wagner Model, but full implementation of all the necessary components has yet to be achieved.

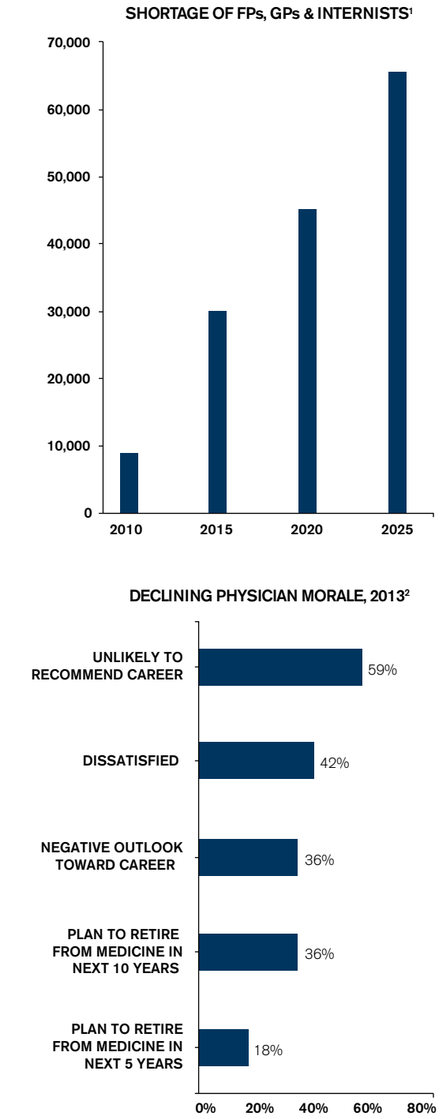
Figure 18 - Wagner Chronic Care Model

COMPONENTS	DETAILS
The Community	Public and private resources and policies
The Health System	How healthcare is organized, including its payment structures
Self Management Support	Education, tools, motivational techniques, patient empowerment
Delivery System Design	The structure of the provider organization (hospital system, clinic, doctor's office) and the organization of patient encounters
Decision Support	Clinicians can access and adhere to evidence-based guidelines for care
Clinical Information Systems	Computerized information, medical records, decision support tools, reminders, etc.

The Chronic Care Model recognizes the centrality of primary care physicians to manage and coordinate the care of aging patients with multiple chronic conditions across the entire continuum. Despite the recognition, primary care physicians are already overworked, underpaid and under-appreciated relative to procedure-oriented specialties such as orthopedic surgery, interventional cardiology and anesthesiology. Throughput rather than cognition and the potential for preventative activities still remain the primary drivers of compensation. The growing shortage of primary care physicians is forecast to worsen due to retirements, compounded by the potential of a 25-35% reduction in physician productivity following hospital acquisition.[18] Electronic medical records, expected to enhance productivity, have created dissatisfaction and worsened the situation due to "poor usability that did not match clinical workflows, time-consuming data entry, and overwhelming numbers of electronic messages and alerts."[19]

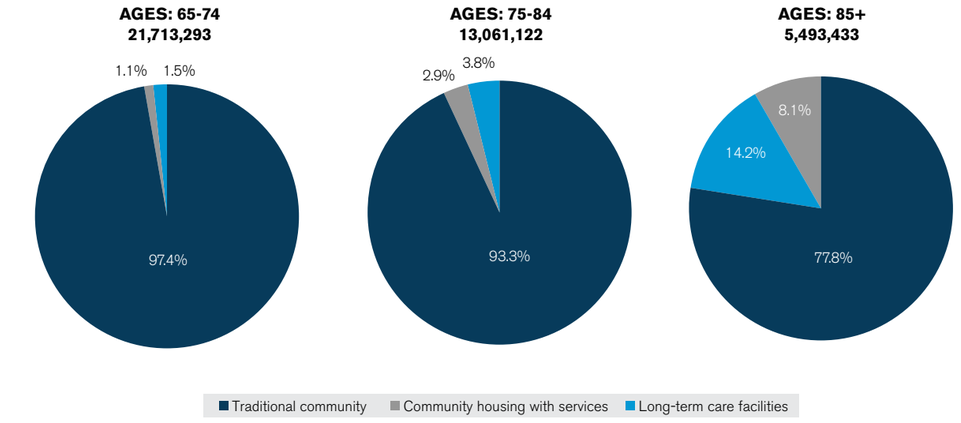
Lastly, it is important to recognize that the institutional population of those >65 represents only 5.1% of the total; senior housing facilities have 1.3 million residents, whereas nursing homes have 0.9 million. In a 2007 survey of seniors, 89% expressed a strong preference for aging at home; their fear of losing independence (26%) is far greater than death itself (3%).[20] The perceived drivers of lost independence are health problems (53%), memory problems (26%), an inability to drive and / or get around (23%), financial problems (20%), lack of support / assistance (15%) and isolation and / or loneliness (11%).

Figure 19 - Projected Shortage of Primary Care Physicians



Source: [1]AAMC. The Impact of healthcare reform on the future supply and demand for physicians: Updated projections through 2025. June 2010; [2]Filling the Void: Physician Outlook and Practice Trends, 2013. Reported by Jackson Healthcare. http://www.jacksonhealthcare.com/media/191888/2013physiciantrends-void_ebk0513.pdf

Figure 20 - Medicare Enrollees by Type of Residential Setting



"Community housing with services applies to residents who reported they live in retirement communities or apartments, senior citizen housing, CCRCs, assisted living facilities, staged living communities, board and care facilities/homes and similar situations AND who reported they had access to one or more of the following services through their place of residence: meals, housekeeping, laundry or help with medications, but not whether they actually used the service."

Source: Federal Interagency Forum on Aging Related Statistics. Older Americans 2012: Key Indicators of Well-Being. Indicator 36: Residential Services, Table 36a

POST-ACUTE CARE: A RANGE OF OPTIONS

The post-acute sector, comprised of SNFs, home care agencies, hospice agencies, IRFs and LTACHs, is involved in the management of primarily Medicare, but also non-Medicare, patients suffering from an acute illness or an exacerbation of an underlying chronic disease. The number of providers and discharges, expenditure level, length of stay, type of ownership and location varies by segment.

Figure 21 - Acute and Post-Acute Care Delivery Overview

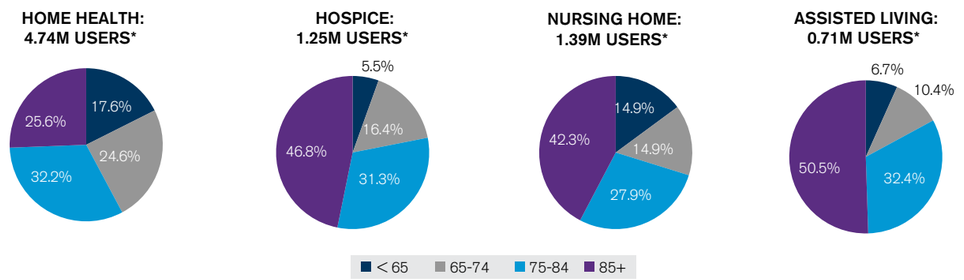
	ACUTE CARE HOSPITALS	LONG-TERM ACUTE CARE HOSPITAL, 2013	INPATIENT REHABILITATION FACILITY, 2013	SKILLED NURSING FACILITY - SHORT STAY, 2013	HOME HEALTH, 2013	HOSPICE, 2013
# of facilities, providers or agencies	4,974	432	1,140	15,163	12,461	3,925
Ownership status	For-profit 21% Nonprofit 60% Government 19%	For-profit 78% Nonprofit 17%	For-profit 28% Nonprofit 59% Government 13%	For-profit 70% Nonprofit 25% Government 5%	For-profit 89% Nonprofit 11%	For-profit 61% Nonprofit 33%
Location	N/A	Hospital 38% Freestanding 62%	Hospital 79% Freestanding 21%	Hospital 5% Freestanding 95%	N/A	Hospital 15% Freestanding 72% Home/SNF 13%
Utilization						
# of Medicare FFS discharges, cases, stays or users*	12.7M discharges > 65 years irrespective FFS or MA	137,827 cases	373,000 cases	2,365,743 stays	3.5 million users	1.3 million users
Days per stay or visits per episode*	4.6 days	26.5 days	12.9 days	27.6 days	17.6 visits x 1.9 episodes = 33.4 visits/patient	Median: 17.0 days; Mean: 87.8 days
Reimbursement						
Unit of payment	MS-DRG	Discharge	Discharge	Daily	30/60-day episode	Daily Rates: Routine: $156 Continuous: $911 Inpatient: $694
Medicare FFS payment per admission, stay or episode	$11,327-15,243 (average: $2,457-3,306 per day)	$40,070 (average: $1,512/day)	$18,258 (average: $1,415/day)	$10,571 – 12,420 (average: $383 per day base rate - $450/day adjusted)	$2,674 x 1.9 episodes = $5,081/patient	$11,482/patient. Cap: $26,157

Source: MedPAC Data Book. Healthcare Spending and the Medicare Program; June 2015. # Medicare discharges, 2012 as per HCUPNet of 14.3M, 12.7M > 65 years and 1.6M <65 years. http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=B68C6E2DAA5239E9&Form=DispTab&JS=Y&Action=Accept

The majority of post-acute care and assisted living service users are >75 years old with multiple chronic conditions, thereby increasing the risk of complications and (re-)hospitalization.

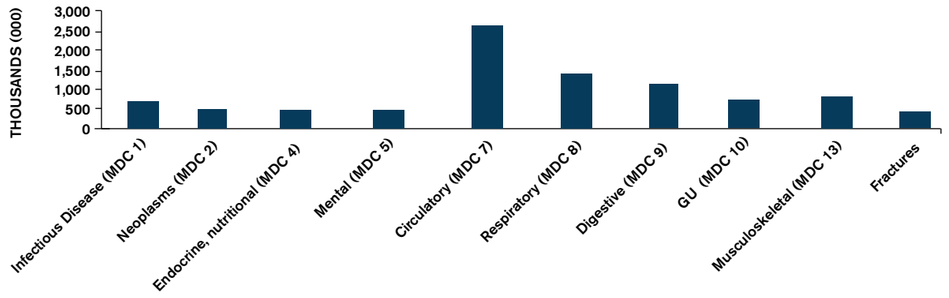
Opportunities for a reduction in ambulatory care sensitive hospitalization, as well as earlier intervention to reduce the intensity of required care, have been identified by leading investigators. Acute care hospitals remain by far the most expensive site of care at $2,882 per day (range: $2,457-$3,306/day).

Figure 22 - Users of Long-Term Care Services by Provider Type



Source: National Center for Health Statistics. Long-Term Care Services in the U.S.: 2013 Overview. Appendix B: Detailed Tables. Table 4. Number of percent distribution of users, by characteristics and provider types, 2012. Users are residents in nursing homes and residential care communities on any given day in 2012; and those who receive home health and hospice care anytime in 2011

Figure 23 - Hospital Admission by Ambulatory Care Sensitive Condition



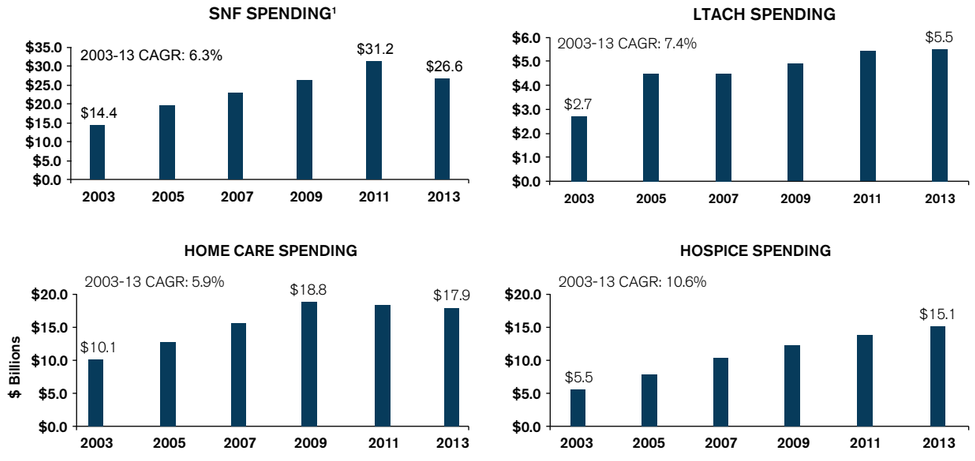
Medical	7%	5%	4%	4%	21%	19%	11%	9%	4%
Surgical	3%		2%		24%	3%	10%	4%	38%

Source: CMS Medicare & Medicaid Review, 2012 Statistical Supplement; http://media.khi.org/news/documents/2011/08/08/CMS_tables_on_chronic_illness_costs.pdf

A comparative analysis of post-acute providers across all segments highlights the following:

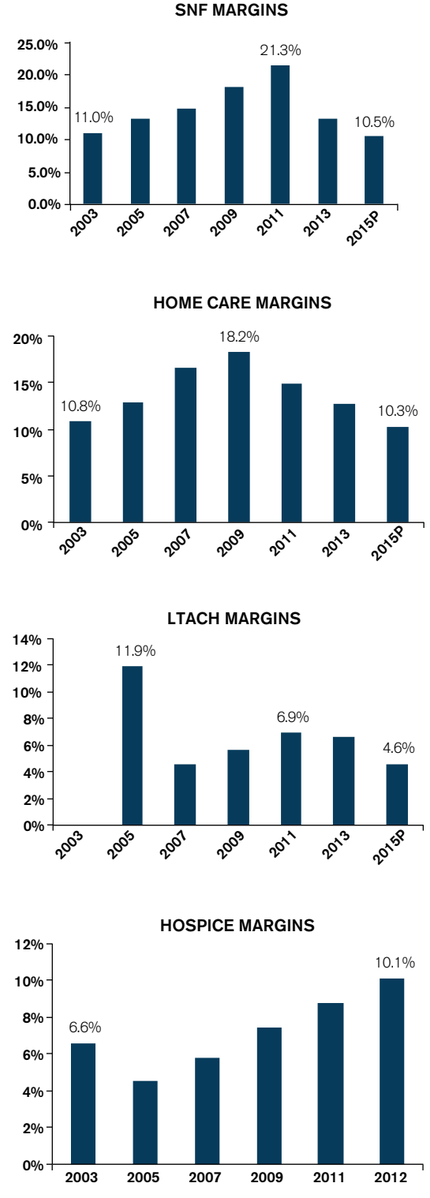
- An acceleration of segment spending (i.e., spikes) usually "signals" a future attempt by CMS to slow the rate of spending growth within two to three years by altering the criteria for coverage, increasing enforcement of existing regulations or changing the rate (or methodology) of reimbursement growth.

Figure 24 - Medicare FFS Spending Growth Trends, 2003-2013



Source: SNF margin in 2011 reflects implementation of new case mix groups and inappropriate adjustment factor. The year 2013 also reflects impact of sequester

Figure 25 - Medicare FFS Operating Margin Trends, 2003-2015

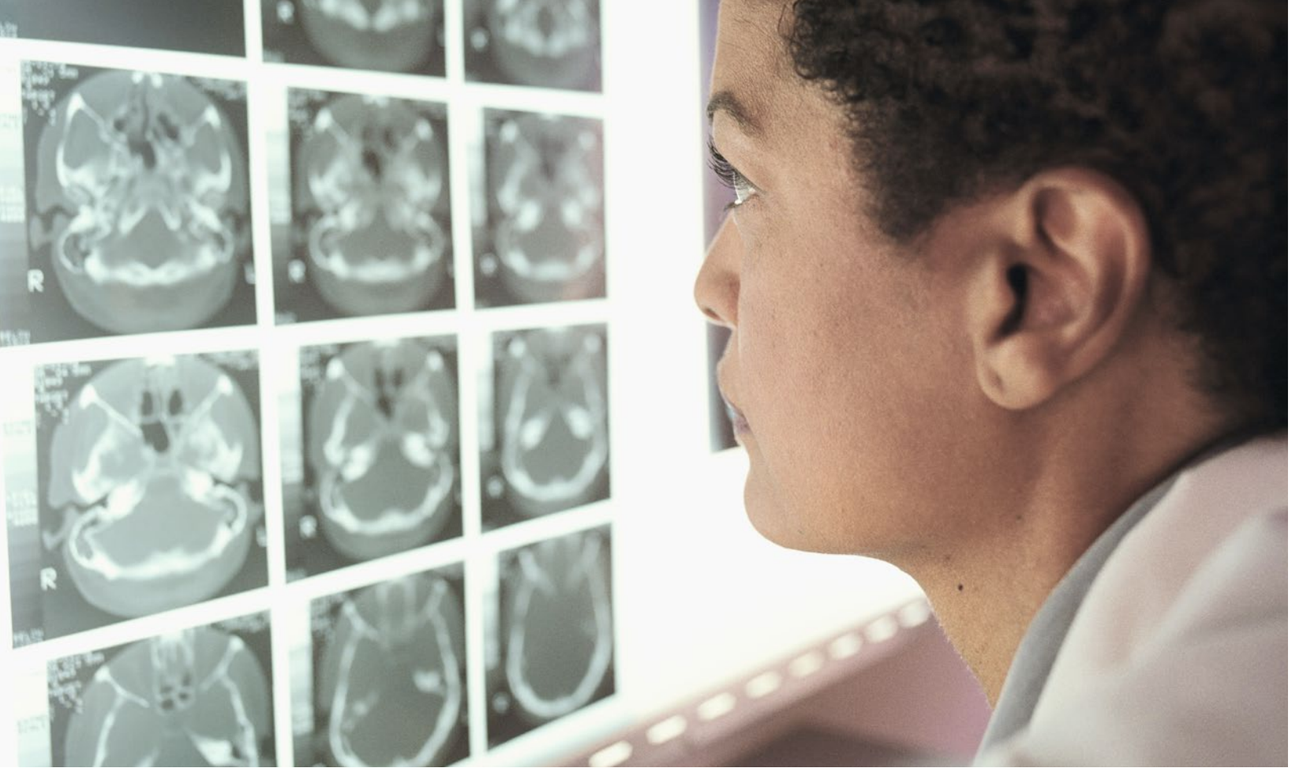


- Average Medicare FFS operating margins vary by segment, with a range of 10-11% projected by CMS for 2015. Long-term acute care facilities, on average, have the lowest projected margin at 4.6%, whereas inpatient rehabilitation facilities have the highest at 12.6%.

- It is important to note that the *total* operating margin reflects the payer mix, inclusive of Medicare FFS, Medicare Advantage, Medicaid, commercial insurance and out-of-pocket spending. Senior housing (independent and assisted living) is largely out-of-pocket, whereas hospice is largely Medicare.

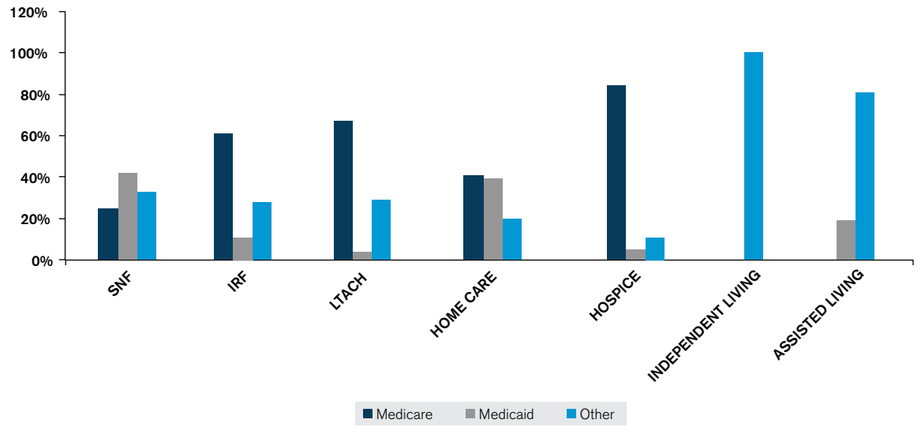
Figure 26 - Medicare FFS IRF Spending and Operating Margin Trends, 2003-2015

Source: SNF margin in 2011 reflects implementation of new case mix groups (RUGS) and inappropriate use of an adjustment factor. The year 2013 also reflects impact of sequester. ¹Table A Medicaid Expenditures for Long-Term Services and Supports: 2007-2012. http://www.medicaid.gov/medicaid-chip-program-information/by-topics/long-term-services-and-supports/downloads/ltss-expenditures-2012.pdf ²Table A Medicaid Expenditures for Long-Term Services and Supports: 2007-2012. http://www.medicaid.gov/medicaid-chip-program-information/by-topics/long-term-services-and-supports/downloads/ltss-expenditures-2012.pdf ³MedPAC 2011. Table 7-18



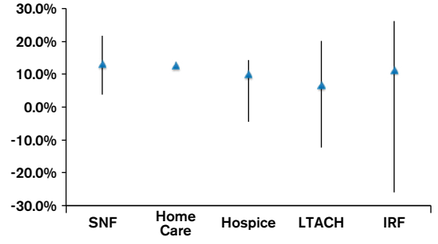
- Medicare FFS operating margins vary widely within a given post-acute care segment. Patient volume, followed by ownership (for-profit, nonprofit) and location (urban, rural) appear to be determinants of profitability.

Figure 27 - Revenue Payer Mix by Segment



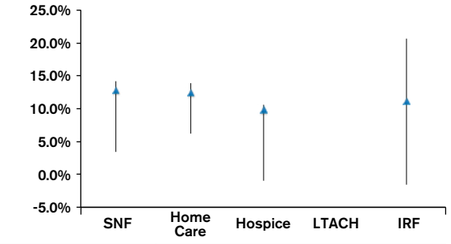
Sources: MedPAC, Select Medical Investor presentations and 10K, NIC Investment Guide, Third Edition

Figure 28 - Medicare FFS Segment Operating Margins by Percentile, 2012-2013



25th percentile	3.7%		-4.5%	-12.4%	-26.0%
75th percentile	21.7%		14.3%	20.2%	26.2%
▲All	13.1%	12.7%	10.1%	6.6%	11.4%

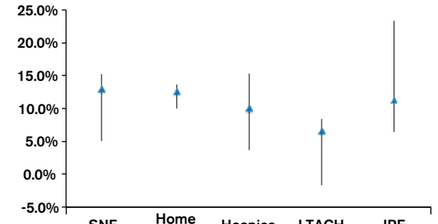
Figure 29 - Medicare FFS Segment Operating Margins by Volume, 2012-2013



Small	3.7%	6.4%	-0.7%		-1.3%
Large	14.4%	14.1%	10.8%		20.8%
▲**All**	13.1%	12.7%	10.1%		11.4%

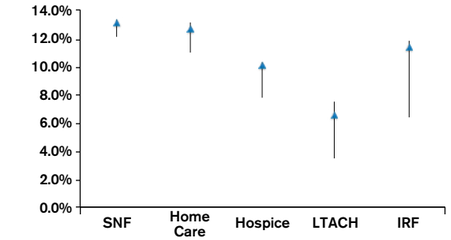
Comments	**Small:** 20-59 beds **Large:** 100-199 beds	**Small:** <25 beds **Large:** >+-70 beds

Figure 30 - Medicare FFS Segment Operating Margins by Ownership, 2012-2013



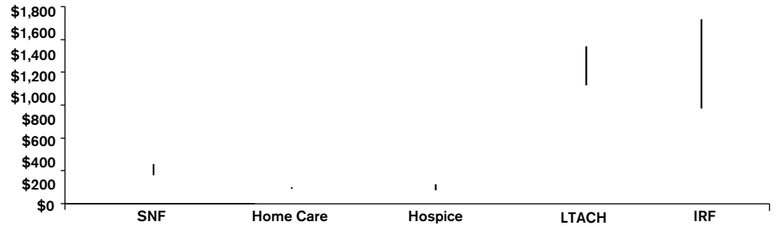
For-Profit	15.3%	13.7%	15.4%	8.4%	23.4%
NFP	5.0%	10.0%	3.7%	-1.7%	6.4%
▲All	13.1%	12.7%	10.1%	6.6%	11.4%

Figure 31 - Medicare FFS Segment Operating Margins by Location, 2012-2013



Urban	13.3%	13.1%	10.3%	7.5%	11.8%
NFP	12.1%	11.0%	7.8%	3.5%	6.4%
▲All	13.1%	12.7%	10.1%	6.6%	11.4%

Figure 32 - Drivers of Operating Margins: Medicare FFS Standardized Cost per Day



	SNF	Home Care	Hospice	LTACH	IRF
Highest margin quartile or relatively efficient provider	$250	$250	$112	$1,090	$870
Lowest margin quartile or relatively efficient provider	$359	$144	$171	$1,149	$1,700
Low-to-high margin % difference	43.6%	14.6%	52.7%	32.9%	95.4%

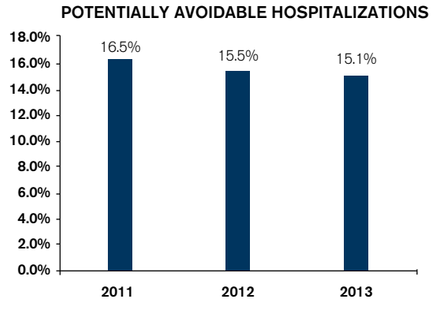
- Variation in cost per day appears to be a more significant driver of FFS Medicare operating margin than variation in payment per day. SNF payment variation is greatest at 11.8%, followed by LTACHs at 3.3% and home care at 2.5%; data is unavailable for IRFs and hospice.

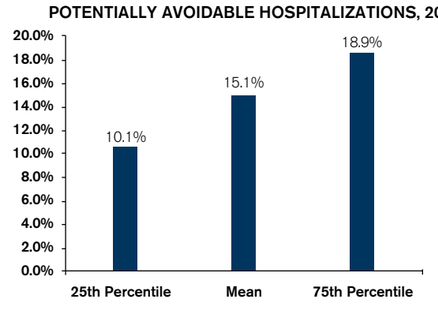
- Outcome rather than process measures are gaining relative importance to CMS and other payers and providers. Avoidable hospital readmissions, facility-acquired conditions (e.g., infections, falls, pressure ulcers), adverse events and treatment progress (physical, mental and functional status) have been identified by CMS as major opportunities for quality improvement. Average segment performance metrics may not be indicative of the wide dispersion of quality performance, as evident between the 25th and 75th percentile of skilled nursing facilities.

- Star ratings and other aggregate performance measures, often dependent upon subjective assessment and voluntary reporting, may contribute to inappropriate management behaviors. Major concerns about the accuracy of skilled nursing facility self-reported data and the variability of state survey inspection citations have been highlighted by the Center for Integrity and the Office of the Inspector General; components of Nursing Home Compare data may actually be invalid. Patient survey results (i.e., experience of care) still have a disproportionate impact on the overall quality of care.

- Medicare Advantage penetration, currently at 30%, will increase by one to three percentage points per year, thereby further pressuring post-acute care site of service, patient mix, length of stay and reimbursement.

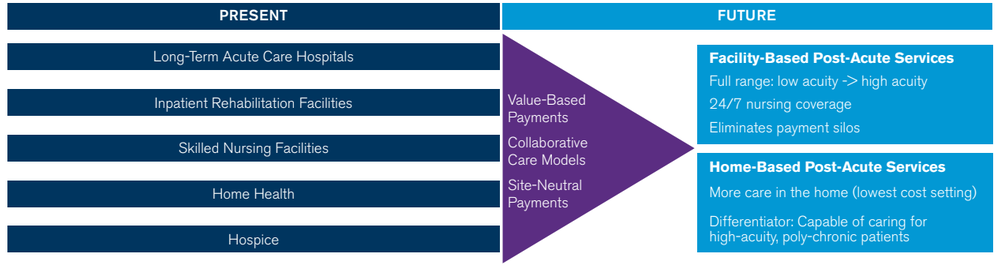
Figure 33 - Range of Avoidable Hospitalization in SNFs by Percentile





Source: http://MedPAC.gov/documents/reports/chapter-8-skilled-nursing-facility-services-(march-2015-report).pdf

Figure 34 - Future of Post-Acute Care



Source: HEALTHSOUTH Investor Reference Book: Post Q2 2015 Investor Call; September 8, 2015 p52

FUTURE PARADIGM DRIVEN BY CMS REIMBURSEMENT

Congressional approval of H.R. 4994, the IMPACT Act, in December 2014 mandates the development and implementation of a standardized post-acute care assessment tool that will facilitate determination of site cost-effectiveness for conditions of similar acuity. LTACHs ($1,512) and IRFs ($1,415) are far more expensive per day than SNFs ($388 base rate) and "intensive" home care ($189). Site-neutral payments represent a distinct reimbursement possibility within five years.

The Comprehensive Care Joint Replacement (CJR) model, effective April 2016 for Medicare FFS beneficiaries in 67 Metropolitan Statistical Areas (MSAs), includes all costs related to Medicare Part A (facility) and Part B (physician services, outpatient services, lab, ER visits, specialty drugs, DME, etc.) during a 90-day episode (bundle) starting from date of admission through surgery, hospitalization and recovery, including post-acute care. Hospitals will be accountable (at-risk) for the cost and quality of care, with potential collaborators required to engage with the hospital in its care redesign strategies.

The IMPACT Act of 2014, combined with the CJR model, will transform post-acute care by focusing on creating value, defined

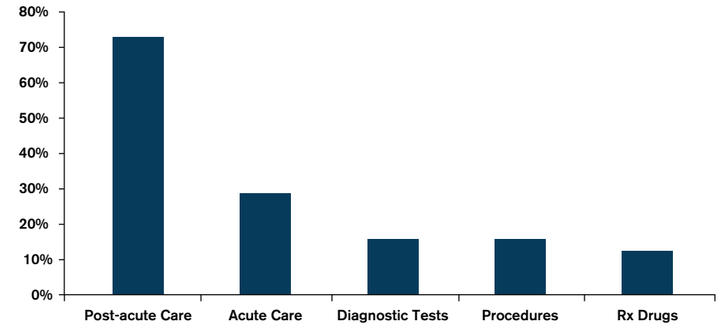
as relative worth, merit or importance, or in healthcare parlance, the quality of care (outcome) as a function of cost. The goal is to generate value across the entire continuum of care by eliminating the waste associated with inefficient and ineffective care delivery. The premise is simple, though execution is complex given the multitude of stakeholders. Scale, combined with management excellence and a strategic investment in IT systems and analytics, represent sources of potential competitive advantage.

Figure 35 - Axis of Value Creation

MEDICARE SPENDING: VARIATION DRIVEN BY (LOCAL) POST-ACUTE CARE UTILIZATION

In July 2013, The Institute of Medicine (IOM) published a seminal report entitled "Variation in Healthcare Spending: Target Decision Making, Not Geography" and found that higher spending in Medicare primarily comes from the "variation in utilization of post-acute care services and, to a lesser extent, by variation in the utilization of acute care services."[21] The report was created following more than 20 years of evidence generated by the Dartmouth Atlas of Healthcare, highlighting significant variation in Medicare FFS spending (by state, metropolitan statistical area, hospital referral region, hospital and type of service) without an apparent relationship to clinical outcomes.[22]

Figure 36 - Medicare Spending Variation by Category

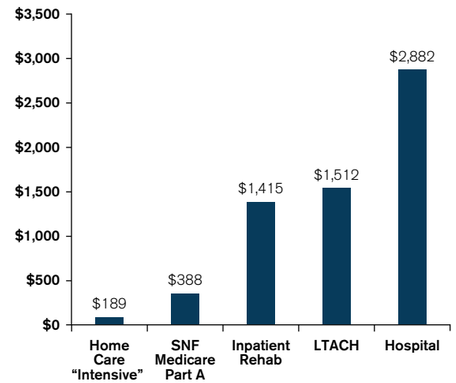


Source: Institute of Medicine. Variation in Healthcare Spending: Target Decision Making, No Geography. June 2013. Note: The individual contributors sum to >100% of covariance.

The IOM Committee calculated a Medicare fee-for-service spending variation of 42%, a figure consistent with Medicare Advantage data that suggests a variation of a 36-50%. Post-acute care service providers account for 73% of the total variation in spending. The impact of reducing the differential utilization of other healthcare services among Medicare FFS recipients, such as diagnostic tests, procedures and prescription drugs, was minor.

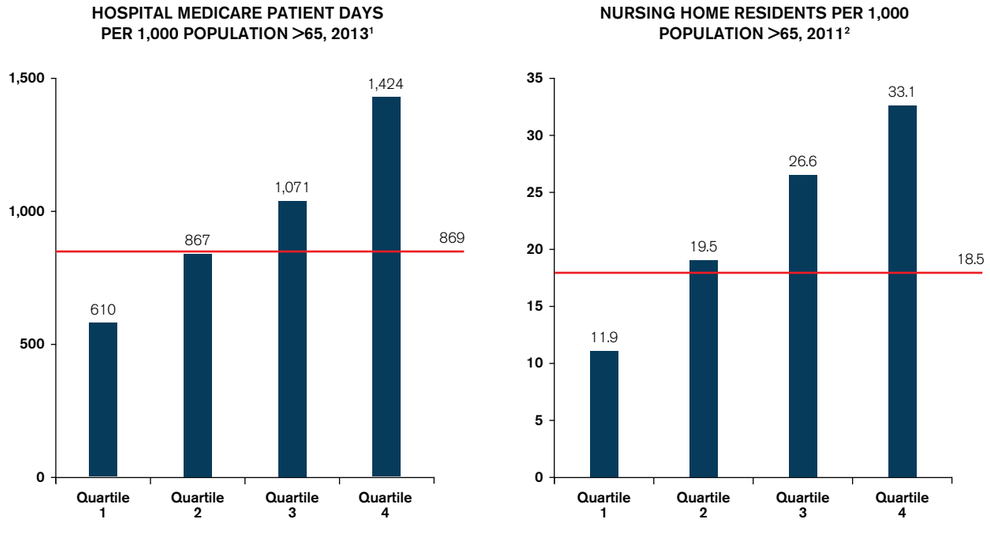
Acute and post-acute care facility costs per day vary widely, with hospitals being the most expensive, followed by long-term acute care hospitals, inpatient rehabilitation facilities and skilled nursing facilities; home care, a non-facility service, is the least expensive.[23] The possibility of payment reform, inclusive of site-neutral reimbursement, has increased focus on facility price disparities, patient mix and entry criteria, length of stay and outcome differentials, if any.

Figure 37 - Medicare Payment by Type of Service per Day



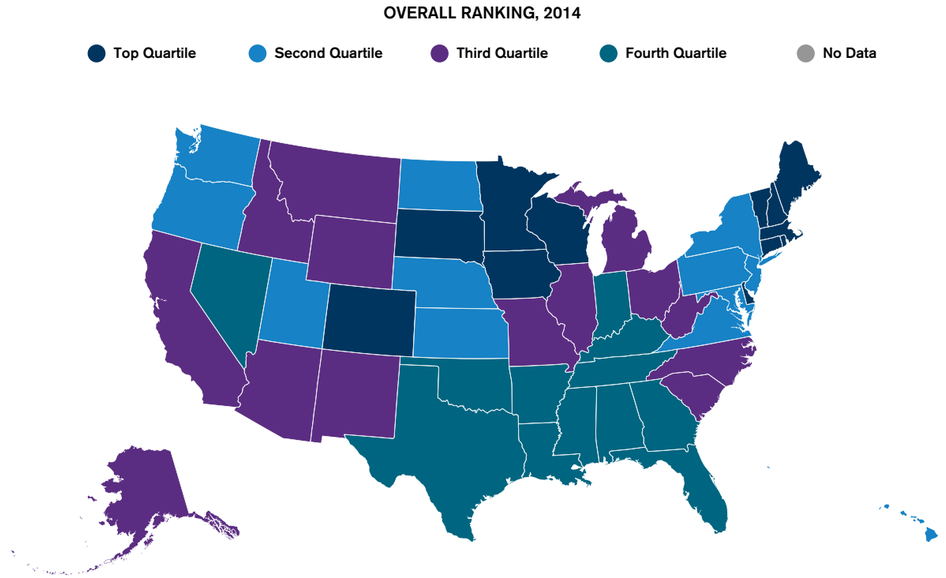
Sources: MedPAC Data Book. Healthcare Spending and the Medicare Program, June 2015; NIC (SNF estimate only); and Caregiverlist Cost of Senior Care in U.S.A. Home Care "Intensive" = 2 hours clinical care ($25-40/hour) and 6 hours ($19/hour) with health aides/homemakers https://www.caregiverlist.com/CompareCostsofNursingHomes.aspx and https://www.ourparents.com/articles/how_much_does_care_cost and http://www.payscale.com/research/US/Job=Nurse_Home_Care/Hourly_Rate

Figure 38 - Variation in Use of Medicare Services by State



Source: [1]Hospitals – Medicare Cost Reports via Truven Healthcare. 2013 data; [2]Nursing home: 2011 data. http://kff.org/other/state-indicator/number-of-nursing-facility-residents/; [3]Home health – 2011 data. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareFeeforSvcPartsAB/downloads/HHAst11.pdf; [4]Hospice - 2011 data. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareFeeforSvcPartsAB/Downloads/HOSPICE11.pdf

Figure 39 - Commonwealth Scorecard on State Health Performance, 2014



Source: http://datacenter.commonwealthfund.org/#ind=1/sc=1

Significant variation has also been shown in the resource utilization rate per 1,000 population >65 years. The difference between the first and fourth quartile is 2-4x, a differential not shown to be equated with enhanced outcomes.

The IOM Committee recommends continued testing of payment reforms that "incentivize the clinical and financial integration of healthcare delivery systems" and encourage (a) care coordination among providers, (b) real-time sharing of data, and tracking of service use and health outcomes, (c) distribution of provider payments and (d) risk sharing / management across the care continuum. A more effective and efficient care delivery model would then emerge, serving as a template for a reduction in post-acute care variation.

The Commonwealth Fund has created a health system data center to assess relative health performance at the state and local level (Metropolitan Statistical Area, Hospital Referral Regions).[24] Scorecard dimensions include access and affordability, prevention and treatment, avoidable hospital use and cost, and healthy lives.

A detailed comparison between high and low performers suggests fundamental differences in the process-of-care: Medicare admissions for ambulatory care sensitive conditions, hospital readmissions, nursing home and home care admissions, avoidable ED visits, facility and / or agency complications (post-surgical wounds, decubitus ulcers) and the use of high-risk or contraindicated prescription drugs.

Figure 40 - Commonwealth Fund State Scorecard, 2014: Top Performers

	United States	Minnesota		Wisconsin		Iowa	
	Rate	Rate	Rank	Rate	Rank	Rate	Rank
Overall Performance	-	-	1	-	7	-	10
Access and Affordability	-	-	3	-	7	-	9
Prevention and Treatment	-	-	6	-	3	-	6
Elderly patients who received a high-risk prescription drug	20%	13%	3	13%	3	15%	12
Elderly patients who received a contraindicated prescription drug	23%	17%	7	16%	2	19%	15
Medicare patients experienced good communication with provider	76%	78%	5	78%	5	75%	31
Hospital 30-day mortality	12.7%	12.2%	2%	12.9%	28%	12.8%	26%
Hospital discharge instructions for home recovery	83%	86%	7	87%	3	85%	13
Patient-centered hospital care	66%	69%	4	69%	4	68%	10
Home health patients who get better at walking or moving around	59%	56%	41	56%	41	60%	14
Home health patients whose wounds healed after an operation	89%	83%	48	87%	38	87%	38
High-risk nursing home residents with pressure sores	6%	4%	2	5%	5	5%	5
Nursing home residents with an antipsychotic medication	22%	18%	5	18%	5	21%	21
Avoidable Hospital Use and Cost	-	-	7	-	19	-	18
Medicare admissions for ambulatory care sensitive conditions, ages 65–74, per 1,000 beneficiaries	29	20	7	22	12	24	18
Medicare admissions for ambulatory care sensitive conditions, ages 75 and older, per 1,000 beneficiaries	70	55	9	60	13	64	17
Medicare 30-day hospital readmissions, per 1,000 beneficiaries	49	41	18	41	18	39	15
Short-stay nursing home residents with a 30-day readmission to the hospital	20%	16	8	16	8	17	13
Long-stay nursing home residents with a hospital admission	19%	7%	1	13%	9	16%	17
Home health patients with a hospital admission	17%	17	25	17	25	17	25
Potentially avoidable ED visits among Medicare beneficiaries, per 1,000 beneficiaries	185	165	6	184	27	177	22
Total Medicare (Parts A & B) reimbursements per enrollee	**$8,874**	**$7,217**	10	**$7,658**	17	**$7,494**	13
Healthy Lives	-	-	1	-	17	-	15
Years of potential life lost before age 75	6,474	4,900	1	5,656	13	5,691	14

Source: http://datacenter.commonwealthfund.org/#ind=1/sc=1

Hospital admissions and readmissions per 1,000 Medicare beneficiaries for (potentially avoidable) ambulatory care sensitive conditions as well as ED visits also vary significantly by state. Most Southern and a number of mid-Atlantic and Midwest states tend to be the worst performers in terms of admissions, readmissions and costs.

In summary, variation in resource utilization is primarily a function of the demand and supply of services, and the process of care by which the services are delivered to the patient. Self-management, essential for treatment adherence, is also an important determinant of resource utilization.

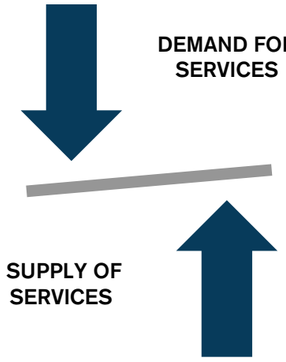
Payment reform is essential to incentivize fundamental change in care delivery, but is not the sole source of dysfunction. Embedded inefficiencies and practices, combined with local competitive market factors, minimal patient and caregiver engagement, and lobbying at the Federal and state level, has resulted in an "excess" of Medicare (and commercial) procedural reimbursement that is utilized as the baseline for changes in future reimbursement. Strategic opportunities exist for specific health systems and providers to create value, defined as a function of quality / cost, prior to its eventual mandate by CMS.

Figure 41 - Commonwealth Fund State Scorecard, 2014: Bottom Performers

	United States	Florida		Indiana		Mississippi	
	Rate	Rate	Rank	Rate	Rank	Rate	Rank
Overall Performance	-	-	41	-	43	-	51
Access and Affordability	-	-	46	-	26	-	46
Prevention and Treatment	-	-	38	-	35	-	45
Elderly patients who received a high-risk prescription drug	20%	19%	23	20%	31	29%	50
Elderly patients who received a contraindicated prescription drug	23%	22%	30	22%	30	27%	48
Medicare patients experienced good communication with provider	76%	76%	21	76%	21	78%	5
Hospital 30-day mortality	12.7%	12.7%	22	12.9%	28	13.2%	44
Hospital discharge instructions for home recovery	83%	81%	41	84%	20	79%	49
Patient-centered hospital care	66%	61%	46	67%	20	67%	20
Home health patients who get better at walking or moving around	59%	63%	1	58%	28	63%	1
Home health patients whose wounds healed after an operation	89%	92%	4	88%	30	92%	4
High-risk nursing home residents with pressure sores	6%	6%	19	7%	30	7%	30
Nursing home residents with an antipsychotic medication	22%	23%	30	22%	27	26%	45
Avoidable Hospital Use and Cost	-	-	33	-	43	-	50
Medicare admissions for ambulatory care sensitive conditions, ages 65–74, per 1,000 beneficiaries	29	28	30	35	41	42	48
Medicare admissions for ambulatory care sensitive conditions, ages 75 and older, per 1,000 beneficiaries	70	68	26	77	41	91	48
Medicare 30-day hospital readmissions, per 1,000 beneficiaries	49	54	38	51	33	55	42
Short-stay nursing home residents with a 30-day readmission to the hospital	20%	21	27	20	22	23	39
Long-stay nursing home residents with a hospital admission	19%	25%	43	20%	28	31%	47
Home health patients with a hospital admission	17%	16	11	18	42	18	42
Potentially avoidable ED visits among Medicare beneficiaries, per 1,000 beneficiaries	185	172	16	200	42	229	48
Total Medicare (Parts A & B) reimbursements per enrollee	**$8,874**	**$10,593**	50	**$9,221**	40	**$10,038**	48
Healthy Lives	-	-	23	-	40	-	51
Years of potential life lost before age 75	6,474	6,886	29	7,242	37	9,781	51

Source: http://datacenter.commonwealthfund.org/#ind=1/sc=1

Figure 42 - Local Drivers of Demand and Supply of Healthcare Services



DEMAND

- Demographics (age, sex)
- Race/ethnicity
- Socio-economics
- Risk factors
- Insurance coverage
- Reimbursement (coverage, amount)

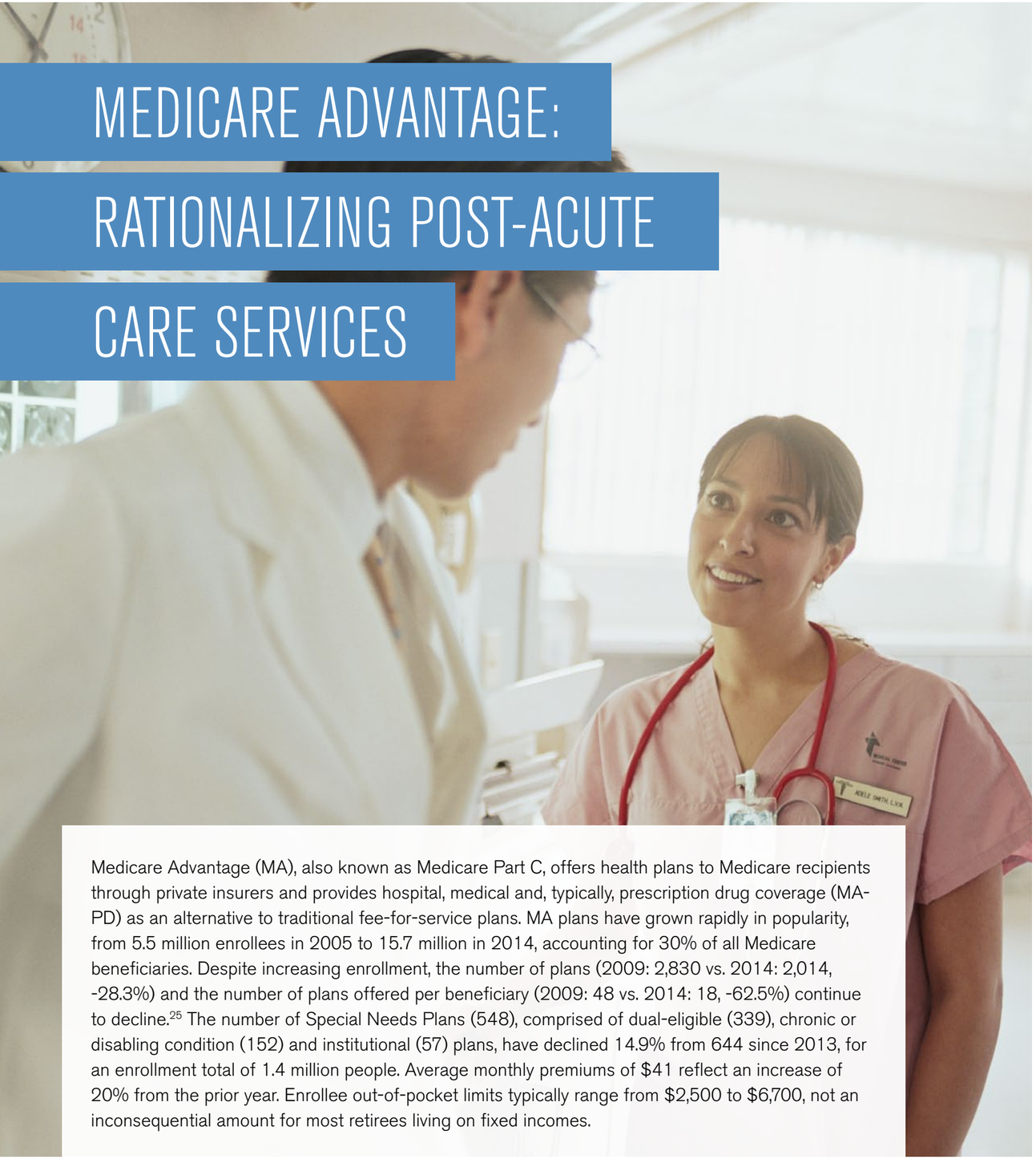
SUPPLY

- Number and type of physicians
  - Primary care
  - Specialty
- Number and size of providers
  - Acute care
  - Post-acute care
  - Home care and hospice
  - Inpatient rehabilitation
  - Long-term acute care

PROCESS OF CARE

- Evidence-based care pathways
- Wagner chronic disease model
- PCMH
- Care transitions across continuum
- Care coordination
- Health information exchange

MEDICARE ADVANTAGE: RATIONALIZING POST-ACUTE CARE SERVICES

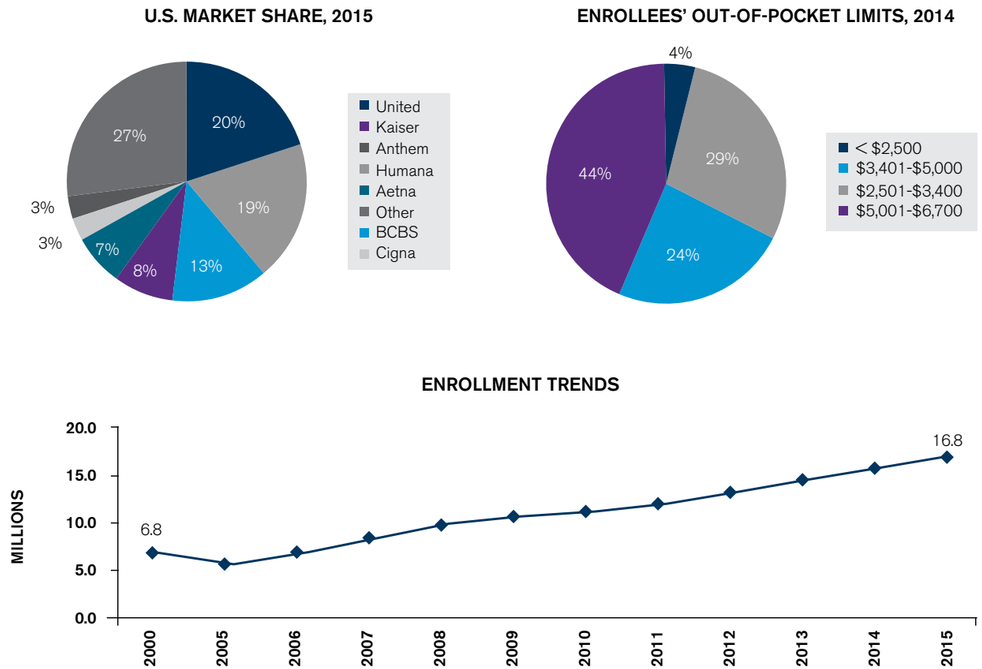


Medicare Advantage (MA), also known as Medicare Part C, offers health plans to Medicare recipients through private insurers and provides hospital, medical and, typically, prescription drug coverage (MA-PD) as an alternative to traditional fee-for-service plans. MA plans have grown rapidly in popularity, from 5.5 million enrollees in 2005 to 15.7 million in 2014, accounting for 30% of all Medicare beneficiaries. Despite increasing enrollment, the number of plans (2009: 2,830 vs. 2014: 2,014, -28.3%) and the number of plans offered per beneficiary (2009: 48 vs. 2014: 18, -62.5%) continue to decline.[25] The number of Special Needs Plans (548), comprised of dual-eligible (339), chronic or disabling condition (152) and institutional (57) plans, have declined 14.9% from 644 since 2013, for an enrollment total of 1.4 million people. Average monthly premiums of $41 reflect an increase of 20% from the prior year. Enrollee out-of-pocket limits typically range from $2,500 to $6,700, not an inconsequential amount for most retirees living on fixed incomes.

An analysis by the Commonwealth Fund of Medicare Advantage enrollment data in 2012 suggests that three-quarters of the Medicare Advantage population is served in *highly concentrated* MA insurance markets (2,852 counties); another 22% of the MA population is in moderately concentrated markets. The Commonwealth Fund uses the Herfindahl-Hirshman Index (HHI) as a measure of market concentration.[26] It has been shown that higher market concentration (i.e., less competition) leads to higher prices.[27]

The Commonwealth Fund analyzed data from 2012. Since then, MA enrollment concentration has increased significantly with two insurers; United Healthcare (20%) and Aetna-Humana (26%) alone approach 50% of national market share, and Blue Cross Blue Shield (13%), Kaiser (8%) and Anthem-Cigna (6%) represent another 27%. Local market shares tend to be even more concentrated, as exemplified by the Aetna-Humana combination having at least a 50% market share in 39 counties, primarily in Florida, Louisiana, Ohio, Tennessee, Virginia, North Carolina and South Carolina. United Healthcare has more than a 50% market share in four states, including Vermont and Wyoming where it has enrolled more than two-thirds of MA beneficiaries.[28]

Figure 43 - Growth of Medicare Advantage



Source: Medicare Advantage 2014 Spotlight: Enrollment Market Update kff.org/report-section/medicare-advantage-2014-spotlight-enrollment-market-update-overall-trends; and Data Note: Medicare Advantage Enrollment by Firm, 2015 kff.org/medicare/issue-brief/data-note-medicare-advantage-enrollment-by-firm-2015/

Figure 44 - Insurance Industry Consolidation, 2012-2015

	2012	2013	2014	2015
Aetna		Coventry Health		Humana
Anthem	CareMore Health Group		Wellpoint (BCBS)	Simply Healthcare: Cigna
Cigna	Healthspring: Arcadian & Humana MA plans (Arkansas, Texas, Oklahoma)			
United	XL Health Corp.			
Wellcare	Easy Choice Health Plan		Windsor Health Group	
	Amerigroup			

The MA penetration rate varies considerably by state, led by Minnesota, Hawaii and Oregon.

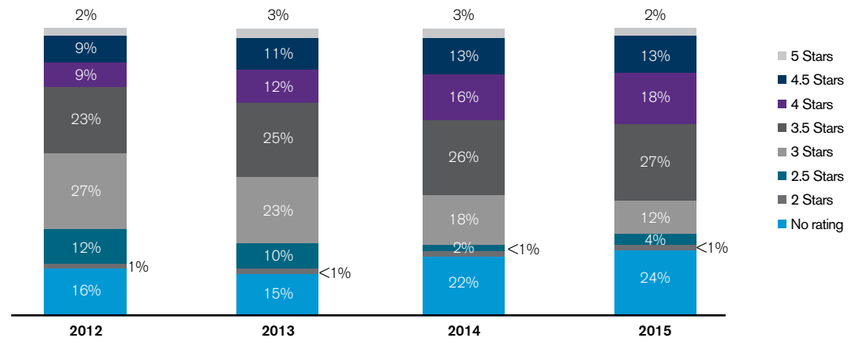
In 2007, CMS began to rate MA (Part C) and prescription drug (Part D) plans. This was based on outcome, experience, access and process measures from surveys by the Healthcare Effectiveness Data and Information Set (HEDIS®), Consumer Assessment of Healthcare Providers and Systems (CAHPS®) and Health Outcomes Survey (HOS) that are weighted 1.0, 1.5 or 3.0, as well as administrative data.[29] MA rating domains incorporating 36 measures include: staying healthy: screenings, tests and vaccines (13 measures); managing chronic conditions (10); health plan responsiveness and access to care (6); member complaints, problems getting services and choosing to leave the plan (4); and health plan customer service (3). Part D (prescription plan) rating domains incorporating 17 measures include: member experience with drug plan (3); drug pricing and patient safety (4); drug plan customer service (7); and member complaints, problems getting services and choosing to leave the plan (3).

Figure 45 - Representative Medicare Advantage Star Rating Measures (27/36)

Staying Healthy: Screenings, Tests, and Vaccines	Breast Cancer Screening	HEDIS
	Colorectal Cancer Screening	HEDIS
	Cholesterol Screenings- Cardiovascular Care	HEDIS
	Cholesterol Screening- Diabetes Care	HEDIS
	Glaucoma Testing	HEDIS
	Adult BMI Assessment (2012)	HEDIS
	Access to Primary Care Doctor Visits	HEDIS
	Annual Flu Vaccine	CAHPS
	Pneumonia Vaccine	CAHPS
	Improving or Maintaining Physical Health	HOS
	Improving or Maintaining Mental Health	HOS
	Monitoring Physical Activity	HOS
Managing Chronic (Long-Lasting) Conditions - does not include 3 SNP specific measures	Osteoporosis Management in Women who had a Fracture	HEDIS
	Controlling Blood Pressure	HEDIS
	Rheumatoid Arthritis Management	HEDIS
	Diabetes Care- Eye Exams	HEDIS
	Diabetes Care- Kidney Disease Monitoring	HEDIS
	Diabetes Care- Cholesterol Controlled	HEDIS
	Diabetes Care- Blood Sugar Controlled	HEDIS
	Plan- All Cause Readmissions (2012)	HEDIS
Patient survey results	Improving Bladder Control	HOS
	Reducing the Risk of Falling	HOS
Ratings of Health Plan Responsive-ness and care	Getting Needed Care & Seeing Specialists	CAHPS
	Getting Appointments and Care Quickly	CAHPS
	Customer Service	CAHPS
	Overall Rating of Health Care Quality	CAHPS
	Overall Rating of Health Plan	CAHPS

Source: http://www.healthplanofnevada.com/documents/provider%20files/Star%20Ratings%20-%20Powerpoint%20presentation-FINAL.pdf

Figure 46 - Medicare Advantage Contracts by Quality Star Rating



Note: Percentages are unweighted by enrollment.
Source: MPR / KFF analysis of CMS's Landscape Files for 2012-2015

Plans are rated between one (poor), three (average) and five (excellent) stars, with ratings publicly available to help beneficiaries select insurance products. Low ratings impact customer acquisition and retention.[30] Unlike lower rated MA plans, five-star plans can enroll members at any time during the year.

In 2012, an MA rewards (bonus) program was established under the PPACA for insurers with plans earning four or more stars. CMS also established a three-year pilot (demonstration) program for 2012 to 2014 that provided $8.2 billion in bonuses to MA plans rated as low as average. The pilot raised concerns about the usefulness of the average performance measures as 91% of MA plans qualified for the $3.1 billion bonus payment pool after the first year of the program (2012).[31] In 2015, with the lapse of the pilot program, bonus payments will revert to the PPACA standard of four stars or higher, a threshold met by 33% of MA plans. Quality ratings have continued to improve, though at a decelerating rate.[32]

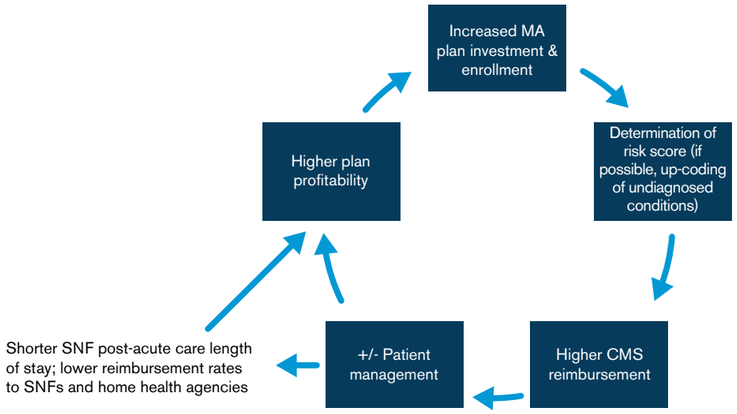
As with other CMS payment reform initiatives, Medicare Advantage (Part C) and Prescription Plan (Part D) measures continue to evolve.

Figure 47 - Evolution of Medicare Advantage Star Ratings, 2015

New Measures	Changes to Current Measures	Retired Measures
MTM comprehensive medication review (CMR) rate	Breast cancer screening	Glaucoma testing
Pharmacotherapy management of COPD	Annual flu vaccine	
Special needs plan care management	High risk medications	
Initiation and engagement of alcohol and other drug dependence treatment	Medication adherence for diabetes	
	Appeals upheld	
	Beneficiary access and performance problems	

Source: http://lab.express-scripts.com/insights/government-programs/charting-a-2015-medicare-star-ratings-strategy

Figure 48 - Risk Score Payments, Clinical Outcomes and Profitability



The Center for Public Integrity. Home is where the money is for Medicare Advantage plans: Feds wanted to ban costly "house calls," but backed off due to lobbying blitz; June 10, 2014. www.publicintegrity.org/2014/06/10/14880/home-where-money-medicare-advantage-plans

Unlike Medicare fee-for-service, MA plans are "driven" by the profit potential associated with patient management. As a result, increased oversight is being given to the post-acute care length of stay, outcomes and site of service; reimbursement also tends to be lower than Medicare FFS.

Recent evidence supportive of site-neutral reimbursement may lead to more restrictive policies toward the use of certain types of facilities (as shown below).

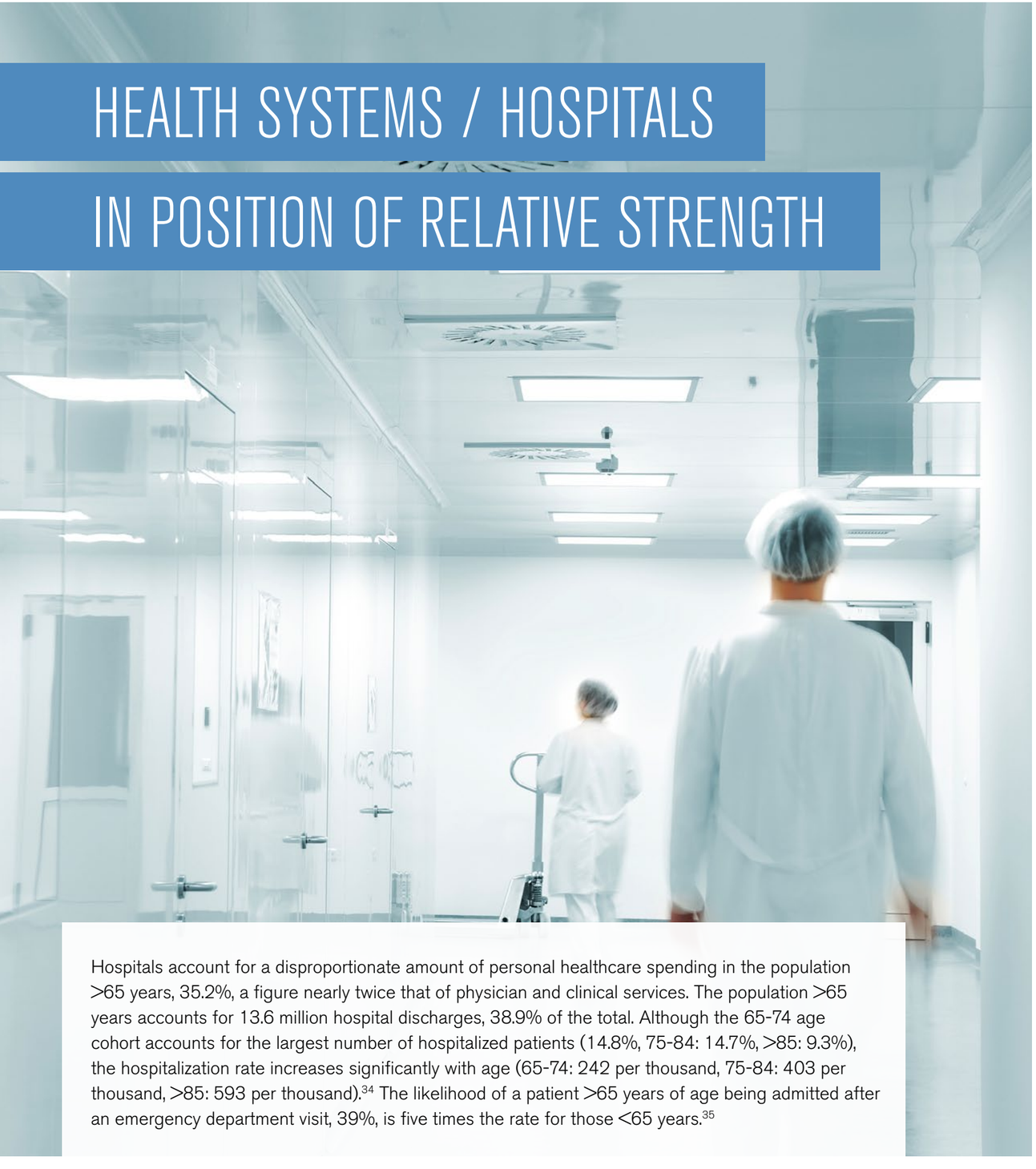
Inpatient rehabilitation patients, as compared to those in skilled nursing facilities, tend to be younger (76 vs. 79 years), male (48% vs. 39%), less likely a dual eligible beneficiary (22% vs. 34%) and have comparable or lower average risk scores (Hierarchical Condition Category of 2.6 vs. 2.7). Also of interest, surprisingly, was the finding that the most severely ill patients (APR-SOI 4) with one of 17 listed conditions were more likely to be admitted to skilled nursing facilities rather than inpatient rehabilitation facilities.[33] Additional data and analysis is required to better understand the relationship (value proposition) between the incremental cost and benefits associated with the site of treatment, and types and duration of services. The advent of a uniform post-acute care instrument, as per the IMPACT Act, will accelerate the shift to value-based reimbursement.

In 2015, MA beneficiaries accounted for nearly one-third, or 16.8 million, Medicare enrollees. An enrollee compound annual growth rate of 8.9% between 2007 and 2015 suggests an increased role for insurers in future post-acute care decisions.

Figure 49 - Differential Medicare Payments by Site of Care, 2012

MS-DRG of preceding hospital stay	Condition	SNF payment per discharge	IRF total payment per discharge	Ratio IRF total to SNF payment	IRF base payment per discharge	Ratio IRF base payment to SNF payment
003	ECMO or tracheostomy with ventilator support 96+ hours	$19,786	$26,074	1.32	$21,085	1.07
190	Chronic obstructive pulmonary disease with MCC	$9,860	$17,028	1.73	$15,648	1.59
193	Pneumonia with MCC	$10,360	$18,584	1.79	$17,093	1.65
194	Pneumonia with CC	$10,678	$17,749	1.66	$16,489	1.54
208	Respiratory system diagnosis with ventilator support < 96 hours	$10,748	$18,886	1.76	$17,179	1.60
219	Cardiac valve without cardiac catheterization with MCC	$9,671	$18,350	1.90	$16,477	1.70
233	Coronary bypass with cardiac catheterization with MCC	$9,552	$18,285	1.91	$16,440	1.72
239	Amputation for circulatory disorders with MCC	$12,107	$22,397	1.85	$19,751	1.63
240	Amputation for circulatory disorders with CC	$13,376	$19,443	1.45	$17,572	1.31
291	Heart failure and shock with MCC	$9,964	$18,017	1.81	$16,592	1.67
292	Heart failure and shock with CC	$10,038	$16,897	1.68	$15,628	1.56
467	Revision of hip or knee replacement with CC	$10,834	$14,799	1.37	$13,513	1.25
536	Fractures of hip & pelvis without MMC	$14,239	$17,567	1.23	$16,394	1.15
690	Kidney & urinary tract infections without MCC	$12,056	$18,227	1.51	$17,048	1.41
853	Infectious & parasitic diseases with OR procedure with MCC	$12,140	$20,807	1.71	$17,886	1.47
871	Septicemia or severe sepsis without ventilator support with MCC	$11,181	$19,531	1.75	$17,697	1.58
872	Septicemia or severe sepsis without ventilator support without MCC	$11,260	$18,457	1.65	$17,240	1.53
	Average of 17 conditions	$11,052	$18,901	1.64	$17,076	1.49

Source: http://MedPAC.gov/documents/reports/chapter-7-online-only-appendixes-medicare's-post-acute-care-trends-and-ways-to-rationalize-payments-(march-2015-report).pdf?sfvrsn=8

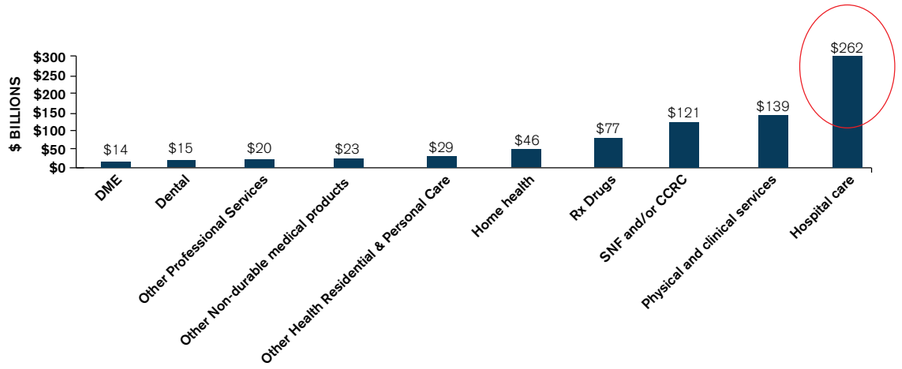


HEALTH SYSTEMS / HOSPITALS

IN POSITION OF RELATIVE STRENGTH

Hospitals account for a disproportionate amount of personal healthcare spending in the population >65 years, 35.2%, a figure nearly twice that of physician and clinical services. The population >65 years accounts for 13.6 million hospital discharges, 38.9% of the total. Although the 65-74 age cohort accounts for the largest number of hospitalized patients (14.8%, 75-84: 14.7%, >85: 9.3%), the hospitalization rate increases significantly with age (65-74: 242 per thousand, 75-84: 403 per thousand, >85: 593 per thousand).[34] The likelihood of a patient >65 years of age being admitted after an emergency department visit, 39%, is five times the rate for those <65 years.[35]

Figure 50 - Personal Healthcare Spending in Population >65 years, 2010 Total = $744 Billion

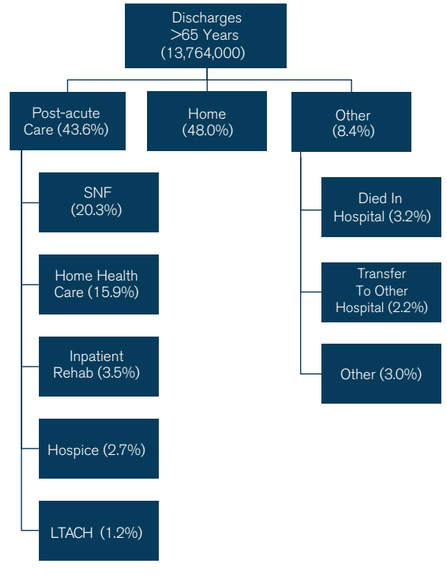


Source: http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/2010GenderandAgeTables.pdf.Table

Hospitals are the major source of post-acute care referrals. Approximately 44% of Medicare patients receive post-acute care. Nursing homes receive nearly 50% of referrals, whereas home care accounted for 37%. Inpatient rehabilitation facilities, hospice and long-term acute care facilities accounted for the remainder. Post-discharge planning has gained importance given the financial penalties associated with readmissions.

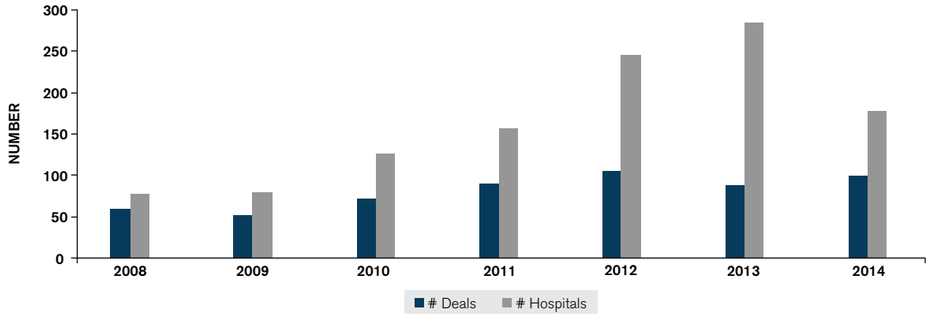
Hospital consolidation has further increased the concentration of potential post-acute care referrals. Since 2007, there have been 569 announced deals involving 1,144 hospitals.[36] According to the American Hospital Association, there are 4,974 hospitals in the U.S., implying that 23% of the total was involved in a transaction during the past few years.[37] Ostensibly, the primary driver for acquisition has been scale and its related operating efficiencies. We believe market share, rather than scale, has been the primary near-term driver for

Figure 51 - Site of Medicare FFS Hospital Discharge, 2012



Source: MedPAC Table 6-15, Discharge Destination of Medicare FFS Beneficiaries, 2006-12

Figure 52 - Announced Hospital Mergers and Acquisitions, 2008-2014



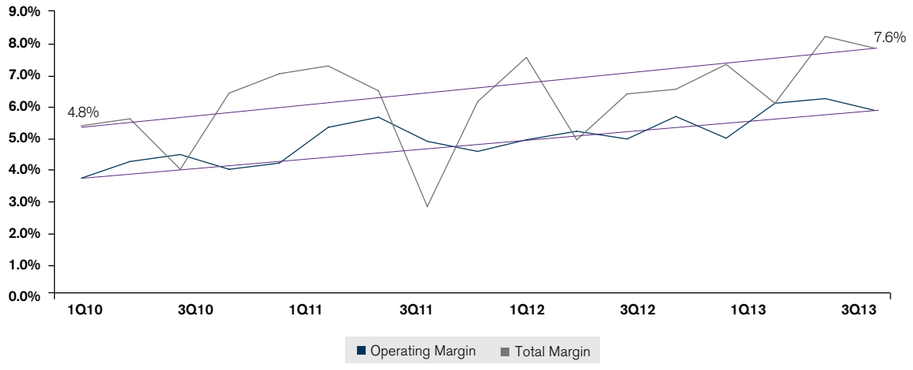
Source: 2008-13 figures from Irving Levin Associates, Inc., The Health Care Acquisition Report, Twentieth Edition, 2014; 2014 figures from Irving Levin Associates as reported in https://aharesourcecenter.wordpress.com/category/health-care/hospitals/mergers-and-acquisitions/

acquisition, leading to less competition in select markets and an improved negotiating position relative to commercial payers.

Hospital and health system reach has also been extended via physician acquisitions. According to a survey conducted by Jackson Healthcare in 2013, 26% of physicians were employed by a hospital. Another 14% reported being employed by a practice that is owned by a hospital or health system.[38] A preference by hospitals for acquiring primary care physicians exists, reflecting the high volume of Medicare patients with chronic conditions that potentially are admitted, visit the emergency department or utilize ancillary services.

Hospitals and health systems are not only larger, but they are more profitable. Operating margins, on average, have improved during the past few years, from 4.8% in the first quarter of 2010 to 7.6% in the fourth quarter of 2013, an increase of 58.3%. The bifurcation of financial performance is notable, with more than 1,500 hospitals, 32% of the total, having negative operating margins in 2013.

Figure 53 - Community Hospital Margin Trends, 2010-2013 [1, 2]



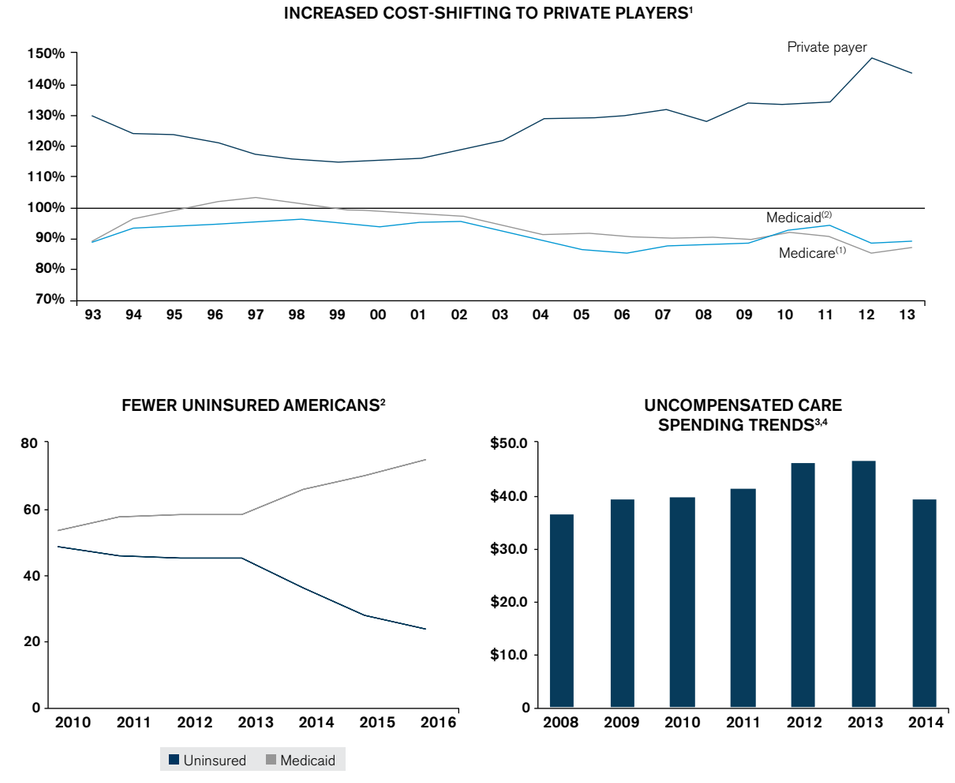
Total Hospital Margin is calculated as the difference between total net revenue and total expenses divided by total net revenue; Operating Margin is calculated as the difference between operating revenue and total expenses divided by operating revenue.

[1]http://www.healthleadersmedia.com/content/307315.pdf; [2] According to the AHA Trend Watch Chart Book (2015), 32% of hospitals had negative operating margins in 2013

Drivers of improved operating margins include increased cost-shifting to private payers, rising from approximately 130% of costs to >140% during the past five years. Higher commercial payer prices are secondary to an improving economy and renegotiated prices based on scale (acquisition).[39] In 2014, the PPACA led to fewer low-income uninsured Americans, and thus, a reduction in uncompensated care of $7.4 billion or 21%.

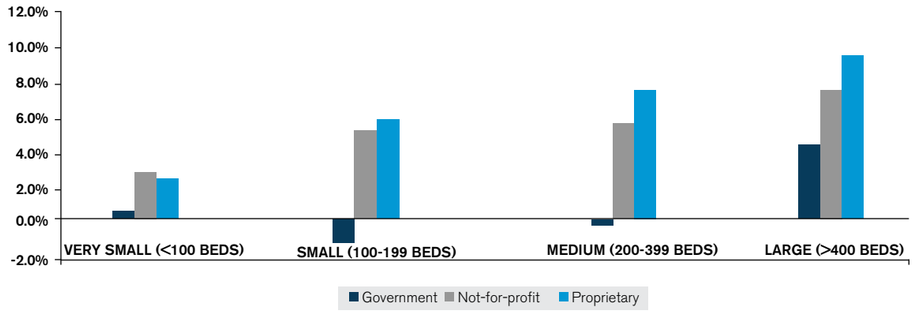
The benefit of improving operating margins is primarily being generated by medium-to-large hospitals, both for-profit and nonprofit hospitals. Government safety net hospitals typically have a less favorable payer mix, higher rates of uncompensated care and a higher-wage, unionized workforce, which contribute to their financial under-performance. Size also matters; large hospitals are more profitable than small hospitals. Of very small hospitals, critical access are the least profitable; they account for 50% of hospitals, but only 13% of staffed beds.[40] Many are located in rural areas and require government subsidies for survival.

Figure 54 - Drivers of Improved Hospital Operating Margins



Source: [1]Avalare Health; AHA Trendwatch Chartbook, 2015; [2]CMS National Health Expenditures, Table 17; [3]AHA Uncompensated Hospital Care Cost Fact Sheet file:///C:/Users/dgruber/Downloads/14uncompensatedcare.pdf; [4]http://news.aha.org/article/hhs-estimates-2014-reduction-in-hospital-uncompensated-care-costs-under-aca

Figure 55 - Hospital Operating Margin by Size and Type of Ownership

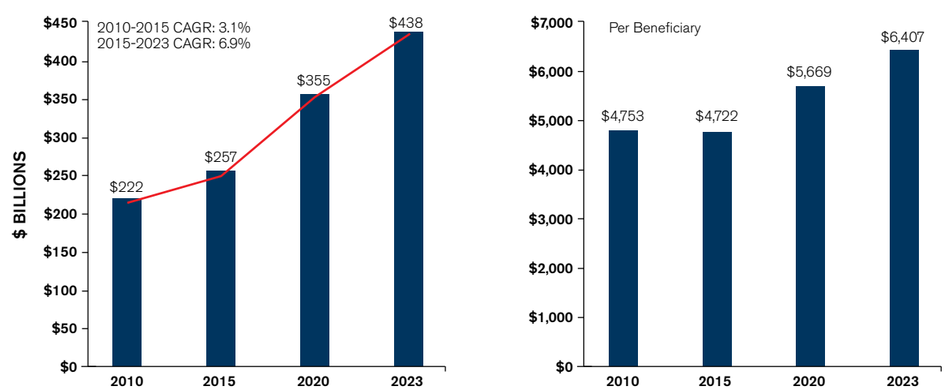


Source: Truven Analytics

Post-acute providers need to understand market dynamics, and the relative competitive position of local hospitals and health systems. Medicare hospital expenditures are forecast to accelerate due to the rapidly aging population and, thus, will remain an integral component in the management of the total cost of care.

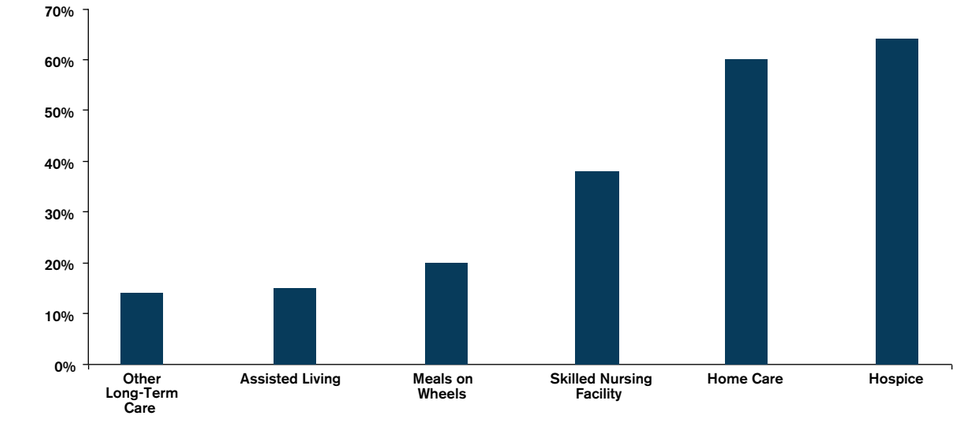
Many hospitals and health systems also offer post-acute care services directly or indirectly, via joint ventures. Note, however, that although these services are offered, hospital-owned facilities still account for only 25% of SNFs, 25% of hospices and 11% of home care agencies (though 21% of episodes).[41] Data suggests lower hospital readmission rates and total cost of care for nonprofit post-acute care providers – critical attributes in the emerging value-oriented reimbursement environment.

Figure 56 - Medicare Hospital Expenditures, 2010-2023



Source: CMS National Health Expenditures

Figure 57 - Percent of Hospitals Offering Outpatient / Facility Services, 2012



Source: Trendwatch Chartbook 2014. Avalere Health analysis of AHA Annual Survey data; includes services offered in hospital, health system, network or joint venture

Nonprofit skilled nursing facilities have fewer readmissions and a lower total cost than their for-profit counterparts. The hospital readmission rate is lower (statistically significant) for nonprofit SNFs, 20.4% vs. 21.3% ($p<.001$).[42] More broadly, a literature review suggests that the quality of care, on average, is higher for nonprofit skilled nursing facilities due to a high staff skill mixture and lower nursing aide turnover rate.[43] Despite a higher charge per day, $319 vs. $289, the aggregate cost per stay is much lower for nonprofit SNFs, $9,468 vs. $11,874.[44] This implies a per stay duration of 29.7 days for nonprofit SNFs vs. 41.1 days for for-profits.

Despite higher costs per day, $164 vs. $132, the aggregate cost for nonprofit hospices is much lower, $9,468 vs. $11,874.[45] A shorter length of stay, 68 vs. 105 days, more than offsets the higher cost per day. Medicare operating margins are far lower than their for-profit counterparts, 3.7% vs. 15.4%.[46]

Nonprofit home care agencies also have fewer readmissions and a lower total cost of care than their for-profit counterparts. Their readmission rate of 28.2% is lower (statistically significant) than for-profits at 32.8% ($p<.001$).[47] Despite a higher charge per visit, $166 vs. $150, the aggregate visit charges per person are much lower for nonprofit agencies, $3,981 vs. $5,741.[48] This implies 24.0 visits by a nonprofit agency vs. 38.3 for for-profits. The average FFS home care patient has two episodes of care.[49] Nonprofit agencies also have lower operating margins, 10.3%, than for-profit agencies, 13.7%.[50]

EVOLUTION OF MEDICARE REIMBURSEMENT

CMS has taken a leading role in reforming Medicare and, by default, the entire healthcare system. In 2014, Medicare accounted for 20.4% of national healthcare expenditures ($3.1 trillion) and 25.4% of total hospital spending ($978.3 billion). Medicare is often seen as the bellwether for reimbursement change by commercial payers. After several years of evolutionary changes, mostly voluntary but a few mandated, the U.S. Department of Health and Human Services (HHS) Secretary Sylvia Burwell made the following announcement on January 26, 2015:

"Today, for the first time, we are setting clear goals – and establishing a clear timeline – for moving from volume to value in Medicare payments. We will use benchmarks and metrics to measure our progress; and hold ourselves accountable for reaching our goals. Our first goal is for 30% of all Medicare provider payments to be in alternative payment models that are tied to how well providers care for their patients, instead of how much care they provide – and to do it by 2016. Our goal would then be to get to 50% by 2018. Our second goal is for virtually all Medicare fee-for-service payments to be tied to quality and value; at least 85% in 2016 and 90% in 2018." [51]

Secretary Burwell's announcement signals an intention by HHS, the primary payer of government-sponsored healthcare, to accelerate the shift from volume to value. Its initial focus on hospital quality, safety and satisfaction has broadened to include the entire continuum of care, inclusive of acute, post-acute and community care.

COMMERCIAL SECTOR TO EVENTUALLY FOLLOW CMS LEADERSHIP

On January 28, only two days after Secretary Burwell's announcement, a private coalition called the Health Care Transformation Task Force announced its intention to shift 75% of its contracts into alternate payment models by 2020. Among its goals is to identify the most cost-effective annual and episode of care payment models among the myriad of possibilities available from the government and private payers.[52] Current membership is comprised of 20 providers (e.g., Advocate Health Care, Ascension Dartmouth-Hitchcock Health, Dignity Health, Montefiore, Partners Healthcare) and five insurers (Aetna, BCBS Massachusetts, BCBS of Michigan, Blue Shield of California, Healthcare Services Corp), supplemented by two purchasers (Caesars Entertainment, Pacific Business Group on Health).[53] The paucity of large employer involvement suggests that, unlike the federal government, they are still unwilling (or unable) to use their financial clout associated with coverage of 170 million employees and their families to effect fundamental change in the commercial market. Nevertheless, this initiative highlights the potential of Medicare to facilitate change across the entire healthcare ecosystem.

IT INFRASTRUCTURE ESSENTIAL TO REDUCE WASTE

In 2009, the Institute of Medicine (IOM) convened four meetings to identify opportunities to reduce healthcare costs by 10% within 10 years without negatively affecting outcomes. Workshops entitled *Understanding the Targets, Strategies That Work, The Policy Agenda* and *Getting to 10 percent: Opportunities and Requirements* were attended by leading experts.[54] Sources of waste totaling $765 billion or 30.6% of total spending were identified, highlighting unnecessary services, inefficiencies, excessive administration, price variation, missed prevention opportunities and fraud.

Figure 58 - Estimates of Waste in Healthcare Expenditures

CATEGORY	COST ($B)	SOURCES OF WASTE
Unnecessary services	$210	• Overuse - beyond evidence established levels • Discretionary use beyond benchmarks • Unnecessary choice of higher-cost services
Inefficiently delivered services	$130	• Mistakes - errors, preventable complications • Care fragmentation • Unnecessary use of higher-cost providers • Operational inefficiencies at care delivery sites
Excess administrative costs	$190	• Insurance paperwork costs beyond benchmarks • Insurers' administrative inefficiencies • Inefficiencies due to care documentation requirements
Prices that are too high	$105	• Service prices beyond competitive benchmarks • Product prices beyond competitive benchmarks
Missed prevention opportunities	$55	• Primary, secondary and tertiary prevention
Fraud	$75	• All sources - payers, clinicians and patients
Total	**$765**	• **2009 National Health Expenditures: $2,501B**

Source: The Healthcare Imperative: Lowering Costs and Improving Outcomes, 2010 Table S-1. Adopted by National Academy of Sciences from IOM Workshop Summary.

Further quantifying waste in the healthcare system, The Commonwealth Fund estimated $226 billion for the over-utilization of healthcare services, leading to no patient benefit and even negative outcomes.[55] In its seminal report entitled "Waste and Inefficiency in the U.S. Healthcare System," the New England Healthcare Institute identified cost savings of $100 million to $10 billion associated with inappropriate antibiotic usage for upper respiratory infections, the overuse of back-imaging studies, excessive surgery (hysterectomy, spinal, coronary) and percutaneous coronary interventions.[56]

Many of the unnecessary and inefficiently delivered services result from a fee-for-service business model; higher volumes increase revenues. This has led to an excess of diagnostic procedures, advanced imaging scans and surgical interventions as well as significant variation in site of service and procedure costs. Fee-for-service reimbursement has also led to care fragmentation, with poor (though improving) transition management from hospitals to post-acute care facilities and home. Value, defined as a function of quality and cost, has been of secondary importance to the maximization of reimbursement – until now.

The creation of an interoperable data infrastructure capable of health information exchange, combined with the promise of savings associated with staff productivity and the avoidance of duplicate tests, was the goal of the Health Information Technology for Economic and Clinical Health (HITECH) Act, a section of the bill known as the American Recovery and Reinvestment Act (ARRA) of 2009. Approximately $19.2 billion was allocated to increase the use of electronic medical records (EMRs) by hospitals and physicians.[57]

Stages of "meaningful use" incentive payments were created to focus efforts on enhanced data capture and sharing, clinical processes, decision support and outcomes.

Figure 59 - Stages of Meaningful Use

STAGE 1: 2011-2012	STAGE 2: 2014	STAGE 3: 2016
Data capture and sharing	Advanced clinical processes	Improved outcomes
STAGE 1: MEANINGFUL USE CRITERIA FOCUS ON:	**STAGE 2: MEANINGFUL USE CRITERIA FOCUS ON:**	**STAGE 3: MEANINGFUL USE CRITERIA FOCUS ON:**
Electronically capturing health information in a standardized format	More rigorous health information exchange (HIE)	Improving quality, safety, and efficiency, leading to improved health outcomes
Using that information to track key clinical conditions	Increased requirements for e-prescribing and incorporating lab results	Decision support for national high-priority conditions
Communicating that information for care coordination processes	Electronic transmission of patient care summaries across multiple settings	Patient access to self-management tools
Initiating the reporting of clinical quality measures and public health information	More patient-controlled data	Access to comprehensive patient data through patient-centered HIE
Using information to engage patients and their families in their care		Improving population health

Source: HealthIT.gov. Policymaking, Regulation, & Strategy. Meaningful Use. www.healthit.gov/policy-researchers-implementers/meaningful-use

The Healthcare Information and Management Systems Society (HIMSS) has been tracking EMR adoption rates since passage of the HITECH ACT and utilizes a seven-stage system to differentiate site and functionality, i.e., ancillaries, documentation, physician order entry, clinical decision support and data exchange. EMR adoption rates have increased significantly for hospitals, but remain lagging at ambulatory physician practices. The higher adoption rate in

Figure 60 - Electronic Medical Record Adoption Rates, 2014

HOSPITAL EMR ADOPTION MODEL℠			
STAGE	**CUMULATIVE CAPABILITIES**	**2014 Q3**	**2014 Q4**
Stage 7	Complete EMR; CCD transactions to share data; Data warehousing; Data continuity with ED, ambulatory, OP	3.4%	3.6%
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS	16.5%	17.9%
Stage 5	Closed loop medication administration	29.5%	32.8%
Stage 4	CPOE, Clinical Decision Support (clinical protocols)	14.5%	14.0%
Stage 3	Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology	23.9%	21.0%
Stage 2	CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging; HIE capable	5.3%	5.1%
Stage 1	Ancillaries - Lab, Rad, Pharmacy - All Installed	2.5%	2.0%
Stage 0	All Three Ancillaries Not Installed	4.4%	3.7%
Data from HIMSS Analytics® Database ©2014		*N = 5453*	*N = 5467*

AMBULATORY EMR ADOPTION MODEL℠		
STAGE	**CUMULATIVE CAPABILITIES**	**Q2 2014**
Stage 7	HIE, data sharing with community based EHR, robust business and clinical intelligence	4.30
Stage 6	Advanced clinical decision support, proactive care management, structured messaging	5.83
Stage 5	Personal health record, online tethered patient portal	5.56
Stage 4	CPOE, Use of structured data for accessibility in EMR and internal and external sharing of data	1.23
Stage 3	Electronic messaging, computers have replaced the paper chart, clinical documentation and clinical decision support	11.42
Stage 2	Beginning of a CDR with orders and results, computers may be at point-of-care, access to results from outside facilities	30.74
Stage 1	Desktop access to clinical information, unstructured data, multiple data sources, intra-office/informal messaging	34.29
Stage 0	Paper chart based	6.63%
Data from HIMSS Analytics® Database ©2014 HIMSS Analytics		*N = 26,008*

Source: CCD: Continuity of care document | CDR: Clinical decision rule | CDSS: Clinical decision support system | CPOE: Computerized physician order entry | HIE: Health information exchange | PACS: Picture archiving and communications system

hospitals reflects the magnitude of unmet need, the relative availability of resources (financial, personnel) and the potential for significant meaningful use payments.

Despite rising hospital EMR adoption, interoperability across vendors and settings remains limited. *Post-acute care providers were not provided financial incentives for EMR implementation, and as a result, remain laggards in the effort to promote health information exchange.* In addition, many physicians remain concerned about diminished productivity and reduced patient "face time" associated with the use of electronic health records (given input redundancy and the challenges associated with data retrieval). Nevertheless, hospitals and by extension their ambulatory practices are far better able to "handle" the requirements of payment reform in 2015 than in the period preceding implementation of the HITECH Act.

Accessing data and generating information is a function of investment, whereas the generation of actionable insights and operational implementation requires significant process-of-care changes driven by personnel with a fact-based decision bias in a health system still dominated by fee-for-service reimbursement. Spending tens or hundreds of millions of dollars in information technology (IT) does not automatically equate with effective and efficient care delivery.

VALUE-BASED PURCHASING: MEASUREMENT EVOLUTION STILL ONGOING

CMS Medicare value purchasing initiatives focus on the quality and safety of inpatient care. The program had 20 measures for FY13 and 24 measures in FY14. Measures have evolved from an initial focus on the process (70%) and experience of care (30%) domains in FY13 to a far greater focus on risk-adjusted outcome (readmissions, mortality) and efficiency (Medicare spending per beneficiary) domain measures. Each hospital receives two scores for each non-experience of care measure: an achievement score, comparing the hospital performance with a point threshold beginning at the 50th percentile of all hospitals; and an improvement score, based on performance relative to the benchmark and baseline period. CMS uses the higher score in its final calculations. Consistency scores are applied to the experience of care measures, with hospitals scoring the most points if they are above the 50th percentile in all eight dimensions of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS). The total performance score is then weighted by domain, totaled and then placed into a percentile ranking.[58] In FY13, the hospital breakeven performance (100% return of withholding) was in the 39th percentile, or doing better than 38% of participating hospitals.[59] The breakeven score increases each fiscal year.

Figure 61 - Levels of Data-Enabled Management Capabilities

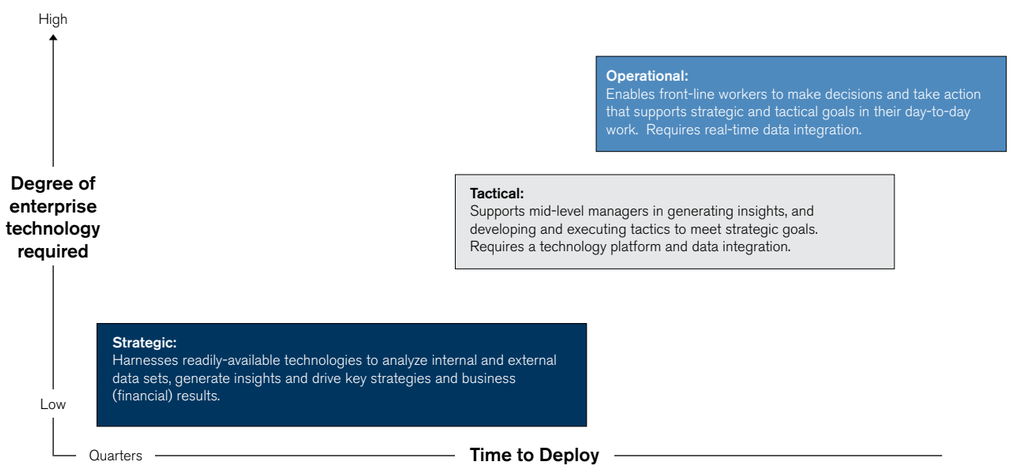
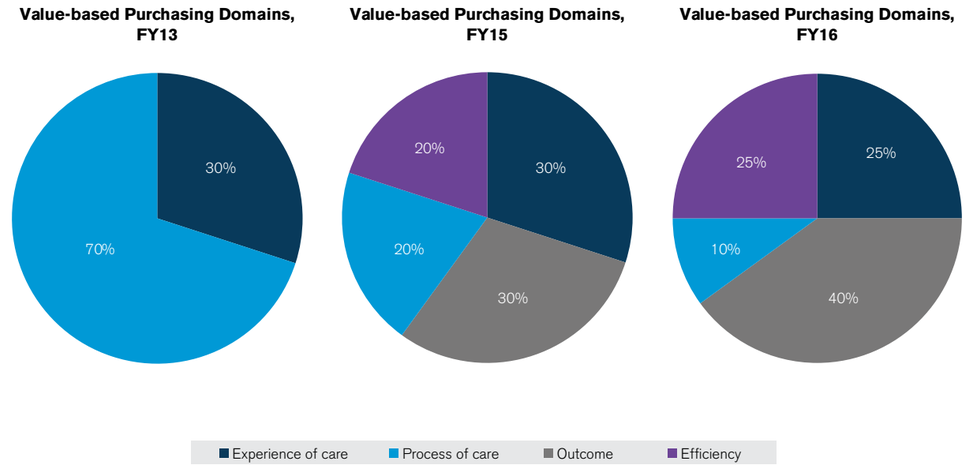


Figure 62 - Evolution of Value-Based Purchasing Domains

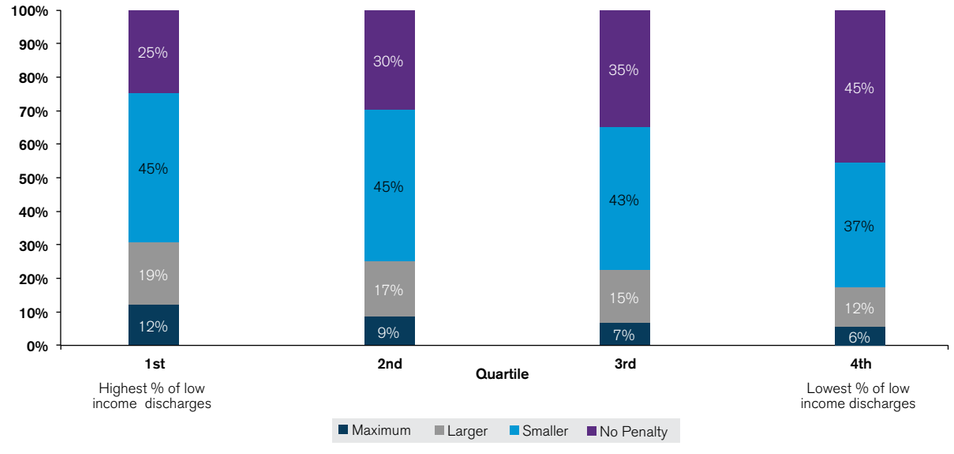


Hospitals, starting in fiscal year 2013, funded the program by contributing 1% of their annual diagnosis-related group (DRG) Medicare reimbursements ($800 million) in the form of withholdings placed into a collective pool. The percentage contribution increases incrementally by 0.25% each year to 1.5% in FY15 and 2.0% in FY17.[60]

The Value-Based Purchasing (VBP) program is projected to save Medicare $50 billion over a 10-year period, a figure far higher than the projected savings associated with meaningful use ($17 billion) and hospital readmission reduction ($8.2 billion).[61] Note, the FY13 payment period, beginning October 2012, reflected performance from July 2011 to March 2012.

A bifurcation in performance is becoming evident for hospitals participating in the VBP program, especially for those treating a disproportionate number of low-income patients. In FY15, the number of hospitals receiving Medicare payments ("bonuses")

Figure 63 - Value-Based Purchasing Penalties by Patient Income, FY13



Source: Kaiser Health News; August 13, 2012

increased 37% to 1,714 hospitals, as compared to 1,251 in FY14; the adjusted FY15 payment ranged from 0.01% to 2.09%, with 40 hospitals above the 1.5% threshold.[62] Conversely, Medicare payments ("penalties") declined to 1,375 hospitals from 1,451 hospitals in FY14.The average penalty has increased from -0.21% in FY13 and -0.26% in 2014 to -0.30% in 2015.

CMS released its FY16 results on October 26, 2015. For FY16, more than 1,800 hospitals will have a positive payment adjustment, reflecting a 5.0% increase from the prior fiscal year. Twelve hundred hospitals will have negative payment adjustments, a decline of 12.7% from FY15. Approximately one-half of hospitals will have minor positive and negative adjustments ranging from -0.4% to +0.4%. The best performing hospital had a 3.0% positive adjustment after deduction of the 1.75% withhold, whereas the worst performing hospital received no payments as an offset to the 1.75% withhold applied to all hospitals. Approximately $1.5 billion in Medicare payments were reallocated as part of the VBP program.[63]

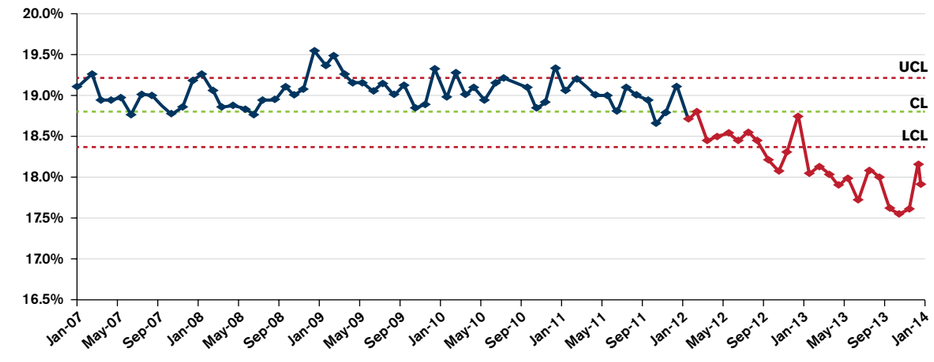
HOSPITAL READMISSIONS: FOCUSED ON THE 30-DAY DISCHARGE PERIOD (AND **NOT** CHRONIC-CARE MANAGEMENT)

The Hospital Readmission Reduction Program (HRRP), effective October 2012 (FY13), penalizes hospitals with higher rates of Medicare readmissions. Readmission, after the initial ("index") hospital inpatient admission for an applicable condition (with exception), does not have to be for the same condition to be penalized, nor does it have to be to the same institution. Excess readmissions are calculated as the ratio of the number of ("predicted") 30-day readmissions for heart attack, heart failure and pneumonia to the expected number, based on an average hospital with similar patients.[64]

From 2007 to 2011, approximately 19.0-19.5% of Medicare patients with acute myocardial infarction, heart failure and pneumonia were readmitted within 30 days of inpatient discharge. In January 2014, the all-cause 30-day readmission rate reached 17.9%.[65] The hospital payment penalty increased from 1% of Medicare reimbursement in FY13 to 2% in FY14 and 3% in FY15 and thereafter.

In FY15, three additional conditions, acute exacerbations related to COPD, and elective total hip and knee replacement, were added to the readmission monitoring list.[66]

Figure 64 - Medicare FFS All-Cause, 30-Day Hospital Readmission Rate

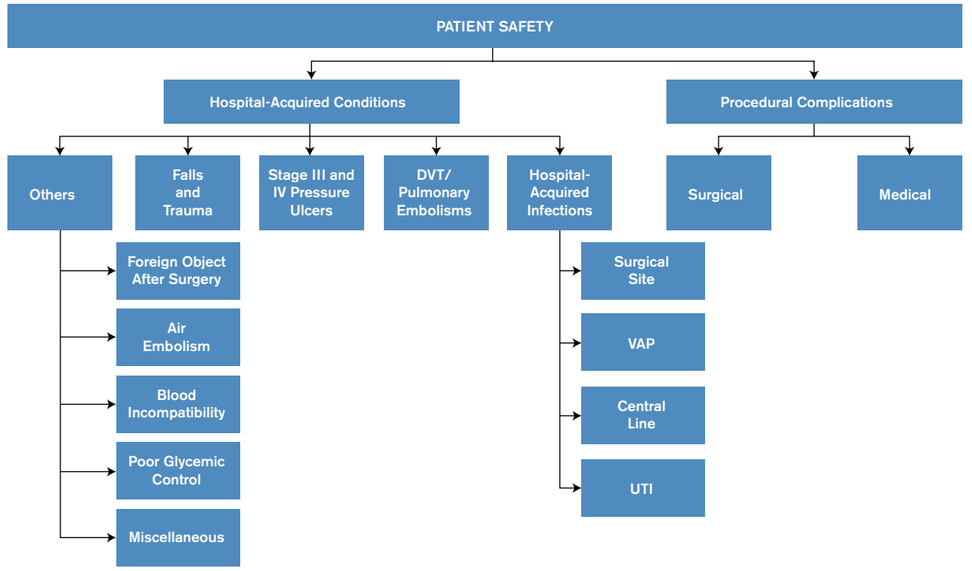


Source: http://innovation.cms.gov/Files/reports/patient-safety-results.pdf

HOSPITAL-ACQUIRED CONDITIONS

In 1999, IOM published a seminal report entitled "To Err is Human," estimating that "at least 44,000 people, and perhaps as many as 98,000 people, die in hospitals each year as a result of medical errors that could have been prevented."[67] In 2010, the OIG reported that 13.1% of Medicare patients admitted to a hospital experienced adverse events that led to a prolonged stay, resulted in permanent patient harm, required life-sustaining intervention or contributed to death. Physicians reviewing these cases determined that up to 44% of the adverse events were deemed preventable.[68] In September 2013, the Journal of Patient Safety reported the potential of 210,000-400,000 deaths per year associated with preventable harm in hospitals. The author continues: "serious harm seems to be 10- to 20-fold more common than lethal harm."[69]

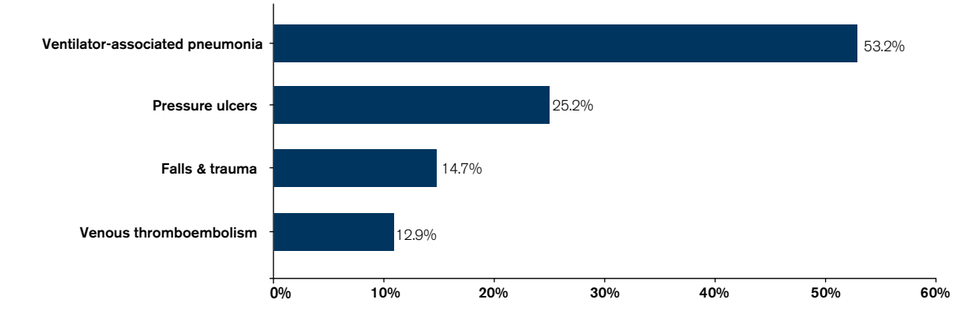
Figure 65 - Hospital-Acquired Conditions



Preliminary data suggests improvement in the hospital-acquired (nosocomial) condition (HAC) rate following implementation of the PPACA from a baseline of 145 HACs per 1,000 discharges in 2010 to 132 HACs per 1,000 discharges in 2012.[70] More recent data suggests improvement in falls, pressure ulcers, pulmonary embolisms, infection and other areas.[71]

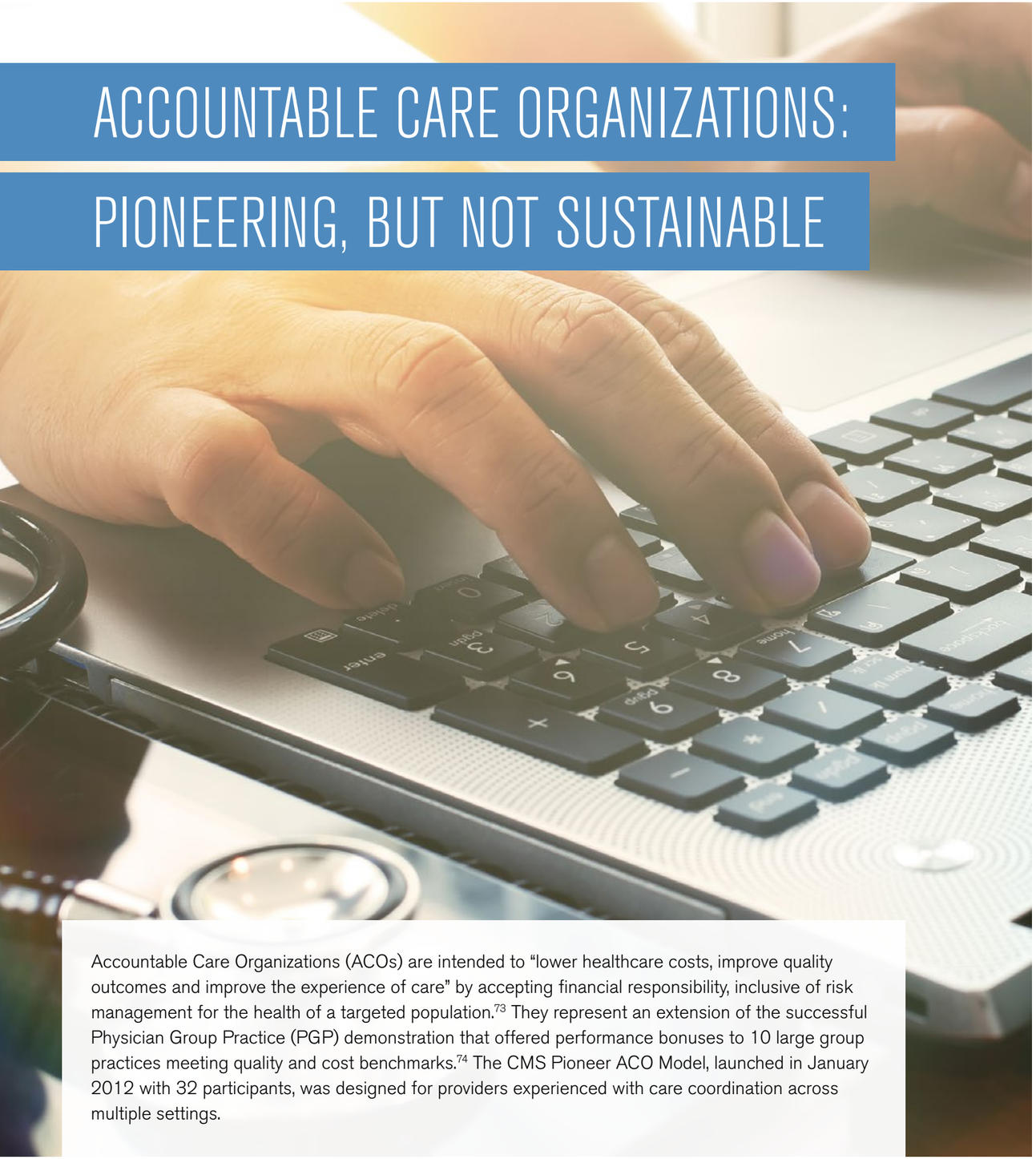
Beginning in FY15 (October 2014), Medicare imposed a maximum 1% reduction in total payments to hospitals that are in the lowest performance quartile in the rate of risk-adjusted HACs. In FY15, 724 hospitals fell within the lowest quartile of performance.[72]

Figure 66 - Percent Reduction in Hospital-Acquired Conditions, 2010 - 2013



Source: New HHS Data Shows Major Strides Made in Patient Safety, Leading to Improved Care and Savings; May 7, 2014. www.innovation.cms.gov/Files/reports/patient-safety-results.pdf

ACCOUNTABLE CARE ORGANIZATIONS: PIONEERING, BUT NOT SUSTAINABLE



Accountable Care Organizations (ACOs) are intended to "lower healthcare costs, improve quality outcomes and improve the experience of care" by accepting financial responsibility, inclusive of risk management for the health of a targeted population.[73] They represent an extension of the successful Physician Group Practice (PGP) demonstration that offered performance bonuses to 10 large group practices meeting quality and cost benchmarks.[74] The CMS Pioneer ACO Model, launched in January 2012 with 32 participants, was designed for providers experienced with care coordination across multiple settings.

Year 1 results highlighted improved quality scores for ACO participants relative to their FFS peers (risk-adjusted readmissions, patient / caregiver satisfaction, preventive health, at-risk population management). Eighteen of 32 Pioneer ACOs (56%) also had lower costs, but only 13 of 32 (38%) had sufficiently lowered costs to generate shared savings. Nine ACOs dropped out after Year 1, indicating the challenge of reducing costs to target levels within 12 months, especially among already relatively efficient providers.[75]

Year 2 results also highlighted improved quality scores for ACO participants relative to their FFS peers; 14 of 23 (61%) had lower costs, but only 11 of 23 (48%) had sufficiently lowered costs to generate shared savings. Four ACOs dropped out after or during Year 2. After two years of penalties totaling $5.0 million, Dartmouth-Hitchcock Medical Center announced on September 14, 2015 it was pulling out of the Pioneer ACO model.[76] According to a Brookings Institute analysis, the average per capita Medicare spending of those ACOs in the metropolitan area with higher savings had average quality scores (the purple circle) of $11,544 – significantly above the average Pioneer ACO county of $10,385.[77] The data suggests that higher levels of baseline spending (reflective of local market provider inefficiency or ineffectiveness) may be more important than actual performance to generate shared savings.

CMS also launched the Medicare Shared Savings Plan (MSSP) ACO program with 114 participants in July 2012. Year 1 of the CMS MSSP focuses on reporting, whereas subsequent years are based on performance.[78] Patients enrolled in Part C, also known as the Medicare Advantage Plan (13.1 million or 26.5% of Medicare beneficiaries), were excluded from the shared savings program in 2012.[79]

Figure 67 - Pioneer ACO PY2 Quality Scores vs. Gross Savings / Losses

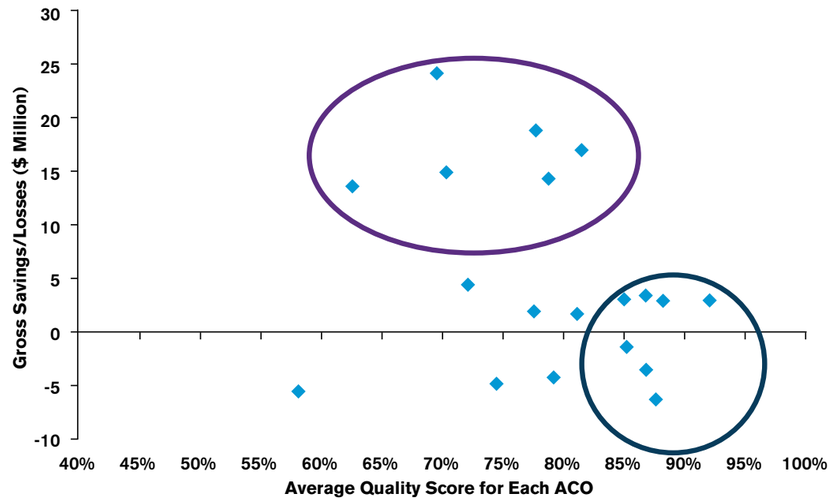
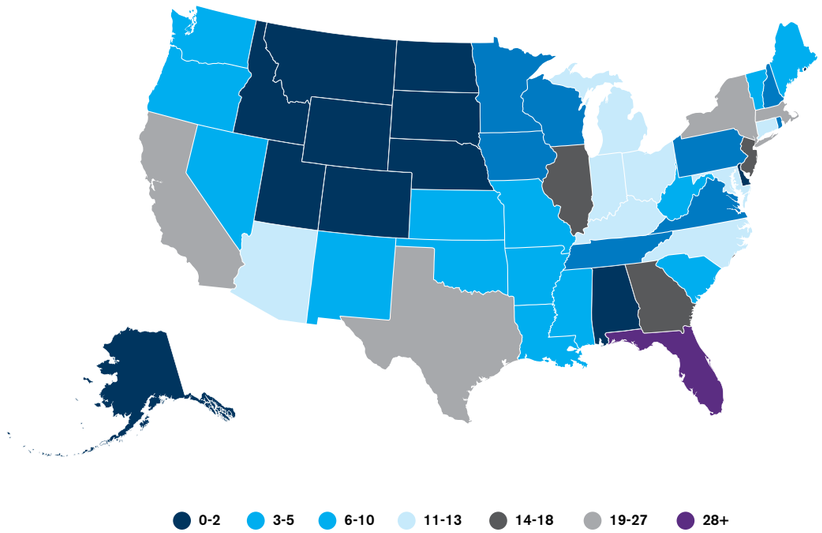


Figure 68 - Medicare Shared Savings Plan ACOs, 2015*; N=399



*Excludes Pioneer ACO's

According to the Congressional Research Services, "in each year of the three-year agreement period, an ACO will be eligible for a *shared savings* payment if the estimated per capita Medicare expenditures for Part A [hospital] and Part B [professional services], adjusted for beneficiary characteristics is at least the specified percentage below the applicable benchmark."[80] Savings payments are made only if quality standards are met in four domains: patient / caregiver experience, care coordination / patient safety (e.g., preventable stays, medication reconciliation), preventive health (e.g., immunization, screening) and population risk management (i.e., diabetes, hypertension, ischemic vascular, heart failure).

MSSP ACOs may include primary care physicians, specialists, care extenders (nurse practitioners and physician assistants) in a group practice setting, networks of practices and partnerships or joint ventures among providers, hospitals, insurers and others. A nearly equal split exists between physician-sponsored and hospital-sponsored entities. Physician group practice ACOs focus on preventable stays (i.e., keeping patients out of the hospital and avoiding readmissions) and working with cost-effective specialists. Hospital-led ACOs tend to focus on managing specific episodes of care, site transitions and increasingly, outpatient activities via recently acquired physician practices. Requirements include a legal structure for payment distribution, a program commitment of at least three years and adequate primary care capacity to treat at least 5,000 Medicare patients.

Year 1 shared savings of $126 million was generated, with $54 million (47%) having savings below the spending target, and $29 million (25%) qualifying for shared savings based on below threshold performance. Average savings per participant was $1.1 million.

The net savings in Year 2 across the 220 MSSP participants was $234 million, approximately 0.5% of the $46.8 billion of total spending. Note, however, 58 providers (26%) generated $700 million in savings, split 54% to Medicare and 46% for the providers due to the one-sided risk (shared gain if below spending target, with no penalty above target) taken by providers.[81] An additional 89 providers are participating in the MSSP in FY2015. The more than 399 MSSP ACOs are roughly split equally between hospital / heath systems and physician practice sponsorship; 7.9 million (21%) of Medicare fee-for-service beneficiaries receive care from ACO physicians.[82] The number of ACOs, as well as enrollees per ACO, varies by state and in certain instances, crosses state lines.

The transition to an ACO is a multiyear process. Among the challenges are governance; data collection, exchange, reporting and analysis; incentive alignment among disparate stakeholders and patient engagement.

PAYMENT BUNDLING: FROM VOLUNTARY PARTICIPATION TO SELECTIVE MANDATE

CMS has recently added the Comprehensive Care Joint Replacement (CJR) model, mandatory in 67 markets, to its voluntary Bundled Payment for Care Improvement (BPCI) program. CJR differs from the BPCI Model 2 in several areas including its focus on only lower extremity joint replacement, episode length of 90 days and a target price calculation inclusive of regional averages. Details of each program and, more importantly, their implications are provided on the following pages.

Figure 69 - Comparison of Bundled Payment Initiatives

	BPCI MODEL 2	CJR
Status	Voluntary	Mandatory in 67 MSAs
DRGs	48 DRGs	Only DRG 469 and 470
Episode initiators	Hospitals, physicians, post-acute providers	Hospitals only
Episode length	30, 60 or 90 days	90 days
Target price calculation	Hospital specific; three-year baseline (July 2009-June 2012)	Blend of hospital-specific and regional (consensus divisions); Baseline beginning Jan 2012
Inclusion of hip fractures	Included in DRGs 469 and 470 with no adjustment	Different target prices for fracture and non-fracture episodes within each DRG0

Source: http://innovation.cms.gov/initiatives/Bundled-Payments/index.html

BUNDLED PAYMENT FOR CARE IMPROVEMENT

Since mid to late 2013, CMS has also been piloting alternative forms of payment bundling, with retrospective and prospective payments, as well as acute inpatient and acute inpatient plus post-acute stays of up to 90 days. Participation in acute care hospital inpatient models (Models 1 and 4) has been exceedingly limited, with a total of only 20 awardees. Higher levels of interest have been shown for Model 2, inpatient plus 30, 60, 90 days post-discharge, and Model 3, focused on only the post-acute care stay.[83]

Figure 70 - Bundled Payments for Care Improvement (BPCI) Models

MODEL	EPISODE OF CARE	ACUTE CARE HOSPITAL SERVICES	PHYSICIAN SERVICES	POST-ACUTE SERVICES	AWARDEES AS OF JAN 1, 2015
1	Inpatient stay in an acute care hospital. All MS-DRGs	Medicare pays the hospital a discounted amount to IPPS	Separate FFS payment	N/A	11; 10 in NJ (convener: NJHA) and 1 in KS
2	Inpatient stay in an acute care hospital plus the post-acute care and all related services 30, 60 or 90 days after hospital discharge. 48 MS-DRGs	Medicare makes FFS payments. The total expenditures for the episode are later reconciled against a bundled payment amount (the target price) determined by CMS. A payment or recoupment amount is then made by Medicare reflecting the aggregate expenditures compared to the target price.	Included	Included	As of July 1, 2015, 741 participants comprised of 205 Awardees and 536 Episode Initiators involved in care redesign. Participants: Hospitals (403), physician groups (295). 12 conveners
3	Triggered by an acute care hospital stay but begins at initiation of post-acute care services (SNF, IRF, LTACH, HHA). 48 MS-DRGs		Separate FFS payment	Same as model 2; i.e., retrospective bundled payment arrangement where actual expenditures are reconciled against a target price for an episode of care.	As of July 1, 2015, 1,353 participants comprised of 135 Awardees and 1218 Episode Initiators involved in care redesign. SNF:1071, HHA: 101, IRF: 9, Physician Group Practices: 146
4	Inpatient stay in an acute care hospital. 48 MS-DRGs	CMS makes a single, prospectively determined bundled payment to the hospital for all services (hospital, physicians, and other practitioners) during the inpatient episode of care, Physicians and others submit "no-pay" claims to Medicare and are paid by the hospital out of the bundled payment.	Included in hospital bundled payment	N/A	As of July 1, 2015, 10 participants, comprised of 9 Awardees and 1 episode initiator. 1 convener in Texas

Source: http://innovation.cms.gov/initiatives/Bundled-Payments/index.html

Figure 71 - BPCI Procedures

CARDIOVASCULAR (17)
Acute myocardial infarction
Atherosclerosis
Automatic implantable cardiac defibrillator generator or lead
Cardiac arrhythmia
Cardiac defibrillator
Cardiac valve
Congestive heart failure
Coronary artery bypass graft surgery
Major cardiovascular procedure
Medical peripheral vascular disorders
Other vascular surgery
Pacemaker
Pacemaker device replacement or revision
Percutaneous coronary intervention
Syncope and collapse
Stroke
Transient ischemia

GASTRO-INTESTINAL (4)
Esophagitis, gastroenteritis and other digestive disorders
Gastrointestinal hemorrhage
Gastrointestinal obstruction
Major bowel

PULMONARY (3)
Chronic obstructive pulmonary disease, bronchitis/asthma
Other respiratory
Simple pneumonia and respiratory infections

ORTHOPEDICS (15)
Back and neck except spinal fusion
Cervical spinal fusion
Combined anterior posterior spinal fusion
Complex non-cervical spinal fusion
Double joint replacement of the lower extremity
Fractures femur and hip/pelvis
Hip and femur procedures except major joint
Lower extremity and humerus procedure except hip, foot, femur
Major joint replacement of the lower extremity
Major joint replacement of upper extremity
Medical non-infectious orthopedic
Other knee procedures
Removal of orthopedic devices
Revision of the hip or knee
Spinal fusion (non-cervical)

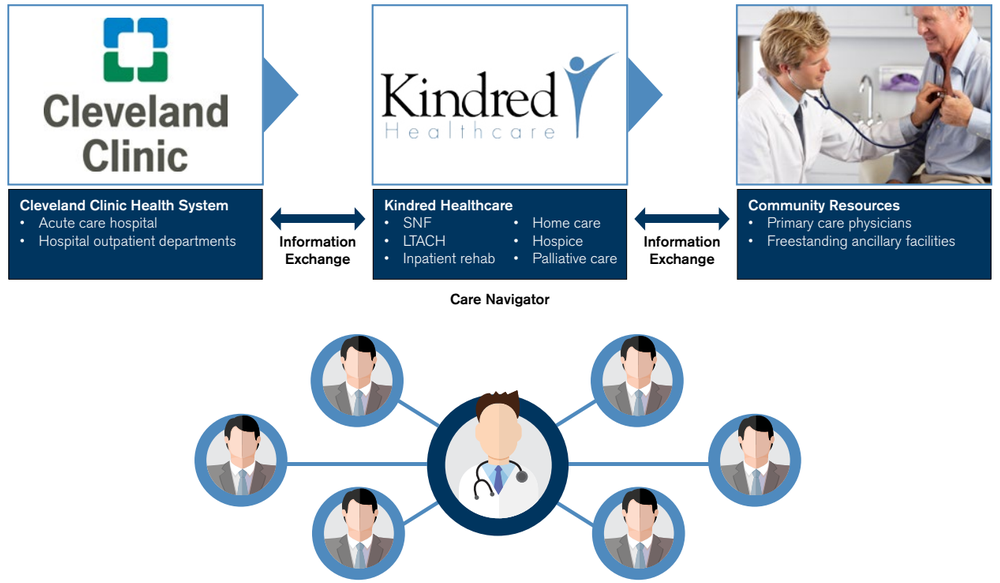
OTHER (9)
Amputation
Cellulitis
Chest pain
Diabetes
Nutritional and metabolic disorders
Red blood cell disorders
Renal failure
Sepsis
Urinary tract infection

Source: http://innovation.cms.gov/initiatives/bundled-payments/index.html

Model 1 awardees participate in all MS-DRGs, whereas all other awardees select from a list of 48 clinical episodes, with a predominance of orthopedics and cardiovascular, as defined by CMS. According to the Lewin Group, BPCI hospital participants tend to have multiple competitors, with lower market concentration than non-participants. They are also often located in urban, more densely populated higher-income areas.[84] BPCI markets also tend to have fewer SNF beds. Similar to ACOs, the data suggests that market characteristics are an important determinant of model participation and likely outcomes. Given the recent starting date for most participants, outcomes data is limited and / or not readily available.

On February 7, 2013, Kindred Healthcare announced its selection as one of 14 organizations participating in the BPCI Model 3 initiative with the Cleveland Clinic.[85] The three-year initiative involves the total cost of care irrespective of setting for 60 days post-discharge. Despite its size, only three Kindred locations are participating in BPCI, suggesting a "toe in the water" approach rather than a broader initiative to redesign the process of care. PeopleFirst Home Care & Hospice (Kindred at Home) will "support" the project, though not as a participant. Seven of the 48 MS-DRG categories were selected for participation, including congestive heart failure, lower extremity joint replacement (hip, knee), pneumonia and sepsis. The adequacy of Kindred's IT systems and personnel, inclusive of data exchanges with the Cleveland Clinic to generate data-driven actionable insights, a critical and strategic success factor, remains unknown.

Figure 72 - CMS Bundled Payment Demonstration Model (60-Day Post-Discharge)



**Conditions include chronic pulmonary disease, congestive heart failure, major joint replacement, sepsis, pneumonia and other respiratory infections*

COMPREHENSIVE CARE JOINT REPLACEMENT: A STRATEGIC MANDATE FOR PROVIDERS

The CJR model for Medicare FFS beneficiaries will become effective April 1, 2016 for 800 hospitals in 67 metropolitan statistical areas (MSAs) including New York, Los Angeles, Miami, Indianapolis and Seattle. CJR applies to DRG 469 and 470, major lower extremity (hip, knee) joint replacement (LEJR) with and without major complications and / or co-morbidities.[86]

According to CMS, there were 377,450 LEJR Medicare procedures, of which 312,122 (82.7%) were not associated with the disqualifying BPCI initiative. In the selected MSAs, there were 125,188 LEJR procedures, of which 102,923 (82.2%) were not associated with BPCI.[60] Total knees are estimated to account for 57% of procedures, followed by total hips (30%) and partial hips (13%).[87]

Assuming a 2013 MA penetration rate of 28%, another CJR disqualifier, 74,105 LEJR procedures, or 19.6% of total U.S. procedures and 59.2% of target MSA procedures, will participate in the CJR model.[88]

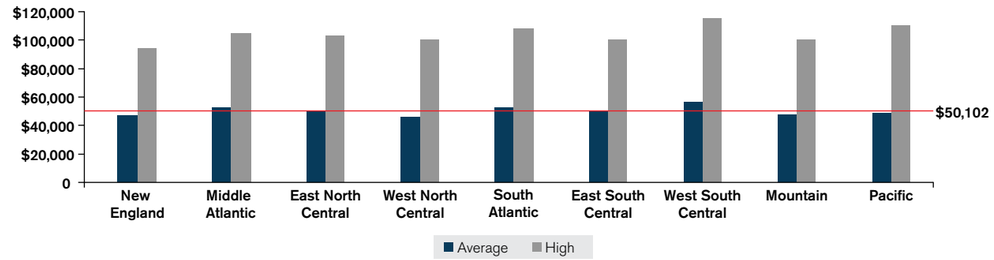
Medicare beneficiaries would be included in CJR as long as Medicare is the primary payer and the beneficiary is:

- Enrolled in Medicare Part A and Part B throughout the duration of the episode,
- Not eligible for Medicare on the basis of end-stage renal disease,
- Not enrolled in a managed care plan (e.g., Medicare Advantage, Health Care Prepayment Plans, cost-based health maintenance organizations), or
- Not covered under a United Mine Worker of America health plan.

Below are additional details regarding the CJR model, with comments further highlighting how CJR differs from the existing BPCI program:

- It includes all costs related to Medicare Part A (facility) and Part B (physician services, outpatient services, lab, ER visits, specialty drugs, DME, etc.) during a 90-day episode (bundle) starting from date of admission through surgery, hospitalization and recovery, including post-acute care (SNF, LTAC, IRF, HHA, therapies, etc.) and any readmissions. This is a significant change from the CMS BPCI program, which allowed participants to choose a 30, 60 or 90-day episode length.
- The program is phased in over a five-year period, beginning in April 2016 and ending December 2020. BPCI is a three-year commitment with the potential for two additional years of extension.
- The program is retrospective in nature with a two-sided risk model with hospitals bearing all financial responsibility for the entire episode of care. Individual providers continue to be paid at Medicare FFS rates and after the year ends, there is a retrospective settlement with CMS comparing actual spending for the entire treatment episode to the Medicare episode target price.
- The Medicare episode target price includes a discount over expected episode spending and incorporates a blend of historical hospital-specific spending and

Figure 73 - Average and High CJR Payments by Region DRG 469 (With/MCC)



AAMC: "CMS proposes to use the 9 census regions as the geographic component of regional pricing. The proposed regional definitions appear impractically large; the size of the census regions suggests that markets that differ drastically in terms of provider type and supply will be compared to one another. For example, an AMC hospital in New York City would face the same regional target price component as a community hospital in Elk County, Pennsylvania."

Source: https://innovation.cms.gov/initiatives/cjr

regional spending for LEJR episodes, with the regional component increasing over time (Regional Years 1 and 2: 33%; Years 3 and 4: 67%; Year 5: 100%). CMS will use three years of historical claims data to set payment thresholds. The target price moves toward a regional average, rather than a discount from historical costs as the CMS BPCI allows. This places much more risk on high-cost providers while potentially creating a financial opportunity for lower-cost providers.

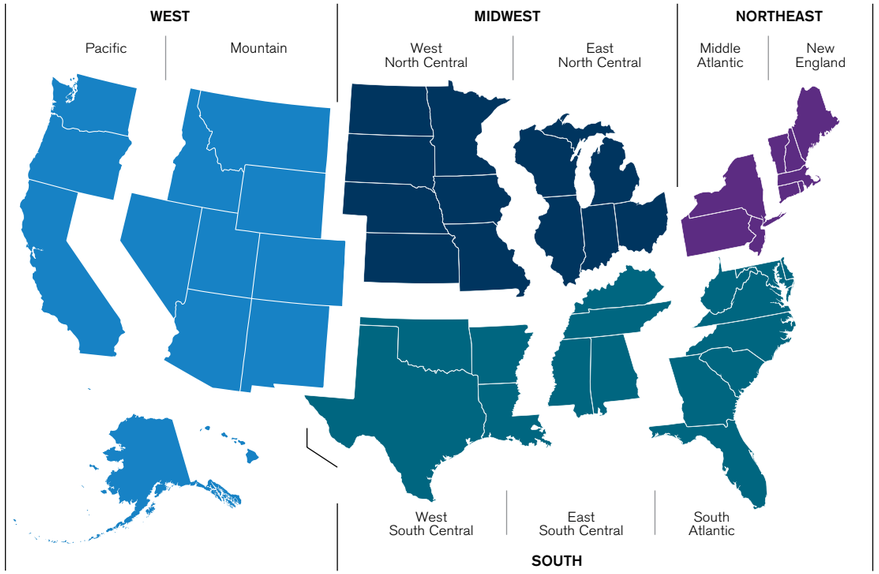
- Composite quality measures include complications (NQF #1550) and a patient experience survey (NQF #0166).
- Hospitals are accountable (at-risk) for cost and quality of care, as well as the administrative costs required to work with potential collaborators on their cost reduction and care redesign strategies.

Hospitals are the only mandated at-risk party for penalties or incentive payments unless the hospital develops a shared risk program with other providers willing to share the risk. The program does allow for a ramping up of risk in the first three years. In Year 1, there are no penalties or incentives. In Year 2, there is a 10% stop loss limit and a 5% upside limit. In Years 3 to 5, there is a 20% stop loss limit, with a 10% upside in Year 3 and 20% upside in Years 4 to 5.

WIDE EPISODE PRICE GEOGRAPHIC VARIATION SUGGESTS POTENTIAL FOR "WINNERS" AND "LOSERS"

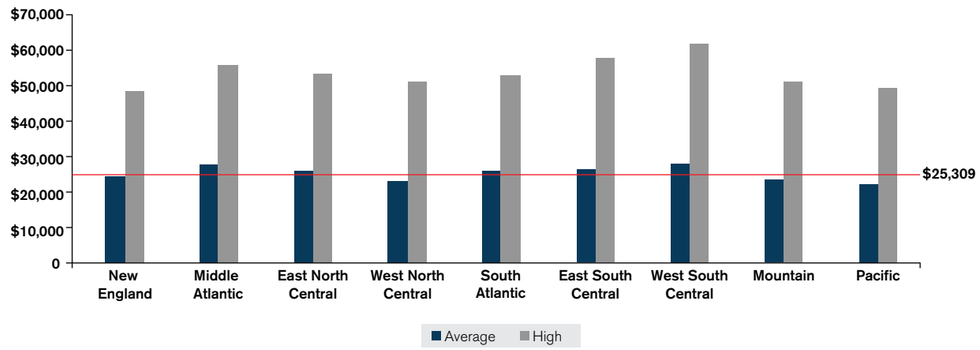
CMS has released regional high averages and high payment ceilings for DRG 469 and 470 episodes inclusive of surgery, hospitalization and recovery by census region.[86] Concern has been raised by the Association of American Medical Colleges (AAMC) about the size of the respective census regions; e.g., Mid-Atlantic extends from New York City to Elk County, Pennsylvania. For LEJR patients (+/- major complications and / or co-morbidities), the regional high price represents a multiple of 1.95-2.25 to the average price, suggesting that the variation is more than just a function of geographic variation.

Figure 74 - U.S. Census Regions



Source: https://www.eia.gov/consumption/commercial/maps.com

Figure 75 - Average and High CJR Payments by Region DRG 470 (Without / MCC)



AAMC: "CMS proposes to use the 9 census regions as the geographic component of regional pricing. The proposed regional definitions appear impractically large; the size of the census regions suggests that markets that differ drastically in terms of provider type and supply will be compared to one another. For example, an AMC hospital in New York City would face the same regional target price component as a community hospital in Elk County, Pennsylvania."

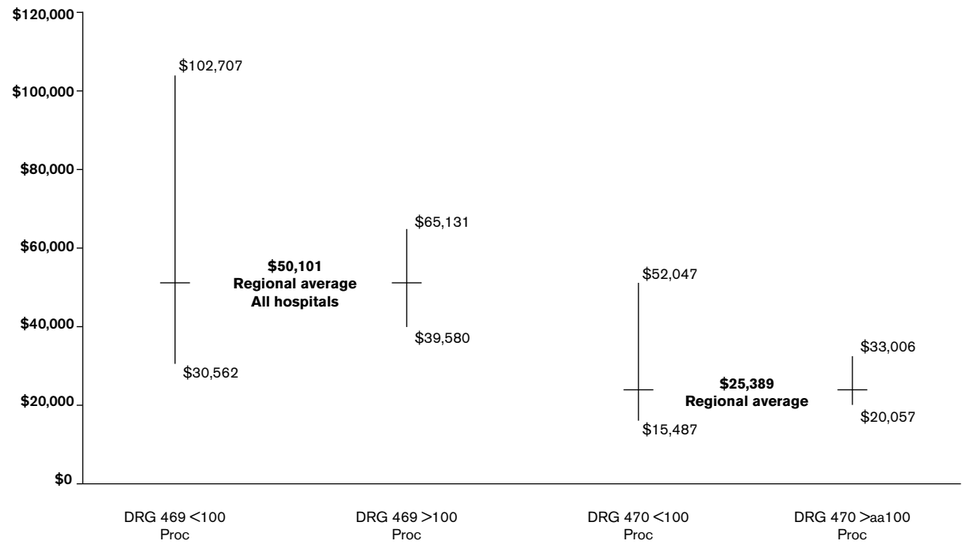
Source: https://innovation.cms.gov/initiatives/cjr

The AAMC completed an analysis of teaching hospitals and their DRG 469 and 470 episode costs based on volume; i.e., greater or less than 100 procedures per annum.[89] The range of costs were higher with lower-volume hospitals (<100 procedures per annum), an unsurprising finding given the widespread literature suggesting higher proficiency, fewer complications and lower mortality rates with procedural experience.[90] Episode cost variation also reflects patient factors (e.g., age, obesity, co-morbidities), physician proficiency, supply costs and importantly, the site and duration of post-acute care.[91] Hospital readmissions, when they do occur, contribute to substantially higher costs.

A standardized risk calculator has been developed by a collaborative (Massachusetts General Hospital, Mayo Clinic, University of California, San Francisco, and Exponent, Inc.) to calculate a patient's risk of peri-prosthetic joint infection (PJI) within two years and patient mortality within 90 days.[92]

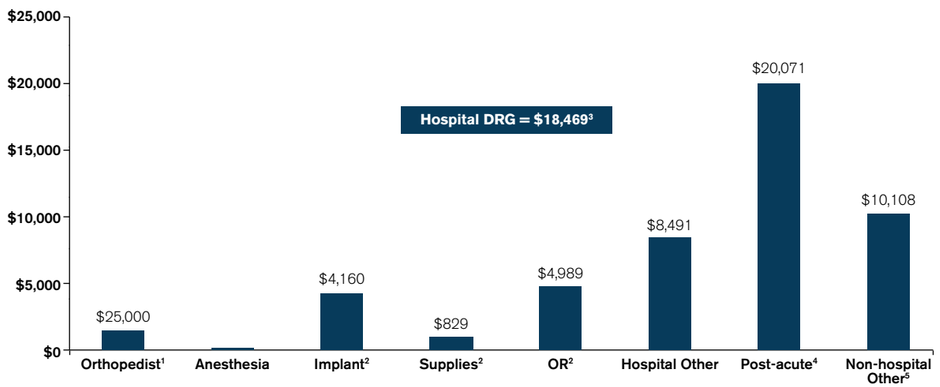
From the overall perspective (not specific to LEJR), post-acute care costs account for 73% of the total variation in Medicare costs.[93] Episodes where the index hospitalization is a smaller portion of the episode payment presents greater opportunity for clinical intervention through controlling downstream post-acute care spending. As the episode length increases from seven to 90 days for LEJR, the index hospitalization tends to decrease as a percent of Medicare expenditures.

Figure 76 - Range of *Teaching* Hospital Episode Costs Based on Volume*



Source: https://innovation.cms.gov/initiatives/cjr (Regional average all hospitals) and https://www.aamc.org/download/442290/data/aamccommentsontheCJRproposedrule.pdf. Note, patient mix may vary between teaching and non-teaching hospitals, particularly as they relate to hip fracture patients at higher risk for complications

Figure 77 - Estimated HIP Replacement Total Cost of Care; DRG469: Major Complications or Co-Morbidities



Source: [1]https://ryortho.com/2013/11/looming-medicare-cuts-for-hip-and-knee-surgeons/; [2]Healthcare IQ OR=$50.94/minute; [3]http://www.smith-nephew.com/global/assets/pdf/products/surgical/visionaire_reimbursement_guide_0114_01571.pdf [4]MedPAC Report to Congress, 2014. Tables 6.1, 6.2, 6.3, 6.5, 6.10. [5]Calculated based on average $50,102 less itemized https://innovation.cms.gov/initiatives/cjr

PHYSICIAN PREFERENCE ITEMS AS MODEL FOR EXPANSION OF SUPPLY CHAIN ROLE TO COST, QUALITY AND OUTCOME

A wide range of implant costs per case exists for total knee ($1,797 - $12,093) and total hip ($2,392 - $12,651) replacement; average Medicare implant costs approximate $4,000 - $5,000. Recent industry consolidation, combined with the introduction of new products and technologies, have driven implant costs higher. Average DRG 469 (with MCC) reimbursement is $18,469, whereas for DRG 470 (without MCC) it is $11,526. Significant variation in implant costs exists "after controlling for patient diagnosis and co-morbidities." [94]

Value-based payment reforms, as exemplified by CJR, are based on specific at-risk populations (e.g., LEJR) and the total cost of care (surgery, hospitalization and recovery). Hospital supply chain personnel, historically focused on the lowest price, are beginning to shift their focus to products that are potentially more efficient and effective; i.e., generate the best outcome at the lowest possible price. This requires an analysis of materials management, OR, financial and EMR data to understand product, physician and hospital-specific variables such as medical supplies, OR time, SICU (post-surgical) recovery time, length of stay, complication rate, procedure / surgeon volume and readmission rate. A few suppliers have used risk-sharing contracts providing rebates if performance goals are not achieved.[95]

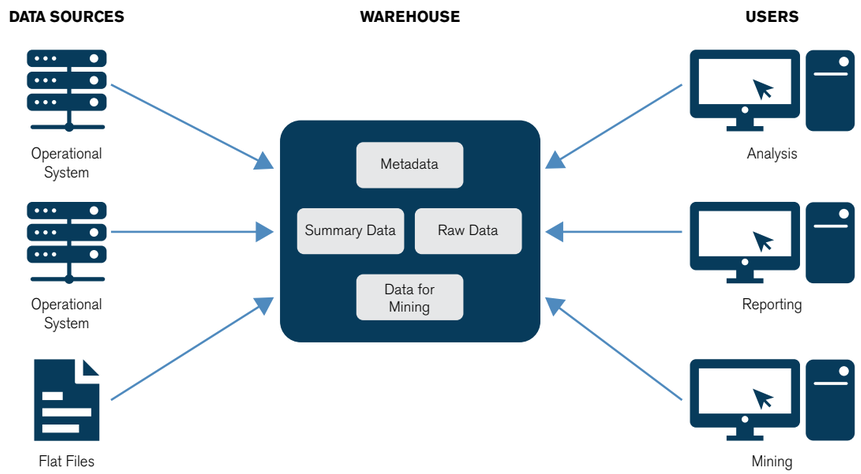
The traditional supply chain function (i.e., contract negotiations, logistics, supplier and formulary management, forecasting and asset management) is being supplemented by the addition of clinical personnel, primarily nurses, to better assess the product value proposition and physician variation. It remains somewhat unclear as to the role – potentially leading, secondary or supportive – of supply chain personnel in the overall informatics strategy of an institution.

Integrating baseline aggregate and individual patient Medicare skilled nursing facility, inpatient rehab and home health data remains essential to better understand the total cost of care, as well as post-acute care outcomes. Ambulatory EMR data may also not be available on a timely basis.

EFFECTIVE UTILIZATION AND CASE MANAGEMENT ESSENTIAL TO CJR

Utilization management (UM) represents an evidence-based, clinical support process to assist physicians, other providers and payers in evaluating the use of medical services based on *medical necessity, appropriateness and efficiency*. UM may be performed prospectively, concurrently and retrospectively. The emerging, at-risk care delivery system presents an opportunity for an effective UM program to benefit providers and patients through enhanced discharge planning, reduced provider variation and continually improved process-of-care.

Figure 78 - Supply Chain Access to Convergent Data



Source: https://docs.oracle.com/cdB28359_01/server.111/b28313/dwhsg013.gif

Case managers have a difficult and multifactorial role focused on prevention, proactive intervention and transitions of care. They facilitate care for complex patients with complex chronic co-morbid conditions and / or psychosocial needs, coordinate care to assure quality outcomes in the most cost-effective manner, reduce avoidable hospital admissions, reduce gaps in care, impact practice quality scores and engender self-management capabilities; i.e., the ability to identify changes in health status and be compliant with a treatment plan.

DATA, INSIGHTS AND CONTINUOUS IMPROVEMENT ESSENTIAL TO CJR SUCCESS

A data infrastructure will be essential to successful CJR participation. Many of the currently available solutions generate dashboards, but are not sufficiently broad or technically capable, inclusive of visualization, to meet the needs of the emerging marketplace from the strategic perspective.

SUMMARY:

1. CJR is an additional step by Medicare to create a bundled payment system which simplifies reimbursement, while also transferring payment risk to health systems and / or hospitals. Unlike BPCI, the CJR program is mandatory for every acute care hospital in the selected MSAs.

2. Health systems and / or hospitals will be at risk for service line and operating deficits for the program. If these institutions are not able to adequately control their total cost of care, especially post-acute costs and outcomes on a *relative and regional basis, they will suffer losses and potentially need to write a check to CMS.*

3. Success in payment bundling programs for high-cost and / or high-volume DRGs depends on decreasing clinical variation through standardization of supplies and initiation of care pathways.

4. CJR increases the importance of retrospective data analyses to educate physicians on the importance of provider variation to service line costs, market share and potentially, their incomes.

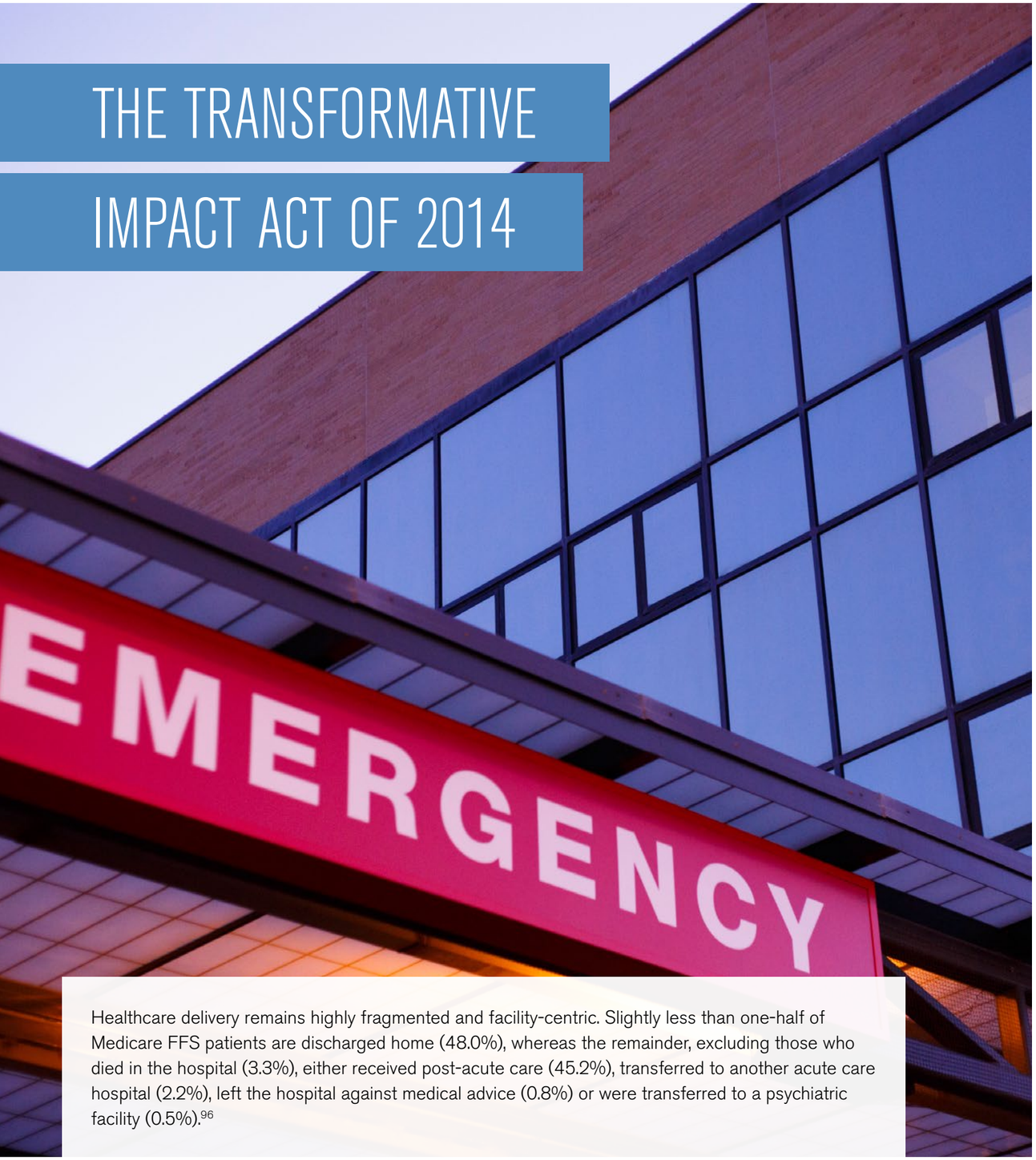
5. Health systems and / or hospitals able to effectively manage their total cost of care, inclusive of post-acute care, can potentially use the CJR model to create a widening economic gap between themselves and less efficient providers; the competitive advantage could potentially be applied to the commercial segment (e.g., pricing, referrals, network development).

6. Opportunities for direct contracting with employers based on the total cost of care, as well as “return to work” metrics, may become a possibility for efficient and effective providers.

7. Health systems able to effectively implement the CJR model will potentially be able to apply the processes and methodologies implemented for joint replacement to other high-cost and / or high-volume surgical and interventional service lines such as back pain management and cardiac care.

Future success in a value-oriented payment environment requires participation in a CJR-like effort, whether mandatory or not. The CJR model will increase lower extremity joint replacement efficiency and effectiveness by reducing provider variation across the continuum. Near-term challenges include full engagement of an orthopedic surgeon and the availability of integrated and interoperable data from potentially disparate acute care, post-acute care and ambulatory providers.

THE TRANSFORMATIVE IMPACT ACT OF 2014



Healthcare delivery remains highly fragmented and facility-centric. Slightly less than one-half of Medicare FFS patients are discharged home (48.0%), whereas the remainder, excluding those who died in the hospital (3.3%), either received post-acute care (45.2%), transferred to another acute care hospital (2.2%), left the hospital against medical advice (0.8%) or were transferred to a psychiatric facility (0.5%).[96]

Figure 79 - Medicare Post-Acute Care Facility-Centric Model

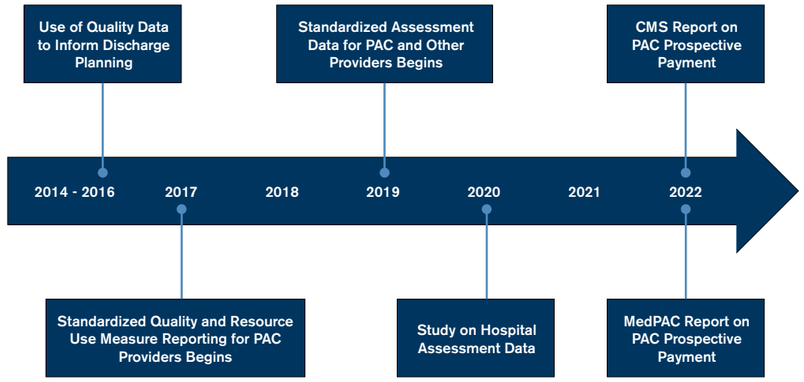
2010 FEE-FOR-SERVICE DATA WHEN SPECIFIED*	ACUTE CARE HOSPITALS	LONG-TERM ACUTE CARE HOSPITAL, 2013	INPATIENT REHABILITATION FACILITY, 2013	SKILLED NURSING FACILITY - SHORT-STAY, 2013	HOME HEALTH, 2013	HOSPICE, 2013
Medicare expenditures ($ billion)*	FFS Inpatient: $112-$151B FFS Outpatient: $48 NHE total hospital: $246	$5.5	$6.9	$28.7	$18.3	$15.1 Beneficiaries with >180 days: $8.2B; <180 days: $6.2B
$ Medicare % total	27%			25%	41%	84%
Medicare margin*	Inpatient: -5.3% Outpatient: -12.4% Total: -5.4%	6.6%	11.4%	13.1%	12.7%	10.1% (2012)
# of facilities, providers or agencies	4,662	432	1,140	15,163	12,461	3,925
# of discharges, cases, stays or users*	9.9M discharges >65	137,827 cases	373,000 cases	2,365,743 stays	3.5 million users	1.3 million
Unit of payment	MS-DRG	Discharge	Discharge	Daily	60-day episode	Daily rates: Routine care: $156 Continuous care: $911 Inpatient: $694
Medicare payment per admission, stay or episode*	$11,327-15,243 (average: $2,457-3,306/day)	$40,070 (average: $1,512/day)	$18,258 (average: $1,415/day)	$8,924 (average: $323/day)	$2,674 x 1.9 episodes = $5,081/patient	$11,482/patient. Cap: $26,157
Days per stay or visits per episode*	4.61 days	26.5 days	12.9 days	27.6 days	17.6 visits x 1.9 = 33.4 visits/patient	Median: 17.0 days; Mean: 87.8 days

Sources: MedPAC Data Book. Healthcare Spending and the Medicare Program; June 2015. # Medicare discharges, 2012 as per HCUPNet of 14.3M, 12.7M > 65 years and 1.6M <65 years. http://hcupnet.ahrq.gov/HCUPnet.jsp?Id=B68C6E2DAA5239E9&Form=DispTab&JS=Y&Action=Accept

Each facility and / or agency uses a different assessment instrument to determine patient physical, psychological and psychosocial needs. Skilled nursing facilities use the Long-Term Care Minimum Data Set (MDS), home care agencies use the Outcome and Assessment Information Set (OASIS) and inpatient rehabilitation facilities use the Inpatient Rehabilitation Facility Patient Assessment Instrument (IRF-PAI). Based on the findings, estimates are made regarding the ability of a patient to remain at home, and if not, the number of hours and duration of required skilled nursing, rehabilitation and other services. Threshold requirements have been established by the regulators. Long-term acute care hospitals admit medically complex patients with an average expected stay of more than 25 days, many with an infection, chronic wound or dependency upon mechanical ventilation, requiring daily physician intervention.

A facility-centric system remains driven by fee-for-service reimbursement and importantly, results in patient selection bias and the delivery of specific services to maximize institutional profitability.

Figure 80 - Timeline of Deliverables in the IMPACT Act of 2014



Source: Prepared by House Ways and Means and Senate Finance Committee Staff. March 18, 2014

In its seminal report entitled "Crossing the Quality Chasm: A New Health System for the 21st Century," the Institute of Medicine proposed six aims for improving the healthcare delivery system.[97] Healthcare should be:

- Safe – avoiding injuries to patients from the care that is intended to help them
- Effective – providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding underuse and overuse)
- Patient-centered – providing care that is respectful of and responsive to individual preferences, needs and values and ensuring that patient values guide all clinical decisions
- Timely – reducing waits and sometimes harmful delays for those who receive and those who give care
- Efficient – avoiding waste, in particular waste of equipment, supplies, ideas and energy
- Equitable – providing care does not vary in quality because of personal characteristics, such as gender, ethnicity, geographic location and socioeconomic status

Congressional approval of H.R. 4994, the Improving Medicare Post-Acute Care Transformation (IMPACT) Act, in December 2014 mandates the development and implementation of a standardized post-acute care assessment tool. It also requires the Medicare Payment Advisory Commission (MedPAC) to (1) evaluate and recommend to Congress features of post-acute care (PAC) payment systems that establish payment rates according to characteristics of individuals instead of setting, where the Medicare beneficiary involved is treated; and (2) recommend to Congress a technical prototype for a PAC prospective payment system.

Figure 81 - Overlapping Patient Acuity and Treatment by Facility Type

(MS-DRG)	Percent Treated U.S.*	Risk Score	Average Length of Stay	Payment	30-Day Post Discharge Care Cost**	Total Cost
Stroke with complications or co-morbidities (65)						
IRF	53%	1.5	15	$20,864	$13,931	$34,795
SNF	47%	1.8	25	$15,873	$12,318	$28,191
Major joint replacement with major complications or co-morbidities (469)						
IRF	21%	1.4	10	$17,000	$6,775	$23,775
SNF	79%	1.3	15	$13,748	$5,339	$19,087
Hip or femur procedure with complications or co-morbidities (481)						
IRF	25%	1.7	14	$17,406	$12,459	$29,865
SNF	75%	1.7	32	$17,646	$10,298	$27,944

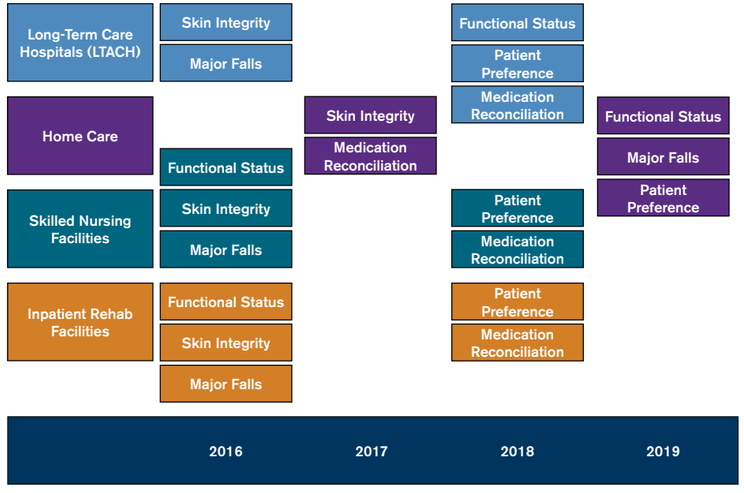
*Source: MedPAC Report to Congress, 2014. Tables 6.1, 6.2, 6.3, 6.5, 6.10. *If Inpatient Rehabilitation Facility available in market with SNF, the patient treatment rate for the SNF declines by 10-15%; i.e., not all markets have IRFs. ** Post-discharge care costs include post-acute care, readmission, physician and other costs*

The impetus for patient-centric care is data suggestive of a 23-25% differential in the total cost of care for stroke and joint replacement patients with major complications or co-morbidities. Site-neutral reimbursement would more closely match patient needs with site of service.

A standard acute care instrument, effective October 2016, would incorporate elements from the MDS (skilled nursing facilities), OASIS (home care agencies) and IRF-PAI (consisting of items from the Functional Independence Measure for inpatient rehabilitation facilities). Each of these tools utilizes "different terminology and definitions in describing functional ability, as well as different scales for quantifying disability." They also measure different health domains, and items within similar domains are assessed differently (e.g., time period).[98]

A uniform PAC assessment instrument would (1) clarify goals of care, incorporate patient (caregiver) preferences and enhance discharge planning, i.e., placement decisions; (2) facilitate transition management through interoperable core data transfer and (3) allow for the generation of longitudinal data analytics (e.g., outcomes, cost-effectiveness of alternative settings).

Figure 82 - Timeline for New Quality Domain Reporting



Source: www.homecarenh.org

Standardized quality measures of CMS interest include, but are not limited to, functional status, cognitive status, skin integrity, medication reconciliation, major falls and "accurately communicating the existence of and providing for the transfer of health information and [patient, caregiver] care preferences," the latter potentially inclusive of site-of-care and treatment alternatives such as palliative care.[99]

The standardized patient assessment instrument includes (a) special services, treatments and interventions including the need for ventilator use, dialysis, chemotherapy, central line placement and total parenteral nutrition, (b) medical conditions and co-morbidities, and (c) impairments such as the ability to hear, see and swallow. The assessment reporting will also incorporate resource use measures, such as risk-adjusted spending per Medicare beneficiary and preventable hospital readmission rates. A formal CMS analysis of the relationship between Medicare claims and patient assessment data will be completed by late 2018.

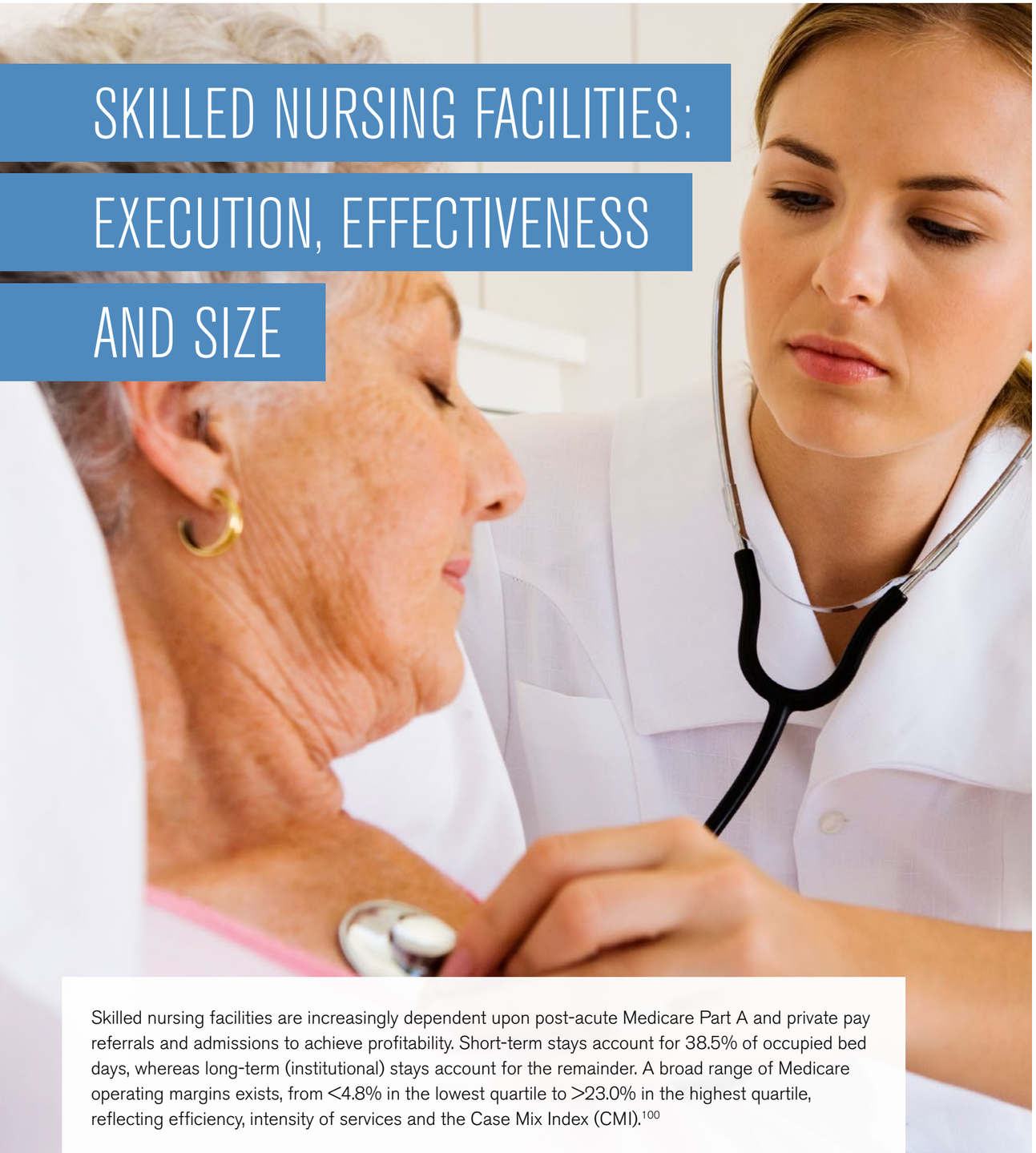
Using data from a variety of sources, MedPAC is required to submit to Congress (by June 30, 2016) a technical prototype PAC payment system. The system will be required to "establish payment rates according to the characteristics of individuals (such as cognitive ability, functional status and impairments), instead of the post-acute care setting where the Medicare beneficiary involved is treated."[99] Revisions to the payment proposal will be generated by CMS (with input from MedPAC) no later than two years after the collection of standardized patient assessment data (estimated: October 2018). A new payment system is likely by 2020.

Figure 83 - Post-acute Care Facility and Patient Criteria by Setting

	SKILLED NURSING FACILITY	HOME HEALTH AGENCY	INPATIENT REHABILITATION	LONG-TERM CARE HOSPITAL
Case mix system name	Resource Utilization Groups	Home Health Resource Groups	Case Mix Groups	Medicare Severity Long-Term Care Diagnosis Related Group
Number of case mix groups	66	153	92	751
Patient characteristics that determine case mix group	• Minutes of therapy per week • Functional status • Clinical conditions • Other services like respiratory therapy or specialized feeding	• Number of therapy visits per episode • Functional status • Clinical condition	• Reason for rehabilitation • Age • Cognitive and functional status • Comorbidities	• Principal and secondary diagnoses • Procedures • Age • Sex • Discharge status
Patient assessment instrument	MDS	OASIS	IRF-PAI	none

Source: National Health Policy Forum. Medicare's Post-Acute Care Payment: A Review of the Issues and Policy Proposals; December 7, 2012 http://www.nhpf.org/library/issue-briefs/IB847_PostAcutePayment_12-07-12.pdf

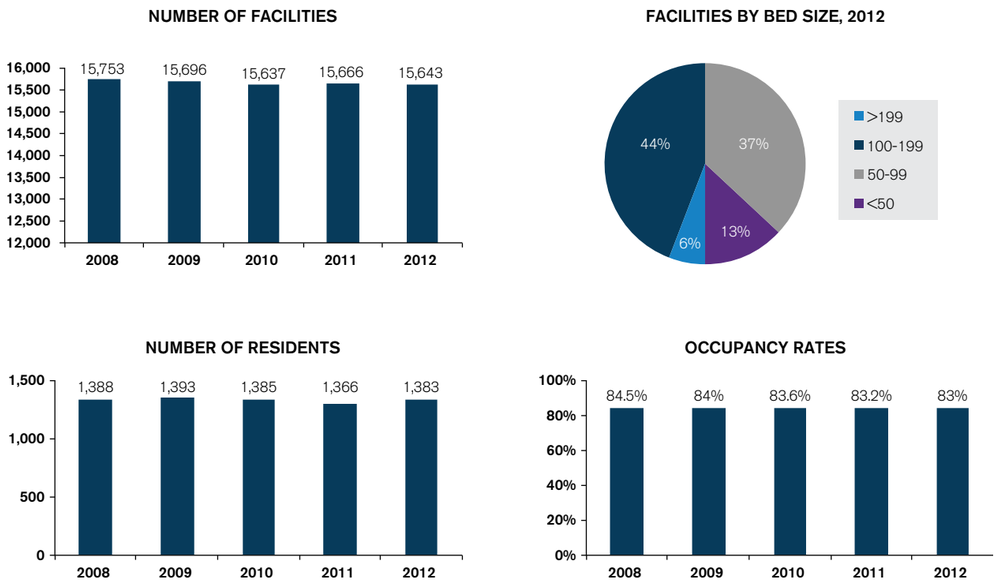
In summary, the IMPACT Act will lead to the fundamental transformation of the PAC industry. A standardized patient assessment instrument across settings in 2016 will facilitate the determination of site cost-effectiveness. The federal government, as the major payer of post-acute care services, is uniquely positioned to create a value-oriented, patient-centric PAC delivery system. Patient needs, combined with the ability of an agency or facility to best meet those needs on a cost-effective basis, will emerge as the driver of market success.



SKILLED NURSING FACILITIES: EXECUTION, EFFECTIVENESS AND SIZE

Skilled nursing facilities are increasingly dependent upon post-acute Medicare Part A and private pay referrals and admissions to achieve profitability. Short-term stays account for 38.5% of occupied bed days, whereas long-term (institutional) stays account for the remainder. A broad range of Medicare operating margins exists, from <4.8% in the lowest quartile to >23.0% in the highest quartile, reflecting efficiency, intensity of services and the Case Mix Index (CMI).[100]

Figure 84 - Skilled Nursing Facilities Overview



Source: CMS Nursing Home Data Compendium 2013 Edition; Certification and Survey Provider Enhanced Reporting file

The quality of skilled nursing facility care is measured in a multitude of manners including hospital readmissions, self-reported quality and staffing metrics, and inspection results. In 2013, CMS reported a potentially avoidable hospitalization rate of 15.1%, with the 25th quartile at 10.1% and the 75th quartile at 18.9%.[101] A March 2014 OIG report highlighted that 33% of nursing home Medicare beneficiaries experienced either an adverse event (22%) or temporary-harm event (11%), with 59% of total events being preventable and resulting from substandard treatment, inadequate resident monitoring and failure or delay of necessary care.[102] Re-hospitalization rates and adverse events will gain increasing importance to hospital and health system providers participating in bundled payment programs and Accountable Care Organizations.

Major concerns about the accuracy of self-reported data and the variability of state survey inspection citations have been highlighted by the Center for Integrity and the OIG; components of Nursing Home Compare data may actually be invalid.

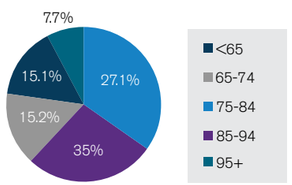
Size, referrals, efficiency and effectiveness, the latter inclusive of quality, are emerging as the critical success factors for a risk-based and continuum-oriented market.

DETAILS

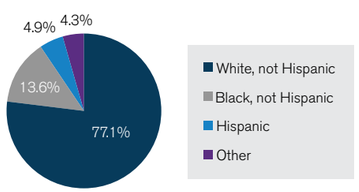
In 2012, there were 15,643 skilled nursing facilities with 1.67 million beds. Occupancy has declined slightly from 83.9% in 2008 to 83.5% in 2012. The vast majority of facilities, 80.9%, have between 50-199 beds. Thirteen percent

Figure 85 - Demographic and Payer Characteristics

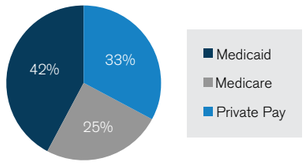
RESIDENT AGE DISTRIBUTION[1]



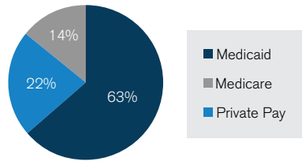
RACE & ETHNICITY DISTRIBUTION RESIDENTS (U.S.)[2]



REVENUE BY PAYER TYPE[3]



RESIDENTS BY PAYER TYPE[4]



[1] Source: CMS Nursing Home Data Compendium 2013 Edition; CASPER and MDS files. Resident total: 1,409,749; [2] Source: U.S. population http://quickfacts.census.gov/qfd/states/00000.html; [3] Sources: NIC Investment Guide, Section 6.4: Nursing Care Reimbursement. Private pay includes LTC and other health insurance (11%) as well as out-of-pocket (22%). O'Shaughnessy CV. The Basics: National Spending for Long-Term Services and Supports, 2012 in The Scan Foundation Fact Sheet 2013; [4] Source: Kaiser Family Foundation. OSCAR data, 2011

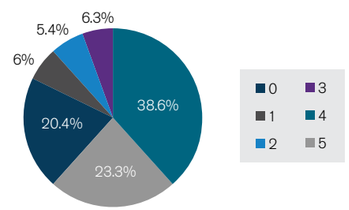
have fewer than 50 beds and 6.1% have more than 199 beds. For-profit institutions account for 69.2% of the total, whereas nonprofit (25.0%) and government (5.8%) entities account for the remainder. Nearly all SNFs are dually-certified (91.2%), with Medicare only (5.0%) and Medicaid only (3.4%) accounting for <10% of the total.

Users of skilled nursing facilities tend to be elderly, with 42.7% greater than 85 years old; 27.1% were 75-84. Non-Hispanic whites (77.1% vs. 63.1%) and African Americans (13.6% vs. 12.6%) are over-represented, and Hispanics (4.9% vs. 16.3%) are under-represented relative to the U.S. population mix.[103] Medicaid accounts for 63% of residents and 42% of revenue, whereas Medicare accounts for 14% of residents and 25% of revenue. Private pay remains an under-recognized driver, as it accounts for 22% of residents and 33% of revenue. Fifteen percent of residents are <65 and another 7% enter a skilled nursing facility with an excess of assets and thus, are ineligible for Medicaid; they are on "spend-down."

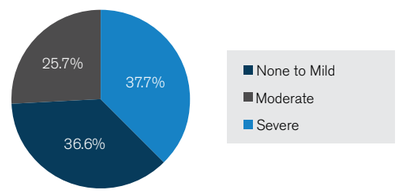
The functional characteristics of SNF residents are consistent with age distribution and number of full-time residents; 61.9% have four (38.6%) or five (23.3%) impairments in activities of daily living. Moderate to severe cognitive impairment is found in 63.4% of patients. Pain is often found in post-acute care patients following discharge, usually secondary to a procedure and / or limited mobility. In the aged population, bladder incontinence may be associated with changes in the urinary system, an infection or conditions such as diabetes, stroke, cognitive impairment and immobility. Episodes of bowel incontinence occur at nearly one-half of the rate of urinary incontinence and often occur in the same institutionalized patient.[104]

Figure 86 - Functional Characteristics of Nursing Home Residents, 2012

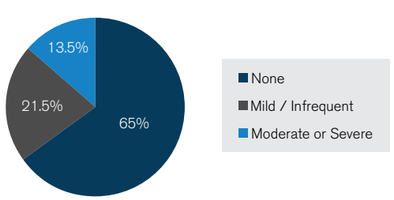
NUMBER OF ADL IMPAIRMENTS



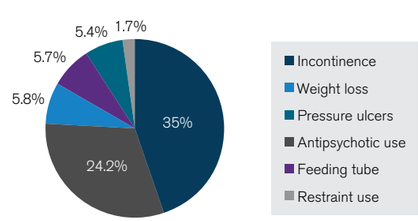
COGNITIVE IMPAIRMENT



PAIN IN PAST 5 DAYS



PREVALENCE OF CLINICAL MEASURES



Source: CMS Nursing Home Data Compendium 2013 Edition; CASPER and MDS files

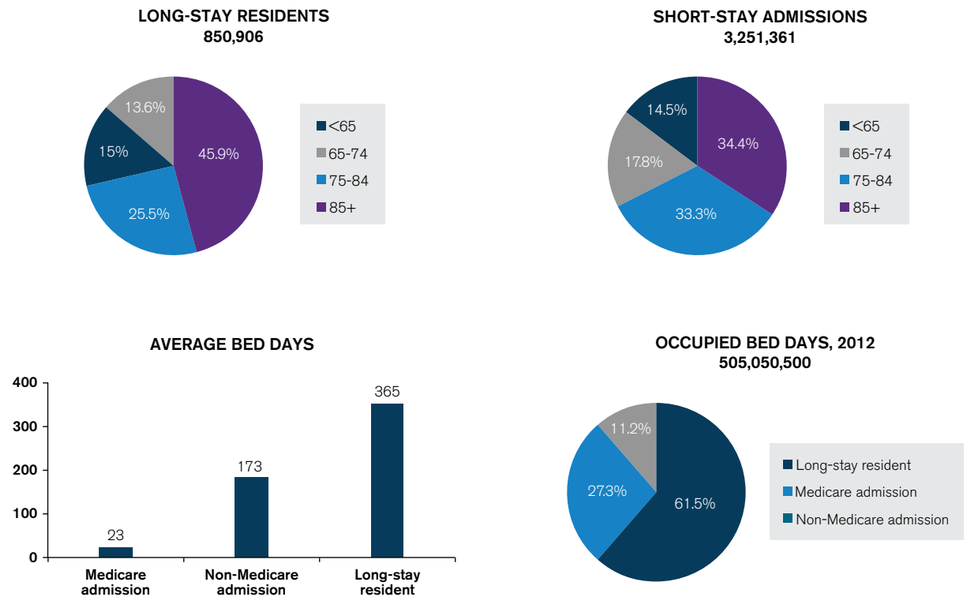
Figure 87 - Katz Index of Independence in Activities of Daily Living

ACTIVITIES POINTS (1 OR 0)	INDEPENDENCE (1 POINT) NO supervision, direction or personal assistance	DEPENDENCE (0 POINTS) WITH supervision, direction, personal assistance or total care
BATHING Points:	(1 Point) Bathes self completely or needs help in bathing only a single part of the body such as the back, genital area or disabled extremity.	(0 Points) Needs help with bathing more than one part of the body, getting in or out of the tub or shower. Requires total bathing.
DRESSING Points:	(1 Point) Gets clothes from closets and drawers and puts on clothes and outer garments complete with fasteners. May have help tying shoes.	(0 Points) Needs help with dressing self or needs to be completely dressed.
TOILETING Points:	(1 Point) Goes to toilet, gets on and off, arranges clothes, cleans genital area without help.	(0 Points) Needs help transferring to the toilet, cleaning self or uses bedpan or commode.
TRANSFERRING Points:	(1 Point) Moves in and out of bed or chair unassisted. Mechanical transfer aids are acceptable.	(0 Points) Needs help in moving from bed to chair or requires a complete transfer.
CONTINENCE Points:	(1 Point) Exercises complete self control over urination and defecation.	(0 Points) Is partially or totally incontinent of bowel or bladder.
FEEDING Points:	(1 Point) Gets food from plate into mouth without help. Preparation of food may be done by another person.	(0 Points) Needs partial or total help with feeding or requires parenteral feeding.

TOTAL POINTS: Score of 6 = High, Patient is independent. Score of 0 = Low, Patient is very dependent.

Source: Katz S, Down TD, Cash HR & Grotz RC (1970). Progress in the development of the index of ADL. The Gerontologist, 10(1):20-30. Copyright: The Gerontological Society of America.

Figure 88 - Users of Long-Term Care Services by Payer



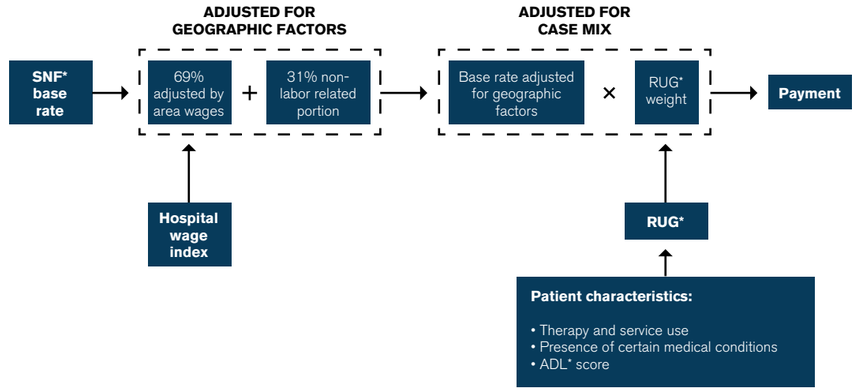
Source: National Center for Health Statistics. Long-Term Care Services on the U.S.: 2013 Overview. Appendix B: Detailed Tables. Table 4. Number of percent distribution of users, by characteristics and provider types, 2012. Occupied Bed Days = Number of SNF users x 365 days. Long stay residents = 850,906 x ALOS >12 months ; Medicare admissions = 2,452,848 with ALOS of 23 days; Non-Medicare admissions = 798,513

The dynamics of payer mix are complex. Occupied bed days represent the best approach to understanding the relationship between payer mix and length of stay. There are 1.67 million SNF beds with an occupancy rate of 83.0%, implying 1.38 million occupied beds (residents) each day. Residents may be long-stay (institutional) or short-stay (Medicare Part A). On any given day, on average, long-stay residents account for 61.5% of occupied beds and short-stay residents account for the remaining 38.5%. The average bed days for long-term patients exceeds one year, implying limited turnover, whereas short-stay admissions of 3.3 million imply a far higher turnover of 6:1 for each available bed. The high turnover reflects mostly post-acute Medicare Part A and commercial patients <65 years old.

Medicare reimbursement is adjusted for case mix and geographic factors. In 2015, for SNFs located in urban areas, the base rate was $383.18 (nursing: $169.28, therapy: $127.51, other: $86.39), whereas for rural facilities, the base rate was $396.73 (nursing: $161.72, therapy: $147.02, other: $87.99). Daily base rates are adjusted for geographic factors (labor) and case mix. Periodic assessments are completed with the Minimum Data Set (MDS).

Sixty-six Resource Utilization Groups (RUGs) reflect the patient's clinical condition, functional status (e.g., activity of daily living score), therapy utilization (e.g., number of minutes of speech, occupational or physical) and special services (e.g., specialized feedings). The daily

Figure 89 - Medicare Prospective Payment System



**Note: SNF (skilled nursing facility), RUG (resource utilization group), ADL (activity of daily living).*
Source: http://www.MedPAC.gov/documents/payment-basics/skilled-nursing-facility-services-payment-system-14.pdf?sfvrsn=0

payment rate is a function of room and board and resource requirements.[105]

According to CMS, there are 14 rehabilitation groups and nine groups requiring rehabilitation and extensive services. "Extensive services categories (3) include patients who receive tracheostomy care, ventilator or respirator services, or are in isolation for an active infectious disease while a resident. [The special care categories (16) are sub-divided into high and low based on service requirements.] The special care–high category includes patients who are comatose; have quadriplegia, chronic obstructive pulmonary disease, septicemia, diabetes requiring daily injections, fever with specific other conditions; or require parenteral / intravenous feedings or respiratory therapy for 7 days. The special care–low includes patients with cerebral palsy, multiple sclerosis, Parkinson's disease, respiratory failure, a feeding tube, pressure ulcers of specific sizes, foot infections, or who receive radiation therapy or dialysis while a resident. Clinically complex categories (10) include patients who have burns, septicemia, or pneumonia or who receive chemotherapy, oxygen therapy, intravenous medications, or transfusions while a resident. Days classified into two broad groups—impaired cognition and reduced physical function, which account for 14 groups—are typically not covered by Medicare because the patient does not generally require skilled care."[105]

Medicare and commercial pay admissions are more profitable than Medicaid institutional patients. Payer mix remains a critical success factor.

The average base payment rate for Medicare, $388 per day, is 2.2 times the payment rate for Medicaid, $179. Due to growing state budget constraints and an intention to facilitate "aging at home," Medicaid expenditures have increased only 10.4% since FY07, whereas Medicare FFS spending has increased 24.6%. Note, the Medicare FFS

Figure 90 - RUGS IV Classification System

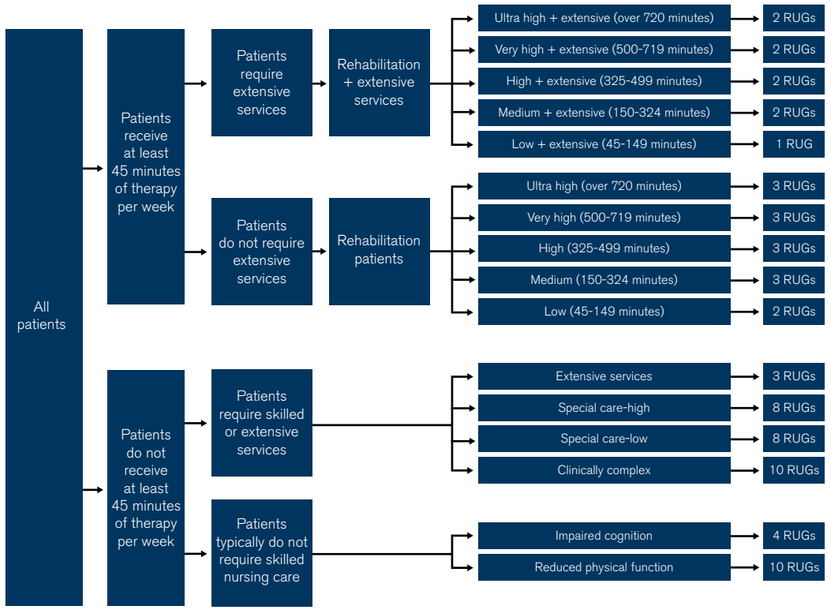
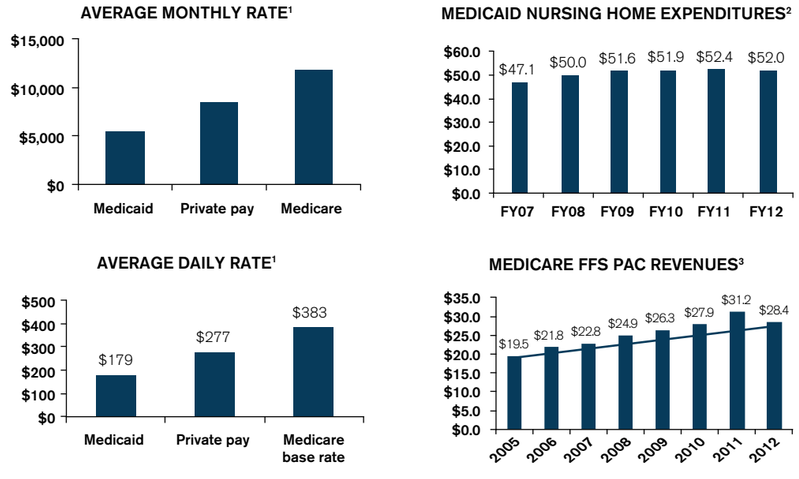
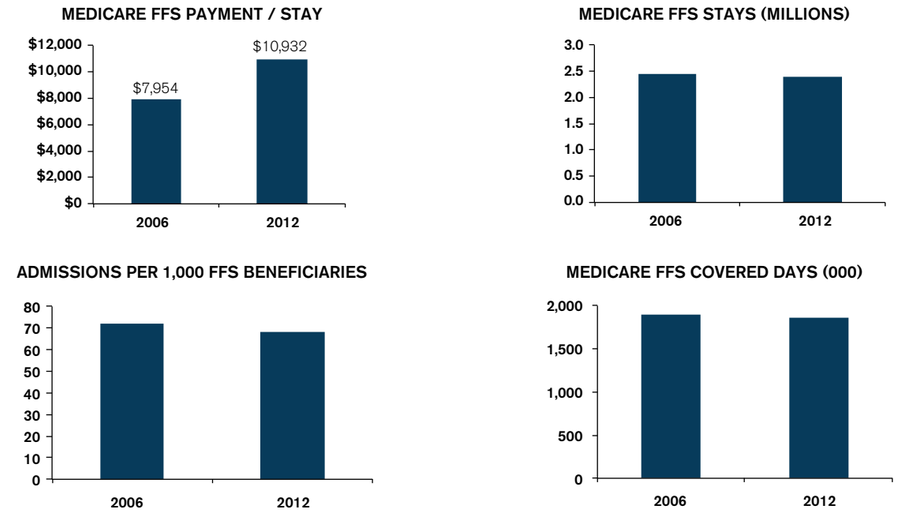


Figure 91 - Payer Rates by Source



Source: [1] NIC. Medicaid and Medicare as of 2012; private pay 4Q13. Medicaid is long-term custodial care, whereas Medicare is short-stay post-acute care up to 100 days after a 3-day hospital stay. Medicare: Days 0-20 with no co-insurance; Days 21-100 with $152 coinsurance/day. Private pay includes both, long-term custodial care and short-stay post-acute care; [2] Table A Medicaid Expenditures for Long-Term Services and Supports: 2007-2012. http://www.medicaid.gov/medicaid-chip-program-information/by-topics/long-term-services-and-supports/downloads/ltss-expenditures-2012.pdf; [3] Source: MedPAC Data Book; June 2014. Excludes MA revenues

Figure 92 - Medicare FFS Spending Driven by Higher Payments (Not Stays)



Source: MedPAC Data Book; June 2014; Charts 8.3, 8.4. Covered days per admission increased from 26.3 in 2006 to 27.4 in 2012.

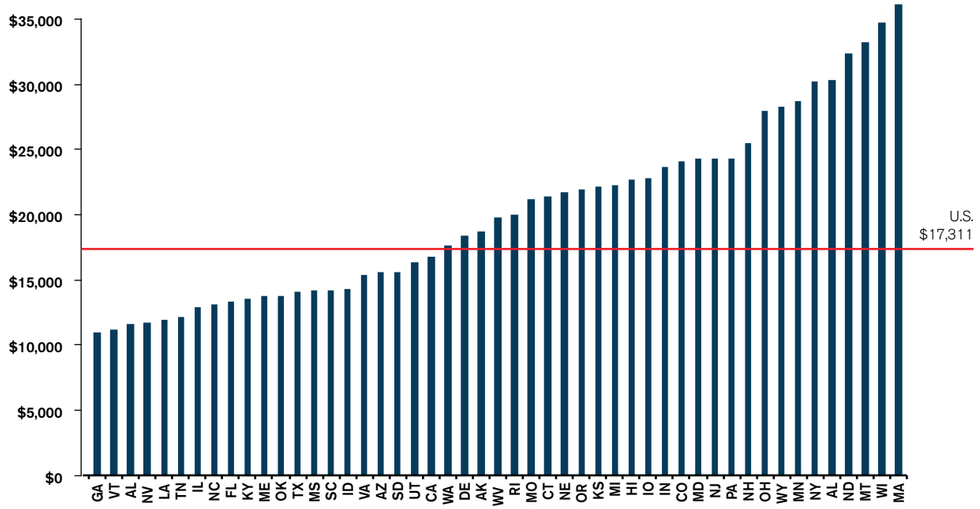
revenue figure is under-stated as it excludes the growing number of Medicare Advantage (MA) beneficiaries. From 2007 to 2012, the number of MA beneficiaries increased from 8.4 million (19% of total Medicare) to 13.1 million (27%).[106]

The increase in Medicare FFS spending has been solely driven by an increase in the payments per stay; the number of stays and covered days has actually declined slightly. Payments per stay reflect patient complexity, the intensity of provided services and coding for reimbursement; i.e., the RUGS rate based on classification items listed in the MDS assessment.[107]

SNF MEDICAID SPENDING VARIES BY STATE

Medicaid remains an important component of baseline SNF revenues, as it accounts for 42% of the total; it also fills beds, accounting for 63% of residents.[108] Payment rates for institutional Medicaid residents are below that of other payers and can vary considerably by state. They are also subject to an allocation of resources across several dimensions including acute inpatient, post-acute and institutional, as well as children, adults, the disabled and aged. A wide range of spending per aged dual-eligible Medicaid enrollee exists, with New York ($27,730), Ohio ($25,598) and Massachusetts ($33,154) among the highest spending states and Illinois ($11,833), California ($15,329) and Florida ($12,176) among the lowest. Higher spending states allocate a higher percentage of Medicaid expenditures to long-term care (New York: 28.1%, Ohio: 27.4%, Massachusetts: 29.2%) than lower spending states (Illinois: 24.8%, California: 23.0%, Florida: 14.5%).[109]

Figure 93 - Medicaid Spending per Aged Dual Eligible Enrollee, FY 2011



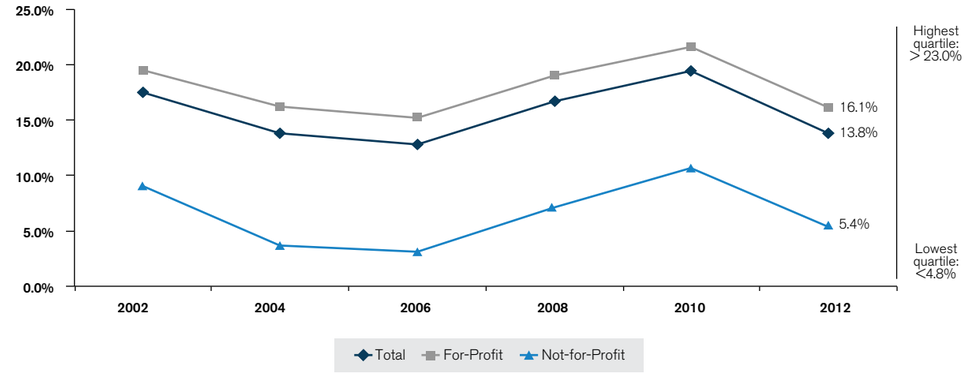
Source: http://kff.org/medicaid/state-indicator/medicaid-spending-per-enrollee/

BUSINESS MODEL DEPENDENCE UPON MEDICARE, COMMERCIAL AND OUT-OF-POCKET PATIENTS AS DRIVERS OF REVENUE GROWTH AND PROFITABILITY

According to MedPAC, the total SNF operating margins across all payers and service lines was 1.8% in 2012.[110] The Moran Group, in a study commissioned by the American Health Care Association, estimated SNF industry margins of 0.75% in 2009.[111] An average Medicare operating margin of 13.8% in 2012 implies a net loss on the Medicaid (institutional) service offerings.[110] Non-Medicare margins of -0.8% to -2.6% were reported between 2001 and 2009.[112]

For-profit nursing homes have higher Medicare FFS operating margins than nonprofit facilities. A broad range of performance is evident with operating margins spanning from <4.8% in the lowest quartile to >23.0% in the highest quartile. Higher profit skilled nursing facilities tend to have lower costs per day (discharge) and higher reimbursements based on the CMI and the intensity of services.

Figure 94 - SNF Medicare Operating Margins



Source: MedPAC Data Book: Health care spending and the Medicare program, June 2014; Chart 8.5. 2013 Medicare margin 13.1% http://MedPAC.gov/documents/reports/chapter-8-skilled-nursing-facility-services-(march-2015-report).pdf

Figure 95 - Drivers of Operating Margins, 2012

CHARACTERISTIC	SNFs IN THE TOP MARGIN QUARTILE	SNFs IN THE BOTTOM MARGIN QUARTILE	RATIO OF SNFS IN THE TOP MARGIN QUARTILE TO SNFs IN THE BOTTOM MARGIN QUARTILE
Overall Performance			
Standardized cost per day	$250	$359	0.7
Standardized cost per discharge	$11,116	$13,591	0.8
Standardized ancillary cost per day	$113	$154	0.7
Standardized routine cost per day	$139	$201	0.7
Average daily census (patients)	88	68	1.3
Average length of stay (days)	46	37	1.3
Revenue Measures			
Medicare payment per day	$474	$424	1.1
Medicare payment per discharge	$22,391	$15,790	1.4
Share of days in intensive therapy	82%	73%	1.1
Share of medically complex days	4%	6%	0.7
Medicare share of facility revenue	26%	16%	1.6
Patient Characteristics			
Case-mix index	1.39	1.30	1.1
Dual-eligible share of beneficiaries	40%	27%	1.5
Share minority beneficiaries	13%	4%	3.3
Share very old beneficiaries	30%	35%	0.9
Medicaid share of days	66%	58%	1.1
Facility Mix			
Share for profit	90%	60%	N/A
Share urban	76%	68%	N/A

Note: SNF (skilled nursing facility), N/A (not applicable). Values shown are medians for the quartile. Top margin quartile SNFs (N=3,238) were in the top 25 percent of the distribution of Medicare margins. Bottom margin quartile SNFs (n-3,238) were in the bottom 25 percent of the distribution of Medicare margins. "Standardized costs per day" are Medicare costs adjusted for differences in area wages and the case mix (using the nursing component's relative weights) of Medicare beneficiaries. "Intensive therapy" days are days classified into ultra-high and very high rehabilitation case-mix groups. "Very old beneficiaries" are 85 years or older.

Source: MedPAC analysis of freestanding 2013 SNF cost reports; Table 8-7 http://MedPAC.gov/documents/reports/chapter-8-skilled-nursing-facility-services-(march-2015-report).pdf

RUGs are used to classify patients based on their condition and function at the time of assessment. Among the items recorded by the Resident Assessment Instrument (RAI) are activities of daily living, diagnosis, treatments, physical condition, mental status (e.g., signs of depression), behavior, memory and cognitive function.[113] Patients may also be classified as clinically complex and special care; resource use may be intensive. A daily reimbursement rate is calculated subject to changes in patient status and resource needs during their stay.[114]

Figure 96 - SNF Patient and Service Classification

There are two broad categories of medically complex days: clinically complex and special care case-mix groups.

- Clinically complex groups are used to classify patients who have burns, septicemia, or pneumonia or who receive chemotherapy, oxygen therapy, intravenous medications, or transfusions while a patient.
- Special care groups include patients who are comatose; have quadriplegia, chronic obstructive pulmonary disease, septicemia, diabetes requiring daily injections, fever with specific other conditions, cerebral palsy, multiple sclerosis, Parkinson's disease, respiratory failure, a feeding tube, pressure ulcers of specific sizes, or foot infections; receive radiation therapy or dialysis while a resident; or require parenteral or intravenous feedings or respiratory therapy for seven days.
- Medically complex days represent 8% of total.

Intensive therapy days classification

- Ultra-high rehabilitation is for those patients who received over 720 minutes (12 hours) per week.
- Very-high rehabilitation includes patients who received between 500 and 719 minutes (8.3 – 12 hours) per week.

Source: http://www.MedPAC.gov/documents/reports/mar13_ch08.pdf?sfvrsn=0

Approximately 30% of Medicare beneficiaries are enrolled in MA plans. Data compiled from publicly-traded SEC filings (10Q) suggests a broad range of (per day) price discounting relative to Medicare FFS reimbursement. Price discount compression seems to have been occurring between 2010 and 2014, driven by a higher rate of reimbursement growth in MA plans relative to FFS reimbursement.

2015 TO 2025 DEMOGRAPHICS SUGGEST A FAVORABLE PAYMENT MIX UPGRADE TO MEDICARE

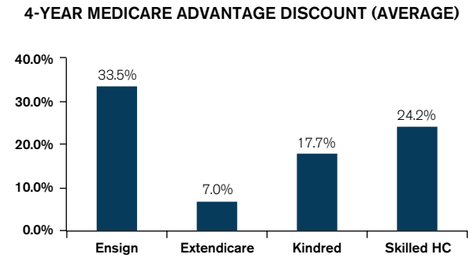
Demographics are favorable, particularly as applied to Medicare Part A admissions. The population >85 years old – the source of 45.9% of institutional residents – is forecast to increase from 5.9 million in 2012 to 7.2 million in 2025 (+23.0%). The rate of institutionalization increases with age: <65 years: 0.05%; 65-74: 0.5%; 75-84: 1.6%; >85: 6.5%. The application of these (constant) rates to our forecast models results in an increase in the long-term institutional population from 851,000 in 2012 to 1.0 million in 2020 and 1.1 million in 2025 (+20.3%).

In terms of SNF admissions, the population >65 years old – the source of 85.5% of admissions – is forecast to increase from 43.1 million in 2012 to 63.9 million in 2025 (+48.3%). The rate of admission (per thousand population) increases with age, though not as significantly as the slope for institutional residents: <65 years: 0.2%; 65-74: 2.4%; 75-84: 8.2%; >85:

Figure 97 - Medicare Advantage Discounts to FFS

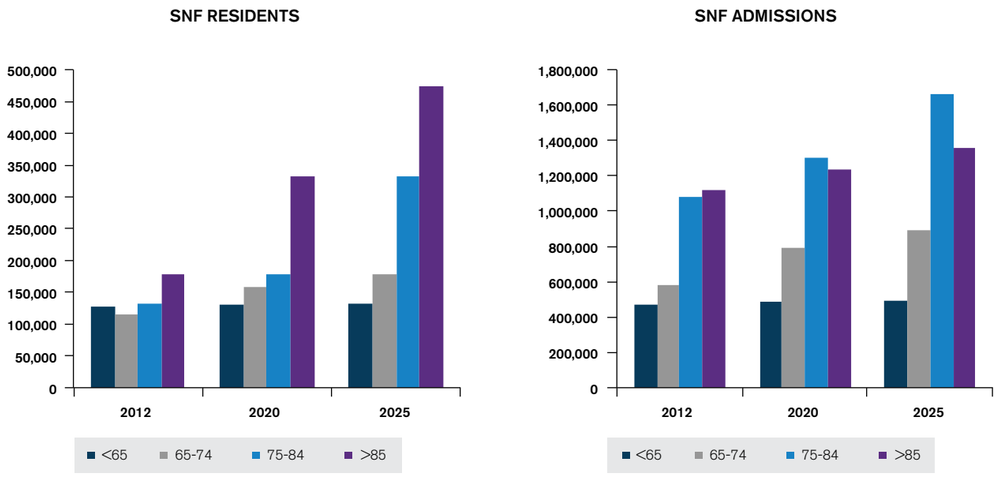
	FFS 3Q10	FFS 3Q12	FFS 3Q14	MA 3Q10	MA 3Q12	MA 3Q14
Ensign Group	$578	$561	$561	$345	$372	$412
Extendicare	$471	$459	$474	$422	$439	$454
Kindred	$485	$490	$551	$409	$409	$436
Skilled Healthcare Group	$515	$509	$522	$379	$383	$410
Sun Healthcare Group	$476	$464		$374	$380	

% MA Discount to FFS	3Q10	3Q12	3Q14
Ensign Group	40.3%	33.7%	26.6%
Extendicare	10.4%	6.3%	4.2%
Kindred	15.7%	16.5%	20.9%
Skilled Healthcare Group	26.4%	24.8%	21.5%
Sun Healthcare Group	21.4%	18.1%	



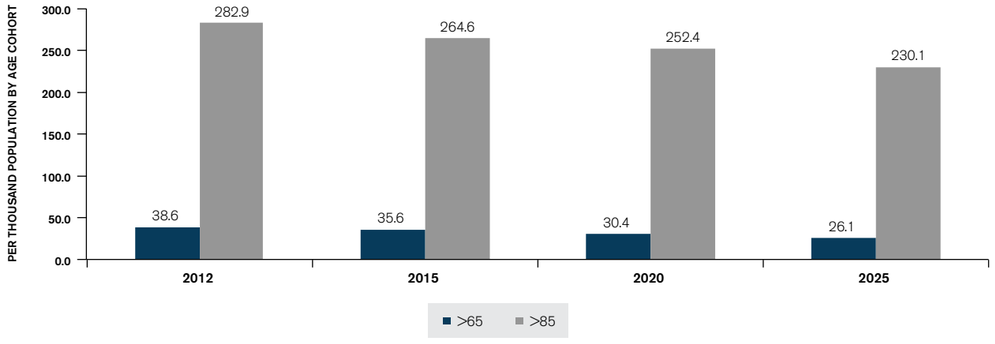
Source: MedPAC 2011, 2013, 2015 accessing 10-Qs

Figure 98 - Favorable Demographics for SNFs



Based on A&M calculations; assuming constant rates for 2012-2025. Sources include U.S. census and National Center for Health Statistics. Long-Term Care Services on the U.S.: 2013 Overview. Appendix B: Detailed Tables. Table 4. Number of percent distribution of users, by characteristics and provider types, 2012.

Figure 99 - Ratio of SNF Beds to Population by Age Cohort (Per Thousand)



Source: U.S. Census Bureau

18.7%. The application of these (constant) rates to our forecast model result in an increase in the number of SNF admissions from 3.3 million in 2012 to 3.8 million in 2020 and 4.4 million in 2025 (+35.2%).

An alternative analytical approach notes a decline in the SNF beds per 1,000 population in >85-year-olds from 282.9 in 2012 to 230.1 in 2025, -18.7% as compared to the decline in the >65-year-old population, from 38.6 to 26.1, -32.4% during the same period. *Irrespective of the methodology, the future demand for short-term beds will exceed that of long-term stays, potentially leading to a more favorable payer mix and higher operating margins.*

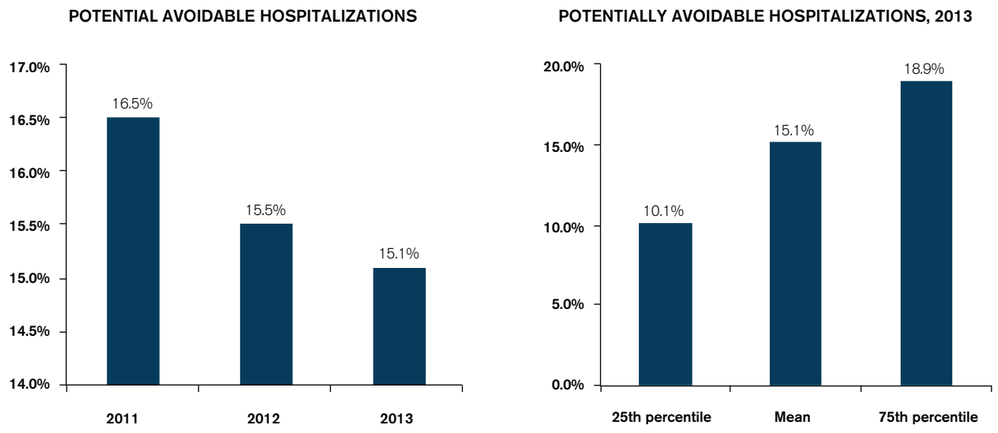
QUALITY AS A POTENTIAL DRIVER OF REFERRALS

The quality of skilled nursing facility care is measured in a multitude of manners. Hospital readmissions, self-reported quality and staffing metrics, and inspection results are all used to assess quality. Quality measures for post-acute care differ from those for institutional care. Rates, benchmarks and inspection results (based on minimum standards being met) are used for comparative analysis.

MedPAC, in its 2015 Report to Congress, tracks risk-adjusted rates of potentially avoidable hospitalizations (readmissions), discharge back to the community (including assisted living but excluding nursing homes and acute care hospitals) and change in functional status during the SNF stay.[115] Potential avoidable hospitalizations have declined by 8.5% from 2011 to 2013, whereas discharge back to the community has increased by 13.0%. Importantly, a wide range of performance was reported for facilities at the 25th and 75th percentiles.

Average mobility improvement in one or more mobility-related activities of daily living (bed mobility, transfer from bed to chair, ambulation) was unchanged from 2011 to 2013 at 43.7%, with a range of performance from 35.6% at the 25th percentile to 52.5% at the 75th percentile.[115]

Figure 100 - Variation in SNF Quality Performance



Source: http://MedPAC.gov/documents/reports/chapter-8-skilled-nursing-facility-services-(march-2015-report).pdf

CMS uses a five-star quality rating based on staffing, quality measures and health inspections; an overall score is also generated. *Quality measures and staffing levels are self-reported by the nursing home and not an independent agency.*

Nursing Home Compare includes 18 quality measures – five short-stay metrics and 13 long-stay metrics. *All data is self-reported and is not checked to ensure accuracy.*[116]

Figure 101 - Medicare.gov Five-Star Quality Rating Criteria

Staffing	Quality Measures	Health Inspections
▪ Registered Nurse hours per resident day ▪ Total staffing hours per resident day including RNs, LPNs or LVNs, and CNAs ▪ Adjusted by SNF for patient acuity ▪ Self-reported snapshot during a two-week period during the year	▪ Subset of 11 of the 18 self-reported measures listed on Nursing Home Compare ▪ Derived from Minimum Data Set (MDS), a health, physical functioning, mental status and general well-being assessment completed on every patient at regular intervals ▪ Short-stay (post-acute care) and long stay (custodial) measures	▪ Based on three most recent comprehensive annual inspections, and inspections based on complaints ▪ The nursing home health inspection process looks at all major aspects of care in a nursing home (about 180 different items) ▪ Inspection process varies by state with standardized requirements for Medicare, but variable Medicaid requirements

Source: Medicare.gov | Nursing Home Compare Quality Measures www.medicare.gov/NursingHomeCompare/About/Quality-Measures-Info.html. Quality measures self-reported via the MDS dataset; may change based on condition at admission, discharge and during their stay. Includes consideration of medical condition, mental status, physical functioning and overall well-being

Figure 102 - Average Nursing Home Compare Results

Short-Stay Quality Metrics (5)	U.S. Average
Percent of short-stay residents who self-report moderate to severe pain	18%
Percent with pressure ulcers that are new or worsened	0.9%
Percent assessed and given, appropriately, the seasonal influenza vaccine	82.5%
Percent assessed and given, appropriately, the pneumococcal vaccine	81.8%
Percent who newly received an antipsychotic medication	2.3%

Staffing Metrics	U.S. Minutes
Total number of residents	87.3 beds
Total number of licensed nurse staff hours per resident per day	101
RN hours per resident per day	51
LPN/LVN hours per resident per day	50
CNA (certified nurse aide) hours per resident per day	148
Physical therapy staff hours per resident per day	6

Long-Stay Quality Metrics (13)	U.S. Average
Percent of long-stay residents experiencing one or more falls with major injury	3.2%
Percent with a urinary tract infection	5.5%
Percent who self-report moderate to severe pain	7.2%
Percent high-risk residents with pressure ulcers	5.9%
Percent low-risk residents who lose control of their bowels or bladder	45.5%
Percent who have/had a catheter inserted and left in their bladder	3%
Percent who were physically restrained	1%
Percent whose need for help with daily activities has increased	15.8%
Percent who lose too much weight	7.2%
Percent who have depressive symptoms	5.9%
Percent assessed and given, appropriately, the seasonal influenza vaccine	92.7%
Percent assessed and given, appropriately, the pneumococcal vaccine	93.6%
Percent who received an antipsychotic medication	19%

Source: https://www.medicare.gov/NursingHomeCompare/compare.html#cmprTab=3&cmprID=335148%2C335196%2C315036&-cmprDist=19.6%2C23.0%2C14.9&loc=07666&lat=40.8924932&lng=-74.0123851

In November 2014, the Center for Integrity highlighted a disparity between the staffing levels reported on Nursing Home Compare and on Medicare Cost Reports. Average staffing was lower in 80% of cases, far lower (<50%) than reported on the CMS website in "thousands of cases" and sub-standard (below state requirements) in "hundreds of cases."[117] The disparity was greatest for the highest level of skilled labor, registered nurses (RNs) - an important correlate for the quality of care. Reporting gaps were highest in the southern states. The self-reported staffing level is usually reported from the two-week period prior to a state inspection and apparently does not reflect the actual staffing level during the majority of the year. Data integrity has been a concern since at least 2005.

An electronic, payroll-based system was supposed to replace the self-reporting of staffing levels in March 2012 as part of the ACA. The mandate has not yet been implemented.

Concern also exists for the accuracy of self-reported quality measures, directly accessed by Nursing Home Compare via the MDS, a health, physical functioning, mental status and general well-being assessment completed on every patient at regular intervals.

Skilled Nursing Facilities are monitored by state regulators and CMS "to determine whether a nursing facility is providing care according to the requirements, which the federal government deems representative of quality care, and whether the care and services provided by the facility meet the assessed needs of each resident."[118] A database of online evaluations conducted by state health agencies known as Certification and Survey Provider Enhanced Reporting (CASPER) is maintained by CMS. It was formerly known as Online Survey, Certification and Reporting (OSCAR). Surveys are conducted at least once every 15 months or as a result of a complaint investigation.

Figure 103 - Certification and Survey Provider Enhanced Reporting (CASPER) Ratings

	Definition
Citation	Is a term used by state surveyors during a nursing facility's annual inspection as mandated by CMS when they deem that a nursing facility is not in compliance with federal regulations.
Citation-free	Is the result of the annual state inspection of a nursing facility when it is found to be in compliance by state surveyors.
Substandard Quality of Care (SQC)	In a nursing facility is when all imposed regulations for the scope and severity of all cited deficiencies is recorded at A, B or C or if the facility is found to be deficiency-free at the time of the survey.
Substandard Quality of Care (SQC)	A nursing facility is cited as providing substandard quality of care if it receives a deficiency in one or more of the following compliance categories: Quality of Care (F309 - F334), Quality of Life (F240 - F258) or Resident Behavior and Facility Practices (F221 - F226) with a scope and severity level F, H, I, J, K or L on its standard health survey.
Immediate Jeopardy (IJ)	Is cited if a nursing facility receives any deficiency at scope and severity level J, K, or L (actual harm that possesses immediate jeopardy to resident health or safety) on its standard health survey. Consequences include the immediate imposition of remedies as opposed to a grace period for correcting deficiencies.

Formerly known as OSCAR, Online Survey, Certification and Reporting
Source: American Health Care Association

Figure 104 - Scope and Severity of Nursing Home Deficiencies, 2012*

U.S. Mean Percentage After Letter Category	Isolated	Pattern	Widespread	Percent Total
Immediate jeopardy to resident health or safety	J (0.3%)	K (0.4%)	L (0.1%)	0.9%
Actual harm that is NOT immediate jeopardy	G (2.0%)	H (0.2%)	I (0.0%)	2.2%
No actual harm with potential for more than minimal harm that is NOT immediate jeopardy	D (55.8%)	E (28.2%)	F (6.6%)	90.5%
No actual harm with potential for minimal harm	A (N/A)	B (3.1%)	C (3.2%)	6.3%

Source: CMS Nursing Home Data Compendium 2013 Edition; Certification and Survey Provider Enhanced Reporting (CASPER) file
** Mean number citations in U.S. nursing homes declined from 7.08 per facility in 2006 to 5.9 in 2012. Citations may include substandard quality of care (quality of life, resident behavior and facility practices) abuse, improper use of restraints, failure to treat/ prevent pressure ulcers, excessive use of antipsychotics, etc.*

Less than 1.0% of nursing home deficiencies are notable for the potential for immediate jeopardy to resident health or safety; another 2.2% note the potential for actual harm, though without immediate jeopardy. The vast majority of nursing homes evidenced isolated (55.8%) or a pattern of potential for more than minimal harm (28.2%).

Variation in the identification of nursing home deficiency citations exists across states, within states and each facility across time. Citations are generated by state survey inspectors (based on federal and state-specific standards) without a consistent measurement technique and / or approach; i.e., are not necessarily reproducible. An OIG report from 2003 identified four factors contributing to the variation: "an inconsistent survey focus; unclear guidelines; the lack of a common review process for draft survey reports; and high surveyor staff turnover."[119]

A more recent study published in the Journal for Healthcare Quality, the official publication of the National Association for Healthcare Quality, stated: "the high degree of variation limits the usefulness of deficiency citations not only for CMS but also for consumers and providers."[120]

Despite the reported low rate of immediate jeopardy or actual harm, a recent report from the OIG revealed that about 33 percent of Medicare beneficiaries experienced adverse (22%) or temporary-harm (11%) events during their SNF stays. The adverse events may have led to an extended stay, transfer to an acute care hospital, permanent harm, a life sustaining intervention or be contributory to death. Fifty-nine percent of the adverse events and temporary-harm events were clearly or likely preventable and resulted from substandard treatment, inadequate resident monitoring and failure or delay of necessary care.[121]

Nursing home quality is labor intensive and is worsened by high rates of employee turnover. High turnover interferes with care continuity, may stress patients, results in inexperienced and less productive workers, weakens standards of care, increases the workload of experienced workers and raises operating costs (e.g., recruitment, training and temporary staff). A study of 2,840 nursing homes reported one-year turnover rates (based on 2004 data) for nursing home RNs of 36.1%, for licensed practitioner nurses (LPNs) of 37.0% and for nursing aides (NAs) of 59.4%.[122] A more recent study from 2012 highlights a median turnover rate of 43.9% (RNs: 50.0%, LPNs/LVNs: 36.4%, certified nursing assistants (CNAs): 51.5%).[123]

High employee turnover rates have been the industry norm for at least the past 40 years.[124] Training, rewards and workload are particularly important to NAs, the job classification with the highest turnover rate.[125]

The same study referenced above attempted to quantify the levels of employee turnover necessary to sustain quality, as measured by Nursing Home Compare: "reducing turnover from high to medium level was associated with increased quality, but the evidence was mixed regarding the quality improvements from further lowering turnover to low levels." Threshold rates of quality deterioration varied by staff level: RNs: >30% turnover, LPNs: >50% turnover, NAs: >40% turnover.[126] In many nursing homes, the turnover rate of RNs and NAs already exceeds the quality threshold requirement.

Figure 105 - Adverse Events Among SNF Residents

Types of Adverse Events	Percentage*
Events Related To Medication	**37%**
Medication-induced delirium or other change in mental status	12%
Excessive bleeding due to medication	5%
Fall or other trauma with injury secondary to effect of medication	4%
Constipation, obstipation, and ileus related to medication	4%
Other medication events	14%
Revenue Measures	**37%**
Fall or other trauma with injury related to resident care	6%
Exacerbations of preexisting conditions resulting from an omission of care	6%
Acute kidney injury or insufficiency secondary to fluid maintenance	5%
Fluid and other electrolyte disorders (e.g. inadequate management of fluid)	4%
Venous thromboembolism, deep vein thrombosis (DVT), or pulmonary embolism (PE) related to resident monitoring	4%
Other resident care events	14%
Events Related To Infections	**26%**
Aspiration pneumonia and other respiratory infections	10%
Surgical site infection (SSI) associated with wound care	5%
Urinary tract infection associated with catheter (CAUTI)	3%
Clostridium difficile infection	3%
Other infection events	5%
Total	100%

** Note: The percentages for conditions listed within the clinical categories do not sum to 100 percent because of rounding.*
Source: HHS OIG. Adverse events in skilled nursing facilities: national incidence among medicare beneficiaries, 2014 http://oig.Hhs.Gov/oei/reports/oei-06-11-00370.Pdf

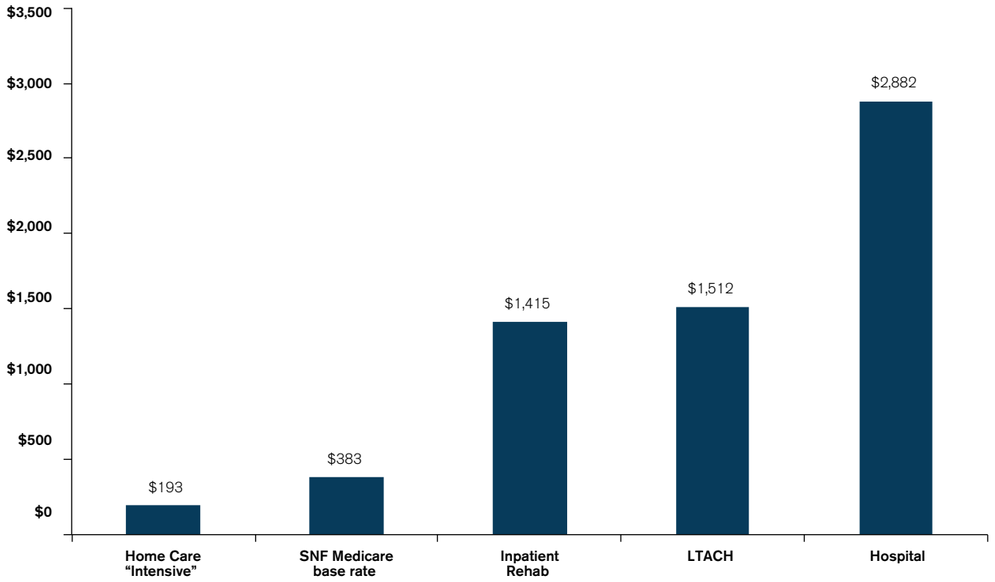
HOME CARE: A COST-EFFECTIVE ALTERNATIVE TO FACILITY-BASED CARE

Home care represents a cost-effective alternative to facility-based care. The IMPACT Act is expected to better match patient acuity with service needs, likely resulting in increased downstream patient flow from skilled nursing facilities and elsewhere. Home care may also benefit from shorter facility stays. Near-term reimbursement pressures are expected to abate, resulting in the normalization of operating margins. Favorable demographics will result in sustainable growth for agencies that are efficient, effective and able to generate referrals.

DETAILS

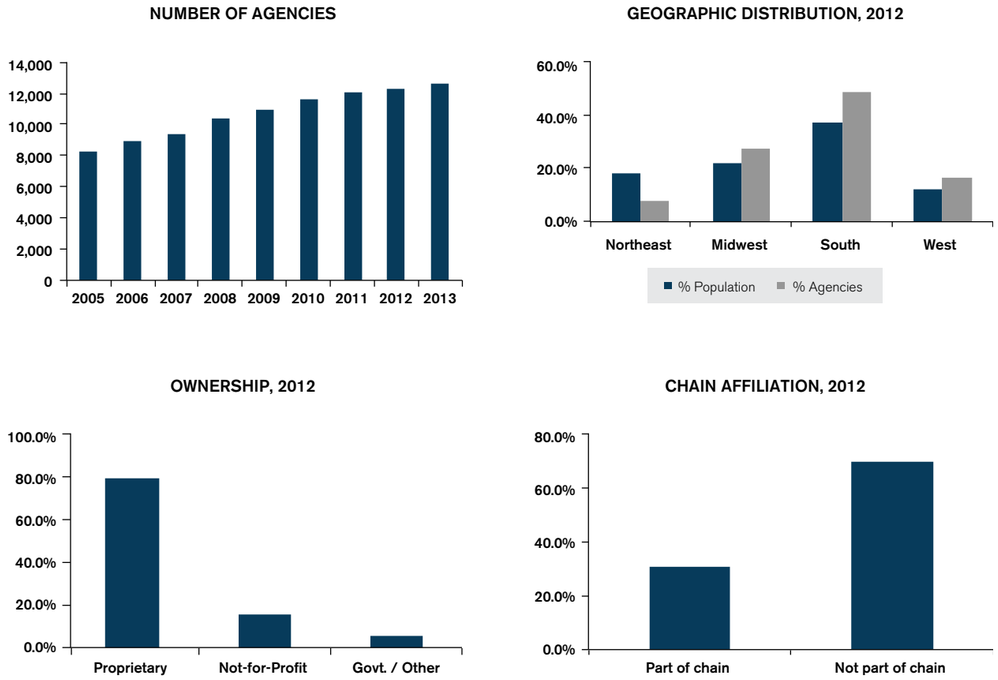
In 2013, there were 12,613 home care agencies; the industry remains highly fragmented with few barriers to entry. 78.7% of home care agencies are for-profit and 30.5% are part of a chain. In terms of the number of home care agencies, the Midwest, South and West are over-represented relative to the population, whereas the East is under-represented.

Figure 106 - Medicare Facility Cost per Day, 2012-2013



Source: MedPAC Data Book. Healthcare Spending and the Medicare Program; June 2015 Caregiverlist Cost of Senior Care in U.S.A. Home Care "Intensive" = 2 hours clinical care and 6 hours with health aides/homemakers

Figure 107 - Profile of Home Care Agencies

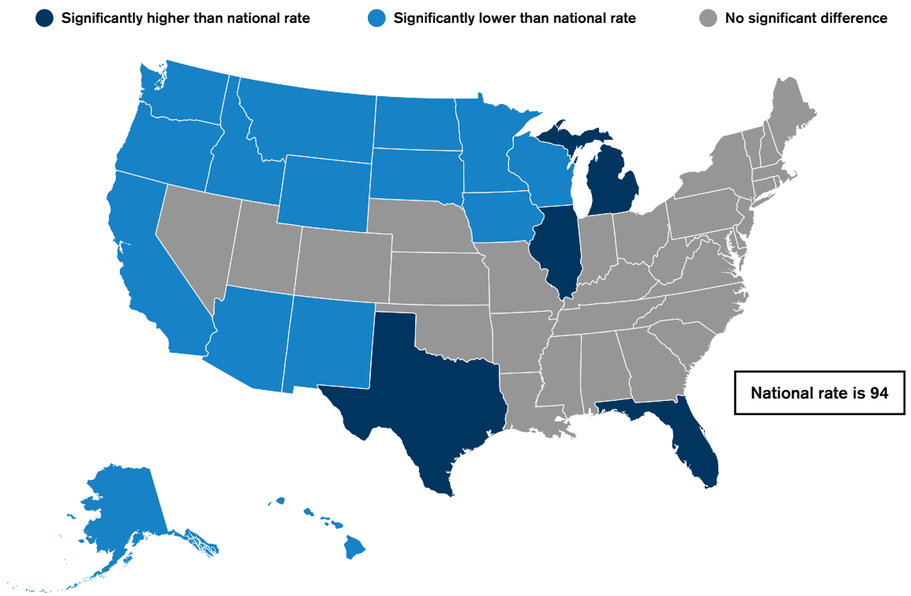


Source: Long-term Care Services in the U.S.: 2013 Overview. Vital and Health Statistics; Series 3 (37) Figures 1, 4 www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf

Four states – Texas, Florida, Illinois and Michigan – have rates of home care agency utilization (per 1,000 population >65 years) above the national average, whereas the West, inclusive of the Southwest, has rates below the national average. Texas (Houston, Dallas) and Florida (Miami-Dade County) have had reports of home care fraud and abuse in the past. Neither of these states has state certificate of need laws for home care and each of these metropolitan areas has a large number of agencies relative to their eligible population. Efforts by the OIG and Department of Justice have been substantially expanded, and audits are becoming more common.

Regulations have been tightening to ensure appropriate use of home care services. CMS now requires a face-to-face encounter with a physician or non-physician practitioner within 30 days of starting home care services to obtain certification. It also requires patients to be assessed by a qualified therapist at the 13th and 19th therapy visits, transition points to higher levels of outlier reimbursement. In addition, CMS has capped outlier payments to a maximum of 10% of an agency's Medicare revenue.

Figure 108 - Rate of Home Care Patient Discharge by State, 2011



Notes: Rates based on home care patients per 1,000 persons aged 65 and over. Significance tested at p <0.05.

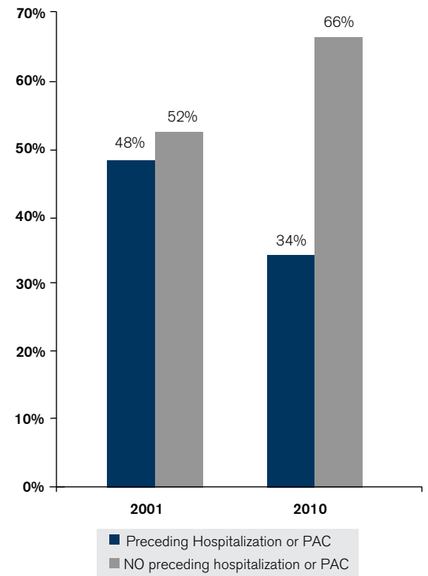
Source: Long-term Care Services in the U.S.: 2013 Overview. Vital and Health Statistics; Series 3 (37) Figures 1, 4 www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf

In 2001, approximately one-half of patients had a preceding hospital stay; in 2010, the figure was one-third. *The data suggests somewhat different patient cohorts (needs) for those with or without a preceding hospital stay.* Patients with no preceding hospital stay tend to be older, have lower incomes and are more likely to have mental illness, activity limitations and Alzheimer's (dementia).[127] Their psychosocial situation, as well as literacy levels, represents additional challenges.

Medicare accounts for 41.4% of home care spending, followed closely by Medicaid at 39.2%. Home Health and Personal Care under Medicaid includes "standard home care services, personal care, home and community-based care for the functionally disabled elderly, and services provided under home and community-based services waivers."[128] These services are critical to sustain independent living. The average hourly cost of a home care aide or homemaker is $20-$21 per hour; the worker take-home is 50%-60% of the cost.[129] Medicaid spending for home care exceeds that of nursing facilities, albeit slightly.

Limited care and administration coordination, combined with financial misalignments (cost shifting), for the nearly 10 million American dual-eligible (Medicare and Medicaid) beneficiaries contribute to suboptimal outcomes and higher costs.[130] Home care is essential to the management of dual-eligible patients.

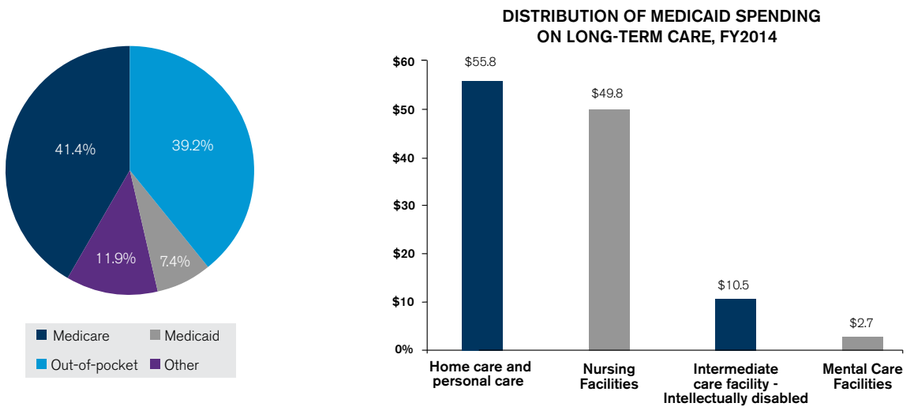
Figure 109 - Source of Home Care Agency Patients



	No Preceding hospital or PAC	Preceding hospital or PAC
Total episodes	4.6M[2]	0.3M
White	74%	86%
Number of chronic conditions	3.8	4.2
Age	Older	Younger
Dual eligible	42%	24%
Alzheimer's or dementia	29%	21%
	Suggestive of longer term needs	Suggestive of acute care needs

PAC (post-acute care). "First" and "subsequent" refer to the timing of an episode relative to other home care episodes. "First" indicates no home care episode in the 60 days preceding the episode. "Subsequent" indicates the episode started within 60 days of the end of a preceding episode. "Episodes preceded by a hospitalization or PAC stay" indicates the episode occurred fewer than 15 days after a hospital (including long-term care hospitals), skilled nursing faculty, or inpatient rehabilitation faculty stay. "Episodes not preceded by a hospitalization or PAC stay" (community-admitted episodes) indicates that there was no hospitalization or PAC stay in the 15 days before episode start. Numbers may not add due to rounding.

Figure 110 - Home Care Payer Mix



Source: www.kff.org/medicaid/state-indicator/spending-on-long-term-care/

Figure 111 - Case Study: Dual-Eligible

BACKGROUND

- 77 years old; "fiercely" independent and lives alone
- Requires significant personal assistance to maintain independence
- Clinically complex:
  - Diabetes, depression and hypertension
  - Three strokes, resulting in left-side weakness
  - Frequent falls and inadequate food intake
  - Recent hospitalizations for poorly controlled diabetes
- Additional psychosocial/life challenges:
  - Difficulties making appointments because of mobility limitations;
  - Difficulties accessing/managing aging network or personal care attendant services;
  - Problems obtaining mental health services

Without Integrated Care	With Integrated Care
Three ID cards: Medicare, prescription drugs and Medicaid	One ID Card
Three different sets of benefits	One set of comprehensive benefits: primary, acute, prescription drug, and long-term care supports and services
Multiple providers who rarely communicate	Single and coordinated care team; comprehensive individualized care plan
Healthcare decision uncoordinated and not made from patient-centered perspective	Healthcare decisions based on patients' needs and preferences
Serious consideration for nursing home placement; Medicare / Medicaid only pays for four hours / day of home care aide services	Able to receive *non-traditional benefits that help patient stay in the home*

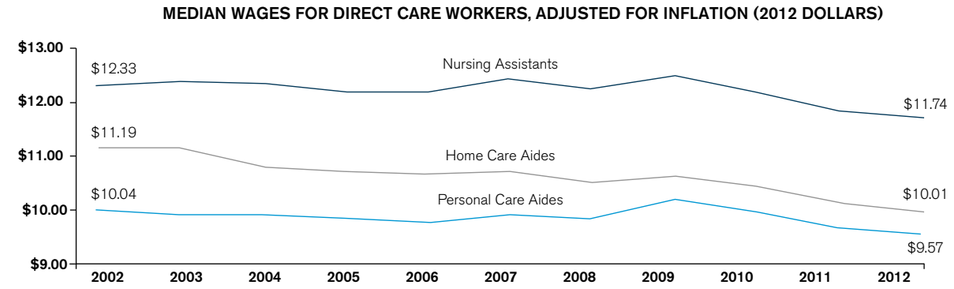
Source: CMS Presentation: Integrating Care for Medicare-Medicaid Enrollees https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/MedicareMedicaidCoordinationOfficeGeneralPresentation.pdf

Home care aides, also known as personal care aides, have an important role in serving non-medical patient needs, and in potentially serving as the "eyes and ears" for a potential change in medical status. The latter role is potentially critical to early intervention, especially in dual-eligible patients with limited caregiver support. Limited activity and co-morbid depression have been associated with higher costs.[131] Enhanced training, definitive guidelines for intervention and field nurse support is essential.

Home care aides receive low wages (2012: $20,295), contributing to significant staff turnover. The U.S. Department of Labor has raised concerns regarding potential violation of the Fair Labor Standards Act (FLSA) by home care providers. A recent lawsuit alleges that the payment of aides on a flat daily rate violates the FLSA because "it failed to provide a minimum wage and overtime." Other filings involve "failures to pay for overtime, work during meal periods, off-the-clock work and

Figure 112 - Home and Personal Care Aides

- *Helps beneficiaries remain independent and living at home – a cost-effective alternative to facilities-based care*
- Non-medical services include assistance with activities of daily living: bathing, dressing, transferring, continence / incontinence care and meal preparation and feeding
- Services reimbursed on an hourly basis by payers and providers: Managed Medicaid, Medicaid, home care agencies, commercial insurance and private
- Services are often required for 10 to 30 hours per week and often several years allowing for the development of longer-term relationships
- If trained appropriately, home care and personal care aides can monitor and report changes in patient's activity levels, physical status and mentation

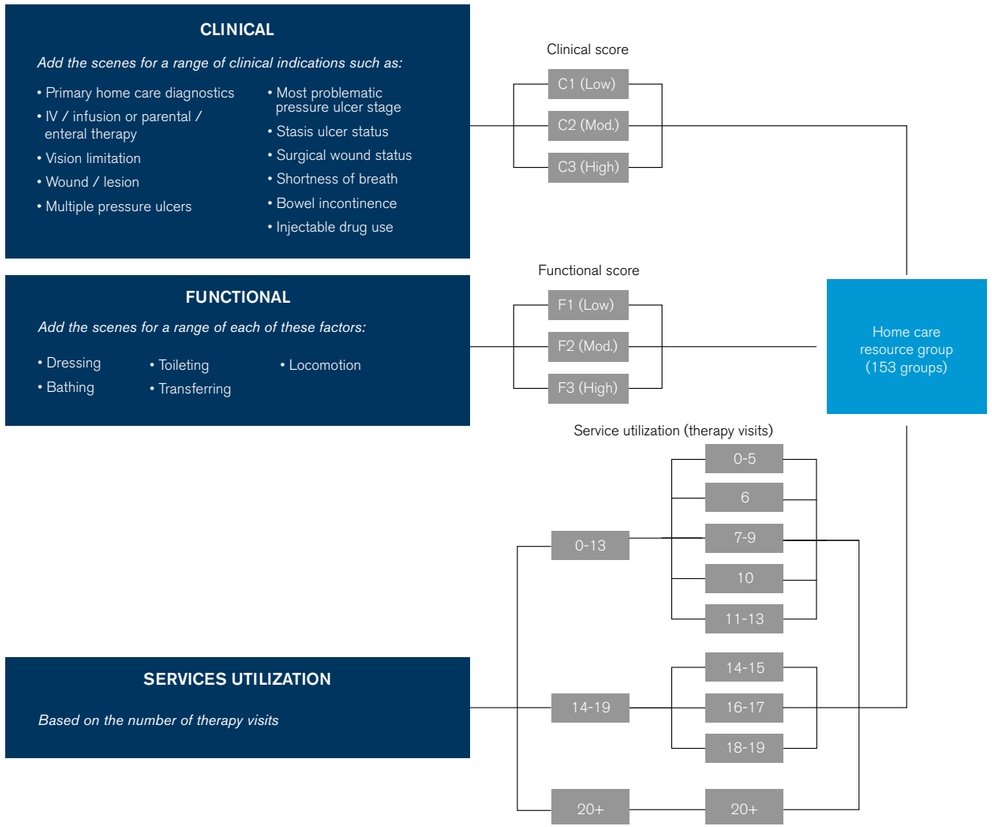


travel time."[132] The Bureau of Labor Statistics forecasts a 49% shortage of workers by 2022 based solely on projected demand for services, or 69% assuming replacement of exiting workers.[133] Federal, state (e.g., Oregon, California) and local (e.g., Seattle) legislative initiatives to increase the minimum wage to $11-$15 per hour represents a significant challenge to home care and other post-acute providers.[134] Risks will vary by state and city; federal legislation will be dependent upon the outcome of the Presidential election in November 2016. Twenty-nine states already have mandates above the federal minimum of $7.25 per hour.[135]

REIMBURSEMENT CLASSIFICATION

Medicare patients receiving five or more visits are classified into 153 home health resource groups (HHRGs) based on clinical indications, functional status and service utilization (visits) as measured by OASIS.[136] HHRGs range from uncomplicated patients to those with complex medical problems requiring extensive support. Payments increase with the frequency of episode (after the second) and the number of visits (if exceeding 13); adjustments for labor costs based on geography, as well as outlier cases, are made.

Figure 113 - Medicare Home Care Reimbursement

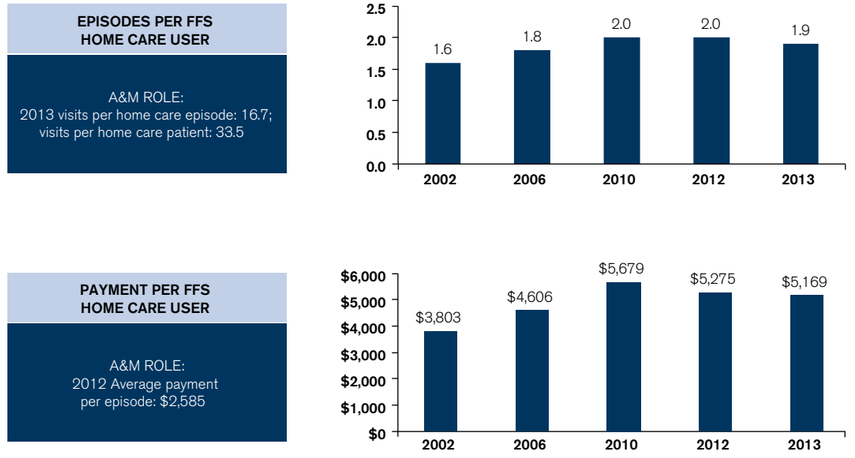


Source: http://www.MedPAC.gov/documents/payment-basics/home-health-care-services-payment-system-14.pdf?sfvrsn=0

Each Medicare FFS patient has 1.9-2.0 episodes, each with a 30-day duration. After a 49.3% increase in payment per use from 2002 to 2010, reimbursement declined 10.0% to $5,169 in 2013. The number of home care users increased from 2.5 million in 2002 to 3.4 million in 2010, and remained constant thereafter.

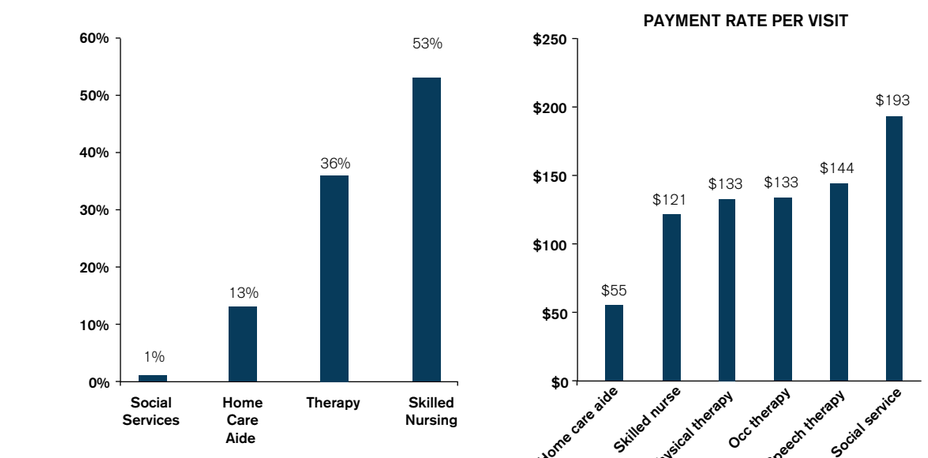
Skilled nursing visits per episode are most common, followed by therapy and home care aide visits; social service visits are infrequent. The payment rate for therapists (physical, occupational and speech) is somewhat higher than skilled nursing. Therapy services are increasingly being scrutinized by CMS, though a change in policy has yet to occur.

Figure 114 - Spending per FFS Medicare Home Care User



Source: 2011 – http://www.MedPAC.gov/chapters/Mar13_Ch09.pdf;
2012 – http://www.MedPAC.gov/documents/Jun14DataBookEntireReport.pdf;
2013 – www.MedPAC.gov/documents/reports/chapter-9-home-health-care-services-(march-2015-report).pdf?sfvrsn=0

Figure 115 - Types of Home Care Visits in Medicare FFS Patients, 2013



Number of visits per episode	0.1	2.1	5.9	8.6

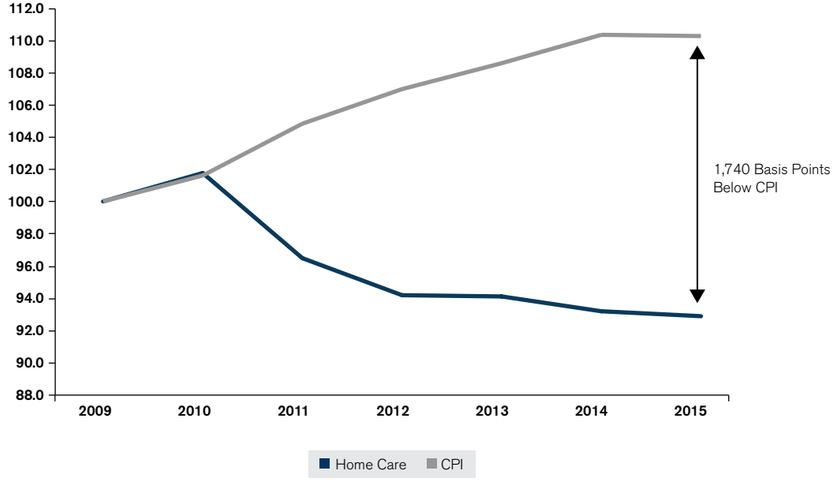
Source: http://www.MedPAC.gov/documents/reports/chapter-9-home-health-care-services-(march-2015-report).pdf?sfvrsn=0

BUSINESS MODEL STILL DEPENDENT UPON MEDICARE FOR PROFITABILITY, ALBEIT AT LOWER LEVELS

Home care Medicare reimbursement is based on a prospective 60-day episode of care payment system adjusted for health condition and geographic wage variation. Each patient is assigned an HHRG based on clinical and functional status, as well as service utilization. Case mix is determined by number of visits (0-13, 14-19, 20+) and sequence of episodes. Recent CMS estimates have incorporated a market basket update, PPACA-mandated reductions, a case mix adjustment and other factors.

In an attempt by CMS to reduce an "excess" of Medicare home care profit margins, reimbursement has been reduced during the past five years. Since 2010, Medicare has reduced reimbursement by 7.1% as compared to an increase of the Consumer Price Index (CPI) of 10.3%.

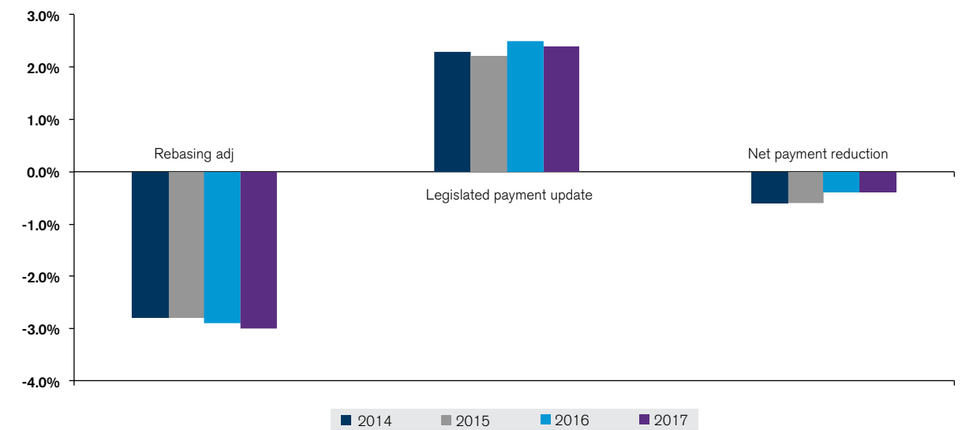
Figure 116 - Medicare Home Care Reimbursement Trends Relative To CPI



FFS Payments	$B	$13.8	$15.1	$15.1	NA

Source: Amedisys 10k filings 2010-2015

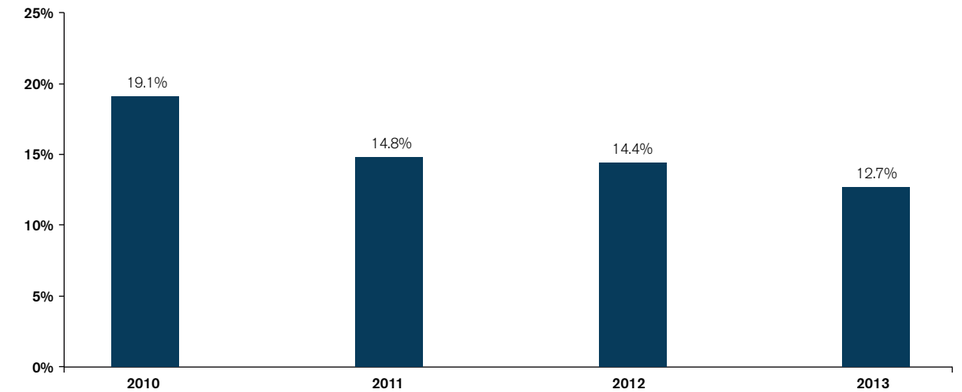
Figure 117 - Net Impact of Payment Rebasing, 2014-2017



A phased rebasing of home care payments is being implemented by CMS for 2014 to 2017 to better reflect the average number of visits per episode and updated cost report data. The net payment reduction is -0.6% between 2014 and 2015 and -0.4% from 2016 to 2017, and on a cumulative basis another 2.0%. The CPI increased 0.8% in 2014, and increased 0.5% from January to August 2015.[137]

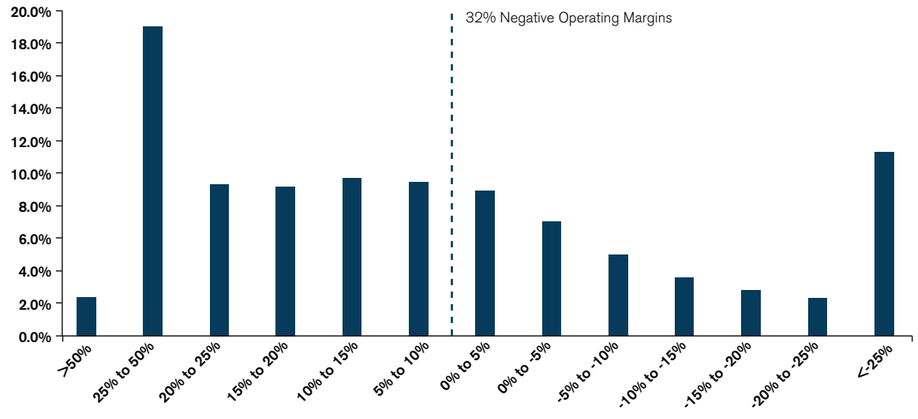
Medicare operating margins have declined from 19.1% in 2010 to 12.7% in 2013. Another decline of 100 to 300 basis points is possible given the rebasing of payments.

Figure 118 - Medicare Margin Of Freestanding Home Care Agencies, 2010-2013



Source: 2010, 2011 - http://www.MedPAC.gov/documents/Jun13DataBookEntireReport.pdf
2012, 2013 – www.MedPAC.gov

Figure 119 - Distribution of Medicare Operating Margins



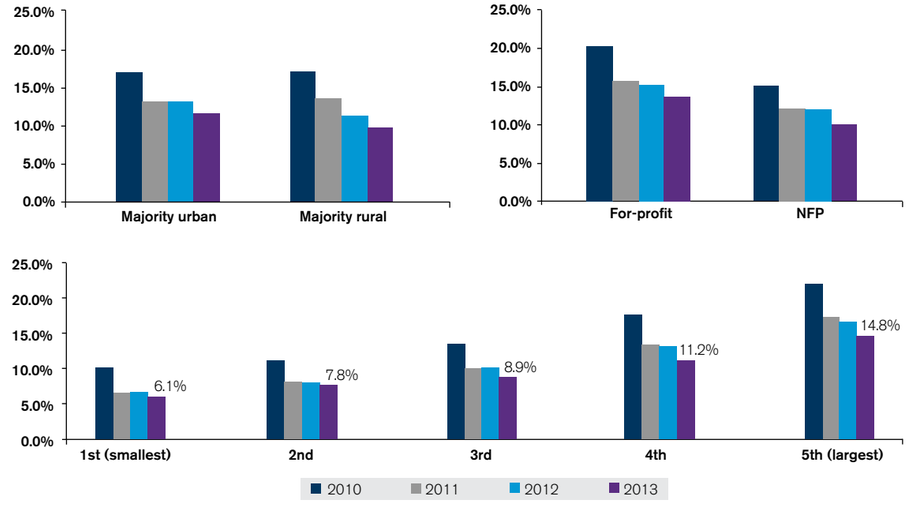
Source: National Association of Home Care & Hospice. Rate Rebasing in Medicare Home Health Services: A Review of the 2014 HHPPS Proposed Rate Rule http://www.congressweb.com/nahc/docfiles/Home%20Health%20Rebasing%20White%20Paper.pdf

Medicare operating margins vary widely among agencies, from -0.3% at the 25th percentile to 23.0% at the 75th percentile. Nearly one-third of home care agencies have negative operating margins; 20% have negative margins exceeding -10%, a non-sustainable financial position. Conversely, 19.0% of home care agencies have operating margins of between 25% and 50%.

Higher operating margins have been associated with urban locations, for-profit ownership and size; the highest quintile, with an operating margin of 14.8%, is nearly 2.5 times that of the lowest quintile at 6.1%.

Relatively efficient agencies, as defined by CMS, compared to all other providers had more episodes, higher Medicare margins, lower hospitalization rates, lower costs per visit, lower payments per episode and fewer visits per episode.[138] Data from the SHP / BKD Benchmark Leaders Study, 2012 also highlighted a significant difference in indirect agency costs per episode between benchmark leaders (median: $757, 25th percentile: $571, 75th percentile: $981) and other agencies (median: $1,059, 25th percentile: $753, 75th percentile: $1,584).[139] Lower direct and indirect costs, combined with fewer visits and lower hospitalization rates implies a more efficient and effective provider of services.

Figure 120 - Medicare Margins for Freestanding Home Care Agencies Higher for Urban, For-Profit and Large Agencies



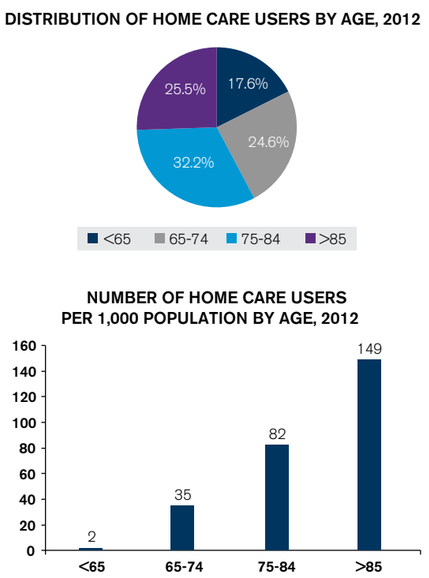
Source: http://www.MedPAC.gov/documents/Jun14DataBookEntireReport.pdf; wwww.MedPAC.gov/documents/reports/chapter-9-home-health-care-services-(march-2015-report).pdf.sfvrsn=0

Figure 121 - Performance of Relatively Efficient Providers Medicare FFS, 2012

	All providers	Relatively efficient providers	All other providers
Number of Agencies	4,280	71 (16.7%)	3,569 (83.3%)
Medicare Margin			
2011	15.2%	19.0%	13.5%
2012	14.5%	21.1%	14.0%
Hospitalization Rate	28%	23%	29%
Costs and payments			
Cost per visit	$130	$126	$144
Payment per episode	$2,662	$2,552	$2,687
Case-mix index	0.99	1.02	.99
Total visits per episode	16.7	15.7	16.9
Number of 60-day payment episodes			
Median	930	1,012	931
Mean	529	622	513

Source: www.MedPAC.gov/documents/reports/chapter-9-home-health-care-services-(march-2015-report).pdf.sfvrsn=0

Figure 122 - Home Care User Demographics, 2012



Source: Percent distribution of long-term services by age, 2011-12. http://www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf

Additional operating margin pressure is coming from the increasing number of elderly enrolled in MA plans, currently 31.0% of Medicare recipients. MA plans reimburse providers on a per-visit basis and impose limits on the number of visits. They generate less revenue per patient than direct payment from CMS.

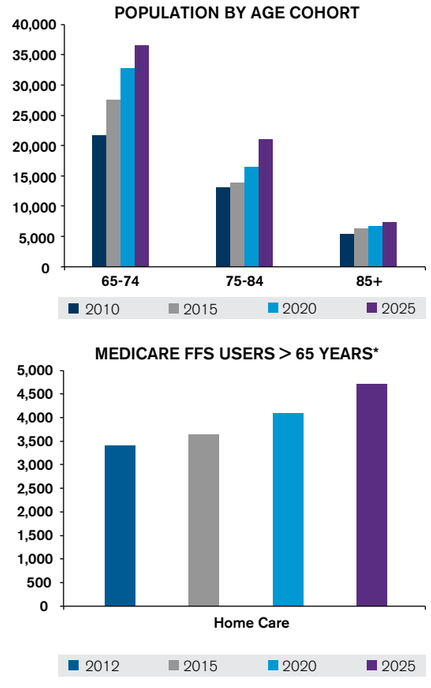
DEMOGRAPHICS ARE FAVORABLE

In 2012, there were 3.5 million home care users, the majority >75 years old. The rate of use increases from 35 per 1,000 population in the 65-74 age cohort to a rate four times higher for those >85 years old.

Assuming a constant rate of users per 1,000 population and a constant MA penetration rate implies growth in the number of Medicare FFS users from 3.6 million in 2015 to 4.7 million in 2025 (+29.6%) for a compound rate of growth of 2.7%.

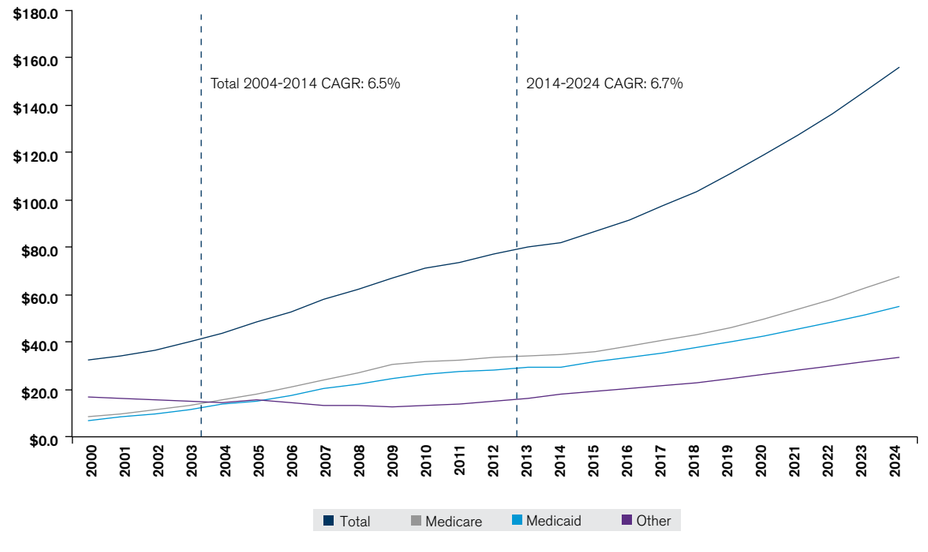
Our analysis is consistent with the forecast rate of growth by CMS. An aging population, combined with relative cost-effectiveness and limited Medicaid funding of custodial nursing home beds, is forecast by CMS to accelerate home care revenue growth.

Figure 123 - Forecast of Home Care FFS Users, 2012-2025



*Source: *Home care demand forecast based on 2012 total number of home care users and age distribution reported in Long-Term Care Services in the United States: 2013 Overview www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf; Population demographics from U.S. Census*

Figure 124 - Forecast Home Care And Hospice Spending, 2014-2024



Note: "Other" includes out of pocket and all other payers
Source: CMS National Health Expenditures 2012 Historical and Projected

LOWER RATES OF (RE-)HOSPITALIZATION POTENTIALLY REPRESENT A SOURCE OF COMPETITIVE DIFFERENTIATION

Twenty-four quality measures, combined with five experience-of-care survey questions, comprise Home Health Compare, a database and website made available by CMS to allow consumers to better understand differences among Medicare-certified home care agencies.[140] Quality measures are divided into five categories: managing daily activities (3), managing pain and treating symptoms (5), treating wounds and preventing pressure sores (4), preventing harm (8) and preventing unplanned hospital care (4).[130] The measures can also be classified as process (13) and outcome measures (11).

The utility of process measures is somewhat limited, as the data input is self-reported and the questions to be answered have a binary response without consideration of the quality and depth of evaluation and / or discussion. With the exception of vaccination, performance ranges from 91.7% to 98.8%. The outcome measures reflect not only the performance of the home care agency, but the condition of the patient as well. Many patients with complex chronic conditions have activity limitations as well, driven by underlying pathology or co-morbid depression.

Figure 125 - Home Health Compare Measures

Question	U.S. Average 2014
Managing daily activities	
How often patients got better at walking or moving around (Star ratings)*	63.1%
How often patients got better at getting in and out of bed (Star ratings)*	58.6%
How often patients got better at bathing (Star ratings)*	68.2%
Managing pain and treating symptoms	
How often the home care team checked for pain	98.8%
How often the home care team treated their patients' pain	98.4%
How often patients had less pain when moving around (Star ratings)*	67.9%
How often the home care team treated heart failure patients' symptoms	98.0%
How often patients' breathing improved (Star ratings)*	65.3%
Treating wounds and preventing pressure sores	
How often patients' wounds improved or healed after an operation*	89.4%
How often the home care team checked patient for risk of developing pressure sores	98.7%
How often the home care team included treatments to prevent pressure sores in the plan of care	97.7%
How often the home care team took doctor-ordered action to prevent pressure sores	96.6%
Preventing harm	
How often the home care team began their patients' care in a timely manner (Star ratings)	91.7%
How often the home care team taught patients (or their family caregivers) about their drugs (Star ratings)	92.8%
How often patients got better at taking their drugs correctly by mouth*	52.7%
How often the home care team checked patients for risk of falling	98.2%
How often the home care team checked patients for depression	97.8%
How often the home care team made sure that their patients have received a flu shot for the current flu season (Star ratings)	72.8%
How often the home care team made sure that their patients have received a pneumococcal vaccine	72.7%
For patients with diabetes, how often the home care team got doctor's orders, gave foot care, and taught patients about foot care	94.6%
Preventing unplanned hospital care (resource utilization)	
How often home care patients (without a recent hospital stay) had to be admitted to the hospital (Star ratings)	15.8%
How often patients receiving home care needed any urgent, unplanned care in the hospital emergency room – without being admitted to the hospital	12.0%
How often home care patients, who have had a recent hospital stay, had to be re-admitted to the hospital (Star ratings)	
How often the home care patients, who have had a recent hospital stay, received care in the hospital emergency room without being re-admitted to the hospital	
Patient survey results	
How often the home care team gave care in a professional way	88%
How well did the home care team communicate with patients	85%
Did the home care team discuss medicines, pain and home safety with patients	84%
How do patients rate the overall care from the home care agency	84%
Would patients recommend the home care agency to friends and family	79%

**Outcomes measures; Source: www.medicare.gov/HomeHealthCompare/Data/Current-Data-Collection-Periods.html. U.S. average from https://www.medicare.gov/homehealthcompare/compare html#cmprTab=1&cmprID=337414%2C337443&stsltd=NY&loc=10022&lat=40.7593941&lng=-73.9697795*

Figure 126 - Estimating Confidence Intervals

Sample Size	Observed Rate								
	10%	20%	30%	40%	50%	60%	70%	80%	90%
<25	--	--	24.9%	26.6%	27.2%	26.6%	24.9%	--	--
25-75	8.3%	11.1%	12.7%	13.6%	13.9%	13.6%	12.7%	11.1%	8.3%
76-125	5.9%	7.8%	9.0%	9.6%	9.8%	9.6%	9.0%	7.8%	5.9%
126-175	4.8%	6.4%	7.3%	7.8%	8.0%	7.8%	7.3%	6.4%	4.8%
176-225	4.2%	5.5%	6.4%	6.8%	6.9%	6.8%	6.4%	5.5%	4.2%
226-275	3.7%	5.0%	5.7%	6.1%	6.2%	6.1%	5.7%	5.0%	3.7%
276*	2.9%	3.9%	4.5%	4.8%	4.9%	4.8%	4.5%	3.9%	2.9%

Source: CMS/OCSQ/QIG: The values in the table are the approximate amount to add and subtract from the observed rate to estimate a 95 percent confidence interval for the given sample size. (Interpolation between the values in the table is appropriate.) Estimates of an interval in these cells exceed the natural limits for proportions. https://www.medicare.gov/HomeHealthCompare/Data/Confidence-Interval.html

It is important to recognize that the confidence intervals for many of the home care agency measures are broad; 40.0% of agencies (n=5,045) served between one and 100 people whose episode of care ended at any time in 2011. Only 32.4% of agencies (n=4,094) serve >301 people per year. The average home care recipient has 2.0 episodes of care.[141] Confidence intervals are used to estimate precision of the estimate, with a percent range of figures above and below the estimate to indicate the likely result.

Quality measures are derived from the OASIS dataset and Medicare claims. Opportunities exist to improve care transitions from hospitals, enhance patient management and facilitate independent living.

The CMS patient care star-rating system, a simplified and visual ratings system, is based on nine of the quality measures, with a focus on outcomes: ambulation, bed transfer, bathing, pain, shortness of breath and (re-) hospitalization. Process measures include the timeliness of care, flu vaccination and medication self-management. Average agency performance is between 3.0 and 3.5 stars. Patient care star ratings are updated quarterly.

Home care agency and hospital measurement of hospitalizations differ in terms of duration (60-day episodes of care vs. 30-day post-discharge rehospitalization period), as well as the possibility of an initial hospitalization during a home care episode (without a prior acute inpatient episode within 30 days). In January 2014, the all-cause 30-day hospital readmission rate reached 17.9%.[142] Hospitals are eligible for additional Medicare reimbursement after completion of the first 30-day episode of care.

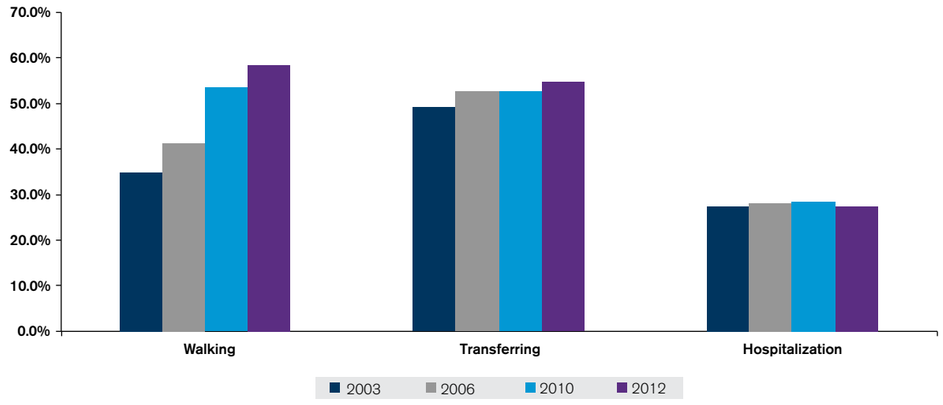
The home care agency hospitalization rate of 27.5% is unchanged since 2003. According to Home Health Compare, 15.8% of home care patients without a recent hospital stay were admitted to a hospital; 12.0% had an emergency department visit that did not lead to a hospital admission. A 2013 analysis reported: "13.7% of home care episodes captured in Medicare claims, and 15.5% of episodes in Oasis-C assessments contain a readmission."[143]

Figure 127 - Measures of Hospitalization

Source: Alliance for Home Health Quality & Innovation: Home Health Care Data & Readmissions http://ahhqi.org/images/pdf/what-is-hhc-data-readmissions.pdf

The readmission issue is complicated as home care agencies are financially aligned with hospitals during a patient's first 30-day episode of care, but by reducing admissions during the second episode of care, revenues will potentially decrease. They are aligned with Accountable Care Organizations to reduce the total cost of care during the entire 60-day episode. *Opportunities clearly exist to reduce the rate of hospitalization, irrespective of the prior site of care.*

Figure 128 - Agency Performance on Quality Measures



Note: Data risk-adjusted for differences in patient condition. Measures for walking and transferring after 2011 are not comparable to pre-2011 measures due to change in methodology.

Source: MedPAC 2015 Report to Congress, Table 9-8

HOSPICE: TOO SHORT, TOO LONG

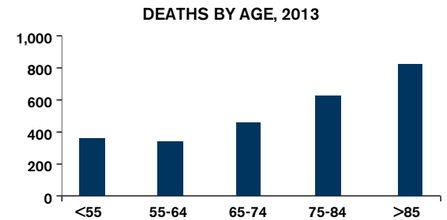
Nearly 50% of hospice patients receive care for <7 days (34.5%) or >180 days (11.5%), the latter beyond the threshold of presumed life expectancy. The data reflects the inadequacy of palliative and end-of-life care; i.e., a failure of shared decision making among the patient, primary caregiver and physician. It also reflects the growing impact of non-cancer patients to hospices (patient mix) and potentially an excess of patients with indeterminate life expectancy (exceeding six months).

A clear patient preference for dying at home, combined with an increased use of advanced directives, increasing Medicare Advantage penetration and growing acceptance of palliative care, is likely to result in sustainable growth. Fraud among a small percentage of providers with an excess of outlier (extended duration) payments remains a concern.

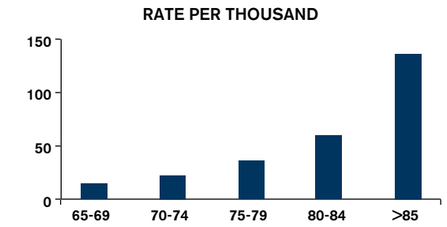
DETAILS

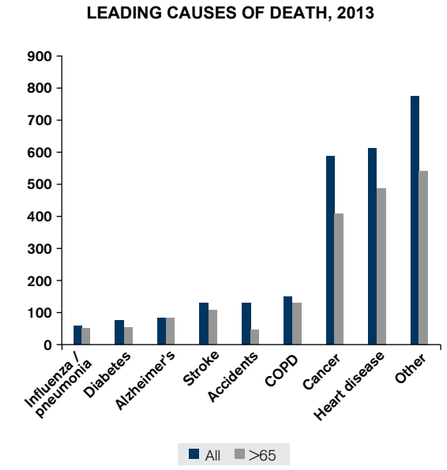
In 2013, there were 2.6 million deaths, with the number and rate increasing with age. Nearly three-quarters of deaths, 73.3%, are in people >65 years old. Heart disease and cancer each account for approximately 0.6 million deaths per year, which combined are 46.0% of the total. Other leading causes of death include COPD (5.7% of the total), accidents (5.0%), stroke (5.0%), Alzheimer's (3.3%), diabetes (2.9%) and influenza / pneumonia (2.2%). The majority of the Alzheimer's and diabetes patients suffer from multiple co-morbidities, whereas influenza / pneumonia deaths often

Figure 129 - Distribution and Causes of Death, 2013



Percent Total	13.6%	13.0%	17.5%	24.1%	31.8%



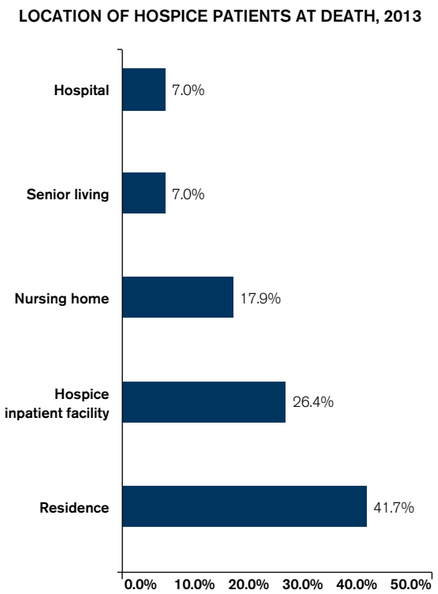


Source: National Vital Statistics Report. Deaths: Final Data for 2013 www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf

Figure 130 - Hospice Overview

BENEFICIARIES MAY CHOOSE MEDICARE HOSPICE BENEFIT; IN SO DOING:

- They agree to forego Medicare coverage for conventional treatment of the terminal illness
- Medicare continues to cover items and services unrelated to the terminal illness
- Admission requires a written plan of care established/ maintained by an interdisciplinary group (hospice physician, registered nurse, social worker, and pastoral counselor) in consultation with the attending physician
- Plan of care must identify the services to be provided (e.g., pain management, symptom relief)
- Hospice election for defined benefit periods
  - The first hospice benefit period is 90 days. Initial certification of life expectancy <6 months requires two physicians—a hospice physician and the attending physician
  - If the patient's terminal illness continues to engender the likelihood of death within 6 months, the hospice physician can recertify the patient for another 90 days and for an unlimited number of 60-day periods after that, as long as he or she remains eligible
  - Beneficiaries can dis-enroll from hospice at any time and can reelect hospice for a subsequent period assuming eligibility



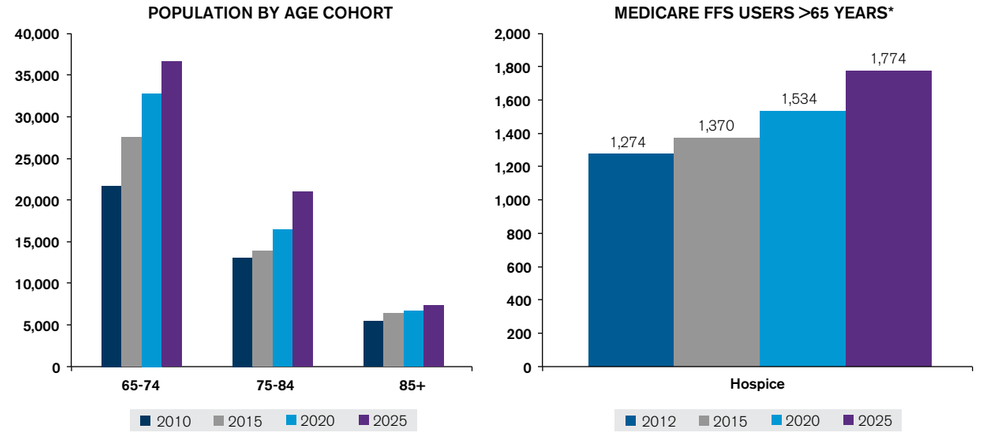
*Source: *http://www.MedPAC.gov/documents/reports/mar2015_entirereport_revised.pdf?sfvrsn=0*

occur in debilitated, often bedridden patients. Hospice care is a Medicare benefit. CMS criteria include voluntary participation, revocation and readmission; a presumed life expectancy of <6 months; and an agreement to forego conventional treatment for a terminal illness. Approximately 42% of hospice patients die at home, as compared to 25% of the overall population. Forty-five percent of patients still die in a hospital or medical center (inpatient, outpatient, emergency room or dead on arrival [DOA]) and another 22% die in a nursing home.[144] Surveys suggest that 70% of Americans prefer to die at home, and >80% of patients with a chronic disease prefer to avoid hospitalization and intensive care when dying.[145]

An aging population forecast for 2015 to 2025 is projected to increase the number of hospice users by nearly 30.0%. The projection assumes a constant rate of user by age cohort, an unlikely event given patient preferences, increased use of advanced directives, growing acceptance of palliative care and increasing Medicare Advantage penetration.

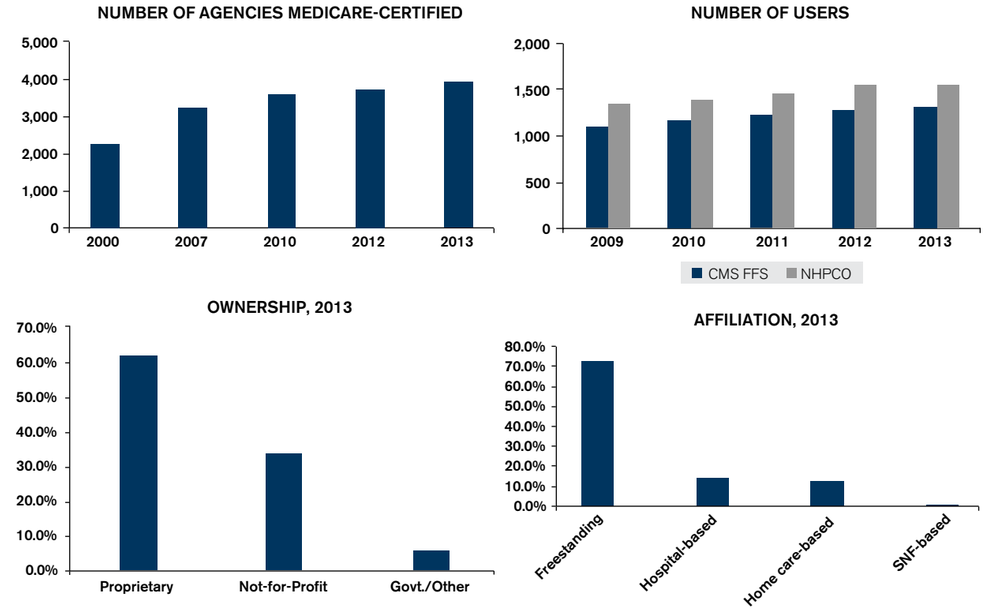
In 2013, there were 3,925 certified hospice agencies in the U.S. During the past five years, the number of hospice agencies increased by 100 to 125 per year, a figure somewhat below the prior five year average of 200 agencies per year. In 2013, 1.3-1.5 million people used hospice care, reflecting consistent incremental growth. For-profit ownership at 61.5% is below that of skilled nursing facilities (68.2%) and home care (70.0%). Hospices are mostly freestanding (72.5%), though a sizable number are hospital- (14.1%) or home care-based (12.8%).

Figure 131 - Incremental Demand for Hospice Services



*Source: *Hospice based on 2011 utilization rates by age cohort (65-74, 75-84, 85+). Sources: Census, MedPAC 2015 and 2007 National Home & Hospice Care Survey referenced by CDC National Health Statistics Report*

Figure 132 - Profile of Hospice Agencies

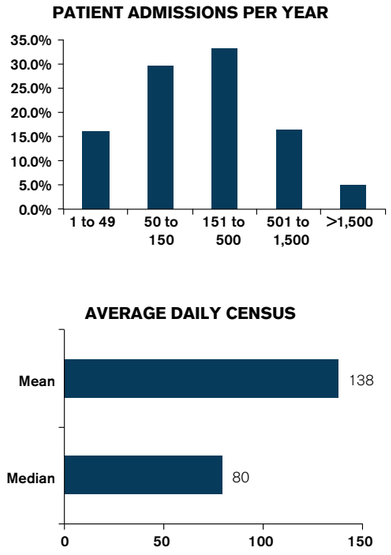


Source: MedPAC, March 2015. Table 12-4; MedPAC March 2013; MedPAC March 2011

The majority of hospice agencies are small to moderate in size; 78.7% of agencies have fewer than 500 admissions per year. The median daily census is 80 patients, with 29.5% of agencies having fewer than 25 patients per day and another 31.6% having between 26 and 100 patients per day.

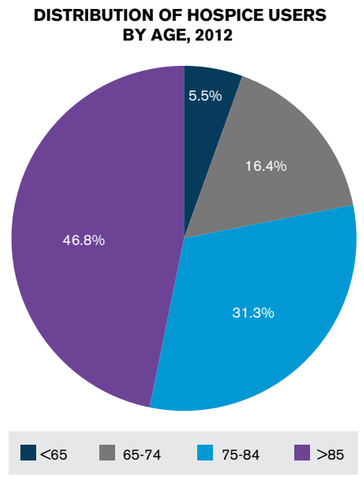
78.1% of hospice users are >75 years old, a proportion of users higher than their age cohort proportion of deaths at 55.9%. The rate of hospice use per 1,000 population increases exponentially with aging, reflecting the acceptance of terminal illness in the elderly.

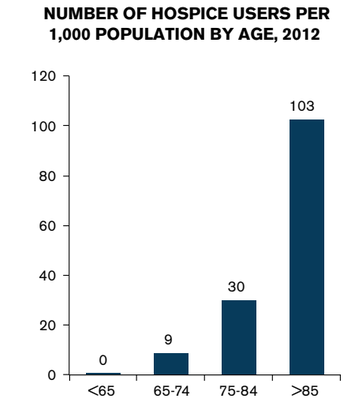
Figure 133 - Size of Hospice



Source: http://www.nhpco.org/sites/default/files/public/Statistics_Research/2014_Facts_Figures.pdf

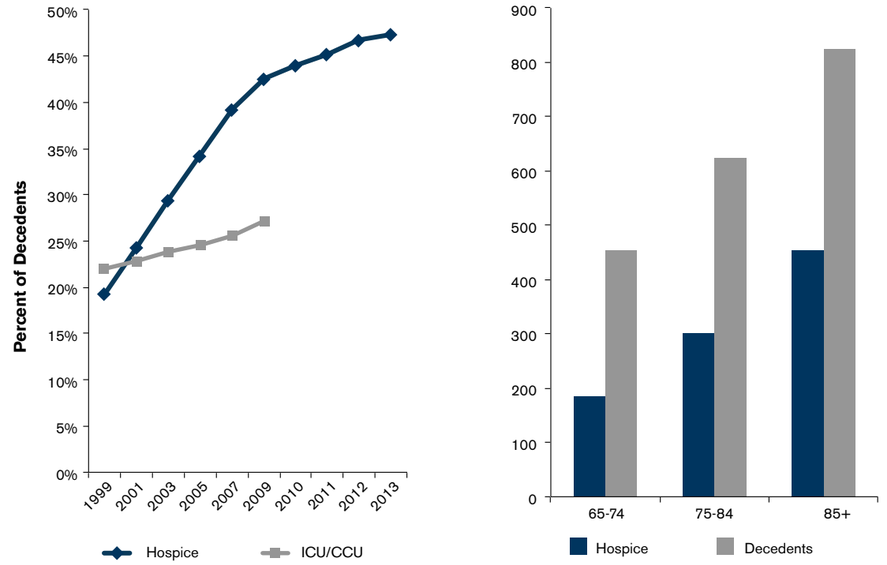
Figure 134 - Hospice User Demographics, 2012





Source: Percent distribution of long-term services by age, 2011-12. http://www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf

Figure 135 - Medicare Decendents >65 Who Used Hospice or ICU / CCU Services in Last 30 Days of Life



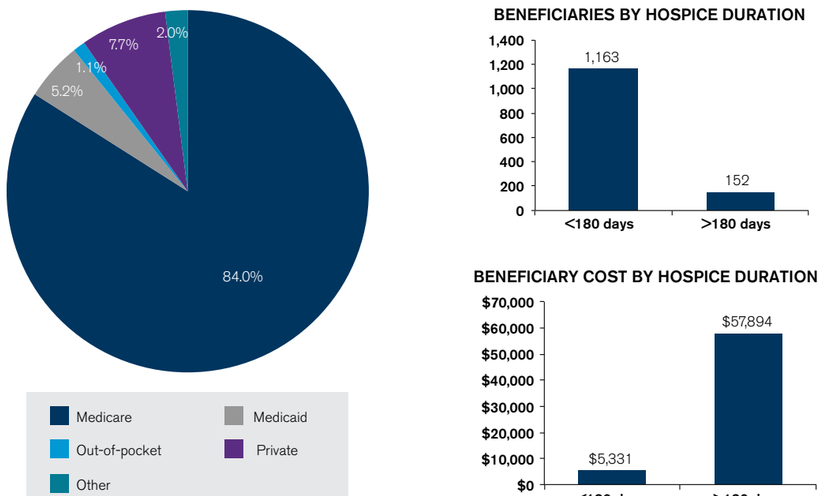
Sources: Federal Interagency Forum on Aging Related Statistics; CMS Medicare Claims and enrollment data. Older Americans 2012: Key Indicators of Well-Being. Special Feature: End-of-Life, Table EL1; MedPAC March 2015. Table 12.3; National Vital Statistics Report. Deaths: Final Data for 2013 www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf

Hospice use among Medicare FFS decedents increased rapidly from 2000 to 2010, before plateauing somewhat at 47.3%.[146] The penetration rate among Medicare Advantage beneficiaries (51%) is somewhat higher due to an inherent financial incentive; i.e., once a beneficiary elects hospice, the high (non-hospice) end-of-life costs are no longer the responsibility of the MA plan.

Data through 2009 suggests a continued excess of high-cost intensive care unit (ICU) utilization in terminally ill patients. A Dartmouth Atlas subset analysis of the percentage of deaths with an ICU admission in chronic condition patients suggests a wide variation in ICU resource utilization among states (California: 21.0%, South Dakota: 10.0%) and within a state, across hospitals.[147]

Medicare accounts for 84.0% of hospice reimbursement. Patients electing for a hospice benefit are certified to have a life expectancy, under normal circumstances, not to exceed six months. Approximately 11.5% of the 1.3 million Medicare hospice recipients have a service duration exceeding 180 days. The average total cost of these beneficiaries, $57,894, far exceeds the average costs of

Figure 136 - Hospice Payer Mix, Duration and Cost, 2012



Sources: NHPCO Facts & Figures, Hospice Care in America, 2012 Edition from the National Hospice and Palliative Care Organization; MedPAC March 2015

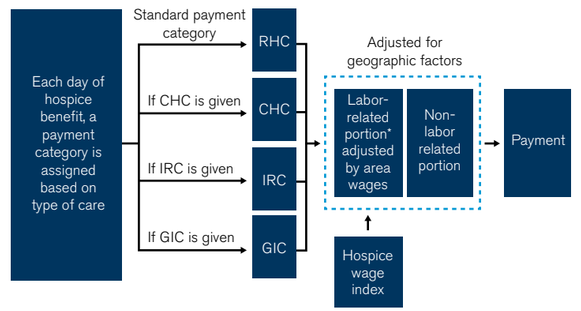
those receiving <180 days of hospice services. Medicare hospice payments are based on a predetermined daily rate related to the type of services: routine home care, 24-hour continuous home care (during periods of patient crises at $38.75 per hour), inpatient respite care (short-term) and general inpatient care (to treat symptoms not able to be managed elsewhere).[148] 97.6% of paid hospice days are for routine home care.

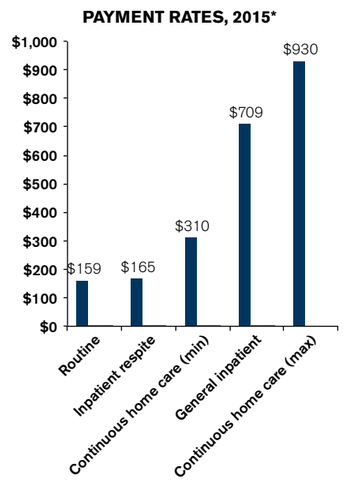
Two payment caps are applied by Medicare: the number of inpatient days cannot exceed 20% of the total agency inpatient days, and the average beneficiary payment for an agency cannot exceed $26,725.79 (year ending October 2014). If the cap is exceeded by the agency, the excess must be repaid to CMS.[148]

Unlike home care, Medicare hospice reimbursement has tracked the CPI. Since 2008, Medicare operating margins have increased from 5.5% to 10.1%.

Drivers of operating margins include for-profit status (61.5% of total), an urban location (71.9%) and a volume in the third quartile or higher (>50 patients per day). Freestanding facilities are more profitable than hospital and home care-based facilities.

Figure 137 - Hospice Prospective Payment System



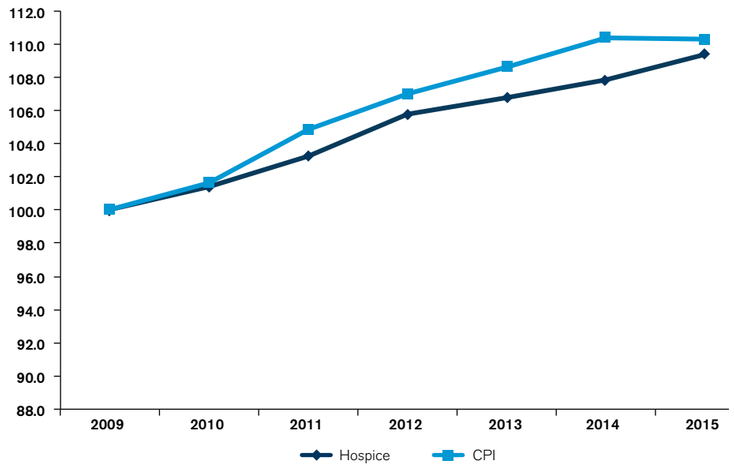


Note: RHC (routine home care), CHC (continuous home care), IRC (impatient respite care), GIC (general inpatient care).
*The labor-related portion adjusted by the wage index varies, depending on payment category (see Table 1). Wage index adjustment is based on the location of the patient, not the hospice agency.

Cap: Total hospice reimbursement in 2014 cannot exceed an average of $26,725.79 per patient.

Source: http://www.MedPAC.gov/documents/payment-basics/hospice-services-payment-system-14.pdf?sfvrsn=0

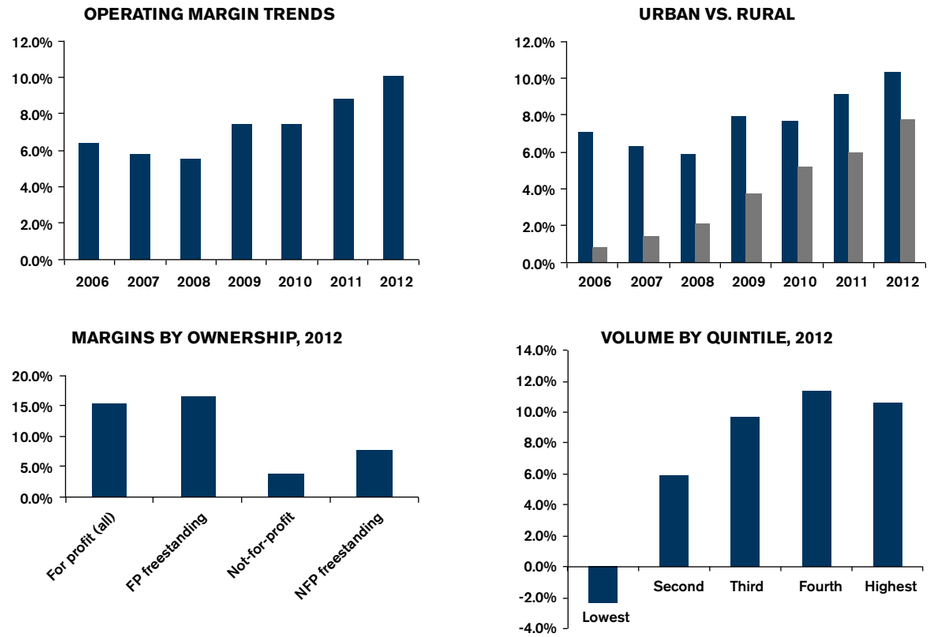
Figure 138 - Medicare Hospice Reimbursement Trends, 2009-2015



FFS Payments	$12.1	$13.0	$13.8	$15.1	$15.1

Source: Amedisys 10k filings 2010-2015; MedPAC 2015

Figure 139 - Drivers of Hospice Operating Margins, 2006-2012

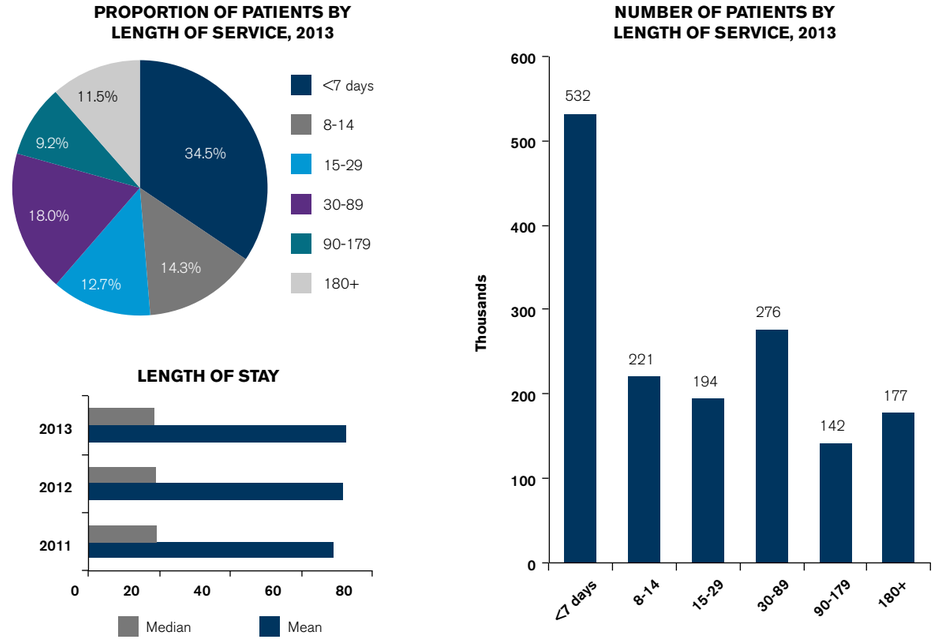


Source: MedPAC, March 2015. Table 12-4

Length of stay is critical to understanding hospice operating margins. The median length of stay, "the value at the midpoint of the frequency distribution of observed values," at 18.5 days is far shorter than the mean (average) at 72.6 days. 61.5% of patients have a length of stay <30 days; i.e., 34.5% have a length of stay of <7 days, another 14.3% of between eight and14 days and lastly, 12.7% between 15 and 29 days. Conversely, 11.5% exceed the six-month threshold.[149]

Nearly 30% of patients have hospice service length exceeding 60 days; they account for a disproportionate percentage (78.8%) of hospice days. CMS has been concerned with a possible "excess" of extended duration hospice patients; i.e., patients receiving hospice care based on a six-month life expectancy that may not be an accurate estimation. As a result, effective January 2016, the single payment model for routine home care has been replaced by two payment models based on service lengths less than and greater than 60 days. A preliminary calculation by A&M suggests a possible net savings of 4.1% to CMS. Somewhat offsetting the savings is higher payment rates for the reimbursement of additional clinical visits in the last seven days of life. Medicare will also require face-to-face recertification by physicians of patients with >180 days of hospice care.[150]

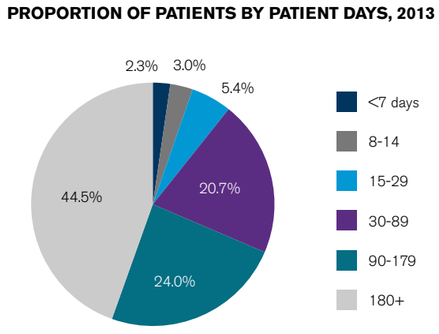
Figure 140 - Variation in Length of Hospice Stay, 2013

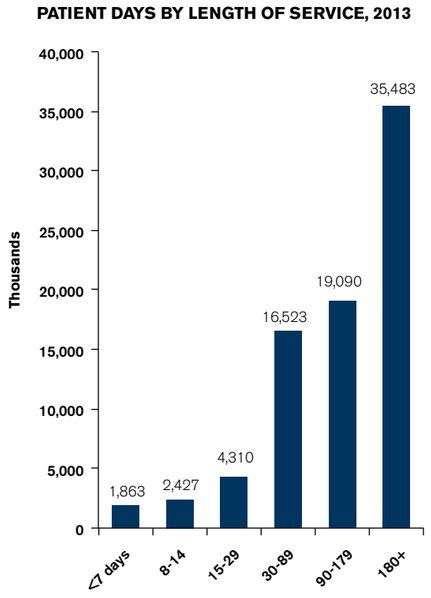


Source: NHPCO Facts and Figures on Hospice Care, 2014. Figure 5 www.nhpco.org/sites/default/files/public/Statistics_Research/2014_Facts_Figures.pdf

The number of cancer patients as a percentage of the total hospice users has declined from 48% in 2002 to 37% in 2012. Terminal cancer patients have the most predictable trajectory of deterioration and death, as compared to chronic conditions such as heart failure and COPD. Approximately 75% of patients electing hospice care appear to have been selected appropriately by the physician, caregiver and agency. Twenty-five percent may or may not be appropriate, including many with dementia and / or failure to thrive who may not be at "imminent" risk of death (due to complex co-morbidities). *Patients in nursing homes and assisted living facilities tend to have a larger number of outlier patients; i.e., those exceeding the expected six-month threshold.* For-profit facilities appear to access nursing home and assisted living facility patients as a greater percentage of the patient mix than nonprofit facilities.

Figure 141 - Patient Days by Length of Service, 2013





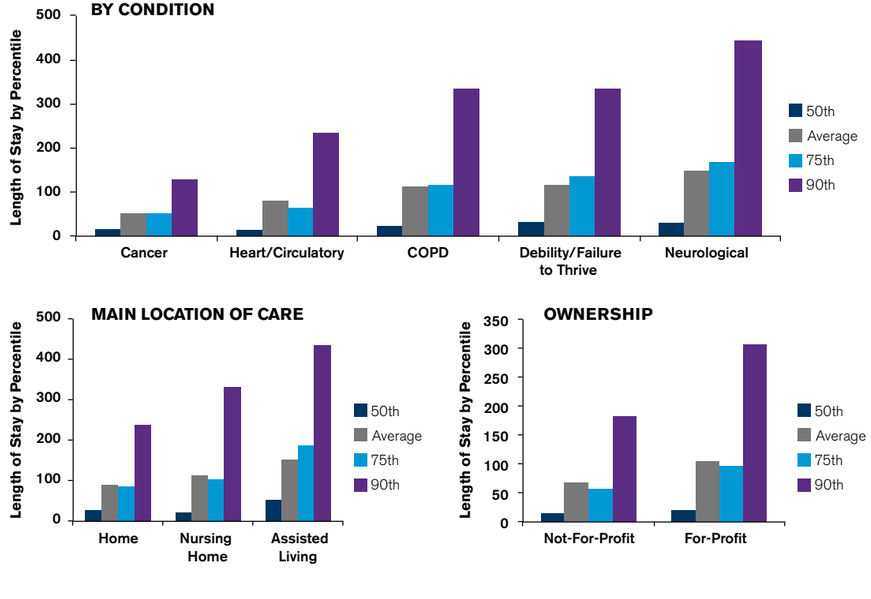
Year	Code		Days	Payment
2015	651	Routine home care	NA	$161.89
2016	651	Routine home care	1-60	$186.84
	651	Routine home care	61+	$146.83

Source: NHPCO Facts and Figures on Hospice Care, 2014. Figure 5 www.nhpco.org/sites/default/files/public/Statistics_Research/2014_Facts_Figures.pdf

Live discharges from hospice are those that result from hospice patient disenrollment or unexpected condition improvement. Live discharges may also include patients who should have never been enrolled initially. The number of live discharges as a percentage of the total varies considerably, from 9.0% in the 10th percentile to 29.0% in the 90th percentile of hospice agencies. Eligibility criteria and patient (diagnosis) mix clearly vary by agency. The percentage of hospices exceeding average cap payments per patient (2014: $26,725.79) has increased significantly from 2002 (2.6%), and has remained range bound between 9.8% and 12.5% in the period from 2009 to 2012.

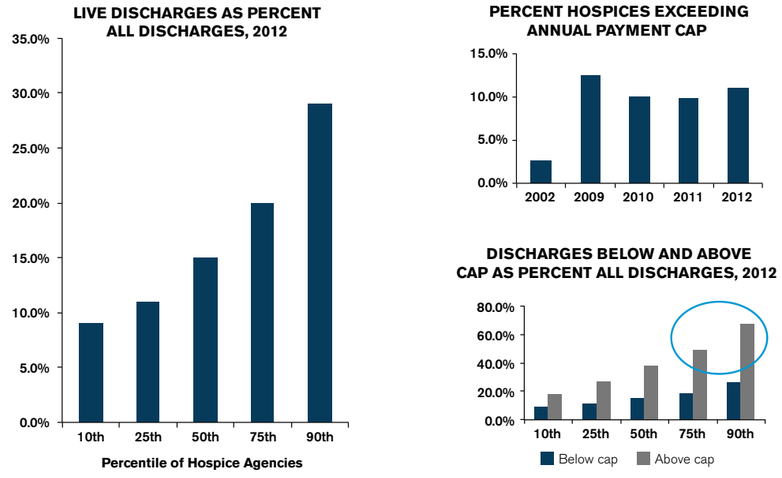
Operating margins are driven by labor and indirect costs, the latter including management, administration, accounting and billing. Hospices with longer average lengths of stay have lower labor costs per day since the intensity of care is highest at end-of-life and hospice care initiation. Larger agencies can allocate indirect costs across a higher patient volume.

Figure 142 - Hospice Length of Stay Indicators



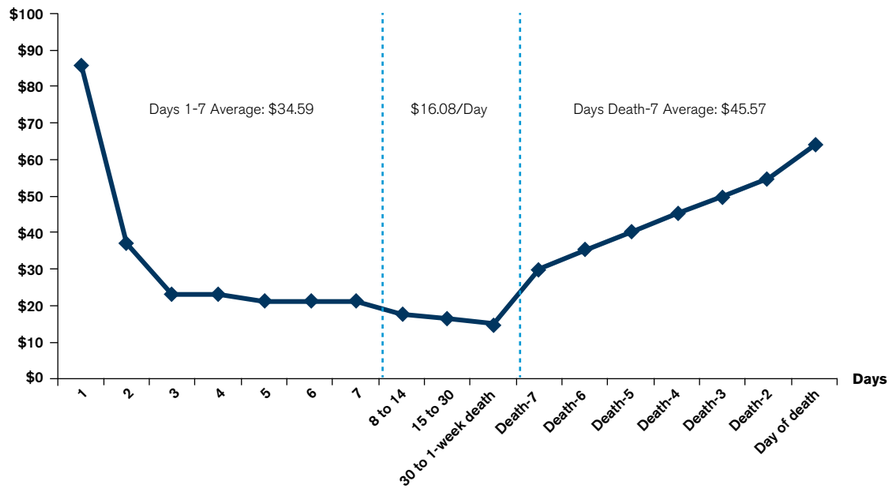
Source: MedPAC March 2015; NHPCO Facts and Figures on Hospice Care, 2014

Figure 143 - Live Discharges from Hospice, 2012



Source: MedPAC Report to Congress; March 2015. Table 12-9

Figure 144 - Average Labor Costs Per Day



Source: MedPAC Report to Congress, 2013. Chapter 5: Medicare Hospice Policy Issues. Average labor costs include nurses, aides, social workers, therapists (occupational, physical, speech) http://MedPAC.gov/documents/reports/jun13_entirereport.pdf?sfvrsn=0.

LONG-TERM ACUTE CARE HOSPITALS: GROWTH, STAGNATION AND POSSIBLE DECLINE

Long-term acute care hospitals (LTACHs) grew rapidly from 2003 to 2010 and then stagnated due to a flattening of reimbursement growth and a construction moratorium imposed by CMS. Beginning in FY16 (October 2015) and phased in over two years, Medicare will pay LTACH rates only for patients (a) with a preceding hospital discharge that included at least three days in an ICU or coronary care unit or (b) who are assigned an MS-LTC-DRG for cases receiving at least 96 hours of mechanical ventilation services in the LTACH. All other lower acuity cases will receive "site-neutral" payment rates. The net result will be a reduction in volume and lower reimbursement. Historical patient mix trend data suggests an opportunity to further refine patient admission criteria. Comparative analysis continues to suggest no incremental improvement in outcomes relative to treatment in lower cost settings; i.e., skilled nursing facilities and elsewhere. LTACHs are at a crossroad in their evolution.

DETAILS

In 2013, there were 432 long-term acute care hospitals, relatively unchanged since 2009. A construction moratorium was imposed from July 2007 to 2012 and re-imposed for 2014 to 2017. The number of beds declined 4% to an estimated 26,291. The average-size LTACH has 61 beds. The number of LTACH users had declined 1.9% in 2013. The ratio of users to cases consistently approximates 1.13 and reflects the number of interrupted stays.

Medicare accounts for approximately two-thirds of LTACH revenues. Medicare FFS spending increased rapidly from $2.7 billion in 2003 to $5.2 billion in 2010, before slowing to $5.5 in 2013. The increase in spending is entirely a function of higher reimbursement per case, and when adjusted for a reduction in the average number of days per case, higher payments per day. The latter has increased from $860 in 2003 to $1,450 in 2010, reflecting a compound annual growth rate of 7.8%. Payments per day reached $1,512 in 2013.

Figure 145 - Profile of Long-Term Acute Care Hospitals (LTACH)

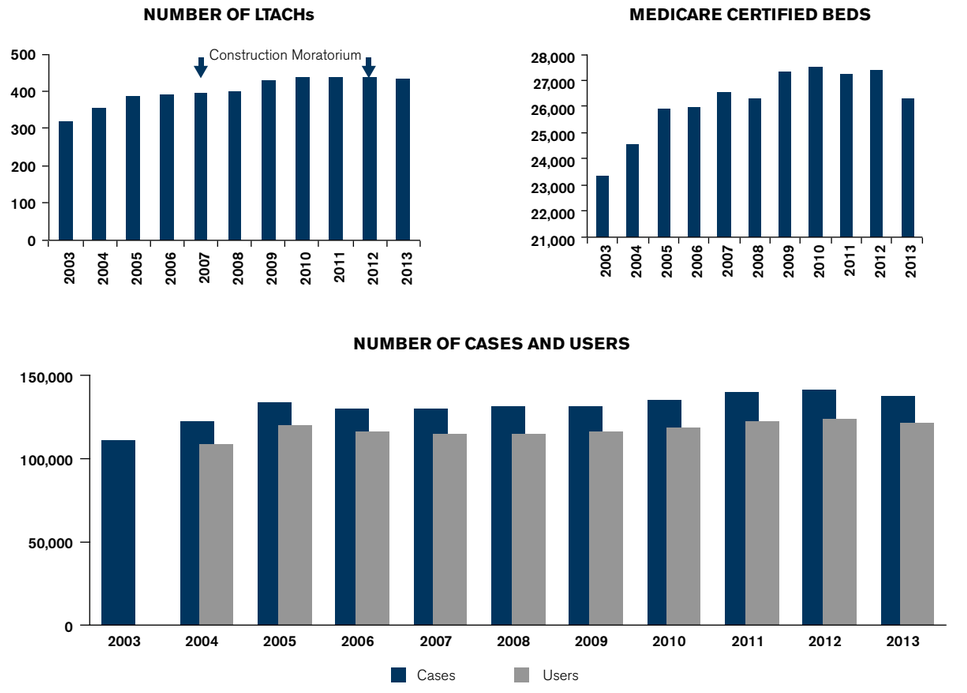
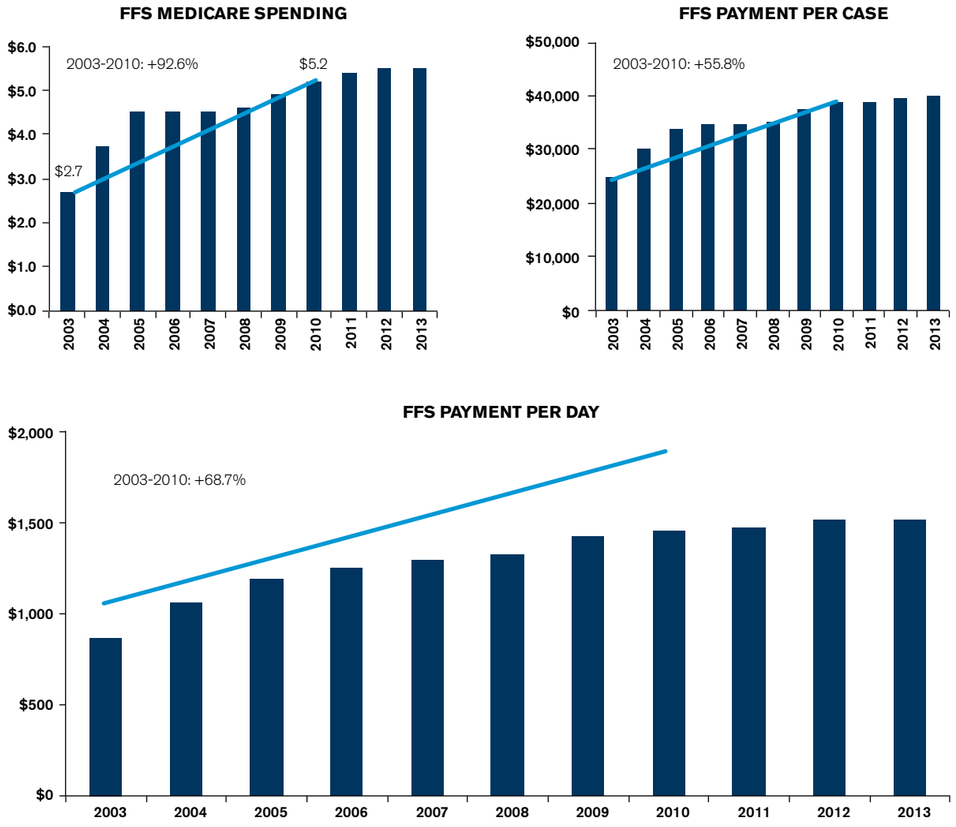


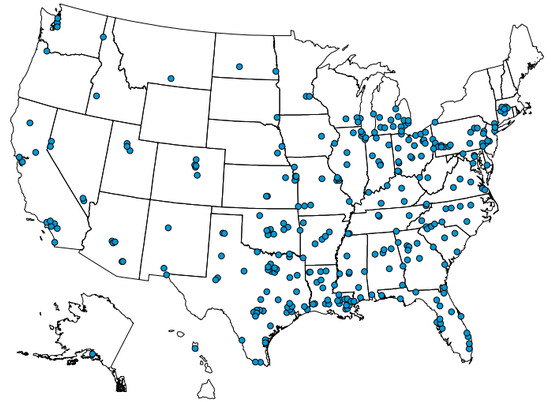
Figure 146 - Plateauing of LTACH Expenditures



LTACHs are geographically unevenly distributed, with seven states – Texas, Louisiana, Ohio, Pennsylvania, California, Florida and Michigan – accounting for one-half of all facilities. Within a state, LTACHs are further concentrated within specific counties; i.e., 40% of Medicare FFS beneficiaries live within counties without an LTACH, whereas the 90th percentile of LTACH utilization is at 23 days per 100 Medicare FFS beneficiaries. The median is six days.

The number of LTACHs per 100,000 Medicare beneficiaries varies and is led by Louisiana (5.43), followed by Texas (2.57), Oklahoma (2.24), Mississippi (1.93), North Dakota (1.80), Nevada (1.58) and Arkansas (1.45). Twenty-nine states have less than one LTACH per 100,000 Medicare beneficiaries.

Figure 147 - Geographic Distribution of LTACHs



Source: MedPAC March 2014 www.MedPAC.gov/documents/reports/mar14_entirereport.pdf?sfvrsn=0

Figure 148 - LTACHs by State, 2011

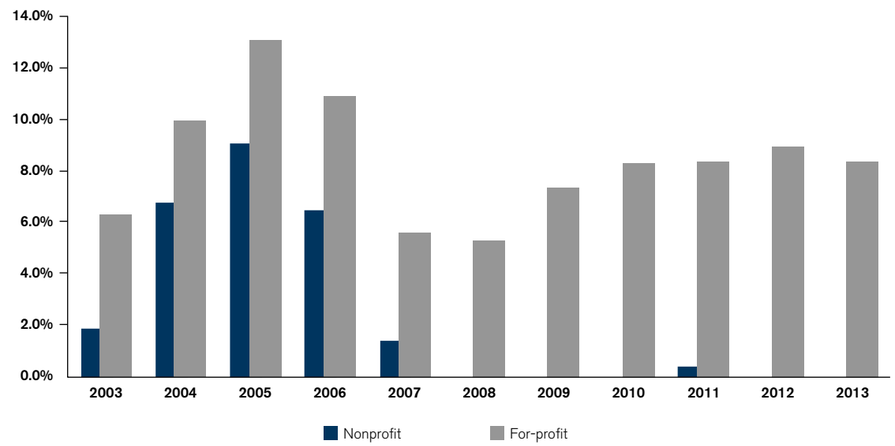
State	Number of LTACHs	Percentage of LTACHs	LTACHs per 100,000 Medicare Beneficiaries	Total Medicare Beneficiaries	State	Number of LTACHs	Percentage of LTACHs	LTACHs per 100,000 Medicare Beneficiaries	Total Medicare Beneficiaries
Texas	82	18.3%	2.57	3,187,332	Virginia	6	1.3%	0.50	1,203,462
Louisiana	39	8.7%	5.43	718,037	Kansas	5	1.1%	1.12	448,215
Ohio	25	5.6%	1.27	1,971,260	Wisconsin	5	1.1%	0.53	948,489
Pennsylvania	23	5.1%	0.98	2,350,558	Maryland	4	0.9%	0.48	827,426
California	20	4.5%	0.40	5,000,198	New York	4	0.9%	0.13	3,093,591
Florida	20	4.5%	0.57	3,527,830	Connecticut	3	0.7%	0.51	586,545
Michigan	19	4.2%	1.10	1,728,338	Idaho	3	0.7%	1.24	242,889
Georgia	15	3.3%	1.14	1,318,733	New Mexico	3	0.7%	0.91	329,994
Massachusetts	15	3.3%	1.36	1,104,483	Utah	3	0.7%	1.00	299,427
Indiana	14	3.1%	1.34	1,048,499	Washington DC	2	0.4%	2.46	81,260
Oklahoma	14	3.1%	2.24	625,924	Iowa	2	0.4%	0.38	531,209
Missouri	12	2.7%	1.15	1,040,491	Minnesota	2	0.4%	0.24	819,803
Mississippi	10	2.2%	1.93	516,809	North Dakota	2	0.4%	1.80	110,827
North Carolina	9	2.0%	0.57	1,568,429	Nebraska	2	0.4%	0.70	287,565
Tennessee	9	2.0%	0.81	1,109,791	Washington	2	0.4%	0.19	1,029,529
Alabama	8	1.8%	0.91	881,686	West Virginia	2	0.4%	0.51	392,021
Arkansas	8	1.8%	1.45	552,375	Alaska	1	0.2%	1.44	69,301
Arizona	8	1.8%	0.82	977,447	Delaware	1	0.2%	0.64	157,289
Colorado	8	1.8%	1.20	667,277	Hawaii	1	0.2%	0.46	217,678
Illinois	8	1.8%	0.42	1,907,859	Montana	1	0.2%	0.56	177,835
New Jersey	8	1.8%	0.58	1,378,274	Oregon	1	0.2%	0.15	653,905
Kentucky	6	1.3%	0.76	793,274	Rhode Island	1	0.2%	0.53	188,502
Nevada	6	1.3%	1.58	379,860	South Dakota	1	0.2%	0.71	141,079
South Carolina	6	1.3%	0.73	820,947	**TOTAL**	**449**	**100.0%**	**0.94**	**48,013,549**

Source: http://oig.hhs.gov/oei/reports/oei-04-12-00490.pdf and http://kff.org/medicare/state-indicator/total-medicare-beneficiaries/

78.4% of LTACHS are for-profit, 17.4% nonprofit and 4.2% government owned. *Medicare operating margins for for-profit facilities approximated 8.0% in the period from 2009 to 2013, whereas nonprofit facility margins have been breakeven to slightly negative.* A single provider, Select Medical, owns 113 LTACHs (83 hospital-within-hospital, 29 freestanding), representing 35.3% of all for-profit facilities (and 26.2% of all facilities, irrespective of ownership).

A wide variety of operating performance exists, with the average margin of the best-performing quartile (20.2%) far higher than that of the lowest quartile (-12.4%). Highest margin quartile performers have more all-payer discharges (522 vs. 423), and a higher Medicare patient share (69% vs. 64%), occupancy rate (74% vs. 57%) and CMI (1.13 vs. 1.09). Standardized Medicare payment per case is higher by 6.9% ($37,832 vs. $35,401), while costs per discharge are lower by 26.8% ($28,352 vs. $20,767). High cost outlier payments are less ($1,579 vs. $5,461), implying that high-margin hospices may have fewer of the sickest patients. Differences also exist in terms of short-stay (lesser payment) outliers (25% vs. 29%) and the percentage of cases from the primary acute care hospital (35% vs. 38%).[151]

Figure 149 - Medicare FFS Operating Margins, 2003-2013



LTACH PATIENT ADMISSION CRITERIA HAVE BEEN "SOMEWHAT" SUBJECTIVE

The LTACH patient mix has changed since 2007, with a 105.5% increase in the admission of patients with pulmonary edema, fluid in the lungs and respiratory failure. Pulmonary edema may result from a heart attack, cardiac muscle weakness, heart valve dysfunction and non-cardiac conditions, whereas respiratory failure may be intrinsic to the lung (e.g., COPD, pneumonia) or extrinsic to the lung (e.g., organ failure, trauma, infection). A significant decline is noted for a variety of conditions including

Figure 150 - LTACH Patient Mix, 2007-2013

2007-2013					
Description	**2007**	**2009**	**2011**	**2013**	**Percent Change**
Respiratory system diagnosis with ventilator support 96+ hours	13,830	15,378	16,101	16,221	17.3%
Pulmonary edema and respiratory failure	7,386	9,438	13,042	15,179	105.5%
Septicemia or severe sepsis without ventilator support 96+ hours with MCC (Major Complicating or Co-morbid Conditions)	6,799	6,857	8,453	8,458	24.4%
Respiratory infections and inflammations with MCC	6,378	4,690	4,997	4,324	-32.2%
Skin ulcers with MCC	6,378	3,913	3,425	3,650	-42.8%
Respiratory system diagnosis with ventilator support <96 hours	NA	2,729	3,029	3,135	NA
Aftercare with CC / MCC	NA	3,576	3,004	3,003	NA
COPD with MCC	4,185	2,687	2,769	2,439	-41.7%
Simple pneumonia and pleurisy with MCC	4,655	2,613	2,573	1,979	-57.5%
Osteomyelitis with MCC	NA	2,102	2,541	2,877	NA
Skin graft and / or debridement for skin ulcer or cellulitis with MCC	3,749	1,984	2,101	1,711	-54.4%
Heart failure and shock with MCC	3,328	1,869	1,713	1,664	-50.0%
Skin ulcers with CC (Complicating or Co-morbid Conditions)	6,766	2,103	1,615	NA	NA
Respiratory infections and inflammations with CC	NA	1,797	1,591	4,324	NA
Renal failure with MCC	2,509	1,783	1,987	2,292	-8.6%
Septicemia with ventilator support 96+ hours	NA	NA	1,774	1,817	NA
Skin debridement with MCC	NA	NA	NA	1,711	NA
Diabetes with CC	NA	NA	NA	1,447	NA
Cellulitis with MCC	NA	NA	1,451	1,398	NA
Subtotal	**65,963**	**63,519**	**72,166**	**77,629**	
Other	**63,239**	**67,927**	**67,549**	**60,217**	
Total	**129,202**	**131,446**	**139,715**	**137,846**	

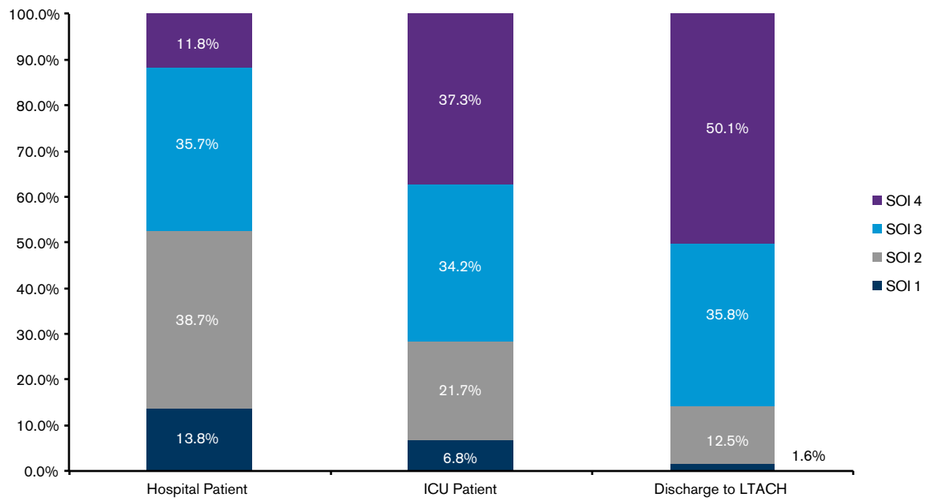
Sources: MedPAC Report to Congress 2009, 2011, 2013 and 2015

skin ulcers, COPD, simple pneumonia, skin grafts, and heart failure and shock. The majority of these conditions were in patients with major complications and co-morbidities.

Severity of illness (SOI) scoring systems have been used for many years in critical care medicine. Classification systems are based on six to 12+ physiological measurements such as systolic blood pressure, heart rate respiratory rate and the Glasgow Coma Scale; prior health status inclusive of co-morbidities; age; biochemical and / or hematological laboratory indicators; source of admission (planned vs. emergent, medical vs. surgical); specific conditions and / or affected organ systems.[152] Severity scores are being analyzed as a predictor of in-hospital mortality, resource utilization and length of stay.

The American Hospital Association (AHA) analyzed MedPAC data from 2011 and classified patients on a four point scale: minor, moderate, major and extreme. The specific criteria are unknown. Nevertheless, the AHA analysis provides context into the LTACH patient. 50.1% of hospital patients discharged to LTACHs are in the extreme category (SOI 4), 35.8% in the major category (SOI 3) and the remaining 14.1% are predominantly in the moderate category. Appropriate patient selection remains a key issue for CMS.

Figure 151 - Comparison of Patient Severity of Illness, 2013

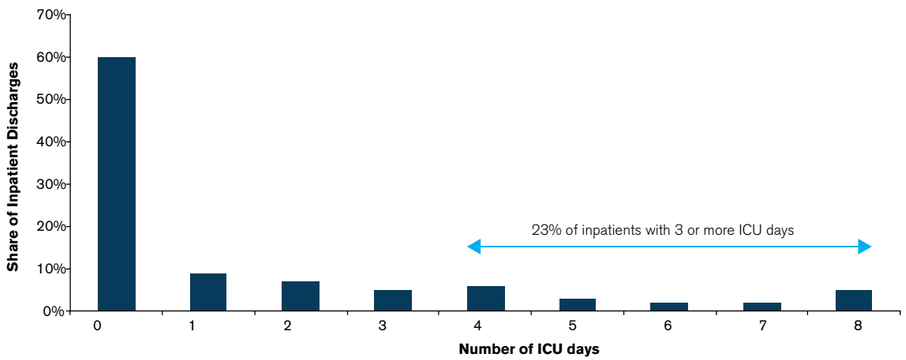


Source: AHA LTACH Fact Sheet http://www.aha.org/content/15/fs-ltch.pdf

An alternative approach to patient selection involves the use of inpatient ICU length of stay as a proxy for case complexity and post-acute care resource utilization. Twenty-three percent of hospitalized inpatients have ICU days equal to or exceeding three days.

In 2014, MedPAC recommended payment at LTACH rates only for cases that received eight or more days of ICU care or prolonged mechanical ventilation prior to transfer from an acute care hospital.[153]

Figure 152 - Hospital ICU Stays by Duration, 2012



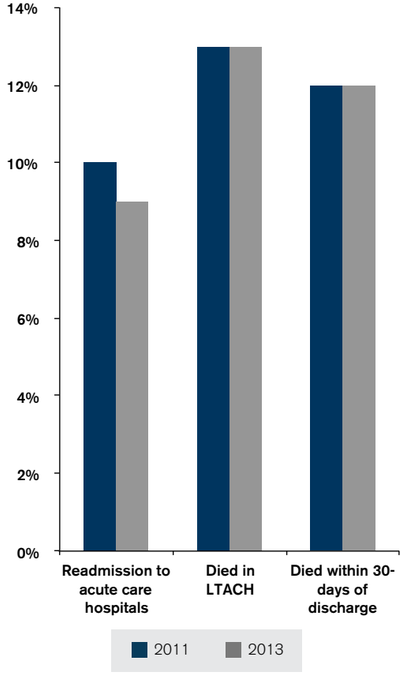
Source: MedPAC Report to Congress, March 2014 Figure 11-6

QUALITY DATA IS LIMITED

Until recently, CMS only measured in-facility mortality rates, mortality within 30 days of discharge and readmissions from LTACHs to acute care hospitals as indicators of quality. Approximately 25% of patients admitted to an LTACH die within a facility or within 30 days of discharge; nine to 10% are readmitted to a hospital. The reported measures are not risk-adjusted despite significant differences in patient complexity and co-morbidities among facilities. Significant variation in performance exists among specific LTACHs.

More extensive quality reporting, as mandated by the PPACA, was initiated in FY14 (beginning October 2013) with three measures: catheter-associated urinary tract infections (CAUTIs), central line-associated bloodstream infections (CLABSIs) and new or worsened pressure ulcers. In FY15, influenza vaccination among patients and influenza vaccination coverage among facility healthcare personnel were added.[143] In total, 12 measures are planned by FY18 and include: facility-acquired cases of methicillin-resistant Staphylococcus aureus and Clostridium difficile; ventilator-associated events (such as pneumonia, sepsis and pulmonary embolism); falls causing major injury; change in mobility among patients requiring ventilator support; and percentage of admission and discharge care plans incorporating a functional assessment.

Figure 153 - LTACH Quality Measures



Source: MedPAC Report to Congress 2013, 2015

State	Number of LTACHs with a High Number of Readmissions Immediately After the Fixed-Day Period	Number of LTACHs	Percentage of Total LTACHs with High Readmissions
Texas	10	82	12.2%
California	6	20	30.0%
Ohio	6	25	24.0%
Florida	4	20	20.0%
Massachusetts	4	15	26.7%
Illinois	3	8	37.5%
Louisiana	3	39	7.7%
Oklahoma	3	14	21.4%
Michigan	2	19	10.5%
North Carolina	2	9	22.2%
Tennessee	2	9	22.2%
Virginia	2	6	33.3%
Alabama	1	8	12.5%
Colorado	1	8	12.5%
Kentucky	1	6	16.7%
Mississippi	1	10	10.0%
Montana	1	1	100.0%
Nebraska	1	2	50.0%
Nevada	1	6	16.7%
New Jersey	1	8	12.5%
New Mexico	1	3	33.3%
New York	1	4	25.0%
Utah	1	3	33.3%
Wisconsin	1	5	20.0%
Total	**59**	**330**	**17.9%**

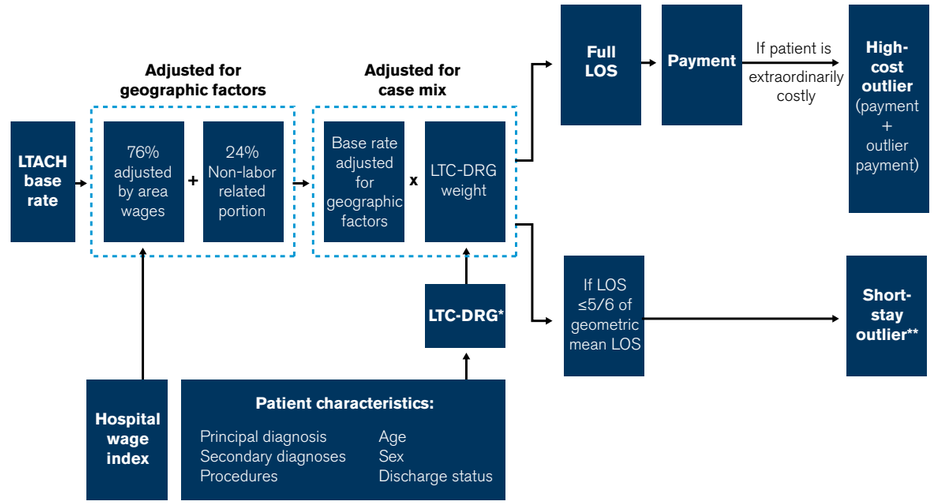
FY16 REIMBURSEMENT CHANGE A MAJOR CHALLENGE

Medicare payments to LTACHs are based on predetermined, prospective per discharge rates related to patient case-mix groups (Medicare Severity Long-Term Care DRG) – the same groups used in the acute inpatient prospective payment system – and local wage rates. Each case mix group has a relative weight adjusted to the cost of an average LTACH patient.[154] Payment rates cover operating and capital costs.

The base case rate in FY15 (ending October) is $41,044 adjusted by -$3,284 (8%) to fund high-cost outlier payments, the latter defined as 80% above a fixed loss outlier amount of $14,972. Reimbursement is also adjusted for short-stay outliers (<83% of the mean MS-LTC-DRG). LTACHs also receive payment for an interrupted stay; i.e., where after being admitted to an LTACH, the patient is sent to an acute care hospital (nine days), IRF (27 days) or SNF (45 days) and then returned. LTACHs failing to submit to CMS quality indicator data have had their reimbursements reduced by 2%.

Short-stay outliers account for 25% to 30% of cases. In general, the Inpatient Prospective Payment System (IPPS) payment formulae

Figure 154 - LTACH Medicare Prospective Payment System



Note: LTACH (long-term acute care hospital), LTC-DRG (long-term acute care diagnosis related group), LOS (length of stay).
** On October 1, 2007, Medicare will begin to adjust payments using Medicare Severity LTC-DRGs (MS-LTC-DRGs), which comprise base DRGs subdivided in one, two, or three severity levels.*
*** Payments generally are reduced for short-stay patients.*

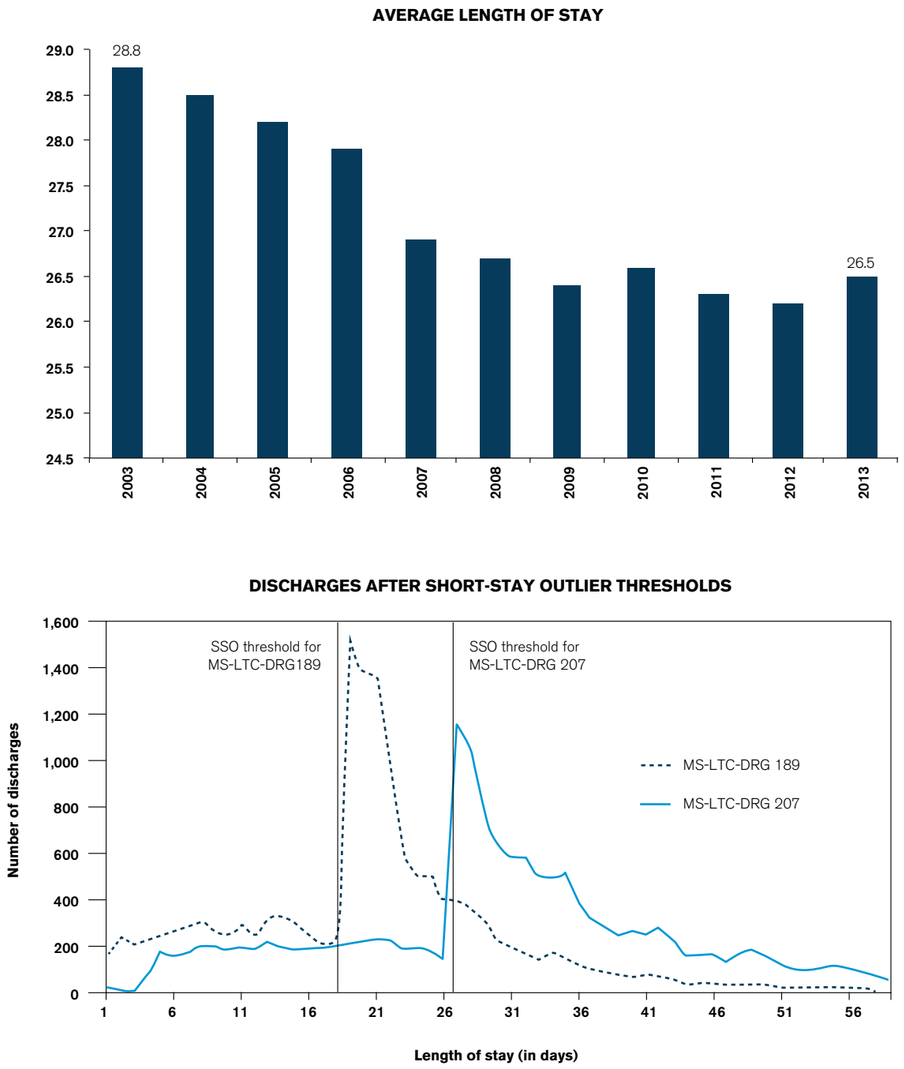
Source: MedPAC 2007

used for short-stay outliers result in lesser payment than if the LTACH case rate payment was applied. For example, MS-LTC-DRG 207 (respiratory system diagnosis with prolonged mechanical ventilation) has an IPPS payment of $31,376, as compared to the LTACH payment of $79,128. Short-stay outliers, cases with a length of stay up to 83% of the average length of stay for the MS-LTC-DRG, are paid 100% of the cost of the case or 120% of the per-diem amount multiplied by the length of stay. The short-stay outlier threshold for the MS-LTC-DRG 207 approximates 26 days. For stays of 25 days, the LTACH would receive $59,340; i.e., LTACH payment of $79,128 divided by average length of stay (of 40 days based on long tail) = $1,978 / day x 1.2 x 25 day LOS = $59,340. Extending the length of stay by one day across the short-stay outlier threshold leads to an incremental payment of $19,788 (33.3%).[153]

The excess of discharge for specific MS-LTC-DRGs immediately after the 83% threshold for short-stay outlier payment rates is notable.

The 25% rule reduces payments to LTACHs if the percentage of patients from a specific referring hospital exceeds the stated threshold. The rule applies to hospitals-within-hospitals (HWHs), hospital satellite facilities as well as freestanding LTACHs. Recent rule changes (e.g., SGR reform Act of 2013) have rolled-back the previous phase-in of the 25% rule to one-half (not all) of HWHs and satellites, and prevent the application of the rule to freestanding facilities for nine years.[153]

Figure 155 - Length of Stay Partially Driven by Reimbursement



Note: LTACH (long-term acute care hospital), SSO (short-stay outlier), MS-LTC-DRG (Medicare severity long-term care diagnosis related group). Cases in MS-LTC-DRG 207 are those with a respiratory system diagnosis that received prolonged mechanical ventilation. Cases in MS-LTC-DRG 189 are those with pulmonary edema and respiratory failure.

Source: MedPAC analysis of Medicare Provider Analysis and Review and from CMS.

Beginning in FY16 (October 2015) and phased in over two years, Medicare will pay LTACH rates only for patients (a) with a preceding hospital discharge that included at least three days in an ICU or coronary care unit or (b) who are assigned an MS-LTC-DRG for cases receiving at least 96 hours of mechanical ventilation services in the LTACH. All other lower acuity cases will receive "site-neutral" payment rates representing the lower of Medicare's acute care hospital per diem payment rates under the inpatient prospective payment system (capped at the MS-DRG inclusive of outliers) or 100% of costs.[143] A blended transition rate will be used from October 1, 2015 to September 30, 2017 that will apply 50% of the MS-LTC-DRG rate and 50% of the site-neutral rate to cases that do not meet the LTACH criteria for payment.

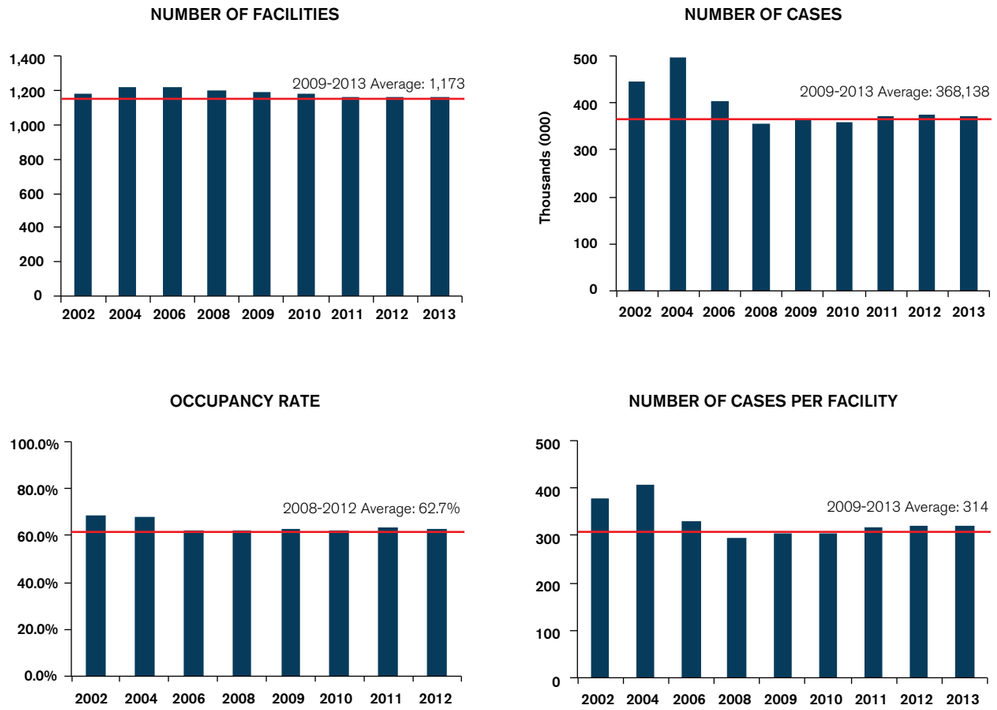
CMS estimates the change in policy during the first year (FY16) could result in a hypothetical reduction in payment for site-neutral cases of $9,640 (24.1%, from $40,000 to $30,360) and in the cost per case of $7,500 (20.0%, from $37,500 to $30,000) resulting in an operating margin of 0.0% (from 6.25%). After two years, the operating margin would be negative due to elimination of the blended payment rate. The net result will be a reduction in volume and a higher percentage of chronically critically ill (CCI) patients.

Lastly, effective FY20 (beginning October 2019), "any LTACH with 51 percent or greater of its discharges paid a site-neutral rate would be subject to a major penalty; i.e., all discharges in future cost reporting periods will be paid the inpatient PPS rate."[155]

INPATIENT REHABILITATION FACILITIES: FREESTANDING FACILITIES AND SCALE YIELD HIGH PROFITS

The number of IRFs and IRF admissions has remained relatively constant during the past five years. Medicare FFS spending resumed modest growth after eight years of stagnation. Divergent operational performance is clearly evident between nonprofit, primarily hospital-based IRFs and for-profit, largely freestanding facilities with operating margins of 0.3%-1.5% vs. 23.4%-24.1%; the overall industry margin is 11.4%.

Figure 156 - Overview of Inpatient Rehabilitation Facilities (IRF)



Source: MedPAC Reports to Congress 2009, 2011, 2013

The differential in profitability is largely driven by differences in the mean adjusted cost per discharge. The possible advent of site-neutral reimbursement, combined with stricter CMS "presumptive compliance" with the 60% rule, further substantiates the competitive advantage of freestanding, largely for-profit facilities. An accelerated market share shift from hospital-based, nonprofit to freestanding, for-profit facilities is possible. The projected FY15 Medicare FFS operating margin for IRFs (12.6%) exceeds that of the projections for SNFs (10.5%), home care (10.3%) and LTACHs (4.6%).

DETAILS

The number of inpatient rehabilitation facilities has declined slightly from 1,221 in 2004 to 1,161 in 2013 (-4.9%). During this period, the number of cases declined from 495,000 to 373,000 (-24.6%) due to additional restrictions of qualifying conditions and more consistent enforcement of the 75% / 60% rule by Medicare administrators. There are more than 38,000 IRF beds, with occupancy rates approximating 63%.

Medicare spending has increased slightly since 2004 to $6.8 billion in 2013 (+6.3%); the compound annual growth rate is 0.7%. However, the payment per case has risen substantially from $13,275 in 2004 to $18,258 in 2013 (+37.5%) due to a favorable reimbursement environment and higher patient acuity. The average length of stay increased from 12.7 days in 2004 to 12.9 days in 2013 (1.6%).

Nonprofit facilities, primarily hospital-based, account for 59% of the 1,161 facilities, followed by for-profit (28%) and government (13%) ownership. 918 (79%) inpatient rehabilitation facilities are separate and well-defined units based within hospitals, whereas 243 (21%) are freestanding. 156 (17%) of hospital-based and 165 (68%) of freestanding IRFs are for-profit. Hospital-based units are far smaller than freestanding facilities, and thus, account for only 53% of Medicare FFS discharges. The average freestanding facility has 3.4 times the number of discharges of a hospital-based facility. The number of nonprofit hospital-based facilities has declined from 1,004 in 2004 to 918 in 2013 (-8.6%).

Operating margins for inpatient rehabilitation facilities were 11.4% in 2013. Note, however, a significant margin divergence exists between hospital-based (0.4%) and freestanding (24.1%) facilities. The margin gap widened substantially after 2007. Nonprofit entities still retain a positive operating margin of 1.5%, driven solely by their ownership of 78 (32%) of the freestanding facilities. For-profit facilities generated a robust operating margin of 23.4%.

A clear threshold for IRF profitability is evident. Facilities with <21 beds are unprofitable, whereas facilities with >60 beds have a profit margin of 20.9% – more than twice

Figure 157 - IRF Expenditures

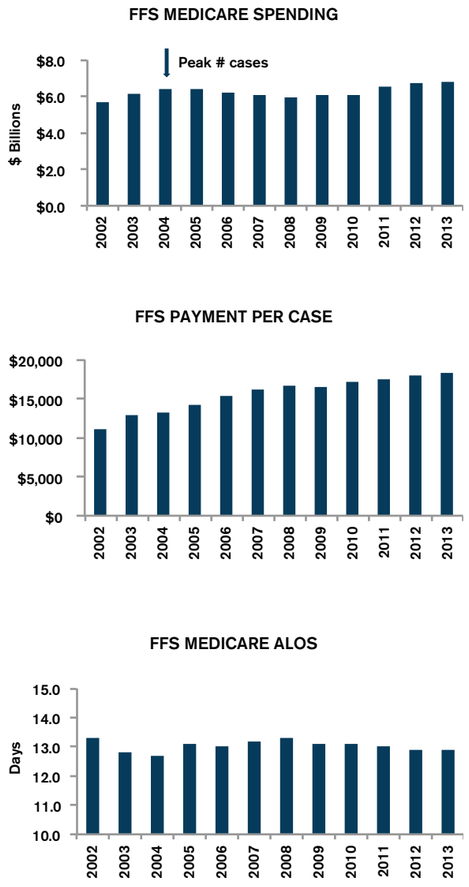
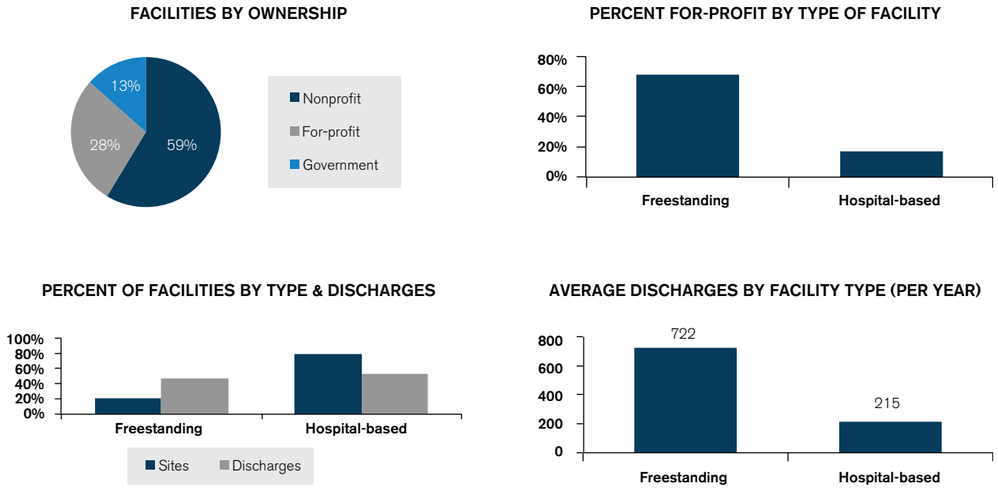


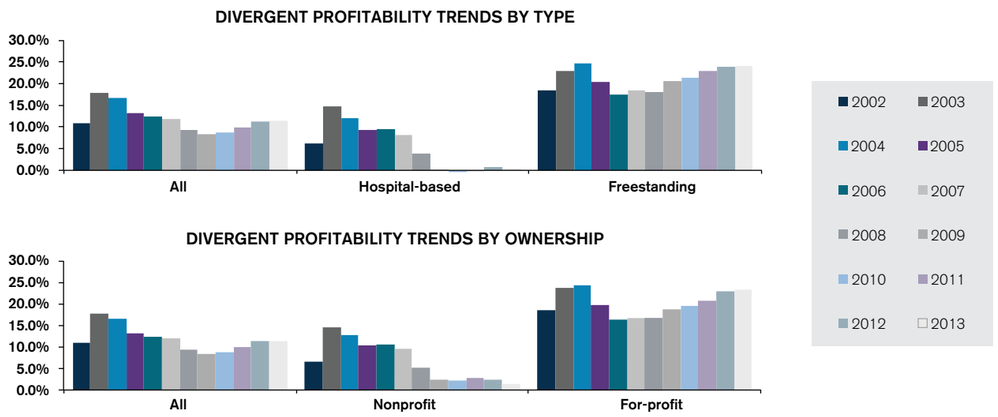
Figure 158 - IRF Characteristics



Source: MedPAC Reports to Congress 2013

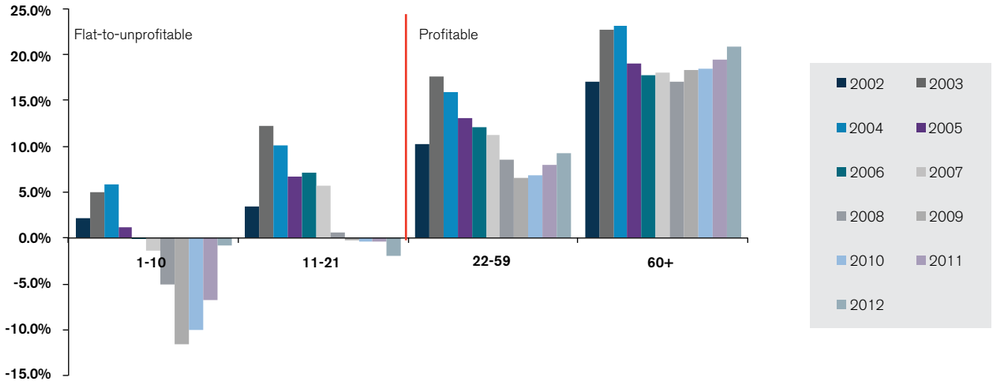
that of facilities with between 22 and 59 beds (9.3%). Additional data from 2013 suggests that freestanding facilities with 50 to 99 beds, accounting for 34% of Medicare discharges, have operating margins of 22.4%, as compared to facilities with >100 beds, accounting for 11% of Medicare discharges, at 16.4%. Facilities with 25 to 49 beds have operating margins of 7.7%.[156]

Figure 159 - IRF Medicare Margins by Type



Source: MedPAC Reports to Congress 2010, 2014 and 2015.

Figure 160 - IRF Medicare FFS Margins by Number of Beds



Source: MedPAC Reports to Congress 2010 and 2015.

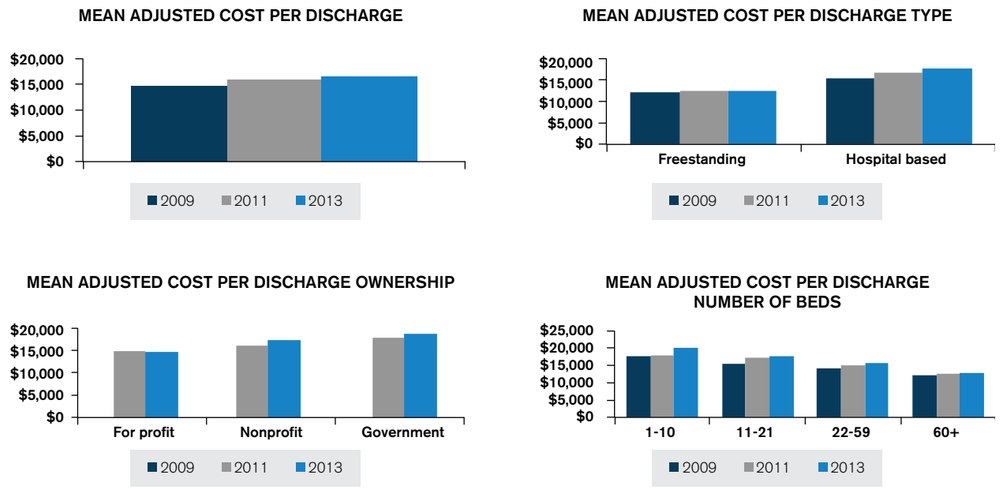
The higher operating margins associated with freestanding, for-profit and larger facilities is largely explained via a lower mean adjusted cost per discharge. The mean adjusted cost per case was $16,517 in 2013. Cost differentials include: hospital-based $17,627 vs. freestanding $12,474 (-29.2%); nonprofit $17,233 vs. for-profit $14,632 (-15.1%); and number of beds (a) 1-10: $20,173, 22.1% above mean, (b) 11-21: $17,676, 7.0% above mean, (c) 22-59: $15,610, 5.5% below mean and (d) >60: $12,863, 22.1% below mean.

Medicare requires patients using an inpatient rehabilitation facility to tolerate and benefit from at least three hours of physical, occupational or speech therapy per day. Patients are assigned to a case mix group (CMG) based on their diagnosis requiring rehabilitation, functional and cognitive status, age and comorbidities. Each CMG is further divided into four tiers based on the presence of specific comorbidities shown to increase costs. All patients with a length of stay less than or equal to three days are placed into the same CMG. In summary, Medicare pays IRFs predetermined (prospective) per discharge rates based on the CMG and tier assignment, and to a lesser extent, market area wages.

The FY15 base payment rate of $15,198 is adjusted for local wages, the CMG and relative weight of the tier. Medicare pays for 80% of outlier costs above a fixed loss amount of $8,848. IRFs receive payment for interrupted stays; i.e., discharge and return within three days.[157]

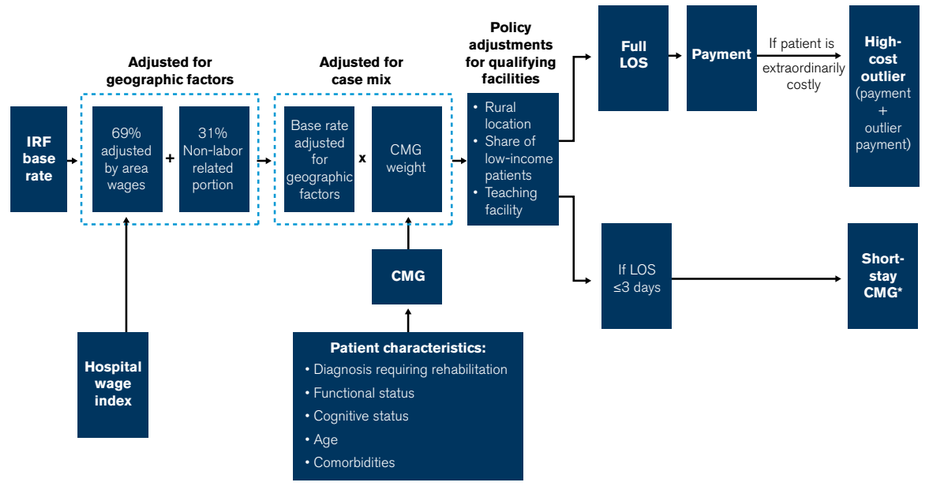
Since 2007, *CMS requires that at least 60% of IRF patients have one of 13 qualifying neurological, orthopedic or other conditions that require intensive rehabilitation;* the 60% rule replaced a preceding 75% rule. The 60% rule also allows the 13 medical condition criteria to be met even if they are the secondary diagnoses.[146] In FY16, CMS eliminated several ICD-9 Clinical Modification codes from "presumptive compliance with the 60% rule because the codes alone do not provide sufficient information that the patient

Figure 161 - IRF Standardized Cost Analysis*



Source: MedPAC Reports to Congress 2011, 2013 & 2015. Cost per discharge standardized for the wage index, case mix and outliers

Figure 162 - IRF Prospective Payment System



Note:IRF (inpatient rehabilitation facility), CMG (case-mix group), LOS (length of stay).
•IRFs with a wage index of 1.0 are paid $2,354 for short-stay cases.

Source: Inpatient Rehabilitation Facilities Payment basics, October 2014. Figure 1 http://MedPAC.gov/documents/payment-basics/inpatient-rehabilitation-facilities-payment-system-14.pdf?sfvrsn=0

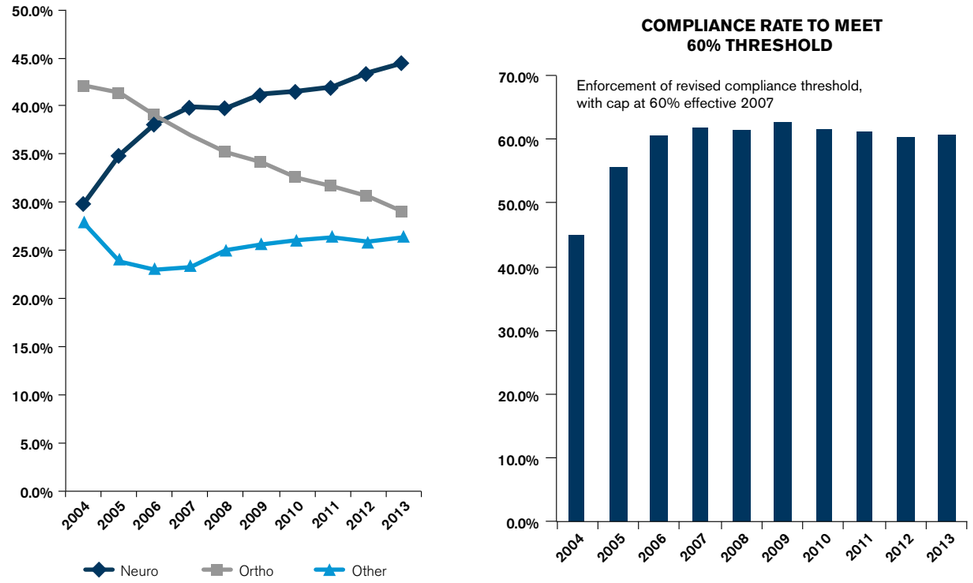
would reasonably require intensive inpatient rehabilitation."[158] A failure to comply with the 60% rule results in payment to the IRF at the acute care hospital inpatient prospective payment system (PPS) rate.

Neurological conditions include stroke, spinal cord injury, brain injury and disorders such as Parkinson's disease, multiple sclerosis and polyneuropathies. Orthopedic conditions include hip fracture, arthritis unresponsive to outpatient therapy (osteoarthritis, rheumatoid arthritis, vasculitis) and sub-populations of lower joint replacement patients (bilateral, age >85, BMI >50). Other conditions include and are not restricted to major multiple trauma, burns, congenital deformity and amputation.[157]

Since increased enforcement of the 75% rule in 2004 to 2006 and the 60% rule thereafter, a significant change in the IRF patient mix has occurred. Neurological conditions increased from 29.9% of admissions in 2004 to 44.5% in 2013, whereas orthopedic admissions decreased from 42.2% to 29.0%. The 60% threshold has been met, though barely, for the past eight years.

An increase in the percentage of non-surgical patients is evident. The increase in brain injury and neurological disorder patients accounts for the rise in neurological disorders, whereas a decline in knee and hip implants, partially offset by a rise in the failed therapy arthritic population, accounts for the reduction in orthopedics. The percentage of unspecified "debility" patients has also increased.

Figure 163 - Medicare FFS IRF Patient Mix Shift: 2004-2013



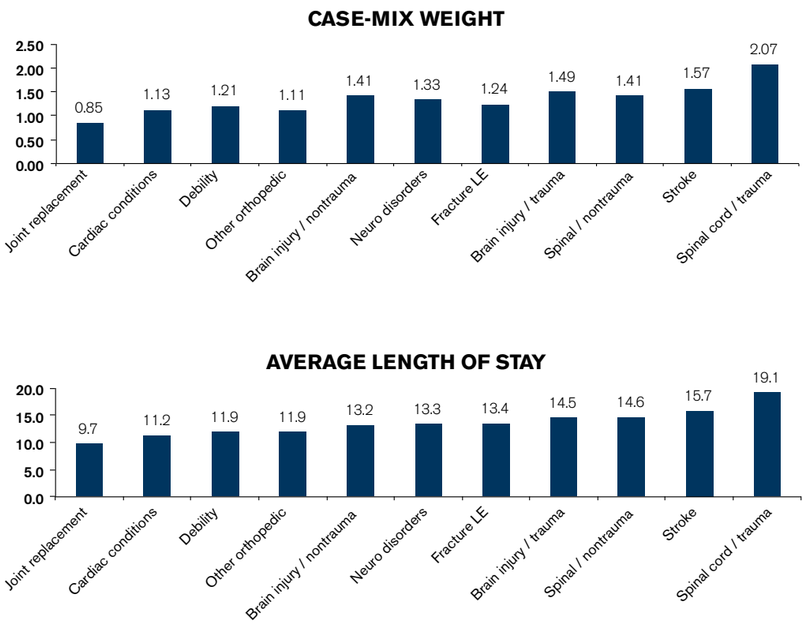
Source: MedPAC Reports to Congress, 2006-2013

Figure 164 - Medicare FFS IRF Patient Mix

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Stroke	16.6%	19.0%	20.3%	20.8%	20.4%	20.6%	20.1%	19.6%	19.4%	19.4%
Spinal cord injury	4.2%	4.5%	4.6%	4.6%	4.3%	4.3%	4.3%	4.5%	4.6%	4.5%
Brain injury	3.9%	5.2%	6.2%	6.7%	7.0%	7.3%	7.3%	7.6%	7.9%	8.1%
Neurological disorders (e.g., PD, MS, polyneuropathy)	5.2%	6.2%	7.0%	7.8%	8.0%	9.0%	9.8%	10.3%	11.6%	12.5%
Subtotal: Neurological	**29.9%**	**34.9%**	**38.1%**	**39.9%**	**39.7%**	**41.2%**	**41.5%**	**42.0%**	**43.5%**	**44.5%**
Hip fracture	13.1%	15.0%	16.1%	16.4%	16.0%	16.4%	14.3%	13.8%	13.0%	12.6%
Three arthritis conditions for which appropriate, aggressive and sustained outpatient therapy has failed: osteoarthritis, RA, vasculitis	5.1%	5.1%	5.2%	5.5%	6.1%	6.3%	6.7%	7.1%	7.5%	7.6%
Hip or knee replacement if: replacement is bilateral; BMI >50 or patient age >85	24.0%	21.3%	17.8%	15.0%	13.1%	11.4%	11.5%	10.7%	10.1%	8.8%
Subtotal: Orthopedics	**42.2%**	**41.4%**	**39.1%**	**36.9%**	**35.2%**	**34.1%**	**32.5%**	**31.6%**	**30.6%**	**29.0%**
Subtotal: 60% conditions	72.1%	76.3%	77.2%	76.8%	74.9%	75.3%	74.0%	73.6%	74.1%	73.5%
All other:	16.4%	13.8%	12.8%	11.3%	11.3%	11.5%	11.1%	10.9%	10.6%	10.7%
60% Rule: Major multiple trauma, amputation, burns, congenital deformity, etc.										
Other conditions										
Debility	6.1%	5.8%	6.2%	7.7%	9.1%	9.2%	10.0%	10.3%	10.0%	10.3%
Cardiac conditions	5.3%	4.2%	4.0%	4.2%	4.7%	4.9%	4.9%	5.1%	5.3%	5.4%
Subtotal: Other	**27.8%**	**23.8%**	**23.0%**	**23.2%**	**25.1%**	**25.6%**	**26.0%**	**26.3%**	**25.9%**	**26.4%**
Total	**99.9%**	**100.1%**	**100.2%**	**100.0%**	**100.0%**	**100.9%**	**100.0%**	**99.9%**	**100.0%**	**99.9%**

Source: MedPAC Reports to Congress, 2006-2013

Figure 165 - Range of CMI & ALOS for Medicare FFS Patients, 2010



The case mix weight and average length of stay (ALOS) vary significantly by condition. Neurological conditions, whether traumatic or non-traumatic, have a higher case mix weight and ALOS than orthopedic and medical conditions. Larger facilities are more likely to either specialize or have a wider spread of conditions allowing for improved operational planning.

Medicare Advantage (MA) plans have a far different patient mix than Medicare FFS. MA neurological conditions represent 59.0% of admissions (FFS: 44.5%), whereas orthopedics represent 25.0% (FFS: 29.1%) and other conditions represent 6.0% (10.8%), accounting for the remainder. The case mix weight is also higher (1.38 vs 1.31).[159] The MA patient mix may portend the IMPACT Act of 2014.

The Functional Independence Measure (FIM) scores 18 self-care tasks on a seven-point dependence / independence scale. The 13 motor and five cognitive measures are subtotaled and then added together to obtain a FIM that can range from 18 to 126. Depression and cognitive deficits represent risk factors for the loss of independence.[160] The FIM gain from admission to discharge has increased from 32.9% in 2004 to 43.0% in 2012.

Figure 166 - Neurological Disorders Account for Majority of MA Admissions

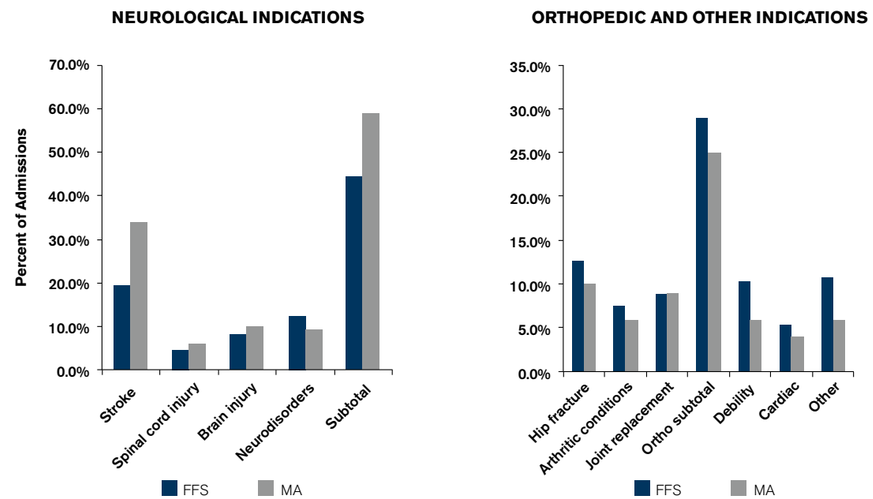
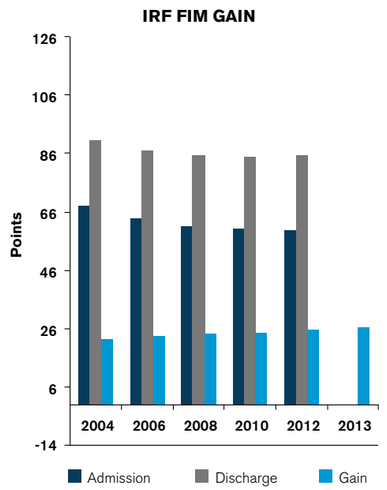


Figure 167 - Gain in Functional Independence Measure (FIM)



Percent Improvement	32.9%	36.9%	39.7%	41.3%	43.0%	NA

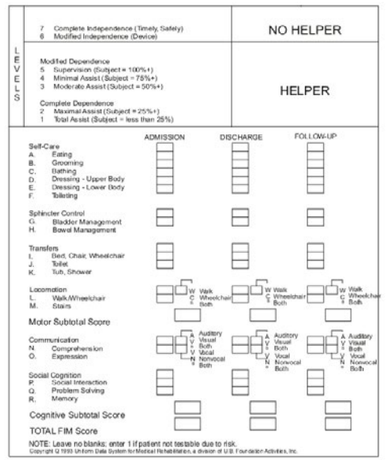


Fig. 15-1 Functional Independence Measure. (©1997 Uniform Data System for Medical Rehabilitation, a division of the UB Foundation Activities, Inc. Reprinted with permission of UDS mr, University at Buffalo, 232 Parker Hall, 3435 Main Street, Buffalo, NY 14214.)

Figure 168 - IRF Quality of Care Metrics, 2010-2011

Community Discharge 71.1%-74.1%	• Hospital readmission within 30 days of discharge: 12.0% • Potentially avoidable readmission within 30 days of discharge: 4.9% (Unavoidable: 7.1%)* • SNF admission within 30 days of discharge: 4.0%
Hospital Discharge 10.3%	• Potentially avoidable readmission during IRF stay: 2.8% +/- 0.8-1.1 percentage points for 25th-75th percentile* • Unavoidable: 7.5%
SNF Discharge 6.9%	• Risk-adjusted rate of SNF discharge for 25th percentile: 4.4% and 75th percentile: 9.0%*

*Sources: MedPAC March 2013 and March 2015. *Avoidable readmission data from 2013. Range and percentile approximations for 2011 calculated based on 2013 data.*

Quality indicators for inpatient rehabilitation centers are somewhat limited and include: risk-adjusted discharge to the community, risk-adjusted discharge to SNFs and potentially avoidable readmissions to hospitals. Between 71.1% and 74.1% of patients are discharged to the community, 10.3% to hospitals and 6.9% to SNFs. Of community discharges, 12.0% were readmitted to the hospital within 30 days of discharge. In total, 19.0% of patients were either transferred to a hospital directly from an IRF or within 30 days of discharge. More than one-third of hospital readmissions were avoidable. A wide variation in performances is evident among providers.

SENIOR HOUSING: EXTENSION OPPORTUNITIES FOR PREVENTIVE CARE

Senior housing includes a broad range of independent living, assisted living and nursing care properties operated as stand-alone, multi-property and continuing care communities. Occupancy rates, rentals and new construction have increased since the bottom of the Great Recession in 2009 to 2011. Labor costs and turnover rates, especially for low-wage healthcare aides, remain a concern, though given the private pay nature of senior housing, are subject to pass-through rental increases.

Figure 169 - Property Types by Service Offerings

Services	Senior Apartments	Independent Living	Assisted Living*	Nursing Care
Housing	✓	✓	✓	✓
Hospitality Services		✓	✓	✓
Care Services			✓	✓
Medical Services				✓

Type of Services	Description
Housing	Private, semi-private
Hospitality	Recreational activities, housekeeping, laundry, transportation, meals
Care (supportive)	Activities of Daily Living: bathing, dressing, toileting, transferring, continence and eating. Instrumental ADLs: Using telephone (e.g., find number), shopping for groceries, preparing meals, doing housework, managing medications, performing laundry, managing finances
Medical (direct provider or third-party)	Chronic care, post-acute care including home care, hospice, rehabilitation services (physical, occupational and speech therapy)

**ADLs include bathing, dressing, toileting, transferring, continence and eating. Instrumental ADLs include ability to use telephone, shopping, food preparation, housekeeping, laundry, mode of transportation, responsibility for own medication and ability to handle finances.*

Longer-term demographic trends are favorable. A&M estimates an increase in unit demand of between 35% and 36% for independent living and assisted living between 2015 and 2025. This potentially translates into 30,000 to 35,000 units per annum. A major opportunity exists to better engage residents in preventive care, focusing on ambulatory care sensitive conditions such as asthma, chronic pain, COPD, diabetes (complications), hypertension, congestive heart failure, pneumonia and urinary tract infections. The advent of capitated reimbursement offers providers an opportunity to partner with senior housing organizations in care management.

DETAILS

Senior housing comprises a range of options based on the need for alternative housing, combined with ancillary services such as hospitality, supportive care and medical. The vast majority of senior citizens prefer to age in-place, with assistance from family members, nurses and health aides; participation in adult day care center activities; and accessory (boarder) apartment living. Independent living and assisted living is expensive and requires, with exception, out-of-pocket payments from the vast majority of residents.

Figure 170 - Supply of Investment-Grade Senior Housing and Care Properties*

By Property Type	Majority Independent Living	Majority Assisted Living*	Majority Memory Care	Majority Nursing Care
Number of Properties	4,060	6,305	1,060	11,270
Number of Units (beds)	883,500	507,500	51,000	1,504,500
IL Units	716,000	NA	NA	NA
AL Units	145,000	413,500	NA	NA
MC Units	NA	94,000	NA	NA
NC Units	22,500	NA	NA	NA
Unit / property	218	80	48	133
By Care Segment	**Independent Living**	**Assisted Living**	**Memory Care**	**Nursing Care**
Number of Units (beds)	716,000	558,500	145,000	1,527,000
By Campus Type	**CCRC (IL+AL+ Nursing Care**	**Combined (2+ types)**	**Freestanding (one type)**	**Total**
Number of Properties	1,970	5,560	15,165	22,695
Number of Units (beds)	634,000	684,500	1,628,000	2,946,500
Units / property	322	123	107	130

** >25 units / beds that charge market rates for the housing and services offered. Assisting Living with 50% unit turnover/annum*
Source: NIC Investment Guide, Third Edition

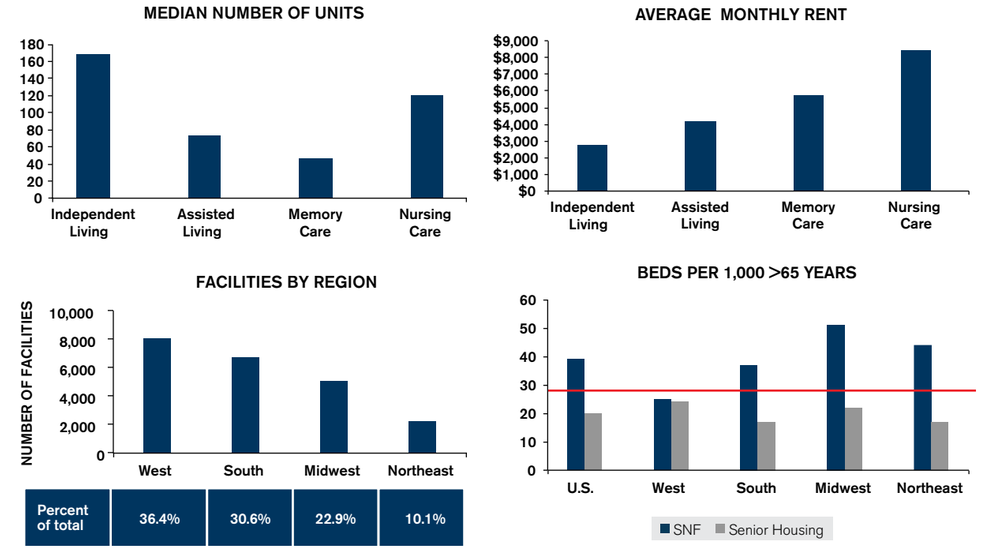
There are 11,425 investment-grade senior housing properties, excluding nursing care facilities, with 1.4 million beds. Independent living beds account for nearly 50% of the total, followed by assisted living (39%) and memory care (11%). Residents with mild-to-moderate cognitive impairment due to Alzheimer's or other types of dementia account for 30% to 50% of assisted living residents. Memory care facilities, reflective of additional cognitive decline, often require a locked unit, nutritional care and hydration, pain management, social engagement and "involvement in meaningful activities," expertise in behavior and communications, and extensive care planning.[161]

Continuing Care Retirement Communities (CCRC) offer independent living, assisted living and skilled nursing care, usually within a single location. This allows the resident to age within the same community. Other combinations of senior housing also exist.

The median number of units is highest for independent living facilities (168), followed by nursing care (120), assisted living (73) and memory care (46). The average monthly rent increases with resident acuity and the scope of delivered services, and ranges from $2,765 per month for independent living ($33,180) to $5,732 for memory care ($68,784). Nursing home care is primarily reimbursed by Medicaid, with out-of-pocket payments required for an asset drawdown.

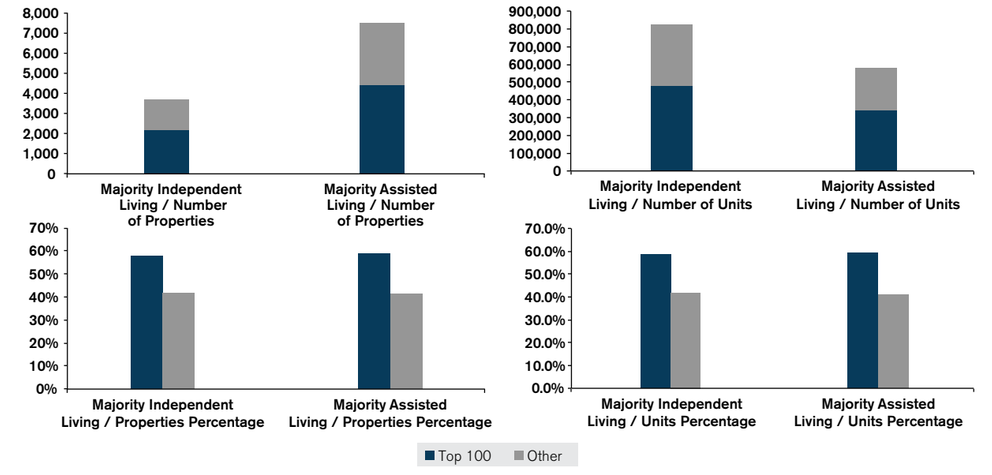
Geographically, despite the large number of facilities in the West, the number of beds per 1,000 residents >65 years is relatively consistent across the U.S.

Figure 171 - Senior Housing by Region



Source: http://www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf

Figure 172 - Senior Housing Industry Fragmentation



UNITS PER PROPERTY		Top 100	Other
	Independent Living	223	222
	Assisted Living	78	76

Source: NIC Research & Analytics, NIC Map, As of 4Q2014;
http://www.aew.com/pdf/AEWResearchSeniorsHousingInvestmentOpportunityMay2015.pdf

Figure 173 - Largest Senior Housing Companies, 2014

Companies	Percent of CCRC	Number of Properties	Units	Units / Property
Brookdale Senior Living	22%	1,143	111,145	97
Sunrise Senior Living	14%	239	22,090	92
Holiday Retirement	NA	179	21,592	121
Life Care Services (CCRC)	NA	58	20,309	350
Five Star Senior Living	38%	143	16,607	137
Erikson Living (CCRC)	NA	16	19,432	1,215
Atria Senior Living	NA	126	15,031	119
Senior Lifestyle	NA	58	8,484	154
Capital Senior Living	NA	64	7,480	117
Subtotal		2,026	245,634	121

Source: Brookdale 2014 10k; NIC Investment Guide: Investing in Seniors Housing & Care Properties, Third Edition

The nine largest operators control 17.7% of properties and 17.3% of units across the entire U.S. Note, however, according to the National Investor Center (NIC), they control 26.9% of units in 99 of the largest metropolitan markets.[162] This implies that the next 91 operators control 41% of properties and beds. Opportunities for further consolidation are clearly evident.

Brookdale Senior Living is the "behemoth" at five times the size of the next largest competitor.

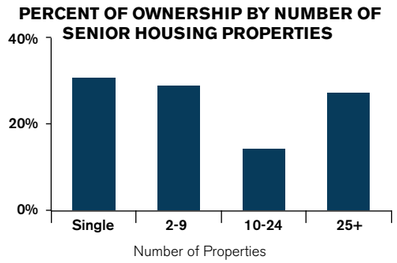
The number of beds represents a better measure of size than the number of properties, as owners of single properties represent 31% of the total. Investor-grade properties, those with >25 beds, represent 41.4% of properties and 82.2% of beds.

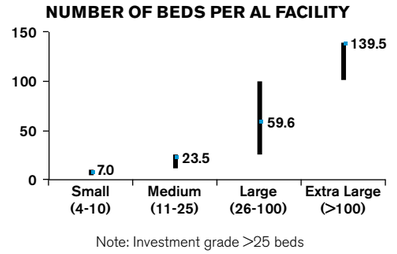
Independent living residents pay 100% out-of-pocket. Approximately 147,000 (21%) of assisted living and memory care residents are disabled and / or dual-eligible aged patients. 20.4% are <65 years, 22.2% are between 65 and 74 and the remainder, 57.4%, are >75 years.

Commercial rent trends have been positive, with higher rent growth associated with the acuity of care services. In the years between 2001 and 2013, the average annual rise in rents was lowest for independent living (0.6%), followed by assisted living (2.3%) and memory care (2.6%).

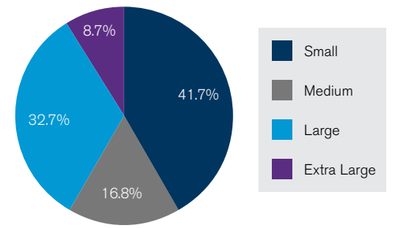
The range in monthly asking rents between the lower and upper quartile is lowest for memory care (40.4%), followed by assisted living

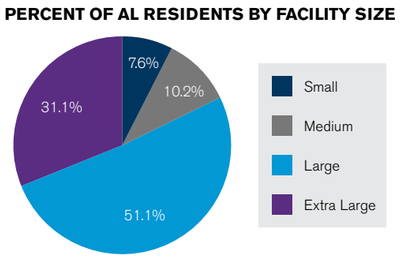
Figure 174 - Profile of Senior Housing





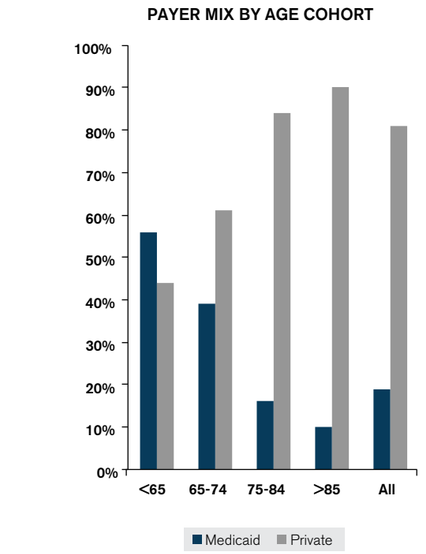
Note: Investment grade >25 beds

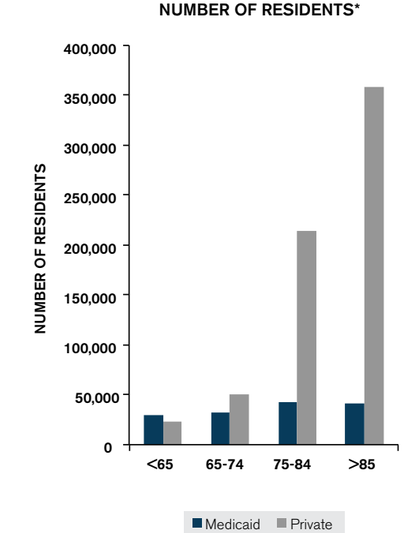




Source: Vital & Health Statistic, Series 3 (37), December 2013. Long-Term Care Services in the United States: 2013 Overview. Table 5.3 http://www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf

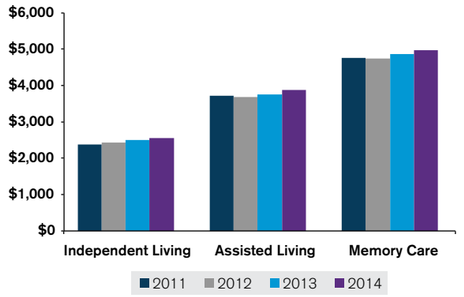
Figure 175 - Assisted Living Payer Mix, 2011-2012





*Source: *Average of two population estimates: 851,400 from Table 5.3 http://www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf; and 733,000 from page 1 http://www.cdc.gov/nchs/data/databriefs/db91.pdf; Medicaid payer mix data from the latter*

Figure 176 - Commercial Rent Trends, 2011-2014



Percent of Change	IL	AL	MC
2011-2012	2.6%	2.9%	2.4%
2012-2013	-0.9%	1.6%	3.4%
2013-2014	0.0%	2.5%	2.1%

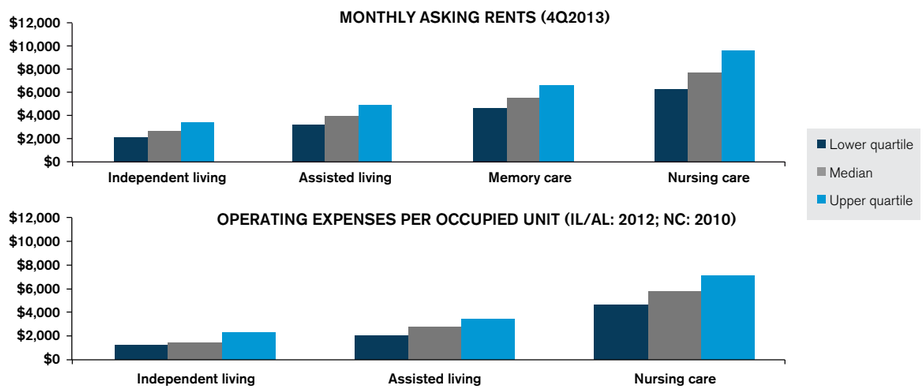
Source: Senior Living Pricing Trends: http://www.aplaceformom.com/blog/3-25-14-us-senior-living-pricing-trends/ MetLife Mature Market Institute 2011 and 2012: https://www.metlife.com/assets/cao/mmi/publications/studies/2011/mmi-market-survey-nursing-home-assisted-living-adult-day-services-costs.pdf https://www.metlife.com/assets/cao/mmi/publications/studies/2012/studies/mmi-2012-market-survey-long-term-care-costs.pdf Genworth Cost of Care 2013 and 2014 https://www.genworth.com/dam/Americas/US/PDFs/Consumer/corporate/130568_032213_Cost%20of%20Care_Final_nonsecure.pdf https://www.genworth.com/dam/Americas/US/PDFs/Consumer/corporate/130568_032514_CostofCare_FINAL_nonsecure.pdf

(51.5%) and independent living (60.7%), and is suggestive of pricing flexibility within and across the 99 largest markets. The range in independent living and assisted living operating expenses is even wider at 94.7% and 70.0%, respectively, suggestive of a wide variation in management execution capabilities.

As noted above, the wide range of monthly rents and operating expenses per occupied bed results in a wide range of operating margins (EBITDAR). Independent living and assisted living appear to be far more profitable than nursing care due to their payer mix.

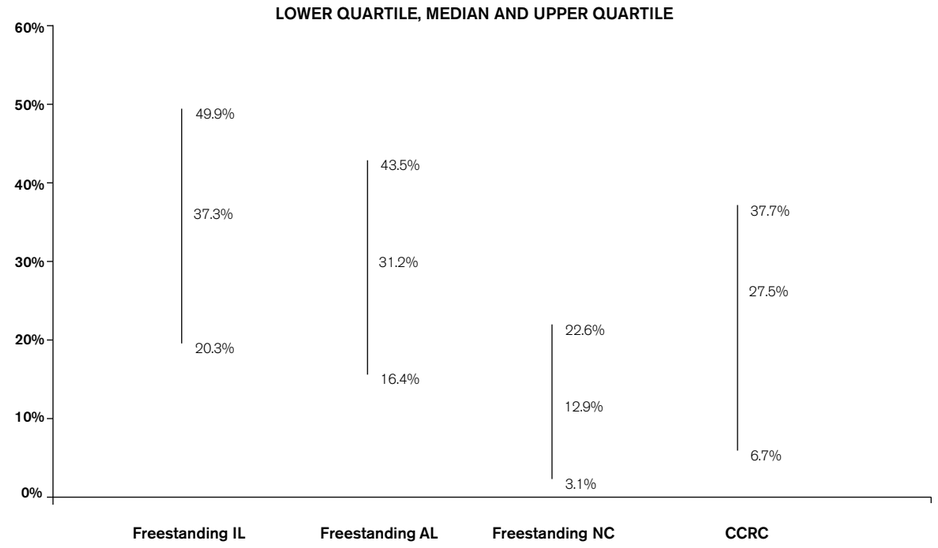
Aging demographics, combined with an opportunity to either directly or indirectly increase engagement in preventive care, increases the relative attractiveness of the senior housing market segment. There are 19.9 million Americans >75 years; 18.0 million aging at home (90.5%), 0.7 million (3.5%) in independent living facilities, 0.6 million (2.9%) in assisted living / memory care facilities and 0.6 million (3.1%) in skilled nursing facilities.

Figure 177 - Range in Monthly Rents and Operating Expenses



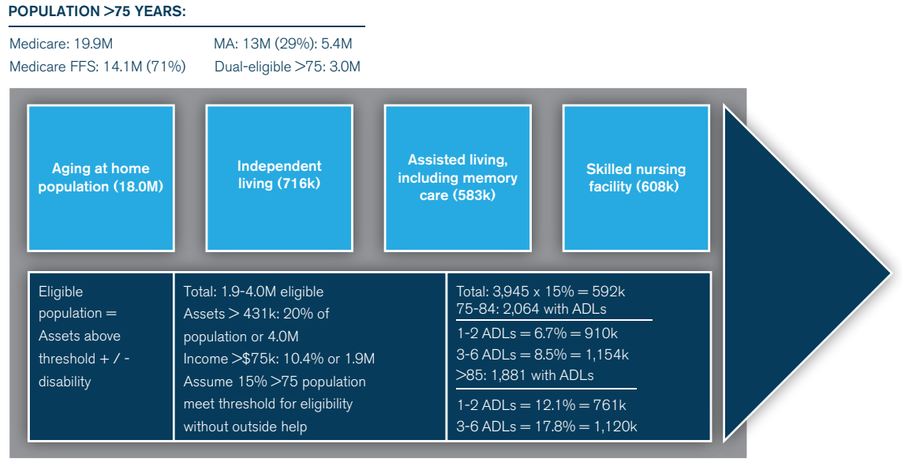
Source: NIC Investment Guide: Investing in Seniors Housing & Care Properties, Third Edition

Figure 178 - Operating Margins (EBITDAR) by Property Type*



Source: : NIC. EBITDAR excludes operating lease payments, ground lease payments, debt services, depreciation, amortization, income taxes, partnership expenses, capital expenditures and replacement reserves. FY2012 except for Nursing Care FY2010

Figure 179 - Resident Population by Type of Senior Housing



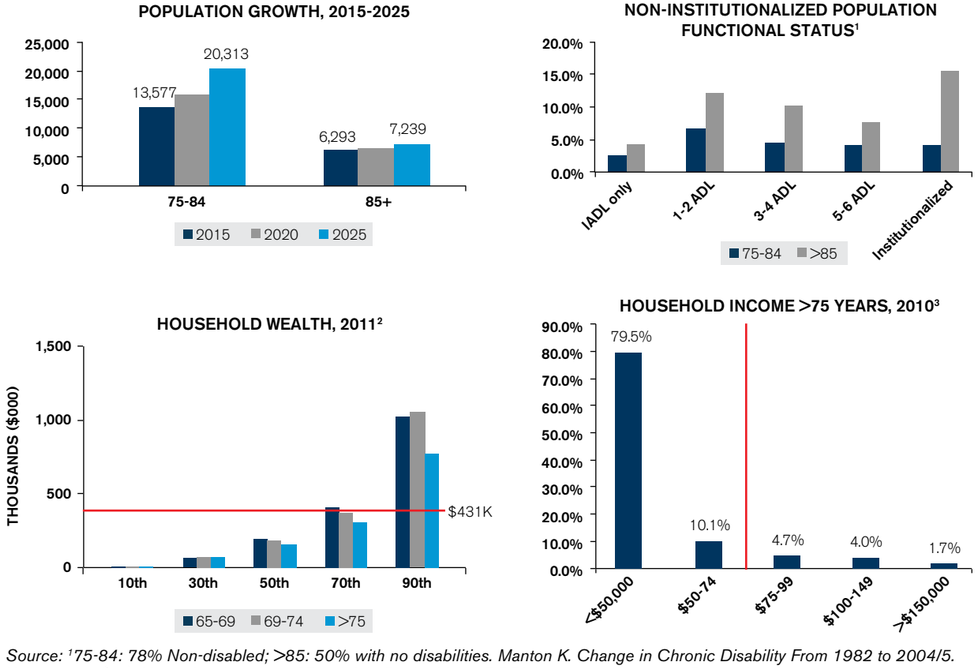
Net worth (>$430,000) and annual income requirements (>$75,000) suggest that only 10 to 20% (1.9-4.0 million) of the total >75 population are able to afford independent living facilities. Approximately 3.9 million people >75 have limitations to their activities of daily living, implying the need for care services. Assuming 15% are able to afford assisted living implies there are 0.6 million patients or the approximate current number of assisted living residents; family contribution is highly likely.

The majority of American families live in close proximity to each other. The median distance between mothers and their adult children in the South (East Central, West Central, Atlantic), Middle Atlantic and New England is less than that of the Pacific and Mountain regions. Importantly, about 60% live within a one-hour commute and 70% within a two-hour commute. The remaining 30% have a travel distance exceeding 130 miles. Senior housing needs may vary based on psychosocial status. Depression and dementia may worsen with feelings of isolation, especially with acute physical events such as heart attack or stroke.

Alzheimer's disease and other forms of dementia can be used as a proxy for the future demand of services; 40% of senior housing residents have the condition. The Alzheimer's population is forecast to increase from 5.0 million in 2015 to 7.1 million in 2025 (+42%).[163] Due to the subjective nature of its presentation, a wide range of estimates is available for condition severity; i.e., mild: 28%-40%, moderate: 30%-40% and severe: 20%-42%.[164]

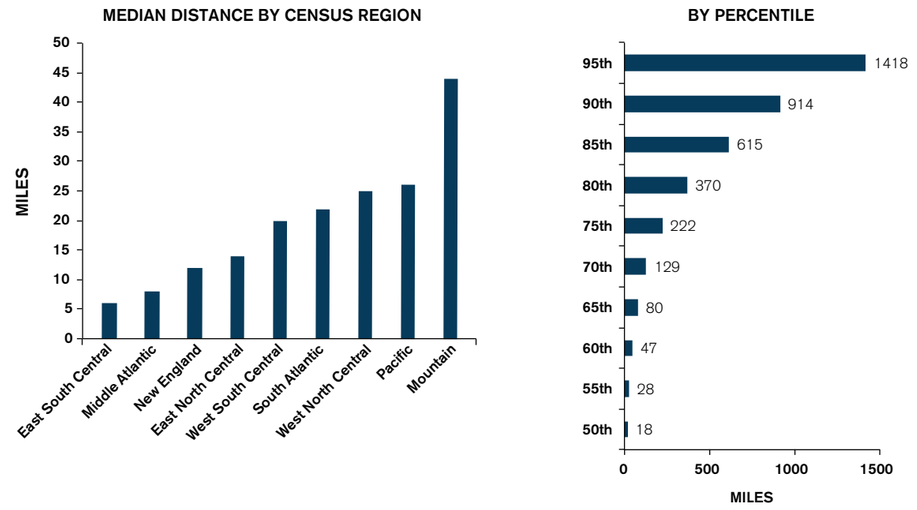
Dispersion exists among the predicted Alzheimer's growth rates by state, ranging from 18% to 21% for Missouri, Pennsylvania and New York, and 45% or more for California, Texas, Florida and Arizona. Only 10% to 20% of the incremental Alzheimer's population growth will be able to afford the cost of senior housing.

Figure 180 - Demand Drivers for Senior Housing



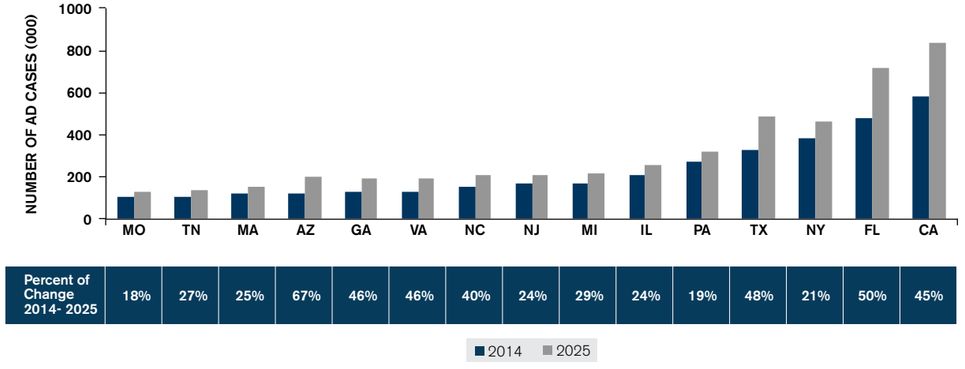
Source: [1]75-84: 78% Non-disabled; >85: 50% with no disabilities. Manton K. Change in Chronic Disability From 1982 to 2004/5. Volume 103 (48), November 28, 2006; [2]Brookdale Senior Living BOFA investor presentation September 18, 2014; [3]http://www.census.gov/hhes/www/cpstables/032011/hhinc/hinc02_000.htm

Figure 181 - Distance Between Mothers and Adult Children by Region



Source: New York Times; December 24, 2015

Figure 182 - Alzheimer's and Other Dementia as Proxy for Senior Housing Needs

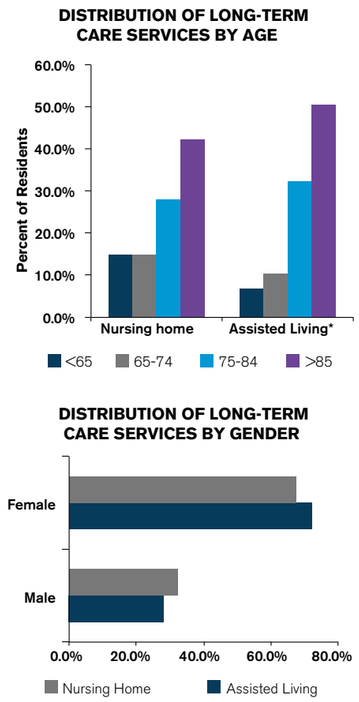


Source: L2014 Alzheimer's Disease Facts and Figures. Table 2 http://www.alz.org/downloads/facts_figures_2014.pdf; WalletHub https://wallethub.com/edu/richest-and-poorest-states/7392/#main-findings

The percentage of residents >85 years old, the peak prevalence period for Alzheimer's disease and other dementias, is 50.5%. The comparatively young nursing home population shown below includes Medicare Part A post-acute care patients. Nearly three-quarters of assisted living patients are female.

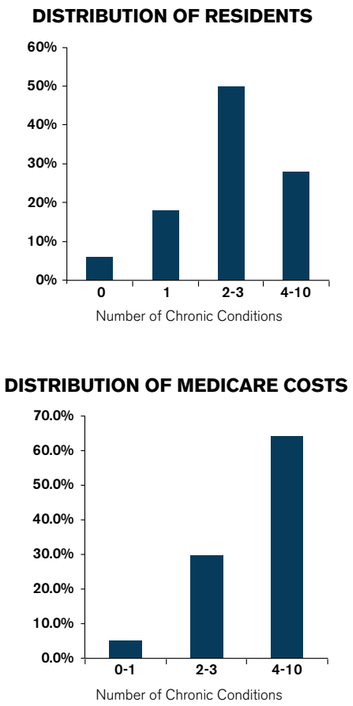
The age of senior housing residents suggests an opportunity to increase engagement in resident health and wellness. Opportunities exist to reduce the frequency of ambulatory care sensitive hospital admissions; i.e., those amenable to prevention. Elderly residents often have multiple chronic conditions. Given their knowledge of resident medical history and prescription drug use, and their ability to identify changes in physical and mental status, as well as activity levels, senior housing personnel are well positioned to serve as an "early warning" system for other providers to diagnose, manage and treat a variety of chronic conditions subject to acute deterioration. Improved health is likely to prolong life expectancy; i.e., residence time.

Figure 183 - Comparison of Residential Care and Nursing Home Populations



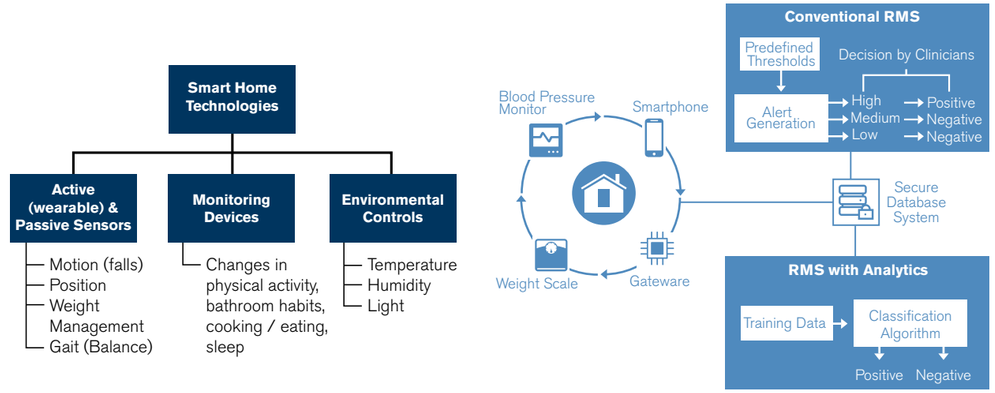
*Source: *Assisted Living includes Memory Care. Described as "Residential Care" in CDC report. http://www.cdc.gov/nchs/data/nsltcp/long_term_care_services_2013.pdf. NCHS data brief suggests 54%>85, 27% 75-84. http://www.cdc.gov/nchs/data/databriefs/db91.pdf*

Figure 184 - Distribution of Medical Costs in Assisted Living Residents



Source: Caffrey C, Sengupta M, Park-Lee E, et al. Residents Living in Residential Care Facilities: United States, 2010 NCHS Data Brief #91, April 2012. http://www.cdc.gov/nchs/data/databriefs/db91.pdf

Figure 185 - Technology Integration Opportunities



Fall Prevention Target Areas	Technologies
Risk Assessment	Identification of at-risk individuals; generation of customized interventions
Modify Residence	Securing rugs, installing bars
Sedentary Lifestyle	Activity monitors incorporating accelerometers
Fall Detection	User-activated and automated personal emergency response systems; non-wearable motion detectors, floor vibration
Balance (gait)	Assistive canes integrating sensors to measure motion, rotation, force, strain and contact; shoe insole sensors and sensory stimulators

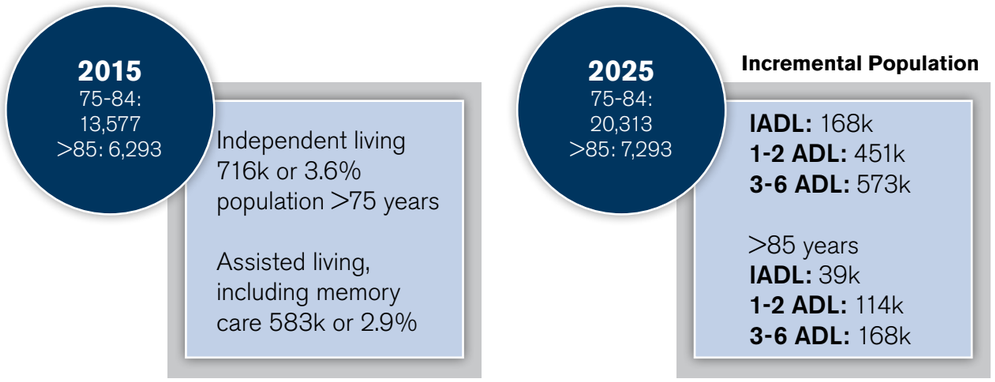
Rationale for Tele-Health

- Access
- Convenience
- Triage
- Monitoring
- Engagement
- Lower costs
- Leverage of Specialists

Technology can potentially serve as an important adjunct for the identification of changes in resident status, as well convenient provider access. Smart home technology, also known as the "internet of things," can monitor activity levels and the environment. Passive and active sensors can monitor physiologic parameters, location and position. Fall prevention is critical to not only residents, but also liability. Remote monitoring of blood pressure, heart rate, respiratory rate, temperature and weight is desirable, especially for patients with more than four to five chronic conditions, the threshold for rising Medicare costs. And lastly, telemedicine represents a convenient and cost-effective method to triage patients.

An A&M market potential analysis suggests an incremental demand for services from 2015 to 2025 of 243,000 to 276,000 (+36.3%) for independent living and 190,000 to 216,000 (+34.8%) for assisted living. The analysis assumes no change in affordability from historical levels, as well as a constant rate of demand. Changing social dynamics, a *potential* driver of senior housing demand, include "smaller dispersed families, more single and childless seniors, declining ratio of potential caregivers to seniors and increasing awareness and acceptance of senior living solutions."[165]

Figure 186 - Senior Housing Market Potential Analysis



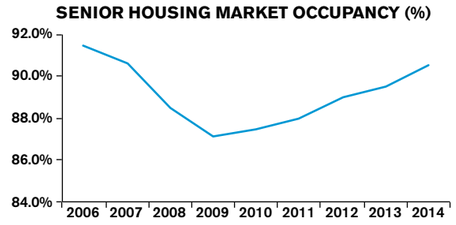
Method	2025 Estimates
Percent of population using IL/AL	IL: 3.6% x 27,552 = 992k or incremental 276k (38.5%)
Percent of eligible for Independent Living	In 2015, 31.5% of the eligible population (IADL, 1-2 ADLs) of 2.3M reside within a facility. Applying this ratio to the incremental IADL + 1-2 ADL population (772k) = 243k
Percent of eligible for Assisted Living	In 2015, 25.6% of the eligible population (3-6 ADLs) of 2.3M reside within a facility. Applying this ratio to the incremental 3-6 ADL population (741k) = 190k

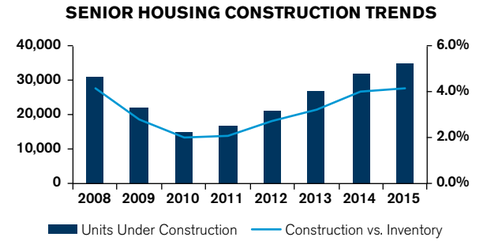
In total, the incremental demand for senior housing units will be 463,000 or 46,000 units per annum. Assuming an occupancy rate of 90.5% implies the availability of 135,000 empty beds. Subtracting this figure still suggests the plausibility of a sustainable senior housing construction rate of between 30,000 and 35,000 units per annum.

An alternative analysis by the American Seniors Housing Association suggests a far lower rate of construction during the past 10 years. The "bottoming out" of construction in 2010 to 2011 following the Great Recession is evident in the data from both organizations. The upswing noted in 2012 to 2014 appears sustainable.

According to the National Investment Center, the implied market value of the senior housing market and of nursing care properties was $225.6 billion and $107.1 billion, respectively (as of the 4Q13). Given the far higher operating margins (EBITDAR), the price per unit of senior housing ($159,000) is more than double that of nursing care ($71,000).

Figure 187 - Profile of Senior Housing





A COMPARISON OF RENT PERFORMANCE

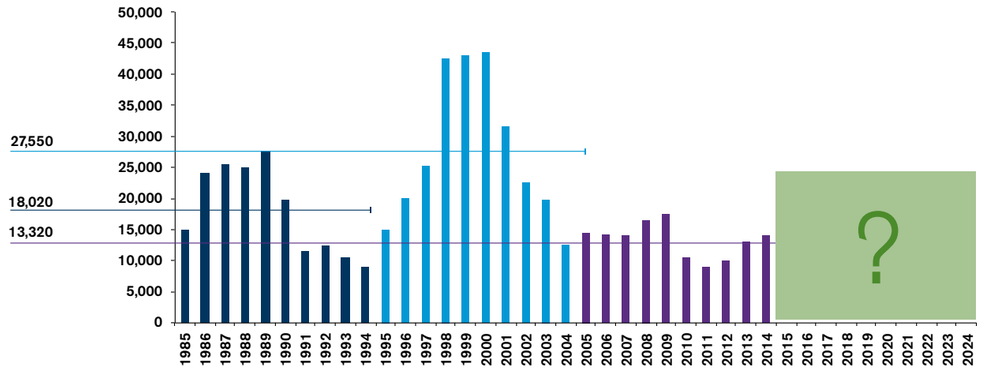
ANNUAL CHANGE IN RENTS 1994-2011	Assisted Living	Independent Living
Average	3.6%	3.6%
Maximum	5.3%	4.5%
Minimum	0.6%	1.5%
Median	4.0%	4.0%
Standard Deviation	1.5%	0.7%

A COMPARISON OF TOTAL RETURN PERFORMANCE

TOTAL RETURN PERFORMANCE NPI INDEX VS. SENIOR HOUSING	1 Year	3 Years	5 Years	10 Years
NPI Index*	11.8%	11.1%	12.1%	8.4%
Senior Housing	19.5%	15.8%	13.5%	14.7%

Source: 1. AEW Research: Seniors Housing Investment Opportunity http://www.aew.com/pdf/AEWResearchSeniorsHousingInvestmentOpportunityMay2015.pdf; 2. NIC MAP Data and Analysis Service, Construction Trends Reports, All Markets – Seniors Housing, 1Q 2015; data believed to be accurate, but not guaranteed; NorthStarSecuritirs.com/Healthcare; 3. AEW Research: Seniors Housing Investment Opportunity http://www.aew.com/pdf/AEWResearchSeniorsHousingInvestmentOpportunityMay2015.pdf; 4. AEW Research: Seniors Housing Investment Opportunity http://www.aew.com/pdf/AEWResearchSeniorsHousingInvestmentOpportunityMay2015.pdf

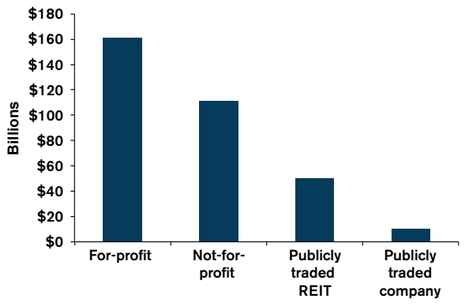
Figure 188 - New Supply of Senior Housing, 1985-2014



POPULATION	1994	2004	2014	2024
75-84	10,924,731	12,850,000	14,755,714	20,111,292
>85	3,521,612	3,571,000	6,162,231	7,203,229

Source: American Senior Housing Association (ASHA), NIC Map; www.aew.com/pdf/AEWResearchSeniorHousingMultifamilyFeb2012.pdf

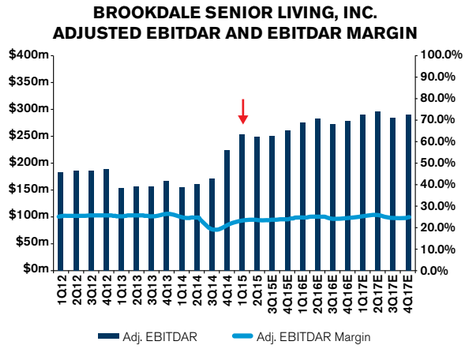
Figure 189 - Implied Market Value of Senior Housing and Nursing Care Properties Total $332.7 Billion*

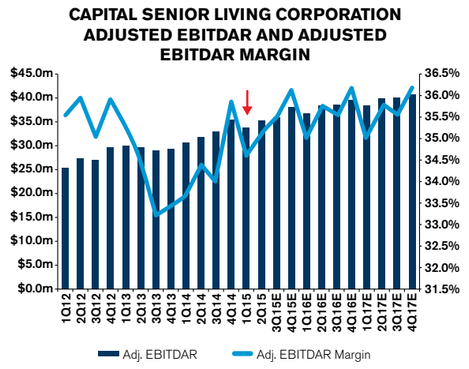


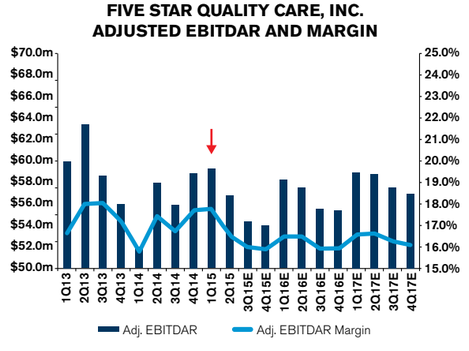
Source: NIC.

It is important to recognize that senior housing is comprised of hundreds, if not thousands, of operators competing in disparate markets with variable execution capabilities. Any investment requires consideration of the local market, as well as the management team. This is evidenced by the range of EBITDAR margins among three publicly traded competitors of 16% to 35%.

Figure 190 - Range of Adjusted EBITDAR and Margin Among Largest Competitors







Source: JMP Securities LLC, Company reports

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