**Response of For-Profit, Non-Profit, and Government-Owned Nursing Homes to a New Value-Based Reimbursement System in Minnesota (US)**

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*Background.* Minnesota, like other US states, has traditionally paid for public (Medicaid) nursing home care without regard to its quality. The trend toward marketization of long-term care services in the US and other countries has placed emphasis on value-based payment where payment for care is linked to its quality. In 2016 Minnesota introduced a nursing home value-based reimbursement system (VBR) intended to pay nursing homes according to a composite quality score. In addition, the state substantially increased the Medicaid nursing home budget with additional funds earmarked for nursing and other care-related services and an efficiency incentive for other rate components.

*Objective.* We conducted an evaluation of VBR to determine its effectiveness in meeting state policy goals. One evaluation question involved the differential response to VBR by for-profit, non-profit and government-owned facilities. In particular, we wanted to know if for-profit firms would be more responsive than non-profit or government-owned firms to this market-oriented payment approach.

*Methods.* Because VBR was implemented statewide at a single point in time, we lacked a natural comparison group. We relied instead on pre/post design tracking trends in outcomes, before (2013-2015) and after (2016-2017) implementation of VBR. The sample consisted of 348 Minnesota nursing facilities. Ownership was 29% for-profit, 61% non-profit, and 10% governmental. Facility-level variables included per resident day (PRD) reported costs; a composite care quality score derived from clinical quality indicators, quality of life survey results, and regulatory findings; occupancy rates; and other facility characteristics as covariates. Data came from Medicaid cost reports, other administrative files, and the Minnesota Nursing Home Quality Report Card. We estimated mixed effect growth models to examine VBR and ownership effects on expenditure patterns, quality score, and occupancy rates.

*Findings.*The introduction of VBR did not significantly increase care quality. The quality score for non-profit and governmental facilities trended slightly upward across both the per-VBR and VBR periods; whereas, the trend among for-profit facilities was relatively flat. For-profit facilities continued to fall below non-profit and governmental facilities in their care quality throughout the 2013-2017 period.Occupancy rates among for-profit facilities also fell significantly below rates for non-profit and governmental facilities. For-profits facilities were no better at attracting residents in the nursing home market after the implementation of VBR. In fact, they trended downward in occupancy after VBR, widening the gap between themselves and the non-profits and governmental facilities.

*Conclusion.* We found no evidence that for-profit facilities were more responsive to the VBR system than the other ownership types. Compared to for-profits, non-profit and governmental facilities continued to spend more on nursing and other care related services, deliver higher quality of care, and be more attractive to consumers as evidenced by their consistently higher occupancy rates.

**Introduction**

Minnesota, like other US states, has traditionally paid nursing facilities without regard to their care quality, amount of nursing or direct care services, or profits. The trend toward marketization of long-term care services in the US and other countries has placed emphasis on value-based payment where payment for care is linked to its quality. In 2016 Minnesota introduced a nursing home value-based reimbursement system (VBR) aimed at incentivizing better care quality and increasing investment in direct care services. Under VBR, the state set daily public (Medicaid) payment rates according to the nursing facility’s care quality as measured by a composite quality score. In addition, the state substantially increased the Medicaid nursing home budget with additional funds earmarked for nursing and other care-related services, while at the same time introducing an efficiency incentive to limit growth in administrative and other operating costs.

We conducted an evaluation of VBR to determine its effectiveness in meeting state policy goals of achieving better care quality and increased investment in care related areas. One evaluation question involved the differential response to VBR by for-profit, non-profit and government-owned facilities. The purpose of this manuscript is to examine how different ownership types responded to VBR implementation from the standpoint of their care related expenditures and quality of care. The findings have implications for long-term care policy in the US and other countries where market-oriented approaches are being touted as means of achieving better quality of nursing facility care.

*Value-Based Reimbursement, Ownership Type, Quality of Nursing Facility Care*

Achieving greater value from long-term care has become a mantra in the US and other countries. While regulatory approaches can aid in detecting and correcting care problems, they are viewed as insufficient to improve care quality. Over the last two decades, many state governments in the US have introduced market-based incentives that tie public (Medicaid) payment to the quality of nursing home care (Arling, Job, & Cooke, 2009; Briesacher, Field, Baril, & Gurwitz, 2009; Werner, Tamara Konetzka, & Liang, 2010). Nursing facilities delivering better care according to quality metrics, such as regulatory findings or clinical quality indicators, receive higher payment. Alternatively, facilities delivering poor quality care are penalized, which is the case in the new Federal Medicare Nursing Facility Value-Based Purchasing Program. Despite widespread adoption of value-based payment for nursing facilities, they have not been rigorously evaluated. The few studies that have been carried out, have provided little evidence of their effectiveness (Arling et al., 2009; Briesacher et al., 2009; Werner, Konetzka, & Polsky, 2013).

Presumably, financial incentives would be a strong motivator for delivering better quality in the US nursing home industry because of its preponderance of for-profit firms (70% For-profit, 24% Non-profit, and 6% governmental). A considerable body of research in the US and other nations has found that For-profit nursing facilities score lower on regulatory findings and other quality measures than either non-profit or government-owned facilities (Bach-Mortensen & Montgomery, 2019; Baldwin, Chenoweth, Dela Rama, & Liu, 2015; Barron & West, 2017; Bos, Boselie, & Trappenburg, 2017; Geraedts, Harrington, Schumacher, & Kraska, 2016; Godby, Saldanha, Valle, Paul, & Coustasse, 2017; Hjelmar, Bhatti, Petersen, Rostgaard, & Vrangbaek, 2018). Given the right financial incentives, the gap in care quality between for-profit and non-profit or governmental facilities ought to be narrowed. However, no studies to our knowledge have investigated the response of for-profit, non-profit or governmental facilities to value based payment.

One reason offered for the limited success of value based payment approaches relates to the resource-constraints that nursing facilities face because of generally low public payments. Low resource facilities performing poorly may be further disadvantaged if their payment rates are reduced or if they fail to gain enough resources to invest in care quality. There is evidence that adding public financial resources to the nursing home sector could increase care quality, even in the absence of financial incentives. For example, studies in the US found that an increase in Medicaid payments was associated with an increase in clinical quality indicators (Grabowski & Angelelli, 2004; Grabowski, Angelelli, & Mor, 2004; Mor et al., 2011). However, no prior research has examined the joint effect of introducing value based payment along with a substantial increase in public payment for care.

*Minnesota Nursing Facility Reimbursement Policies*

Payment for nursing facility care in Minnesota like other US states comes from a mixture of sources. Post-acute care, up to 100 days after admission is typically covered by the Federal Medicare program. Longer term care is covered largely by the Medicaid program, a combination of state and Federal funding but administered by the state, or through private out of pocket payments by consumers. A small number of residents are covered by private insurance or other sources. In the period 2013-2017, 56% of resident days were covered by Medicaid, 26% by individuals paying privately, 9% by Medicare, and 9% by other sources. Minnesota is unique among the US states in having a “rate equalization law” which mandates that rates charged to private paying residents must equal the Medicaid rate. Therefore, an increase in the Medicaid rate automatically translates into an increase in the rate to consumers paying privately. Minnesota is similar to other states in adjusting payment rates for resident case mix; residents have higher acuity based on a case mix index score have higher payment rates.

Prior to 2016 when VBR was enacted, Medicaid payment rates for 2006 to 2015 were set primarily according to a facility’s historical costs from the period 1999-2006. A facility received a fixed rate each year, largely independent of its annual costs. In some years, rates were inflation adjusted and a small proportion of the rate was adjusted to reflect actual costs incurred each year. Overall, however, facilities experienced little payment rate growth.

The nursing home industry argued that this rate setting approach did not adequately recognize increased cost of care due to regulatory requirements, new technologies, or other changes in care delivery. In addition, rates varied widely between facilities even among those caring for the same types of residents in a common geographical area. Facilities with lower historical costs prior to 2006, and thus a lower fixed payment rate going forward, were particularly constrained in their ability to invest in resources that would improve care quality.

The new VBR system made fundamental changes in Medicaid rate setting. First, it divided the majority operating costs into two main components: care related (nursing and other care-related) and other operating (administration, dietary, housekeeping, and laundry), with separate rates set for each component. Second, it rebased each facility’s rate according to actual costs in cost reporting period two years prior. System was designed to encourage facility expenditures on nursing and other care related areas, while economizing in other operating areas. The payment rate for the care related component, about 65% of total operating costs, was based on a facility’s reported costs. To incentivize better care quality, the care related rate was subject to a limit set according to the facility’s VBR quality score (described below). The higher a facility’s quality score, the higher the limit and the more the rate would reflect the facility’s actual costs. In contrast, the other operating component of the rate was a price paid to all facilities throughout the state regardless of their costs. Facilities were incentivized to reduce their other operating expenditures to avoid a loss and to maximize their profits. The legislature anticipated that implementation of VBR would be costly, primarily because of increases in the care related rate component and, thus, added $350 Million to the Medicaid budget.

*Facility Ownership and Response to VBR*

Because non-profit and governmental facilities tend to have operating strategies that focus on care quality as opposed to profit, we expect them to deliver better care than For-profit facilities during the pre-VBR period (2013-2015). We also expect them to direct more of their revenue into nursing and other care-related areas in order to achieve better care quality. After introduction of the new VBR system (2016-2017), we expected non-profit and governmental facilities to both invest more in care-related areas and achieve even higher quality. On the other hand, we do not expect them to have a strong response to the profit incentive associated with the other operating component of the rate.

We expect for-profit facilities to have lower quality of care than other ownership types during the pre-VBR period (2013-2015). We expect them to have a significant increase in quality after VBR as they respond to financial incentives. Because of the profit incentive associated with the other operating component of the rate, i.e. fixed price regardless of costs, we expect for-profit to reduce their expenditures in this area to bring their costs below the price.

Because of their lower overall quality, we expect for-profit facilities will have a more difficult time attracting residents. As a result, they will have lower occupancy rates than non-profit or governmental facilities, particularly during the pre-VBR period. After VBR, occupancy rates in for-profit facilities should improve with increased investment in care related services and improved quality of care.

**Methods**

Because VBR was implemented statewide at a single point in time, we lacked a natural comparison group. We relied instead on pre/post design tracking trends in outcomes, before (2013-2015) and after (2016-2017) implementation of VBR.

The sample consisted of all of the state’s 348 skilled nursing facilities which had data for the five year period (2013-2017). Data came from three sources. Cost data came from annual Medicaid cost reports submitted to the state annually by facilities detailing their care-related costs (e.g., nursing, activities, social work, and medical records services and supplies) and other operating costs (e.g., administrative, dietary, laundry, and housekeeping services and supplies). Data on facility characteristics (e.g., ownership type, resident days, occupancy) came from other state administrative files. Measures of care quality came from the Minnesota Nursing Home Quality Report Card, a comprehensive public reporting system containing facility-level performance on clinical quality indicators, results from quality of life and consumer satisfaction surveys, and regulatory findings (DHS, 2019).

Facility ownership types were for-profit, non-profit (largely religiously affiliated), and governmental (largely county governments). We modeled three outcome variables: total care-related cost per resident day, occupancy percentage, and quality score. Total care-related cost per day was calculated as the annual facility expenditures for nursing and other care related staff, services, and supplies divided by the annual number of resident days (unique residents multiplied by their length of stay, summed). Occupancy percentage was calculated as the annual resident days divided by the 2013 annual capacity (capacity being the number of licensed beds multiplied by the number of days they were licensed). The number of licensed beds is fluid from year to year which causes occupancy percentage change to be a function of both the numerator and the denominator. As our interest was in the change in resident days, we fixed the capacity to the baseline year.

The quality score is a composite measure designed by the state of Minnesota which is comprised of three components: clinical quality indicators (0-50 score), quality of life survey results (0-40 score), and regulatory findings (0-10 score). Possible quality scores range from 0 – 100. The clinical quality indicators are calculated from resident-level Minimum Data Set (MDS) assessments performed at admission and periodically thereafter on all nursing facility residents. The 21 quality indicators measure facility-level prevalence or incident rates for care processes, such as physical restraints or inappropriate antipsychotic use, and outcomes, such as pressure sores, weight loss, or falls with injury (DHS, 2019). The quality of life component of the VBR quality score is based on an annual quality of life interview of a representative sample of residents from each nursing facility. The interview taps dimensions such a meaningful activities, food enjoyment, environment, dignity, autonomy, relationships, caregiving and mood. The regulatory component of the VBR quality score is derived from nursing home inspections carried out by state regulators. Each facility receives a rating according to the scope and severity of deficiencies in care uncovered during the inspection.

Other facility characteristics served as covariates. These included attachment to an acute care hospital, facility case-mix (clinically-based measure of resident direct care resource requirements), geographic location (Twin Cities of Minneapolis or Saint Paul, other urban location, or rural location), number of nursing facility beds, and Medicaid days as a percentage of total resident days during the year.

Linear growth models were used to assess the relationship between the independent variables and each of the three outcomes using Proc Mixed in SAS version 9.4. The correlation within facilities arising from repeated measurement were modeled using an unstructured covariance matrix. Annual change in outcomes was measured using a linear slope for time. An indicator for years in which the VBR legislation was in effect (2016-17) allowed for a possible shift in the intercept and was of primary interest. Additionally, an indicator for ownership status of ‘for-profit’ as well as its interaction with the VBR year indicator were included to assess if reaction to the legislation differed across ownership type.

Additional control variables included indicators for whether or not the facility had a hospital attached, was located in the Twin Cities (Minnesota’s primary metropolitan statistical area or MSA), or was located in another MSA. Number of residents per day was included in the total care cost per day, total other operating cost per day, and quality score models, but not the occupancy model given resident days are the numerator of that response. To control for facility size in the occupancy model, we used the number of beds split into three levels, the lowest quartile, middle 50%, and largest quartile. Annual change in occupancy was controlled for in the total care cost per day, total other operating cost per day, and quality score models, but not the occupancy percentage model. Continuous variables for annual facility average acuity level (ranging from 0.51 – 1.61) and percentage of resident days with Medicaid as the payer were included to control for difficulty of care and resident socio-economic status. For the quality score model, the total care cost per day was entered alone as well as its interaction with the VBR year indicator. Significance for all regression coefficients was set at 0.05.

**Findings**

*Trends in Outcomes and Other Variables*

The majority of facilities (61%) were non-profit; 29% were For-profit, and 10% governmental (Table 1). Ownership types changed very little from 2013 to 2017. Mean facility occupancy rates showed a steady decline from 88.8% in 2013 to 84.5% in 2017. The mean number of available beds and residents per day showed similar declines. The mean facility total reported costs, care related cost per resident day, and other operating costs per resident day increased each year. As we expected, the largest increases occurred between 2015 and 2016 when the new VBR system was implemented. Costs continued to rise in 2017. Mean total costs PRD jumped from $180 in 2015 to $199 in 2016 and $210 in 2017. Mean care-related costs jumped from $115 in 2015 to $128 in 2016 and $136 in 2017. Interestingly, facilities increased expenditures in both care-related and other operating areas. Other operating costs jumped from $65.33 in 2015 to $70.26 in 2016 and $74.00 in 2017. As a result, care-related costs as a percentage of total costs changed very little from 2013 (64.45) to 2017 (64.95). The mean facility VBR quality score increased only slightly over the five-year period from 75.3 in 2013 to 77.4 in 2017. There was no appreciable jump between 2015 and 2016.

*Outcome Trends by Ownership Type*

Figures 1-3 show mean facility costs in 2013-2017 by ownership type. For-profit facilities had significantly lower mean care-related, other operating, and total costs PRD in each of the five years. Nonetheless, all three ownership types followed the pattern of a significant increase in each of these cost areas between 2015 and 2016, followed by another significant increase in 2017. Compared to Non-profit and governmental facilities, For-profit facilities had a significantly lower percentage of their costs in care-related areas in all 5 years (Figure 4). None of the ownership types had significant increases in percentage of care-related costs over the 5-year period or between 2015 and 2016.

Non-profit facilities had significantly higher mean occupancy rates compared to For-profit and governmental facilities in all 5 years (Figure 5). For-profit facilities experienced a significant downward trend in occupancy percentage from 2015-2017; while Non-profit and governmental facilities remained at approximately the same levels. These figures indicate that the pattern of overall occupancy rate decline in Table 1, were driven largely by declines among For-profit facilities.

As we expected, For-profit facilities had significantly lower mean VBR quality scores than non-profit and governmental facilities (Figure 6). The gap in quality score between ownership types widened from 2013 to 2017. Whereas the mean VBR quality scores for Non-profit and governmental facilities trended upward over the 5 year period, the scores of For-profit facilities remained relatively flat.

*Growth Models*

We developed growth models to test for relationships between VBR implementation, ownership type, and outcomes over a 5 year period while controlling statistically for relevant covariates. We begin with the model for care-related per resident day (PRD) costs (Table 2). Annual care-related PRD costs grew at a rate of $3.74. The implementation of VBR (VBR Years) shifted (intercept change) rates by $10.90 on average per facility. For-profit facilities fell below government and non-profits (comparison ownership type) by an average of $8.63 PRD. VBR did not appear to significantly impact that gap (nominally the gap widened). Several covariates also had significant relationships. Facilities attached to hospitals out-spent their peers by $23.80. Facilities in the Twin Cities area outspent rural facilities by $15.05 PRD, and facilities in other urban areas out-spent rural facilities by $4.04 PRD. Higher costs were also incurred by larger facilities (residents/day), a higher case-mix index, lower percentage of Medicaid residents, and facilities with occupancy declines.

Second, we modeled other operating cost PRD (administrative, dietary, laundry, and housekeeping). Relationships for annual other operating cost PRD were similar to care related costs PRD, but on a more modest scale. Annual growth was $2.58, with a VBR shift (intercept change) of $2.08. For-profit facilities spent less (-$3.36) than other ownership types. Hospital attached facilities spent an average of $12.86 more PRD. Twin City facilities spent an average of $5.03 PRD more than rural facilities, but there was not a significant difference between other urban MSAs and rural facilities. Larger facilities spent less on other operating costs PRD at a rate of -$0.07 per daily resident. Higher case mix was positively correlated ($25.34) and occupancy change was negatively correlated (-$0.29) with other operating costs PRD.

Third, we modeled facility occupancy rate. Results from this model indicated that percentage occupancy declined by -1.80% annually from 2013-2017. The implementation of VBR (VBR years) did not have a significant impact on occupancy, the downward trend was consistent between the pre-VBR and VBR periods. For-profit facilities averaged -2.43% below the non-profit and governmental facilities. Occupancy percentage was significantly lower for facilities with fewer beds (-3.58%) and a higher case mix index (-10.86%).

Finally, we modeled the facility’s VBR quality score. The quality score grew at a small but significant rate of 0.58 points per year from 2013-2017. The implementation of VBR did not have a significant impact on the average quality score; the upward trend was consistent across the pre-VBR and VBR periods. For-profit facilities fell below government and non-profits (comparison ownership type) by an average of -2.51 quality points. The implementation of VBR did not appear to significantly impact that gap between for-profit facilities and other ownership types (VBR \* For-profit ownership). Facilities in the Twin Cities metro area had higher quality scores (1.63) than rural facilities, while facilities with a higher percentage of Medicaid residents had lower scores. Surprisingly, care related cost PRD was not associated with VBR care quality either alone or when interacted with VBR implementation.

**Discussion**

We found evidence that implementation of VBR met state policy goal of increased nursing and other care-related expenditures. Average annual VBR impact was estimated to be $10.90 PRD. Non-profit, governmental and for-profit facilities all increased their care related expenditures. However, for-profit facilities underspent the other two ownership types by an average of -$8.63 PRD. Costs in the other operating component of the rate also increased significantly for all three ownership types despite the profit-incentive for reducing these costs. For-profit facilities were no more likely to respond to this profit incentive than the non-profit or governmental.

On the other hand, the VBR did not have the intended effect of increasing care quality. The quality score for non-profit and governmental facilities trended slightly upward across both the per-VBR and VBR periods; whereas, the trend among for-profit facilities was relatively flat. For-profit facilities continued to fall below non-profit and governmental facilities in their care quality throughout the 2013-2017 period.

Occupancy rates among for-profit facilities also fell significantly below rates for non-profit and governmental facilities. For-profits facilities were no better at attracting residents in the nursing home market after the implementation of VBR. In fact, they trended downward in occupancy after VBR, widening the gap between themselves and the non-profits and governmental facilities.

Our study had several limitations. First, findings may not be generalizable to other states. Minnesota is noted for its high quality of long-term supports and services. For example, it has ranked near the top each year in AARP’s ranking of state support for long-term care. It also has a much higher percentage of non-profit facilities (61% vs. 24%) and a lower percentage of for-profit facilities (29% vs. 70%) than the national averages. Second, the before and after observational study design limits our ability to draw conclusions about causality. Third, the quality incentive ended up being relatively weak quality. The quality-based reimbursement limits were set so high that very few facilities were affected; nearly all facilities ended up receiving their full care related rate. In the first year of VBR (2016), facilities did not know their rates in advance so the weak incentive probably did not have an effect. However, in 2017 they would have been aware of the rate setting process and could have backed off their efforts to improve quality. Finally, the failure to achieve a significant jump in quality scores may be indicative of the difficulty of making major changes in care quality. The VBR quality score is very comprehensive, covering 21 clinical quality indicators, a multidimensional resident quality of life scale, and a range of regulatory findings. Moving the needle on care quality requires making improvements across multiple dimensions. In contrast, facilities probably found it relatively easy to increase care-related expenditures after receiving a major increase in revenue. Effectively deploying these resources for quality improvements could have been challenging.

**Conclusion**

Our evaluation found no evidence that for-profit facilities were more responsive to the VBR system than the other ownership types. Compared to for-profits, non-profit and governmental facilities continued to spend more on nursing and other care related services, deliver higher quality of care, and be more attractive to consumers as evidenced by their consistently higher occupancy rates.

Table 1. Characteristics of Nursing Facilities by Year (N=358)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 2013 | 2014 | 2015 | 2016 | 2017 |
|  | % or Mean [SD] | % or Mean [SD] | % or Mean [SD] | % or Mean [SD] | % or Mean [SD] |
| For-profit | 29% | 29% | 29% | 30% | 32% |
| Government | 10% | 10% | 10% | 9% | 9% |
| Non-profit | 61% | 61% | 61% | 61% | 60% |
| Hospital attached | 13% | 13% | 13% | 13% | 13% |
| Case-mix | 1.02 | 1.02 | 1.01 | 1.01 | 1.01 |
|  | [0.13] | [0.12] | [0.12] | [0.12] | [0.12] |
| Occupancy rate | 88.8% | 88.6% | 87.2% | 85.5% | 84.5% |
|  | [7.8%] | [8.0%] | [8.7%] | [9.4%] | [10.4%] |
| Occupancy change | -0.6% | -0.3% | -1.4% | -1.8% | -0.9% |
|  | [6.1%] | [5.2%] | [5.7%] | [6.0%] | [5.4%] |
| Percent Medicaid days | 57% | 56% | 55% | 56% | 57% |
|  | [14%] | [15%] | [14%] | [14%] | [14%] |
| Twin-Cities location | 35% | 35% | 35% | 35% | 35% |
| Other urban location | 16% | 16% | 16% | 16% | 16% |
| Rural location | 49% | 49% | 49% | 49% | 49% |
| Number of beds | 81.7 | 80.6 | 79.7 | 79.0 | 77.9 |
|  | [46.3] | [46.2] | [46.2] | [46.1] | [45.3] |
| Care related costa | $110.70 | $112.32 | $115.02 | $128.30 | $136.21 |
|  | [$22.92} | [$20.42] | [$21.16] | [$23.10] | [$24.34] |
| Other operating costa | $60.98 | $64.36 | $65.33 | $70.26 | $74.00 |
|  | [$14.12] | [$15.39] | [$17.23] | [$17.27] | [$18.22] |
| Total costa | $171.68 | $176.68 | $180.35 | $198.55 | $210.21 |
|  | [$32.77] | [$31.06] | [$33.10] | [$34.60] | [$36.63] |
| Care related % of total | 64.4% | 63.6% | 63.9% | 64.7% | 64.9% |
|  | [4.6%] | [4.7%] | [4.9%] | [4.8%] | [4.7%] |
| VBR quality score | 75.3 | 76.0 | 76.5 | 77.1 | 77.4 |
|  | [6.1] | [5.8] | [6.4] | [6.1] | [6.2] |

a Per resident day

Table 2. Growth Models for Major Outcomes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Outcome | Care-RelatedCost per Resident Day+ | Other Operating Cost per Resident Day | Occupancy %(Base Capacity) | Quality Score |
| Variable |  |  |  |  |
| Intercept | **$43.23** | **$33.79** | **100.03%** | **82.12** |
| Year (2013-2015) | **$3.74** | **$2.58** | **-1.80%** | **0.58** |
| VBR Years (2016-17) | **$10.90** | **$2.08** | -0.48% | 1.23 |
| For-profit Ownership | **-$8.63** | **-$3.36** | **-2.43%** | **-2.51** |
| VBR \* For-profit Ownership | -$0.52 | -$1.06 | -0.36% | -0.13 |
| Hospital Attached | **$23.80** | **$12.86** | 1.94% | 0.93 |
| Twin Cities | **$15.05** | **$5.03** | 1.36% | **1.63** |
| Other MSA | **$4.04** | $2.20 | 2.13% | -0.48 |
| Residents per Day (15.4 – 317.1) | **$0.05** | **-$0.07** |  | -0.003 |
| Beds (Q4 $\geq $ 97) |  |  | **2.09%** |  |
| Beds (Q1 $\leq 50$) |  |  | **-3.58%** |  |
| Case-mix(0.52 – 1.61) | **$54.86** | **$25.34** | -**10.86%** | -1.59 |
| Percent Medicaid Resident Days (0-100) | **-$0.09** | $0.01 | -0.03% | **-0.05** |
| Occupancy Change (Base Capacity\*, -37.3 – 80.3) | **-$0.33** | **-$0.29** |  | -0.001 |
| Care Related Cost per Day(51.91 – 222.25) |  |  |  | -0.02 |
| VBR \* Care Related Cost per Day |  |  |  | -0.006 |

Bolded figures indicate statistical significance at the 5% level. &Regression coefficients. \*2013 Facility Capacity. +Direct Care + Other Care Related Costs per unstandardized day.

Note: Occupancy change was 0 for 2013.

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