

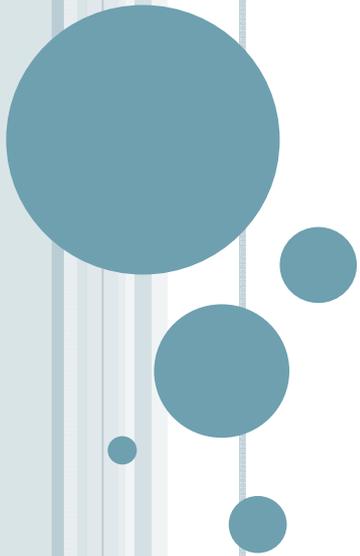
NURSING HOME WORK GROUP

October 13, 2009

AGENDA

- Status of April 1, 2009 Rates + \$210 Million
 - Update DOH/JATF review of MDS Midpoint Methodology
- Preliminary Quality Recommendations
 - Short Term Approach
 - Long Term Approach
 - Consumer Satisfaction Survey
 - HATCH Residential Survey
- Using statistical analysis to identify factors that explain differences in direct and indirect costs among facilities
- Next Steps ~ Value Based Purchasing Model
 - Regional Price Model
 - Quality
- Next Meeting

QUALITY



NURSING HOME QUALITY MEASURES

Staffing	Long Stay Measures MDS Resident Outcomes	Survey Scores
<p>Total RN Hours + RN Agency Contracted Staff Hours / Total Hours All Staff (RN, Contract, LPN, Aides, Orderlies)</p>	<p>% of Residents Who Have/Had a Catheter Inserted and Left in their Bladder % of Residents with a Urinary Tract Infection % of Residents Who Lose Too Much Weight % of Residents Whose Need for Help with Daily Activities Has Increased % of Residents Whose Ability to Move About In and Around Their Room Decreased</p>	<p>Re-Certification Survey Scores</p>
<p>Weight: 20%</p>	<p>Weight: Each Measure 12%, Category 60%</p>	<p>Weight: 20%</p>
<p>Source: Facility specific ASPEN (Automated Survey Processing Environment) data</p>	<p>Source: Facility specific Minimum Data Set (MDS)</p>	<p>Source: Facility Specific ASPEN data</p>

NH QUALITY INCENTIVE POOL

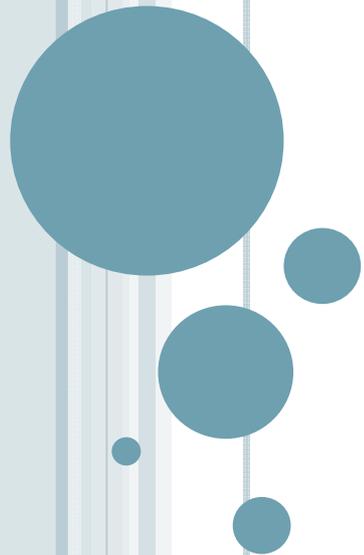
SHORT TERM GOALS

- **Utilize all components of existing NH Quality Incentive Pool to reward:**
 - Highest quality achievers (Year 1)
 - Highest quality achievers and improvers (Year 2)
- **Complete analyses of data collected during CMS national nursing home time study (STRIVE) for incorporation into quality measures.**
- **Complete research of various family/resident satisfaction surveys conducted throughout the nation.**
 - Supports the success of the joint federal-provider Nursing Home Quality Initiative (NHQI).
 - Aligns with the NH industry's own "Quality First and Advancing Excellence" campaigns, utilizing & expanding on consumer-driven data & quality of life experiences (OBRA 87).

NH QUALITY INCENTIVE POOL LONG TERM GOALS

- **Re-Calculate Staffing/Case Mix component using STRIVE data collected during the 2006-07 CMS study.**
 - Supports efficiency & accuracy of resident specific information coded on the Minimum Data Set (MDS) by NH providers
 - Remains consistent with CMS approach to recognized changes in health care practices
 - Design staffing/case mix component to promote quality
- **Incorporate a weight for resident/family satisfaction results into the overall pool.**

2007 ALLOWABLE COSTS ~ REGRESSION ANALYSIS



PRINCIPLES OF MEDICAID REIMBURSEMENT REFORM

Medicaid rates should:

- Be transparent and administratively efficient; be predictable and facilitate timely payments
- Pay reasonably and adequately for quality care for Medicaid patients
- Encourage cost-effective care and promote efficiencies
- Include appropriate payment adjustments to reflect cost-influencing factors
- Encourage and reward quality care and promote care innovations
- Encourage care in the appropriate setting; assure adequacy of alternate settings
- Be updated periodically
- Comply with federal Medicaid rules
- Reinforce health systems planning and advance state health care programs
- Be consistent with available resources

USING REGRESSION ANALYSIS AS A TOOL

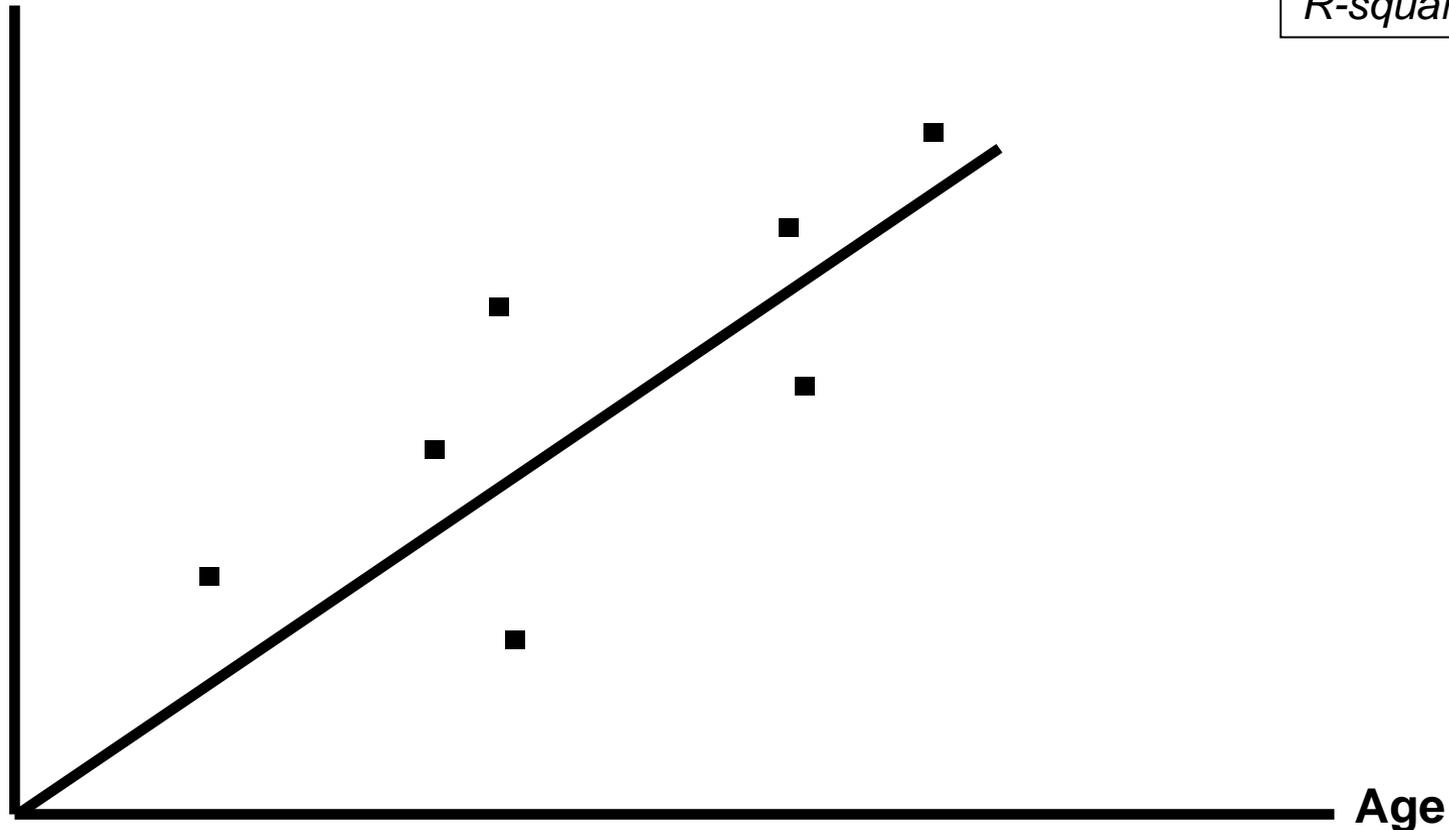
- Identify the factors associated with the *current* allowable cost differentials among nursing facilities.
- Use this information to assist in the development of a transparent Regional Pricing methodology that eliminates distortions, administrative complexities, and fosters quality care

WHAT IS LINEAR REGRESSION?

- *Linear regression* is a method of estimating the relationship between the dependent variable, Y , and one or more independent variables, X .
 - Linear regression can be used to quantify the strength of the relationship between the dependent (response) variable and the independent (explanatory) variables.
 - The relationship of the dependent variable to the independent variables is assumed to be linear.
 - The goal is to find the straight line that best predicts Y from X .

SIMPLE EXAMPLE OF LINEAR REGRESSION

Hair Loss



Regression analysis estimates the line that minimizes the sum of the squared vertical deviations between observations and the regression line.

MEASURING OVERALL FIT ~ HOW MUCH VARIATION IS EXPLAINED?

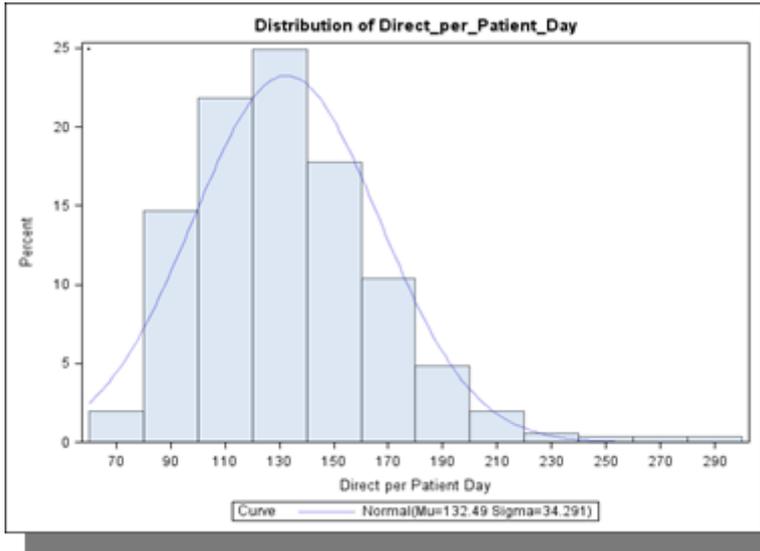
- How much of the variation in hair loss is explained by age?
- R-Square measures how much of the variation is explained
- R-Square expresses the fraction of the total variance of Y that is “explained” by the variation in X
 - If $R^2 = 0.78$, this means that 78% of the change in Y can be explained by the change in X (i.e., 22% of variation is explained by something else).



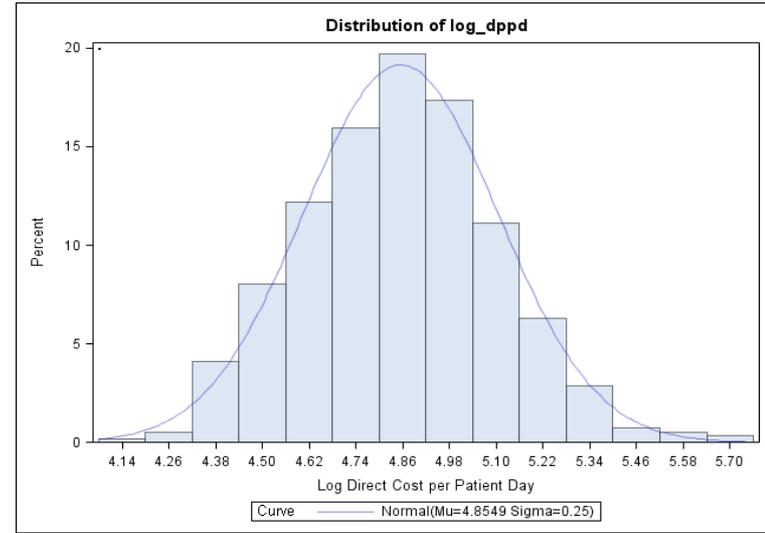
DATA FOR REGRESSION ANALYSIS

- 570 nursing home facilities (excluding specialty facilities) throughout New York State that filed a properly certified full calendar year 2007 cost report on or before January 1, 2009 (Section 2808 2-c PHL).
 - Complete variable information was obtained for 558 facilities which were used in this analysis.
- Dependent Variables: 2007 Direct cost per patient day, 2007 Indirect cost per patient day
- Independent Variables: NYPHRM regions, Medicaid occupancy, 2007 full house case mix, direct full time equivalents (FTE's) per bed (RN per bed, LPN per bed, total Aide and Orderlies per bed), square footage, bed size (≤ 80 , 81-299, 300+), affiliation (hospital-based versus freestanding), sponsorship (proprietary, voluntary, public)

DISTRIBUTION OF OUTCOMES

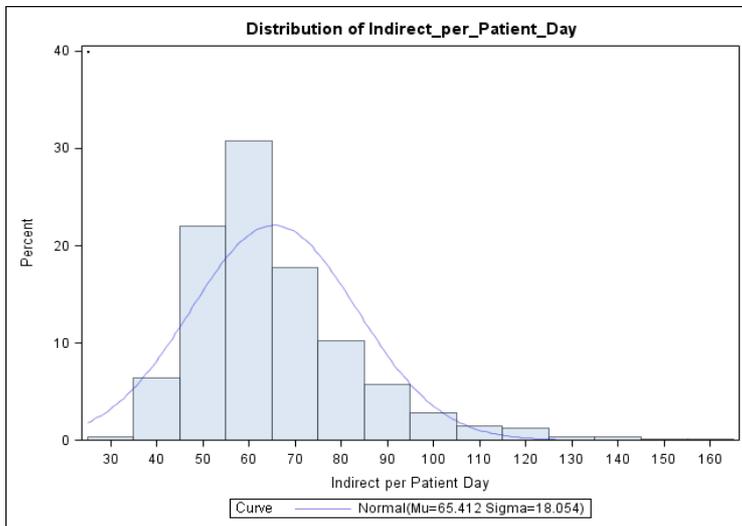


Direct Cost per Patient Day

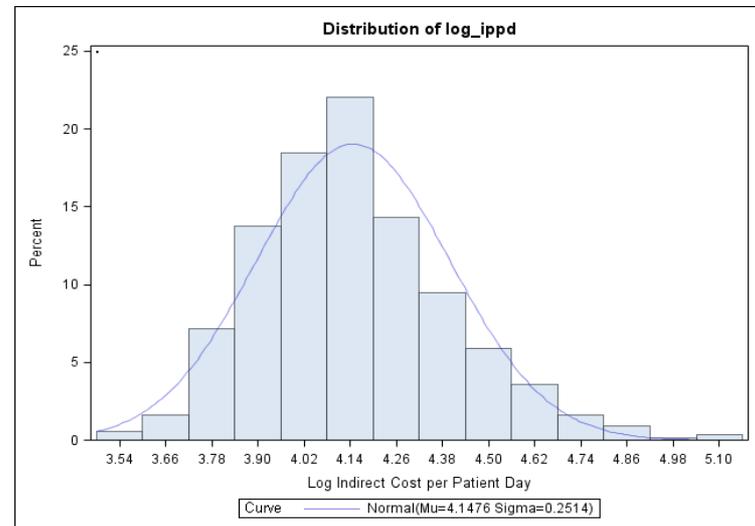


Log(Direct Cost per Patient Day)

Indirect Cost per Patient Day



Log(Indirect Cost per Patient Day)



REGRESSION MODELS ~ TWO MODELS TO EXPLAIN VARIATION IN COST PER DAY

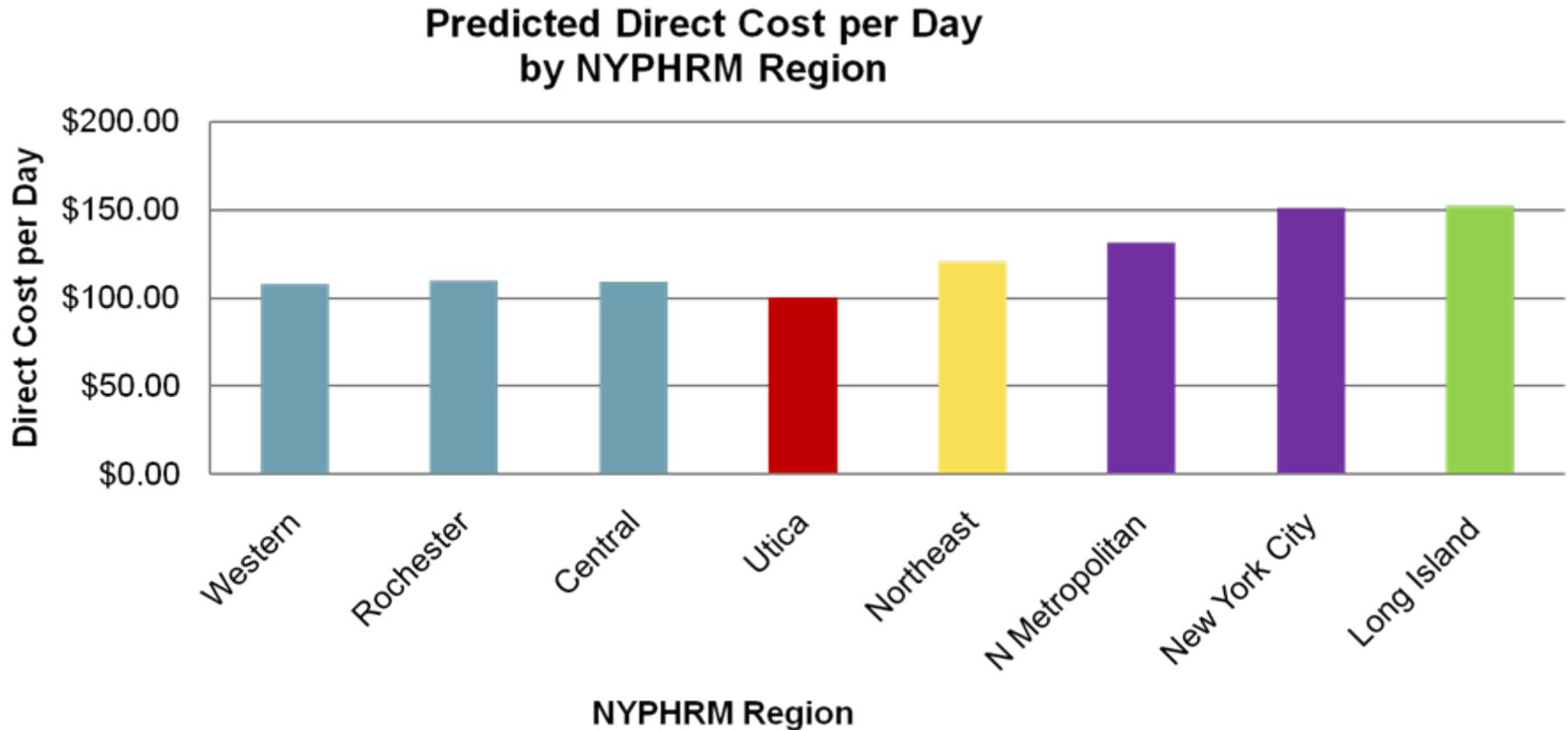
Two Models to Explain Variation in Cost

- Direct Cost Per Day: Costs of nursing administration, physical, occupational and speech therapy, pharmacy, central service supply and nursing facility
 - Which variables explain and don't explain variation in Direct Costs Per Day ?
- Indirect Cost Per Day: Costs of fiscal and administrative services, plant operation and maintenance, security, laundry and linen, housekeeping and patient food service
 - Which variable explain and don't explain variation in Indirect Costs Per Day ?

LINEAR REGRESSION - EXPLAINING DIRECT COST PER DAY

Direct Cost Per Day Significant Variables (Explain Variation In Direct Cost Per Day)	Direct Cost Per Day Insignificant Variables (Do NOT Explain Variation in Direct Cost Per Day)
NYPHRM Region	RN FTE Per Bed
All Payer Case Mix	Bed Size
Sponsorship	Square Footage
Affiliation (Hosp Based/Freestanding)	
Medicaid Occupancy	
Aides and Orderlies FTE Per Bed	
LPN FTE Per Bed	

DIRECT COST PER DAY – NYPHRM REGION

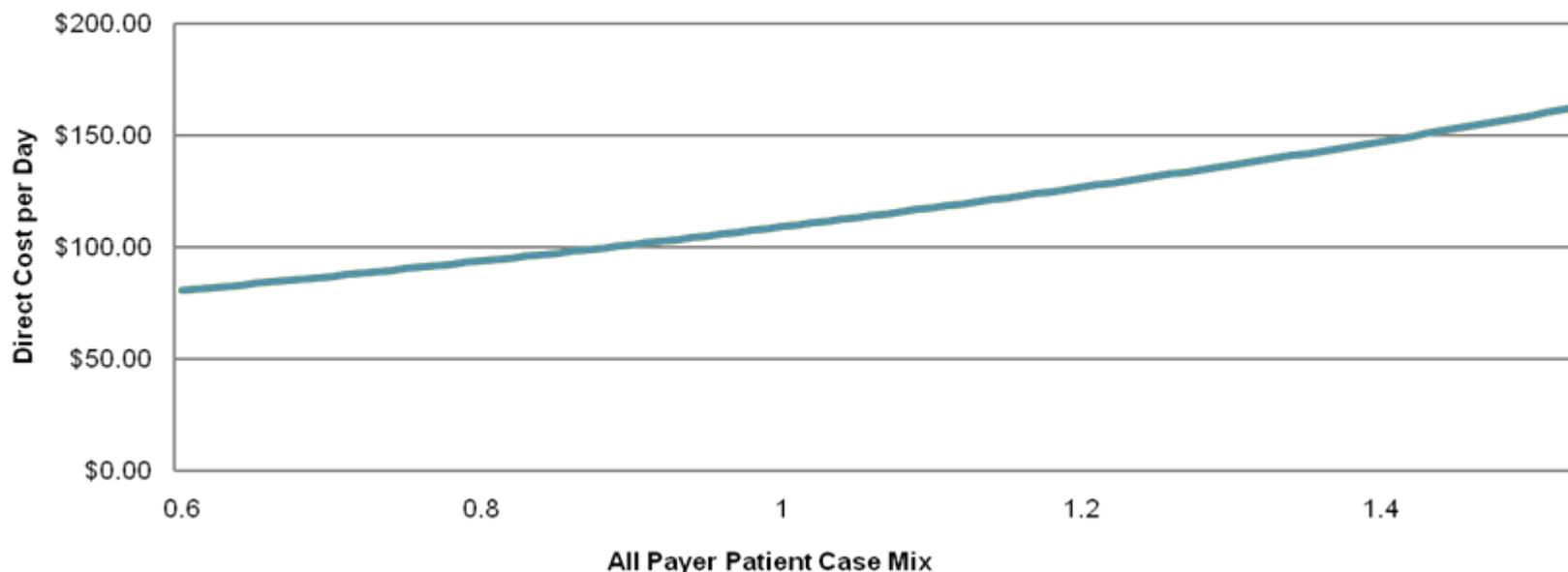


NYPHRM regions account for 25.7% of the variation in direct cost per day in the presence of all other model covariates.



DIRECT COST PER DAY – ALL PAYER PATIENT CASE MIX

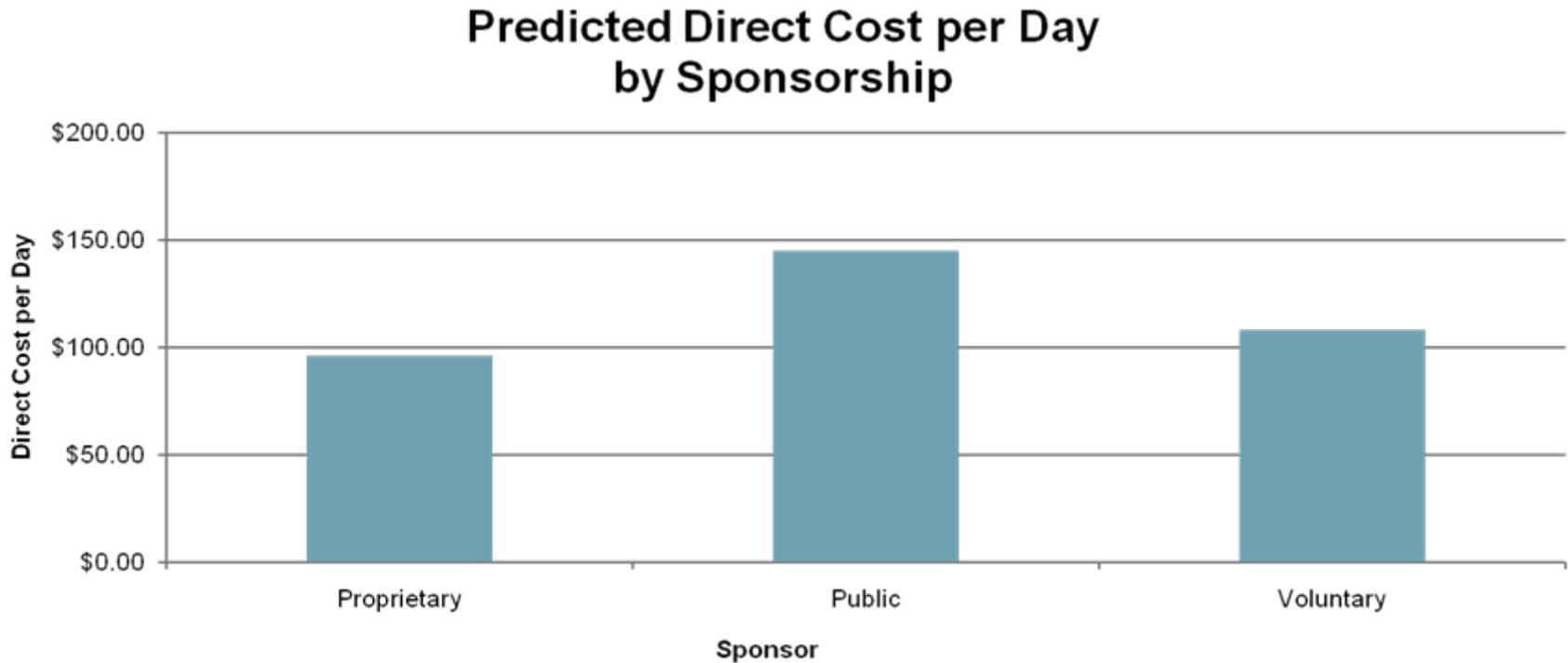
**Predicted Direct Cost per Day
by All Payer Patient Case Mix**



All payer patient case mix accounts for 15.59% of the variation in direct cost per day in the presence of all other model covariates.

The inclusion of NYPHRM region and all payer patient case mix in the model accounts for 41.29% of the variation in direct cost per day.

DIRECT COST PER DAY – SPONSORSHIP



Sponsorship accounts for 21.29% of the variation in direct cost per day in the presence of all other model covariates.

The inclusion of NYPHRM region, all payer patient case mix and sponsorship in the model accounts for 62.59% of the variation in direct cost per day.

OTHER SIGNIFICANT VARIABLES THAT MAKE A SMALL CONTRIBUTION IN EXPLAINING VARIATION IN DIRECT COSTS PER DAY

- Other Variables that are significant, but do not substantially increase R-Square include:
 - Medicaid Occupancy
 - Increase R-Square by 1.83%
 - Affiliation (Hosp Based / Freestanding Facilities)
 - Increase R-Square 1.57%
 - Aides and Orders FTE's Per Bed
 - Increase R-Square .41%
 - LPN FTE's Per Bed
 - Increase R-Square .22%



DIRECT COST PER DAY ~ FINDINGS

- Variables that explain bulk of variation in costs per day include: Region, Case Mix and Sponsorship
- The analysis supports collapsing NYC and Northern Metropolitan NYPHRM regions as well as Rochester, Central, and Western NYPHRM regions.
- Bed size and square foot are not a significant predictors of direct cost per day indicating bed size is not a relevant or necessary add-on

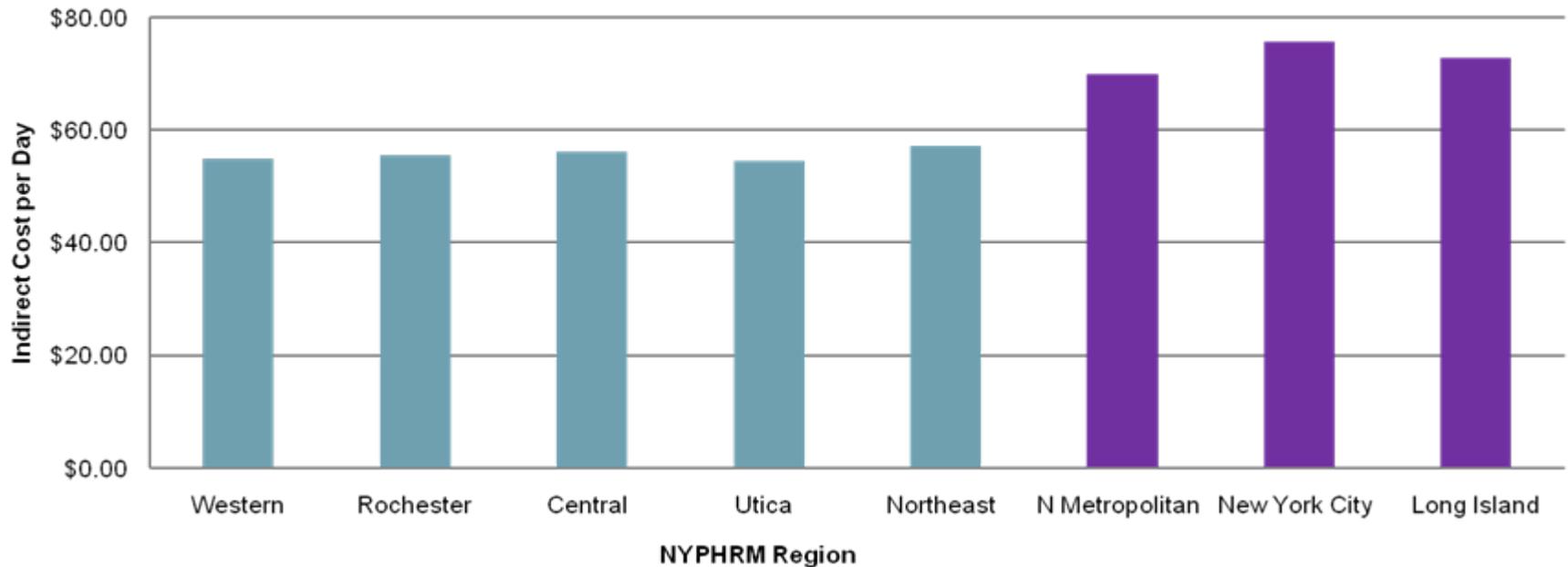
LINEAR REGRESSION - EXPLAINING INDIRECT COST PER DAY

Indirect Cost Per Day Significant Variables (Explain Variation In Direct Cost Per Day)	Indirect Cost Per Day Insignificant Variables (Do NOT Explain Variation in Direct Cost Per Day)
NYPHRM Region	Square Footage
Affiliation (Hosp Based/Freestanding)	All Payer Case Mix
Medicaid Occupancy	
Sponsorship	
Bed Size	



INDIRECT COST PER DAY – NYPHRM REGION

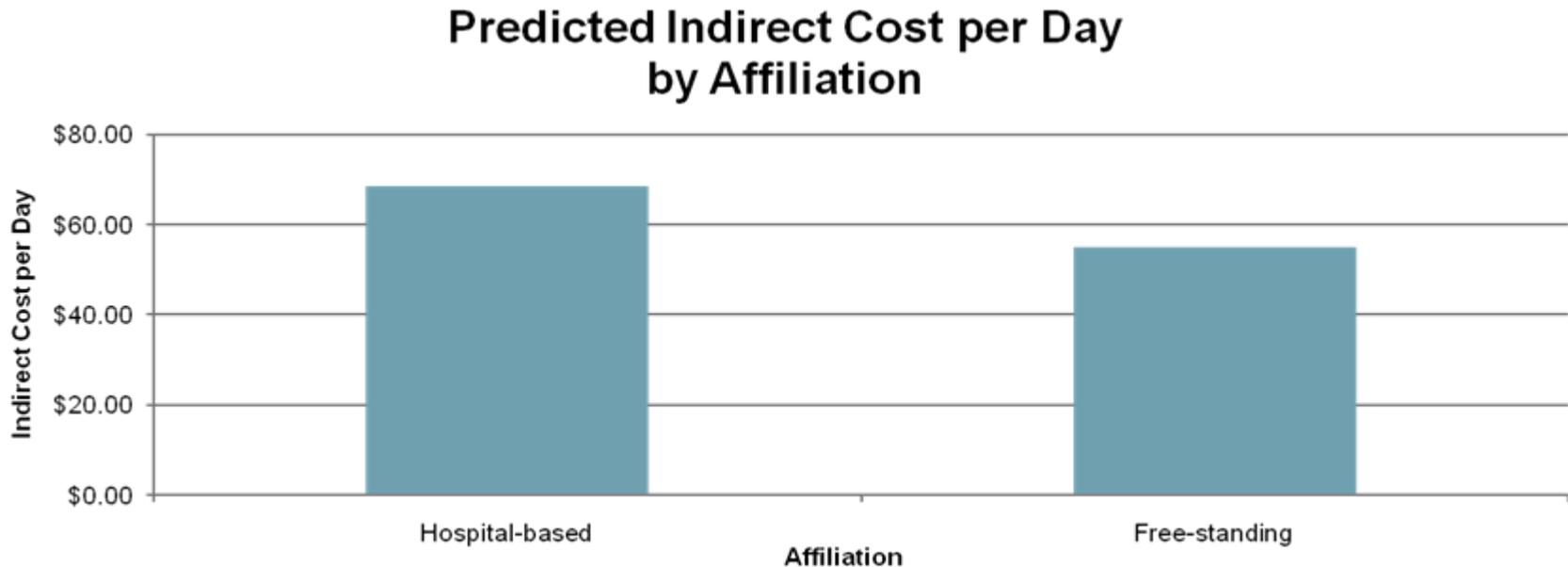
Predicted Indirect Cost per Day
by NYPHRM Region



NYPHRM regions account for 8.53% of the variation in indirect cost per day in the presence of all other model covariates.



INDIRECT COST PER DAY – AFFILIATION



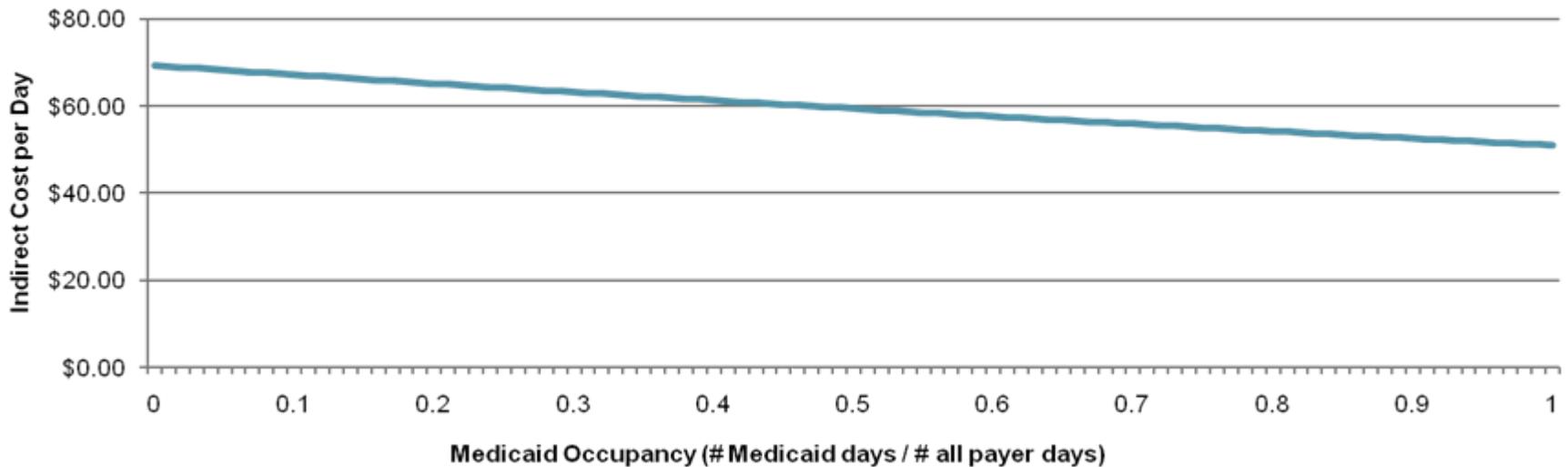
Nursing home affiliation accounts for 9.21% of the variation in indirect cost per day in the presence of all other model covariates.

The inclusion of NYPHRM region and nursing home affiliation in the model accounts for 17.74% of the variation in indirect cost per day.



INDIRECT COST PER DAY – MEDICAID OCCUPANCY

Predicted Indirect Cost per Day
by Medicaid Occupancy

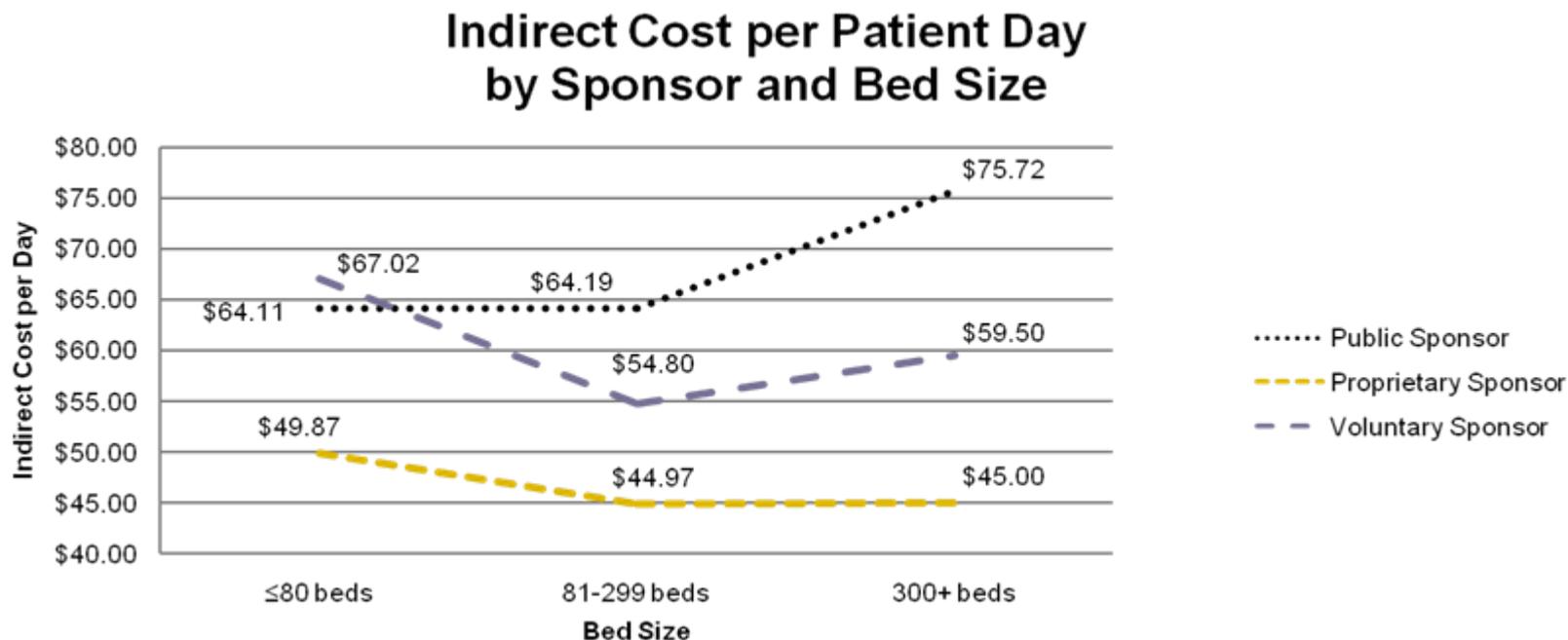


Medicaid occupancy accounts for 2.17% of the variation in direct cost per day in the presence of all other model covariates.

The inclusion of NYPHRM region, nursing home affiliation and Medicaid occupancy in the model accounts for 19.91% of the variation in indirect cost per day.



INDIRECT COST PER DAY – SPONSORSHIP AND BED SIZE



By assessing indirect cost per day at different levels of sponsor and bed size, it becomes clear that the relationship between indirect cost per day and sponsor varies depending on the bed size of a facility.

Sponsor and bed size account for 36.8% of the variation in indirect cost per day in the presence of all other model covariates. The inclusion of NYPHRM region, nursing home affiliation, Medicaid occupancy, bed size and sponsorship in the model accounts for 56.71% of the variation in indirect cost per day.

INDIRECT COST PER DAY ~ FINDINGS

- Variables that explain the bulk of variation in costs per day include: NYPHRM Region, Medicaid Occupancy, Sponsorship, Bed Size and Affiliation
- The analysis supports collapsing Northern Metropolitan, NYC and Long Island NYPHRM regions as well as Western, Rochester, Central, Utica and Northeast NYPHRM regions.
- Hospital Based and Freestanding facilities do not support intuitive logic that costs would benefit from economies of scale
- Similarly, Sponsorship and Bed Size do not reflect expected economics of scale
- Square footage and all payer patient case mix are not statistically significant predictors of indirect cost per day.

SUMMARY OF REGRESSION RESULTS

- Regression analysis confirms the key elements of Regional Pricing
 - Regions ~ regions can be collapsed
 - Case Mix
 - Medicaid Occupancy
- Models are a “Good Fit”
 - 66.62% of the variation in direct costs per day are explained by Region, case mix, sponsorship, Medicaid occupancy, FTE’s per bed (LPN and Aide and Orderlies) and affiliation
 - 56.71% of the variation in indirect cost per day are explained Medicaid occupancy, sponsorship, facility bed size, affiliation and NYPHRM region.
- Are there other variables to consider?