

Analytics to Answers

PointRight

Using Structured Post-Acute Assessment Data as the Raw Material for Predictive Modeling

Speaker: Thomas Martin

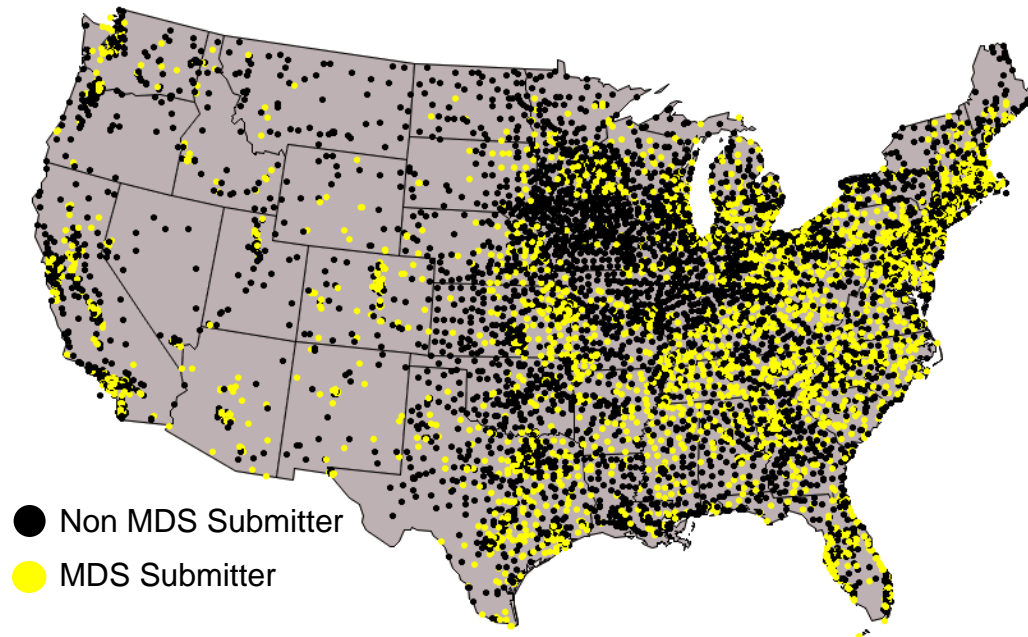
November 2014

Learning Objectives

- SNF's place in continuum of care
- Large variance across SNF providers
- Data available for SNFs
- Process of predictive modeling with MDS

Skilled Nursing Facility (SNF)

- Place in the continuum of care
 - Currently 15,600 active SNFs
 - Each day in 2012 SNFs took care of 1.4 million residents
 - Biggest payer of SNF care is Medicaid but Medicare covers hospice costs and short stay post acute care residents



Important Distinction

1. Short Stay Residents

- Post acute patients
- Medicare pays for first 100 days
- Rehab Services

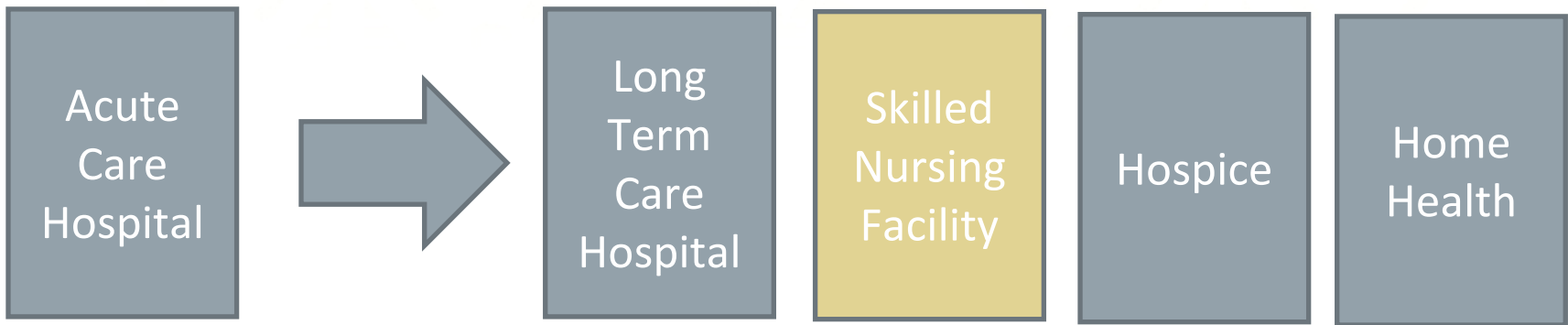
2. Long Stay Residents

- Support for frail older adults
- Younger persons with disabilities
- Managing Chronic Illness

Services Provided by SNFs

- 100% skilled nursing
- 86.6% mental health or counseling
- 99.3% therapeutic
- 97.4 pharmacy
- 78.6% hospice

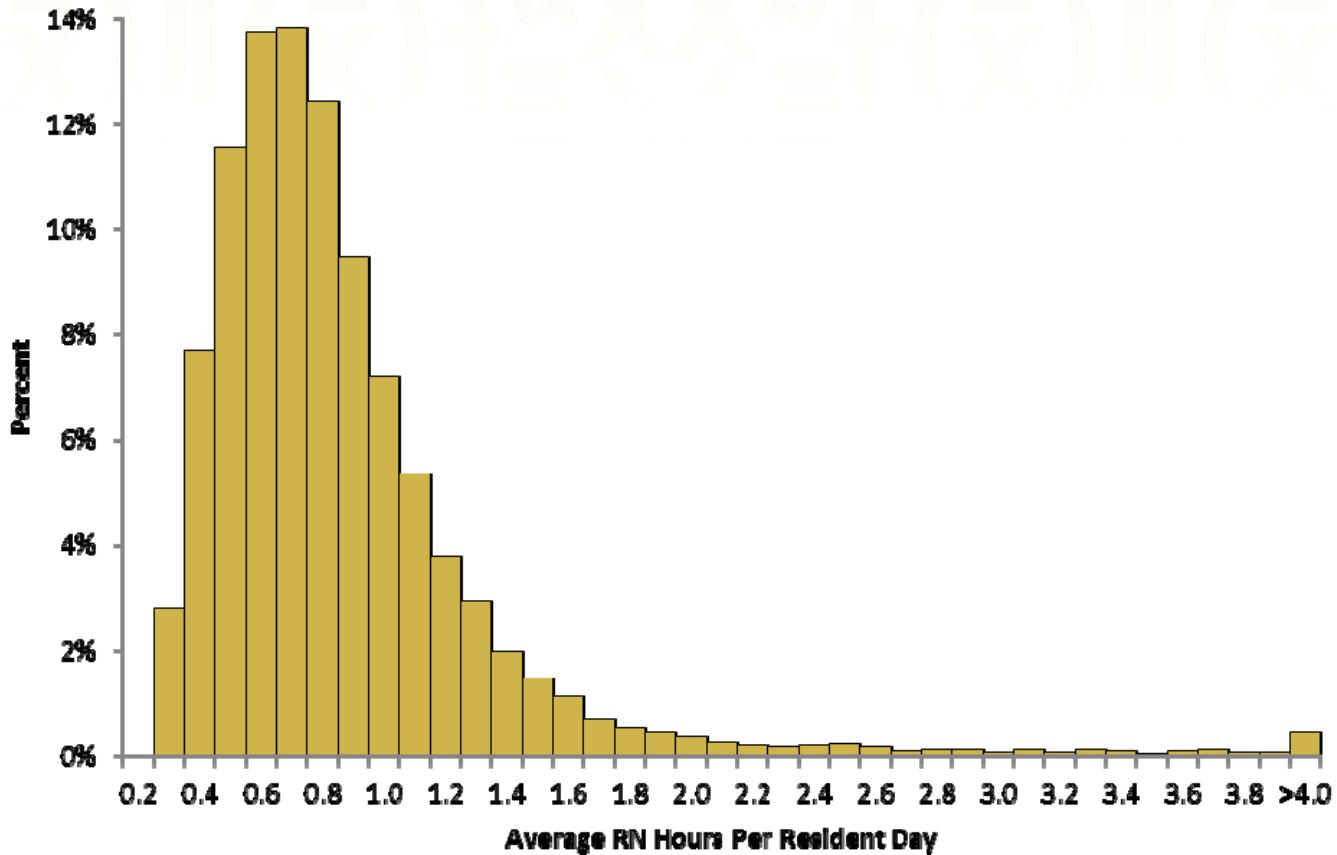
Post Acute Care Services



50% of Medicare beneficiaries in need of post-acute care following a hospital stay are discharged to a SNF

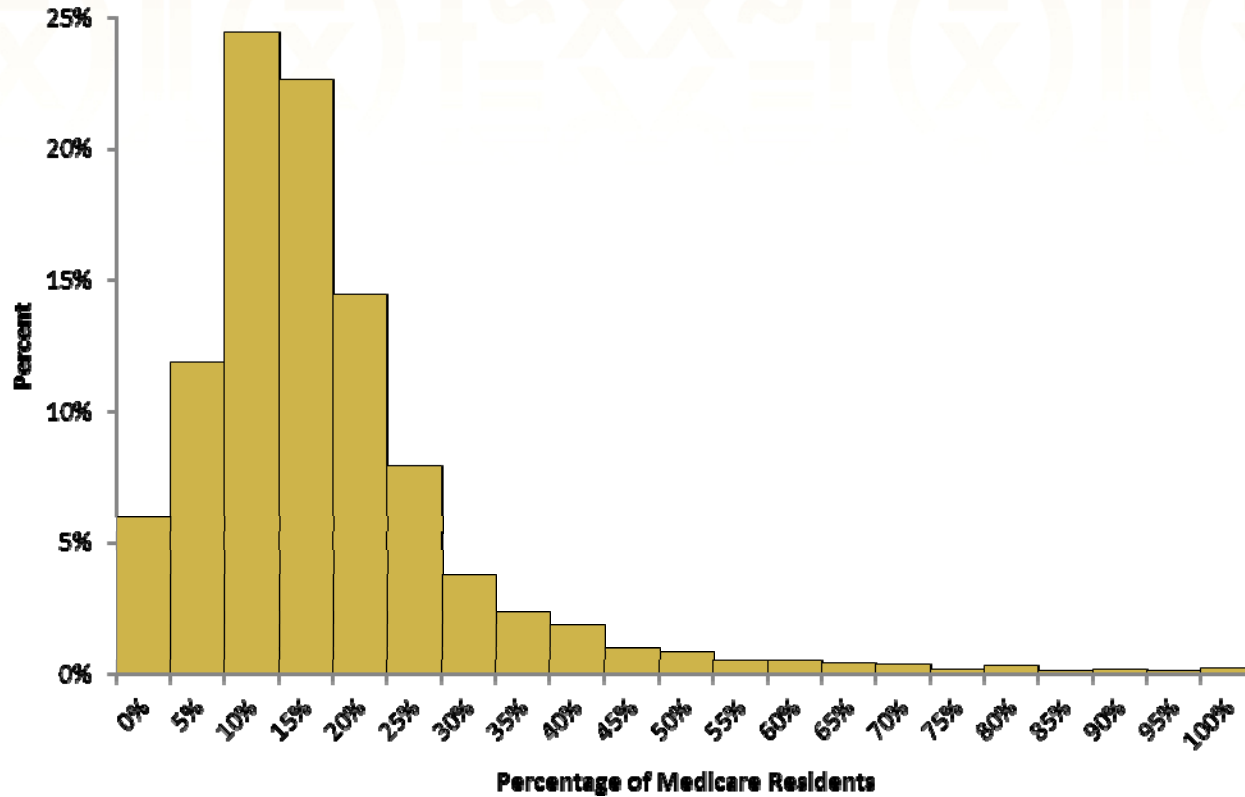
RN Staffing

Distribution of Average RN Hours Per Resident Day



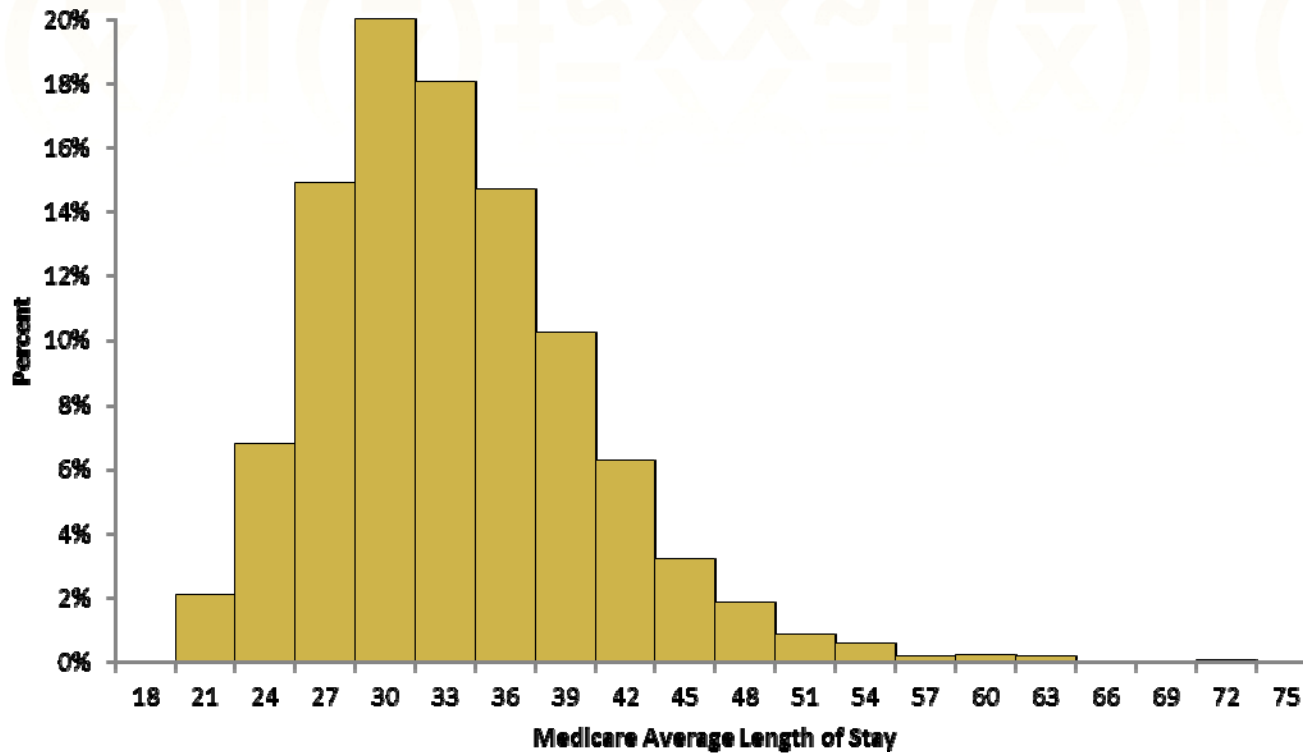
Payer Type

Distribution of Percentage of Medicare Residents



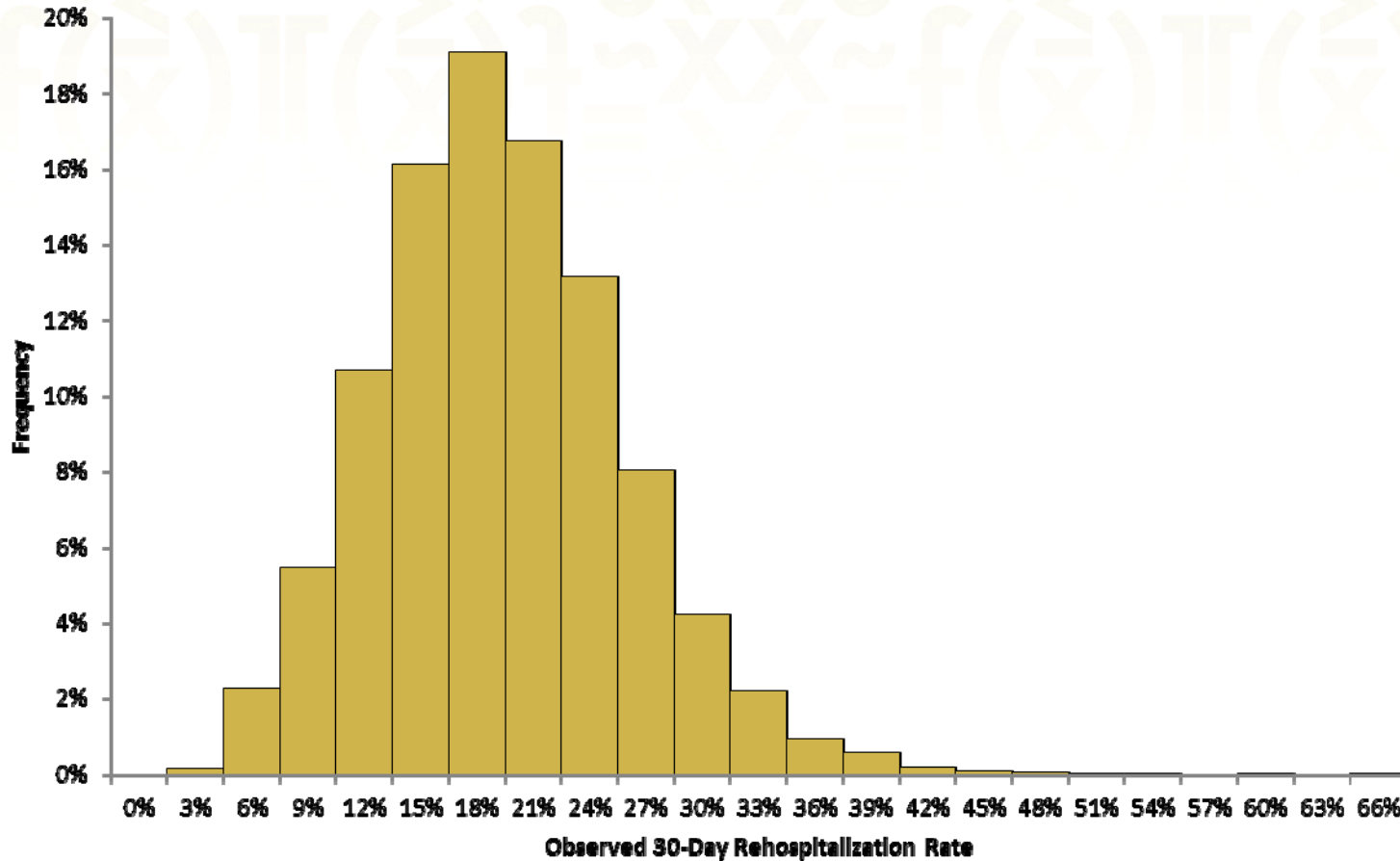
Length of Stay (LOS)

Distribution of Medicare Average Length of Stay



30 Day Rehospitalization

Distribution of Observed 30-Day Rehospitalization Rate



Why Predictive Analytics?

- Identify high risk patients



- Reduce costs



- Risk adjust to fairly compare



Type of Research Questions

- Specific to the resident (prediction)
 - What is the risk of a hospitalization over 30 days?
 - Who do I need to monitor more closely for PU or fall?
 - When is a resident a good candidate for hospice care?
- Specific to SNF (risk adjustment)
 - Does my facility do a better job managing hospitalizations?
 - Do my patients have a longer than average LOS?
 - Is my staffing adequate?
 - How can I pick the right preferred providers?

Types of Facility Level Data

- CMS–2567 (Survey Record)
- CMS–672 (Resident Census and Conditions of Residents)
- CMS–671 (Facility Staffing)
- CMS Reported Quality Measures

CMS-2567 (Survey Record)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR MEDICARE & MEDICAID SERVICES

FORM APPROVED
OMB NO. 0938-0391

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION		(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER: _____		(X2) MULTIPLE CONSTRUCTION A. BUILDING _____ B. WING _____		(X3) DATE SURVEY COMPLETED _____	
		NAME OF FACILITY _____		STREET ADDRESS, CITY, STATE, ZIP CODE _____			
(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY SHOULD BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERRED TO THE APPROPRIATE DEFICIENCY)	(X5) COMPLETION DATE			
	“She confirmed she wore the soiled gloves when she left the resident's room and prepared the oral medications with the same gloves”						

CMS–672 (Resident Census and Conditions of Residents)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
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RESIDENT CENSUS AND CONDITIONS OF RESIDENTS

Provider No.	Medicare F75	Medicaid F76	Other F77	Total Residents F78
ADL	Independent	Assist of One or Two Staff		Dependent
Bathing	F79	F80	F81	
Dressing	F82	F83	F84	
Transferring	F85	F86	F87	
Toilet Use	F88	F89	F90	
Eating	F91	F92	F93	

CMS-671 (Facility Staffing)

FACILITY STAFFING

	Tag Number	A			B	C	D			
		Services Provided						Full-Time Staff (hours)	Part-Time Staff (hours)	Contract (hours)
		1	2	3						
Administration	F33									
Physician Services	F34									
Medical Director	F35									
Other Physician	F36									
Physician Extender	F37									
Nursing Services	F38									
RN Director of Nurses	F39									
Nurses with Admin. Duties	F40									
Registered Nurses	F41									
Licensed Practical/ Licensed Vocational Nurses	F42									
Certified Nurse Aides	F43									
Nurse Aides in Training	F44									
Medication Aides/Technicians	F45									
Pharmacists	F46									
Dietary Services	F47									
Dietitian	F48									
Food Service Workers	F49									
Therapeutic Services	F50									
Occupational Therapists	F51									
Occupational Therapy Assistants	F52									

Quality Measures

Quality Measures Ratings and Points

Measure Category	Measure	Rate	Points
Long Stay Measures	Need help with ADL	9.7%	90
	High risk with pressure sores	4.6%	69
	Catheter inserted and left in bladder	3.9%	51
	Physically Restrained	0.0%	100
	UTI	7.4%	48
	Self-report moderate severe pain	1.6%	96
	Falls with major injury	7.3%	8
Short Stay Measures	PU new or worsened	0.8%	84
	Self-report moderate severe pain	2.9%	98
		Final QM Score	644

What about Resident Level Data?

- MDS=Minimum Data Set
 - Standardized assessment of SNF residents
 - Mandated by CMS
 - MDS v3.0 implemented in October 2010

Resident _____ Identifier _____ Date _____

MINIMUM DATA SET (MDS) - Version 3.0
RESIDENT ASSESSMENT AND CARE SCREENING
Nursing Home Comprehensive (NC) Item Set

Section A		Identification Information
A0050. Type of Record		
Enter Code <input type="checkbox"/>	1. Add new record → Continue to A0100, Facility Provider Numbers 2. Modify existing record → Continue to A0100, Facility Provider Numbers 3. Inactivate existing record → Skip to X0150, Type of Provider	
A0100. Facility Provider Numbers		
A. National Provider Identifier (NPI): <input type="text"/>		
B. CMS Certification Number (CCN): <input type="text"/>		
C. State Provider Number: <input type="text"/>		
A0200. Type of Provider		
Enter Code <input type="checkbox"/>	Type of provider 1. Nursing home (SNF/NF) 2. Swing Bed	
A0310. Type of Assessment		
Enter Code <input type="checkbox"/>	A. Federal OBRA Reason for Assessment 01. Admission assessment (required by day 14) 02. Quarterly review assessment 03. Annual assessment 04. Significant change in status assessment 05. Significant correction to prior comprehensive assessment 06. Significant correction to prior quarterly assessment 99. None of the above	

What Is the MDS Used For?

- Resident assessment and care planning
 - CAA: Care Area Assessments
- Quality Measures-reported by CMS
- Five-Star ratings
- Reimbursement
 - Medicare-covers up to 100 days of skilled care
 - Medicaid-covers non-skilled care-state specific
 - Medicaid reimbursement is set by MDS in 30+ states

Scheduled PPS Assessment Types

PPS Assessment	ARD	Grace Days	Payment Period
5-Day Readmission/Return	Days 1-5	Days 6-8	Days 1-14
14-Day	Days 13-14	Days 15-18	Days 15-30
30-Day	Days 27-29	Days 30-33	Days 31-60
60-Day	Days 57-59	Days 60-63	Days 61-90
90-Day	Days 87-89	Days 90-93	Days 91-100

Clinically Backed Metrics

- Cognition
 - BIMS - Brief Interview of Mental Status
 - CPS - Cognitive Performance Scales
- ADLS: ADL Index
- Mood: PHQ-9
- Pain: Severity Scales

MDS Sections

- Section A: Identification Information
- Section B: Hearing, Speech and Vision
- Section C: Cognitive Patterns
- Section D: Mood
- Section E: Behavior
- Section F: Preferences for Customary Routine and Activities
- Section G: Functional Status
- Section H: Bladder and Bowel
- Section I: Active Diagnoses

MDS Sections (cont.)

- Section J: Health Conditions
- Section K: Swallowing/Nutritional Status
- Section L: Oral/Dental Status
- Section M: Skin Conditions
- Section N: Medications
- Section O: Special Treatments, Procedures, and Programs
- Section P: Restraints
- Section Q: Participation in Assessment and Goal Setting
- Section V: Care Area Assessment (CAA) Summary

MDS

- Structured Data Source
- Reliably Completed
- Timely Completion of MDS
- Clinically Standardized Measures
- Broad Range of Variables

What is already available?

Medicare.gov | Nursing Home Compare

The Official U.S. Government Site for Medicare

Nursing Home
Compare Home

About Nursing
Home Compare

About the data

Resources

Help

Home

+ Share

Find a Nursing Home

A field with an asterisk (*) is required.

*** Location**

Example: 45802 or Lima, OH or Ohio

Nursing Home Name (optional)

Search



Nursing Home Compare Five-Star

- Five-Star Rankings
 - Survey
 - Staffing
 - Quality

- Minimal Risk Adjustment

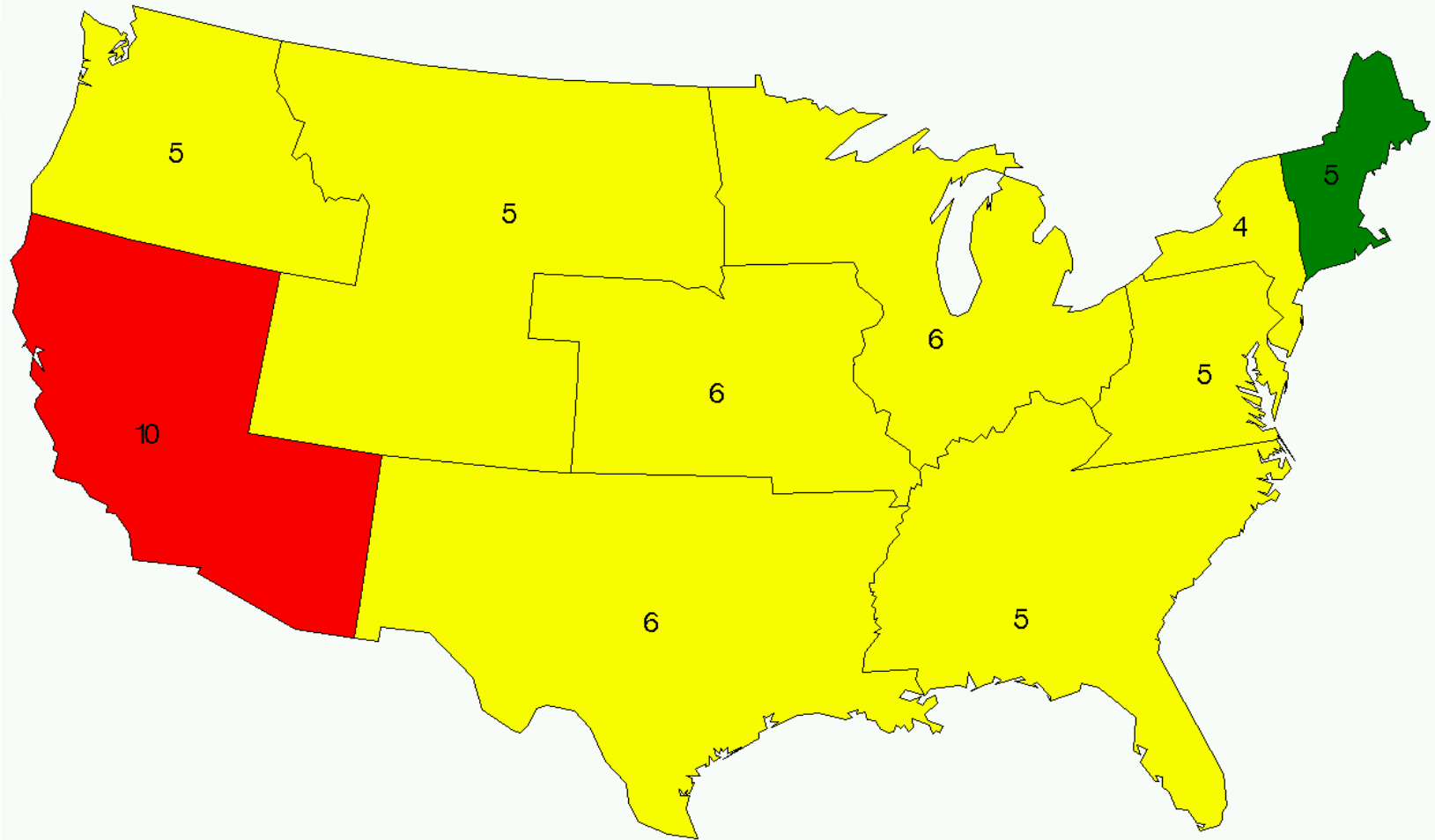
Health Inspections Domain

- Medicare or Medicaid participating nursing homes have an onsite standard (“comprehensive”) survey annually on average
- State survey teams spend several days to assess whether the nursing home is in compliance with federal requirements
- Certification surveys include assessment of:
 - medication management
 - proper skin care
 - assessment of resident needs
 - nursing home administration
 - environment, kitchen/food services
 - resident rights and quality of life

Survey Score

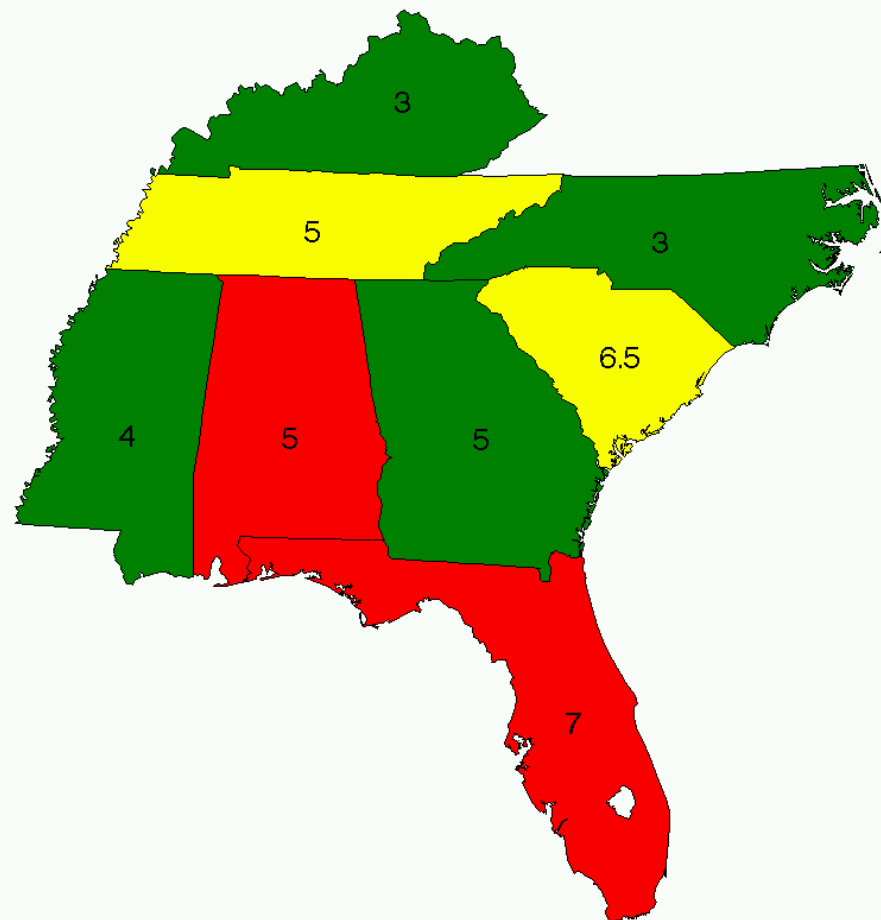


CMS Regional Breakdown Showing Percent of Facilities (displayed by color) and Median Number of Health Deficiencies



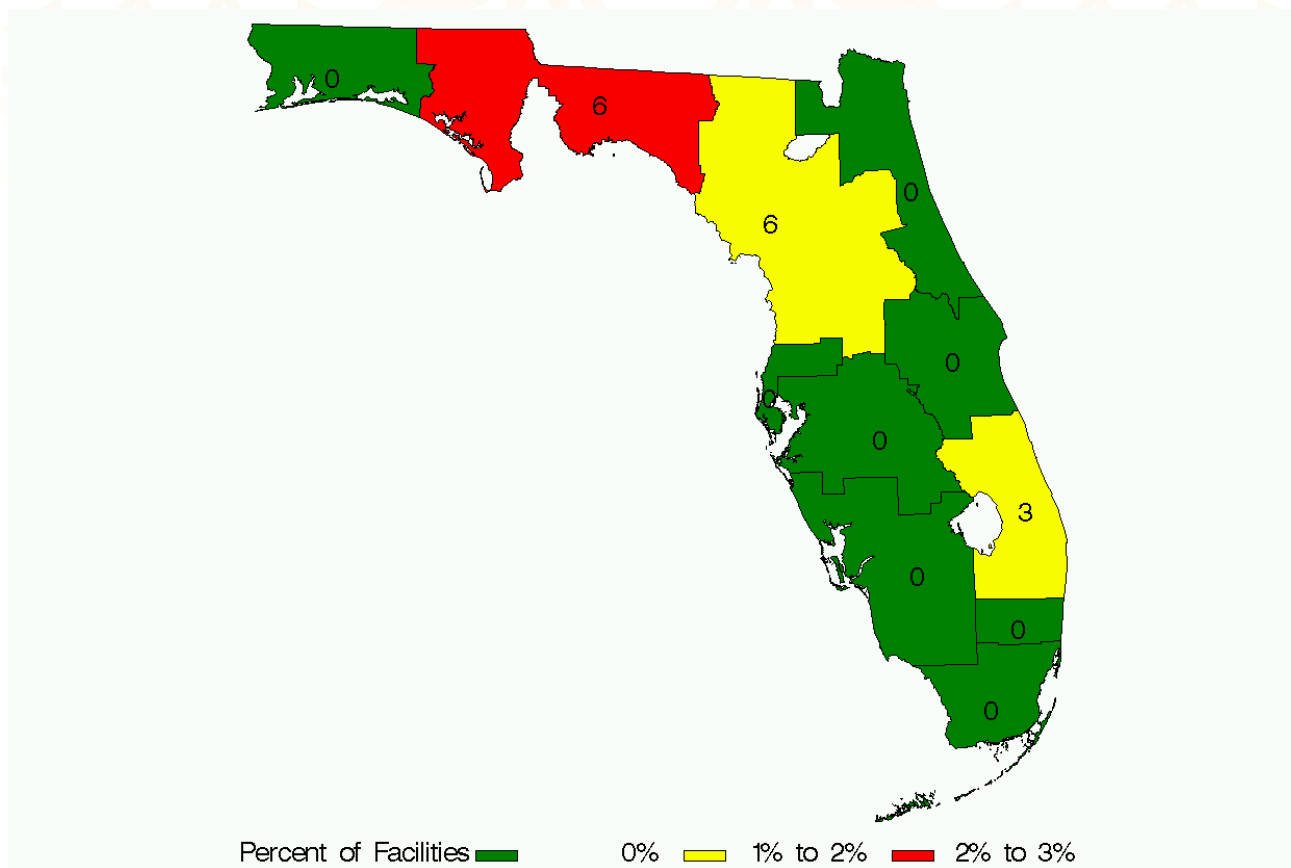
Percent of Facilities ■ 85%–90% ■ 90% to 95% ■ 95% to 100%

Region Four, Showing Percent of Facilities (displayed by color) and Median Number of Health Deficiencies



Percent of Facilities ■ 85%–90% ■ 90% to 95% ■ 95% to 100%

Florida Breakdown Showing Percent of Facilities (displayed by color) and Median Number of IJ Health Deficiencies



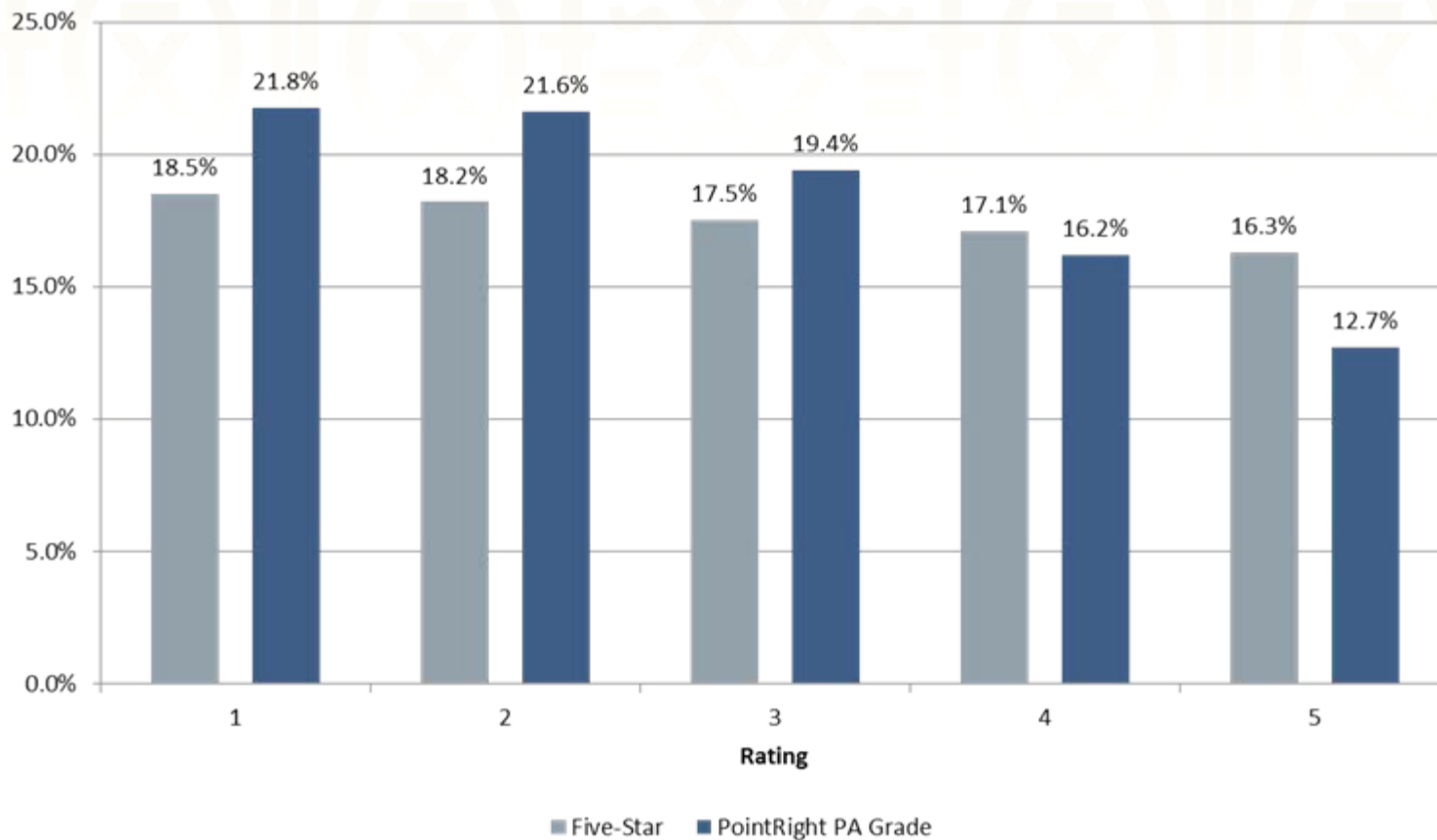
Who are you using as a benchmark?

- Sample Care from Washington, DC
 - Total Survey Score was 40
 - Current Survey Rating is a '5'

State	Survey Composite Score	Five-Star Rating
NC	40	1
FL	40	2
CA	40	3
MI	40	4
PR	40	5

- “Good” is relative

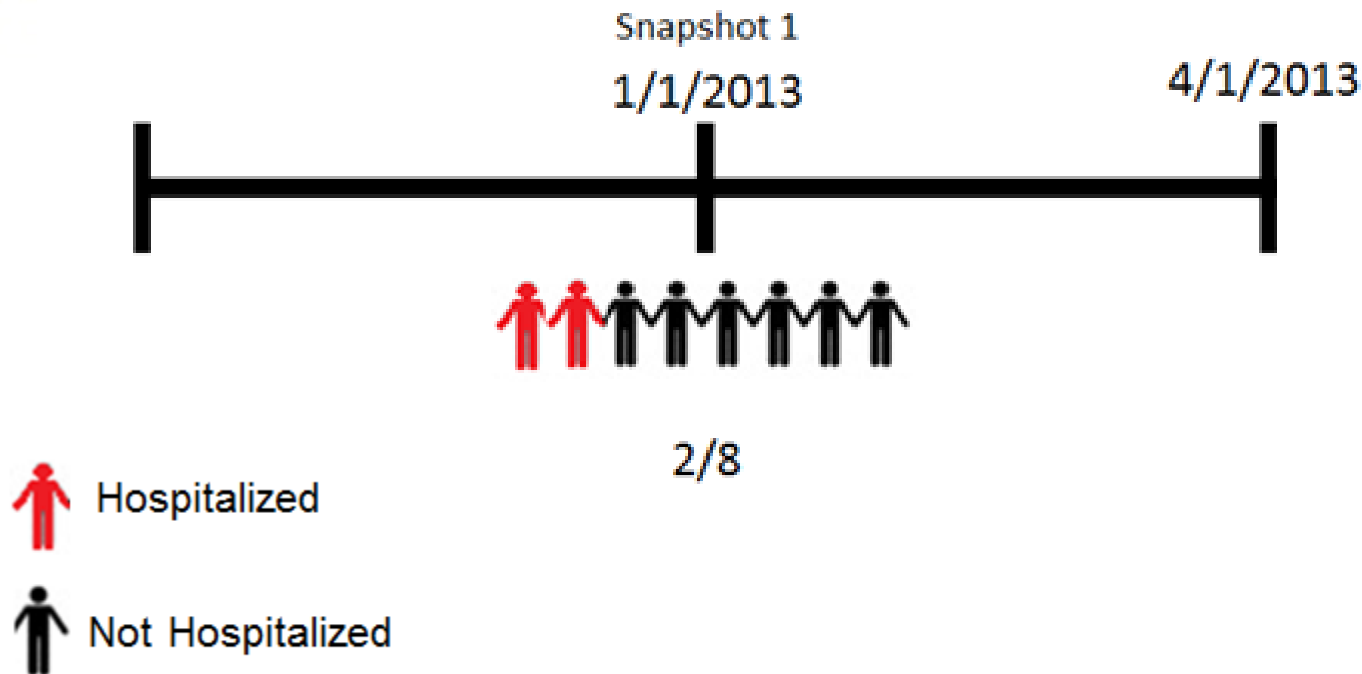
How does Five-Star Relate to Hospitalization?



Concerns with Risk Adjustment

- Do I have the right modeling method?
- Don't let provider off the hook
- Gaming the system
- Are covariates clinically meaningful?

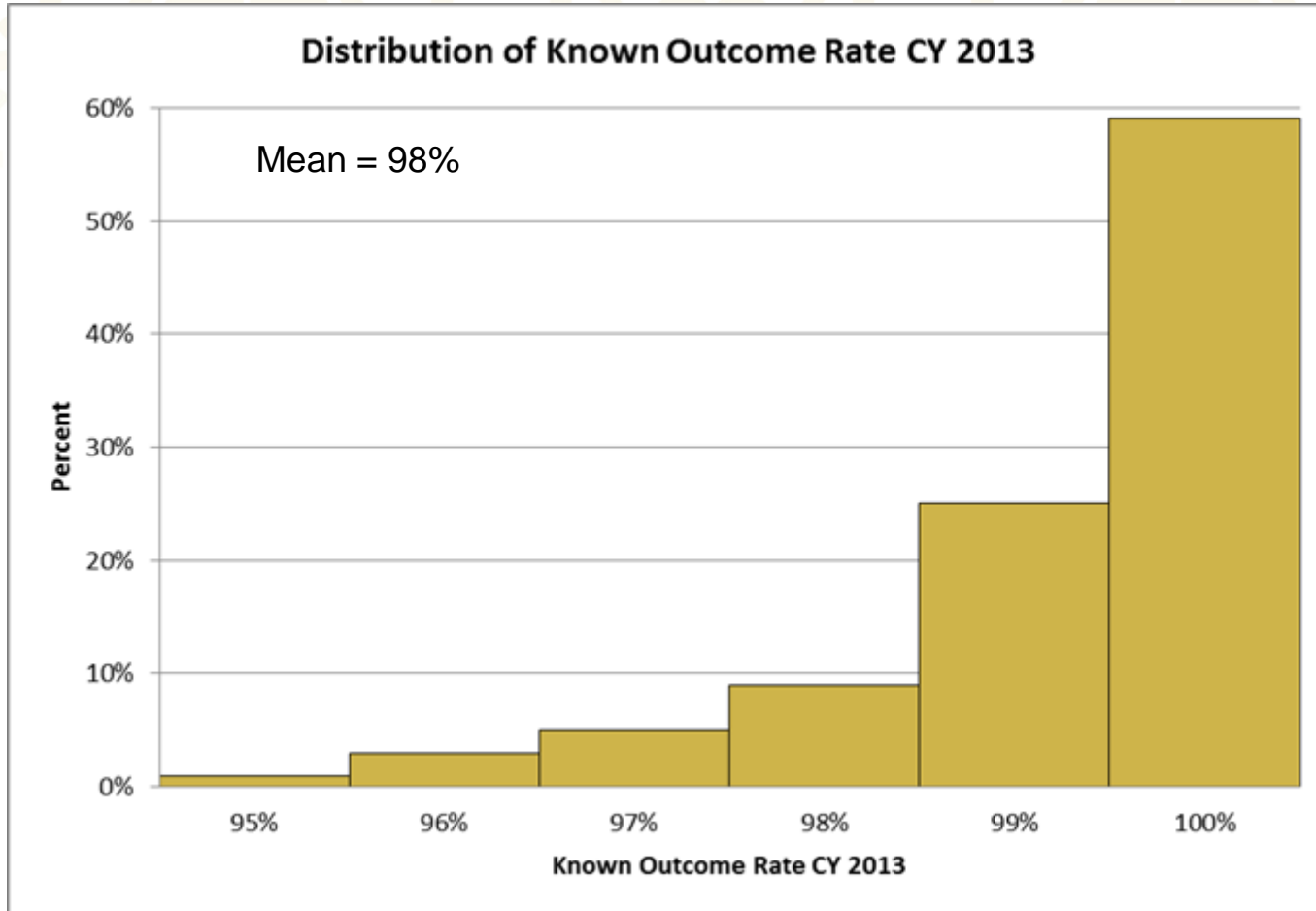
The PointRight Long Stay Hospitalization Rate Quality Measure: Definition of the Observed Rate



Risk Adjustment Formula

$$\frac{\textit{Observed}}{\textit{Expected}} * \text{National Average} = \text{Adjusted}$$

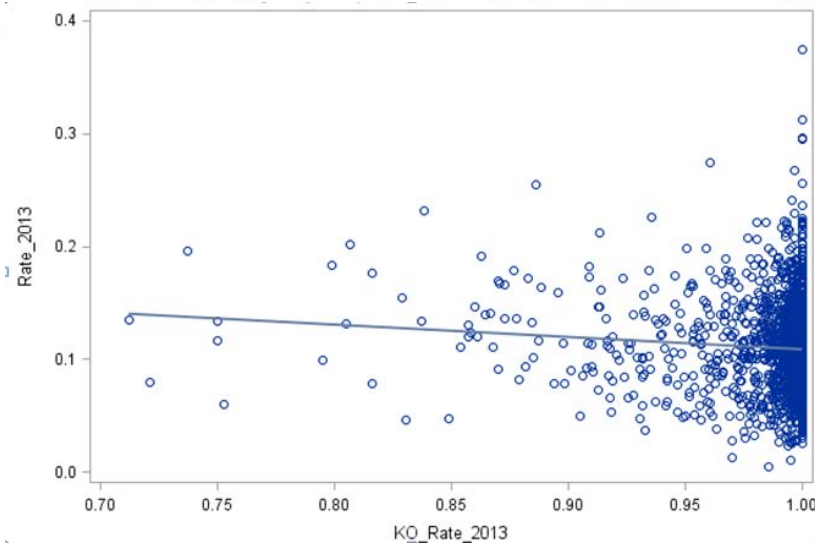
Known Outcome Rate CY 2013



- The majority of SNFs have 'Known Outcome Rate' above 95%

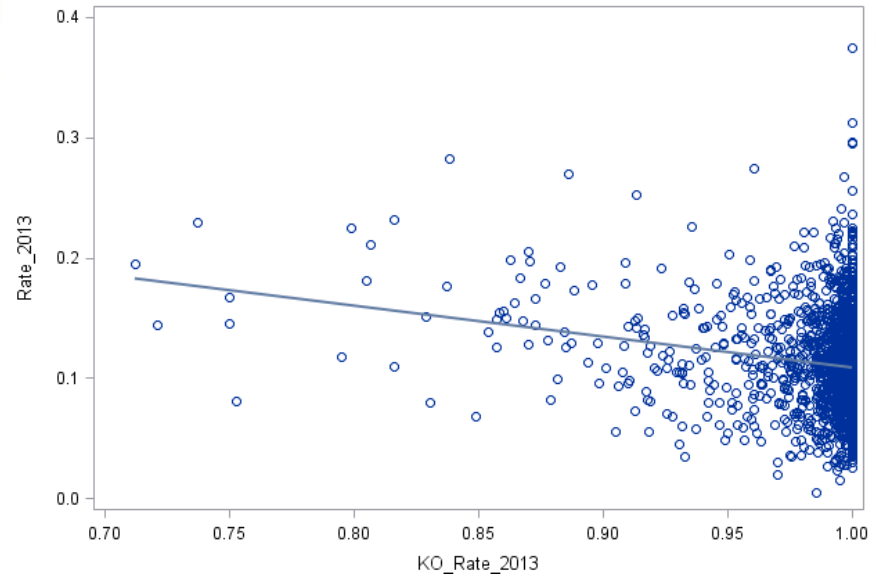
Impact of Imputation on Hospitalization Rates (CY 2013)

Impute at .5



Correlation Coefficient = $-.08$

Impute at .8



Correlation Coefficient = $-.2$

- Imputation rules penalize SNFs with poor 'Known Outcome Rate'

Analytics to Answers

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