

FY 16 MHAC Methodology Redesign  
HSCRC Performance Measurement Work Group  
February 20, 2014

# Presentation Contents

- Background: Reason to change, guiding principles, timing
- Measurement Methodology
- Payment Methodology
- Remaining Issues to Address

# Presentation Contents

## Background

# Why Change Existing Policy?

- Use of 3M Proprietary Software: Potentially Preventable Complications (PPC)
- Waiver Goal: 30% reduction in all 65 PPCs
- Target list of 20 PPCs—high volume, high cost, opportunity for improvement + areas of national focus
- Revenue at risk commensurate with CMS policies

# Guiding Principles

- Meet CMS Waiver test and goals on an annual and long term basis
  - Focus on areas of greatest opportunity
  - Match payment metric to policy goal
- Predetermined performance targets and financial impact
- Encourage cooperation and sharing of best practices
- Hold harmless for lack of improvement if attainment is highly favorable
- Ability to track progress

# Implementation Timing

## Waiver Goal for Complication Reduction

- CY 2013 base period
- Measurement period began January 2014
- 30% Cumulative reduction by 2018

## Maryland Hospital Acquired Conditions Policy

- FY 2013 base period
- CY 2014 first measurement period

# Measurement Methodology

# Components of Redesign

- Measurement Methodology
  - All 65 PPCs vs current 50 PPCs
  - Selecting PPCs for focus
  - Design and calculation of “MHAC Score”
  - Thresholds and benchmarks
  - Better of attainment or improvement score
- Payment Methodology
  - Translating score to payment impact



# MHAC Score Design Options

Ideally, measure definition would be similar to Waiver Goal metric

	Definition	Risk Adj	Vol Adj
Total # MHACs	# Actual MHACs	N	N
Unadjusted MHAC Rate	# Actual ÷ At Risk Cases	N	Y
O/E Ratio	# Actual ÷ # Expected	Y	Y

Observed to Expected Ratio  
Lower numbers are more favorable

# Target PPC List

- 20 PPCs
- High volume, high cost, and opportunity for improvement + national focus
- Heavier weight than non-target PPCs

Since target PPCs are those with high cost and high volume statewide, reducing these will contribute more to the overall waiver goal.

# Target PPC List: Top 10 by Volume \* Cost

PPC	ALL PAYER PPC Description	PPCs Expected	PPCs Actual	PPC Weighted Impact
PPC 4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	1,069.72	1,209	\$ 39,634,647
PPC 65	Urinary Tract Infection without Catheter	2,388.77	2,048	\$ 29,313,024
PPC 14	Ventricular Fibrillation/Cardiac Arrest	1,250.11	1,375	\$ 27,780,500
PPC 24	Renal Failure without Dialysis	3,660.69	3,355	\$ 27,672,040
PPC 5	Pneumonia & Other Lung Infections	1,288.80	1,169	\$ 24,418,072
PPC 3	Acute Pulmonary Edema and Respiratory Failure without Ventilation	2,326.32	2,209	\$ 21,665,872
PPC 9	Shock	1,141.40	1,063	\$ 20,538,223
PPC 35	Septicemia & Severe Infections	1,052.88	1,060	\$ 19,984,180
PPC 21	Clostridium Difficile Colitis	1,028.00	1,030	\$ 17,934,360
PPC 40	Post-Operative Hemorrhage & Hematoma without Hemorrhage Control Proc	1,515.83	1,512	\$ 14,846,328

PPC	MEDICARE PPC Description	PPCs Expected	PPCs Actual	PPC Weighted Impact
PPC 4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	605.40	788	\$ 25,833,004
PPC 14	Ventricular Fibrillation/Cardiac Arrest	788.81	989	\$ 19,981,756
PPC 65	Urinary Tract Infection without Catheter	1,314.70	1,356	\$ 19,408,428
PPC 24	Renal Failure without Dialysis	1,994.09	2,153	\$ 17,757,944
PPC 5	Pneumonia & Other Lung Infections	699.79	757	\$ 15,812,216
PPC 9	Shock	657.09	728	\$ 14,065,688
PPC 3	Acute Pulmonary Edema and Respiratory Failure without Ventila	1,238.41	1,408	\$ 13,809,664
PPC 21	Clostridium Difficile Colitis	634.11	725	\$ 12,623,700
PPC 35	Septicemia & Severe Infections	600.34	657	\$ 12,386,421
PPC 6	Aspiration Pneumonia	496.70	607	\$ 10,093,196

# Target PPC List: Proposed List

		CMS HAC (PSI 90)	Top Volume * Cost	Other (Pair, Opportunity, etc)
3	Respiratory Failure without Ventilation		X	
4	Respiratory Failure with Ventilation		X	
5	Pneumonia & Other Lung Infections		X	
6	Aspiration Pneumonia		X	
7	Pulmonary Embolism	PSI #12		
9	Shock	PSI #13	X	
14	Cardiac Arrest		X	
16	Venous Thrombosis	PSI #12		
24	Renal Failure without Dialysis		X	
28	In-Hospital Trauma and Fractures	PSI #8		
31	Decubitus Ulcer	PSI #3		
35	Septicemia & Severe Infections	PSI #13	X	
37	Post-Operative Infection & Deep Wound Disruption Without Procedure			X
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	PSI #14		
40	Post-operative Hemorrhage and Hematoma		X	
42	Accidental Puncture/Laceration During Invasive Procedure	PSI #15		
49	Iatrogenic Pneumothrax	PSI #6		
54	Infections due to Central Venous Catheters	PSI# 7		
65	Urinary Tract Infection		X	
66	Catheter-Related Urinary Tract Infection			X

# MHAC/PPC Tiers

- Two or three 'tiers' of MHACs/PPCs
  - Tier A – Target list of 20 PPCs – highest weight
  - Tier B – PPCs not on target list, but have high percentage attributed to Medicare patients (60%) and affect majority of hospitals (> 43)
  - Tier C – All other PPCs, including those with very low volume, affecting low number of hospitals, Obstetric-related PPCs
- Each tier can be weighted differently to put more emphasis on the target PPCs

	Weighting	PPCs	Total Points	FY12 Actual PPCs	FY13 Actual PPCs
Tier A	100%	20	200	23,102	17,451
Tier B	60%	9	54	5,166	4,074
Tier C	40%	36	144	12,259	10,452
		65	398	40,527	31,977

# MHAC/PPC Tiers

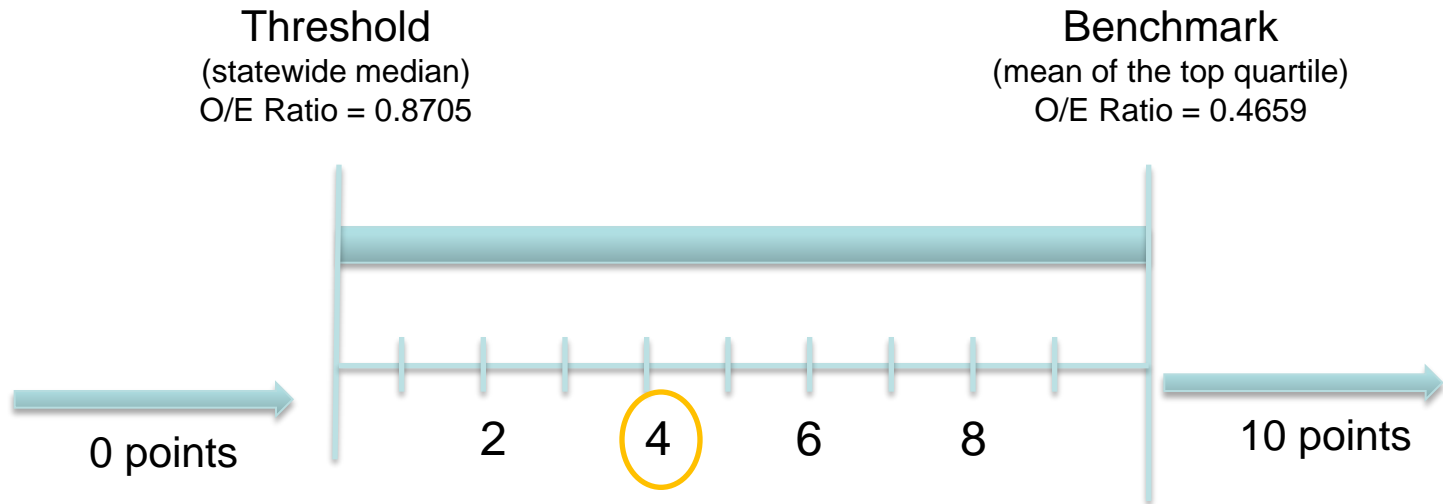
Tier A	Tier C
Selected as high cost, high volume statewide plus those that match CMS HAC policy of AHRQ Patient Safety Indicators	Remaining PPCs
3 Acute Pulmonary Edema and Respiratory Failure without Ventilation	1 Stroke & Intracranial Hemorrhage
4 Acute Pulmonary Edema and Respiratory Failure with Ventilation	2 Extreme CNS Complications
5 Pneumonia & Other Lung Infections	12 Cardiac Arrhythmias & Conduction Disturbances
6 Aspiration Pneumonia	13 Other Cardiac Complications
7 Pulmonary Embolism	15 Peripheral Vascular Complications Except Venous Thrombosis
9 Shock	20 Other Gastrointestinal Complications without Transfusion or Significant Bleeding
14 Ventricular Fibrillation/Cardiac Arrest	21 Clostridium Difficile Colitis
16 Venous Thrombosis	23 GU Complications Except UTI
24 Renal Failure without Dialysis	25 Renal Failure with Dialysis
28 In-Hospital Trauma and Fractures	26 Diabetic Ketoacidosis & Coma
31 Decubitus Ulcer	29 Poisonings Except from Anesthesia
35 Septicemia & Severe Infections	30 Poisonings due to Anesthesia
37 Post-Operative Infection & Deep Wound Disruption Without Procedure	32 Transfusion Incompatibility Reaction
38 Post-Operative Wound Infection & Deep Wound Disruption with Procedure	33 Cellulitis
40 Post-Operative Hemorrhage & Hematoma without Hemorrhage Control Procedure or I&D Proc	34 Moderate Infectious
42 Accidental Puncture/Laceration During Invasive Procedure	36 Acute Mental Health Changes
49 Iatrogenic Pneumothrax	39 Reopening Surgical Site
54 Infections due to Central Venous Catheters	43 Accidental Cut or Hemorrhage During Other Medical Care
65 Urinary Tract Infection without Catheter	44 Other Surgical Complication - Mod
66 Catheter-Related Urinary Tract Infection	45 Post-procedure Foreign Bodies
	46 Post-Operative Substance Reaction & Non-O.R. Procedure for Foreign Body
	47 Encephalopathy
	50 Mechanical Complication of Device, Implant & Graft
	51 Gastrointestinal Ostomy Complications
	52 Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection
	53 Infection, Inflammation & Clotting Complications of Peripheral Vascular Catheters & Infusions
	55 Obstetrical Hemorrhage without Transfusion
	56 Obstetrical Hemorrhage with Transfusion
	57 Obstetric Lacerations & Other Trauma Without Instrumentation
	58 Obstetric Lacerations & Other Trauma With Instrumentation
	59 Medical & Anesthesia Obstetric Complications
	60 Major Puerperal Infection and Other Major Obstetric Complications
	61 Other Complications of Obstetrical Surgical & Perineal Wounds
	62 Delivery with Placental Complications
	63 Post-Operative Respiratory Failure with Tracheostomy
	64 Other In-Hospital Adverse Events
Tier B	
Selected as remaining PPCs with high Medicare percentage (>60%) and high number of Maryland hospitals (>43)	
8 Other Pulmonary Complications	
10 Congestive Heart Failure	
11 Acute Myocardial Infarction	
17 Major Gastrointestinal Complications without Transfusion or Significant Bleeding	
18 Major Gastrointestinal Complications with Transfusion or Significant Bleeding	
19 Major Liver Complications	
27 Post-Hemorrhagic & Other Acute Anemia with Transfusion	
41 Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Proc	
48 Other Complications of Medical Care	

# Measurement Methodology

- In Quality Based Reimbursement (QBR) methodology:
  - Each measure receives separate points for attainment (compared to the state's performance) and improvement (hospital performance year over year)
  - The higher of attainment or improvement points for each measure becomes the final points for that measure
- Define *Threshold* and *Benchmark* for each measure (PPC)
  - Threshold is minimum performance required to score points
    - median of all hospitals (50<sup>th</sup> percentile)
      - Mean performance is measured at the hospital level—including small hospitals with expected values less than 1
      - Assumes that case-mix adjusts adequately for all factors affecting a hospital's performance.
    - weighted mean of all O/E ratios (will equal O/E of 1)
      - Mean performance is measured at the case level
      - Inherently includes other factors that affect performance
      - Higher volume hospitals have more influence on PPCs means
  - Benchmark is performance required to score maximum points
    - weighted mean of top quartile O/E ratio

# Attainment Example

## PPC 24 – Renal Failure



Hospital O/E = 0.7012  
*Calculates to an attainment  
score of 4*

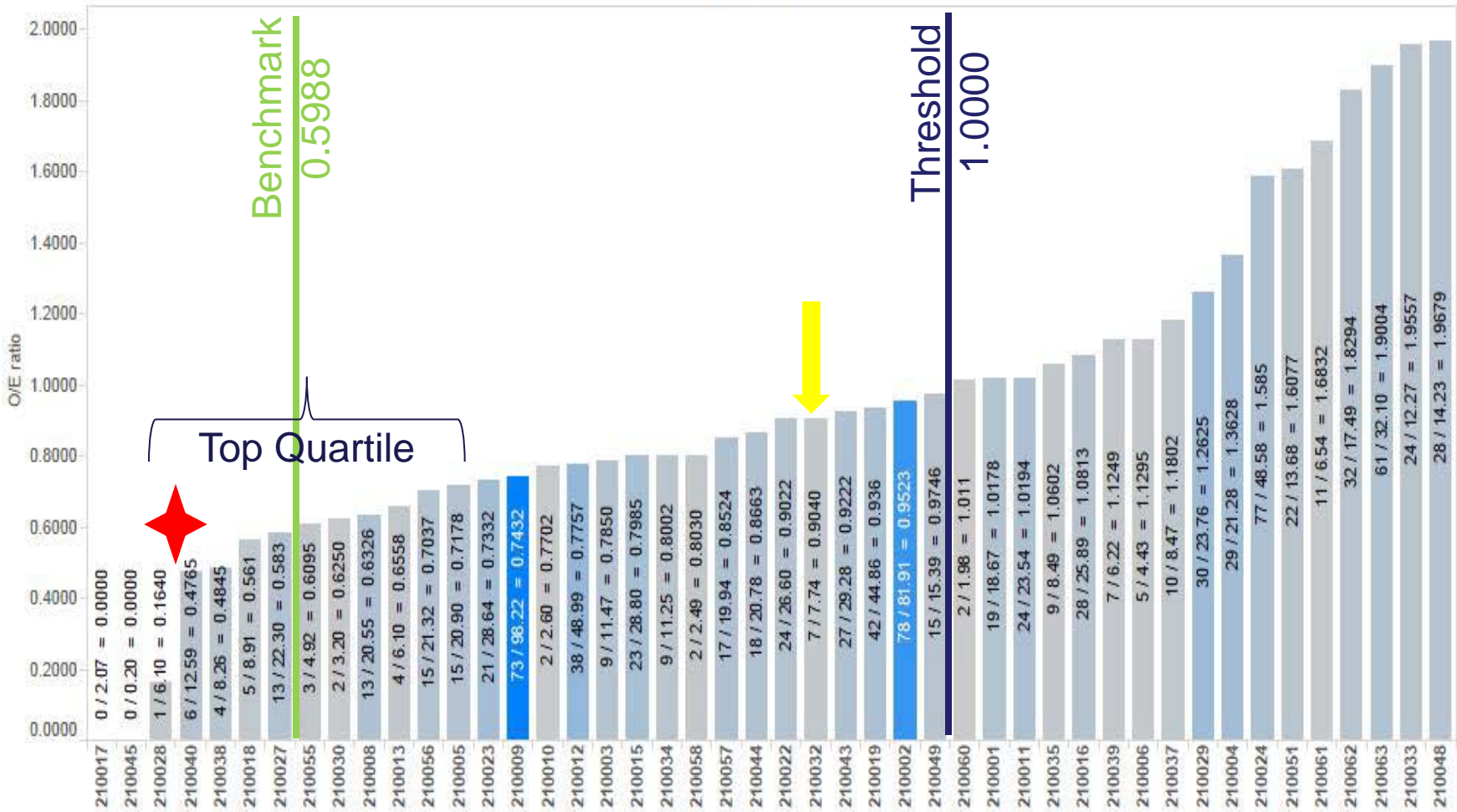


# Measurement Model Methodology

- Histogram examples showing impact on benchmarks

Fiscal 2013 Base Period

PPC 9 Shock



Sum of O/E ratio for each Hospital ID. Color shows sum of FY13 IP Rev. The marks are labeled by sum of O/E ratio, sum of Actual PPCs and sum of Expected PPCs. Details are shown for PPC Name. The data is filtered on PPC, which keeps 9.



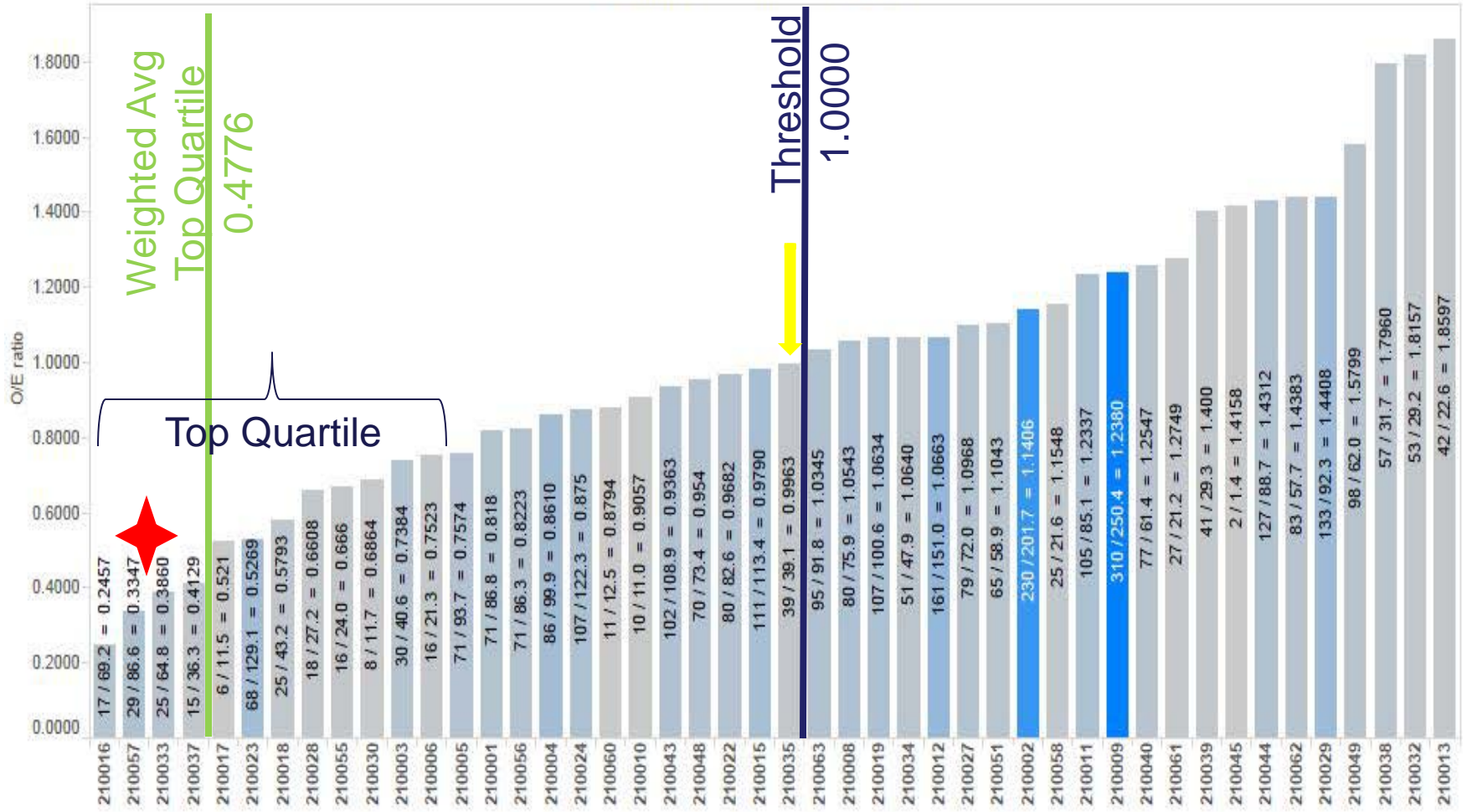
Average of Top Decile 0.4215



Median 0.9040

All T and B exclude Small Hospitals

Fiscal 2013 Base Period  
PPC 24 Renal Failure without Dialysis



Sum of O/E ratio for each Hospital ID. Color shows sum of FY13 IP Rev. The marks are labeled by sum of O/E ratio, sum of Actual PPCs and sum of Expected PPCs. Details are shown for PPC Name. The data is filtered on PPC, which keeps 24.



Average of Top Decile 0.3448



Median 0.9963

All T and B exclude Small Hospitals

# Payment Methodology

# Translating the Score to Payment Impact

- MHA proposes 3% revenue at risk on Medicare revenue
- Individual hospital payment impact depends on combination of statewide aggregate performance and individual hospital performance
- CMS Waiver goal is 30 percent PPC reduction over five years, which will require sustained annual improvement of just under 7%

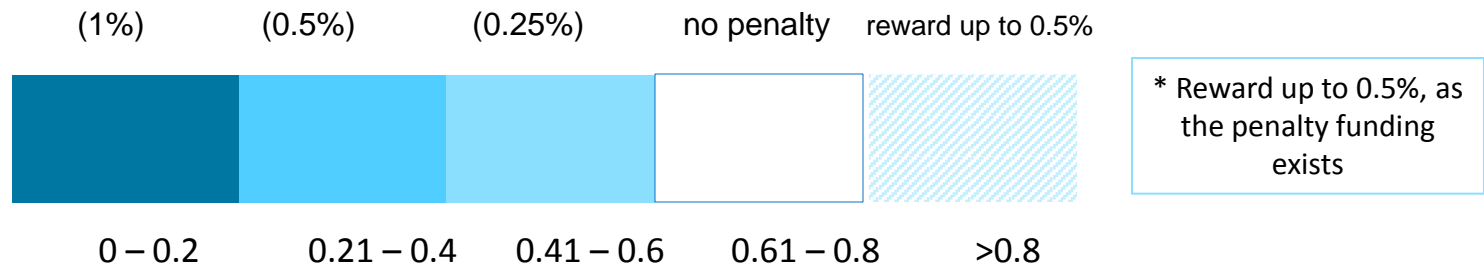
CY 14	CY 15	CY 16	CY 17	CY 18	5-Year Cumulative
6.89%	6.89%	6.89%	6.89%	6.89%	30.02%

- If annual goal is **not** met, maximum possible penalty applies
- If annual goal is met, maximum possible penalty is discounted to 1% of Medicare revenue with possibility of rewards for highest performing hospitals

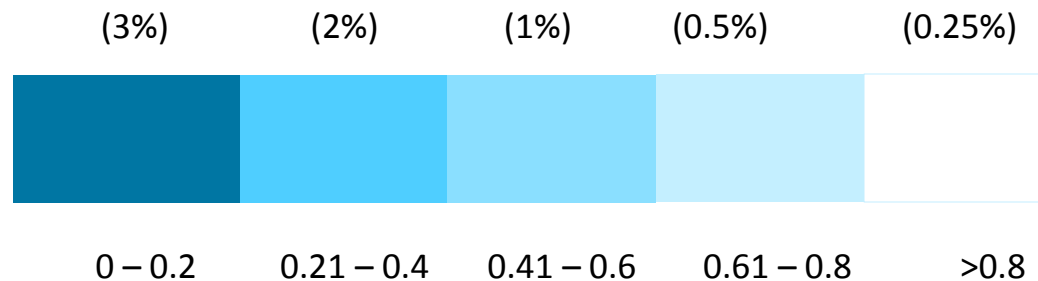
# Translating the Score to Payment Impact

Preset corridors of MHAC score (0-1) corresponding to payment impact

- **Statewide Target Met:** Targets and penalty scale “discounted” if statewide performance achieves policy target; max possible penalty = 1%



- **Statewide CMS Target Not Met:** All hospitals penalized if CMS target not met; max possible penalty = 3%



# Measurement Issues to be Addressed

## Methodology

- Address small hospitals
  - Hospitals with expected values < 1 score 0 or 10
  - Combine PPCs for an aggregate O/E , peer group, set minimum for expected value
- Ongoing discussion with 3M to refine PPC logic
  - Example...PPC 12 Cardiac arrhythmia. This PPC occurs in 25% of open heart surgery cases. Pre-existing atrial fibrillation increases likelihood of arrhythmia after surgery. Request to 3M is adjust their PPC logic.
- Define top performance—how high should the benchmark be set? How low can each PPC rate go? Never events—close to zero, but others are *potentially* preventable.

Questions?