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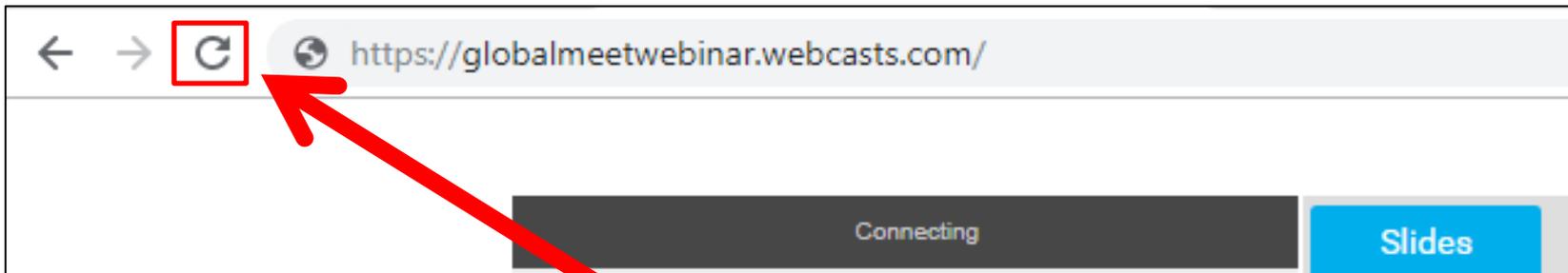
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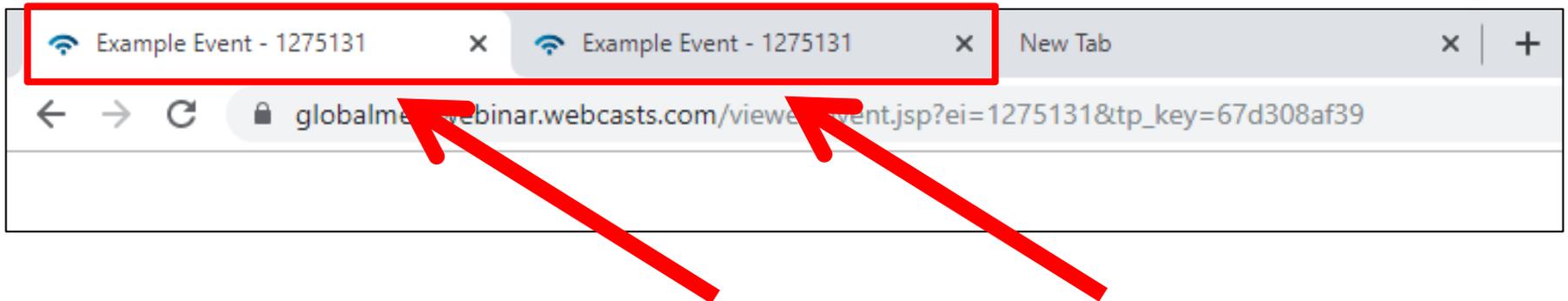
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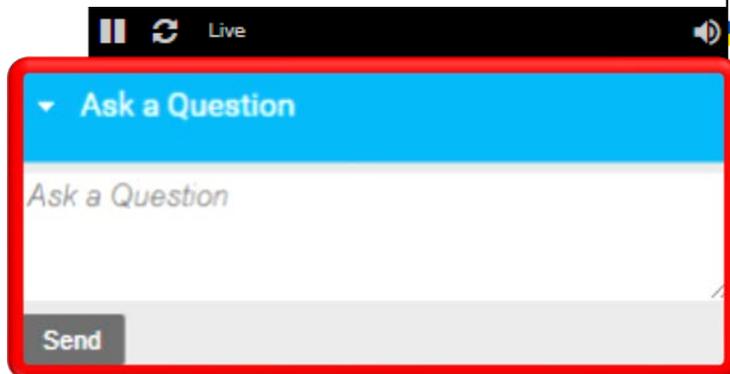
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Inpatient Value, Incentives, and Quality Reporting (VIQR) Outreach and Education Support Contractor



Today's Presentation



Overall Hospital Quality Star Ratings on *Care Compare* 2021 OPPS Final Rule Methodology

February 3, 2021

Speakers



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Nurse Consultant, Centers for Clinical Standards and Quality, Quality Measurement and Value-Based Incentives Group, CMS

Agenda

1. Introduction
2. Overall Star Ratings Background
3. Overall Star Ratings Methodology Updates
4. Next steps

Acronyms and Abbreviations

ASC	Ambulatory Surgical Center	MRSA	Methicillin-resistant <i>Staphylococcus aureus</i>
CAUTI	Catheter-associated Urinary Tract Infection	OPPS	Outpatient Perspective Payment System
CAH	Critical Access Hospital	PSI	Patient Safety Indicator
C. difficile	<i>Clostridium difficile</i>	SSI	Surgical Site Infection
CLABSI	Central Line-associated Bloodstream Infection	TEP	Technical Expert Panel
CMS	Centers for Medicare and Medicaid Services	v	Version
H	(slide 15)	WG	Workgroup
HAI	Hospital-Associated Infection	YNHHS/ CORE	Yale New Haven Health Services Corporation/Centers for Outcomes Research and Evaluation
HVBP	Hospital Value-Based Purchasing		

Overall Star Ratings Background

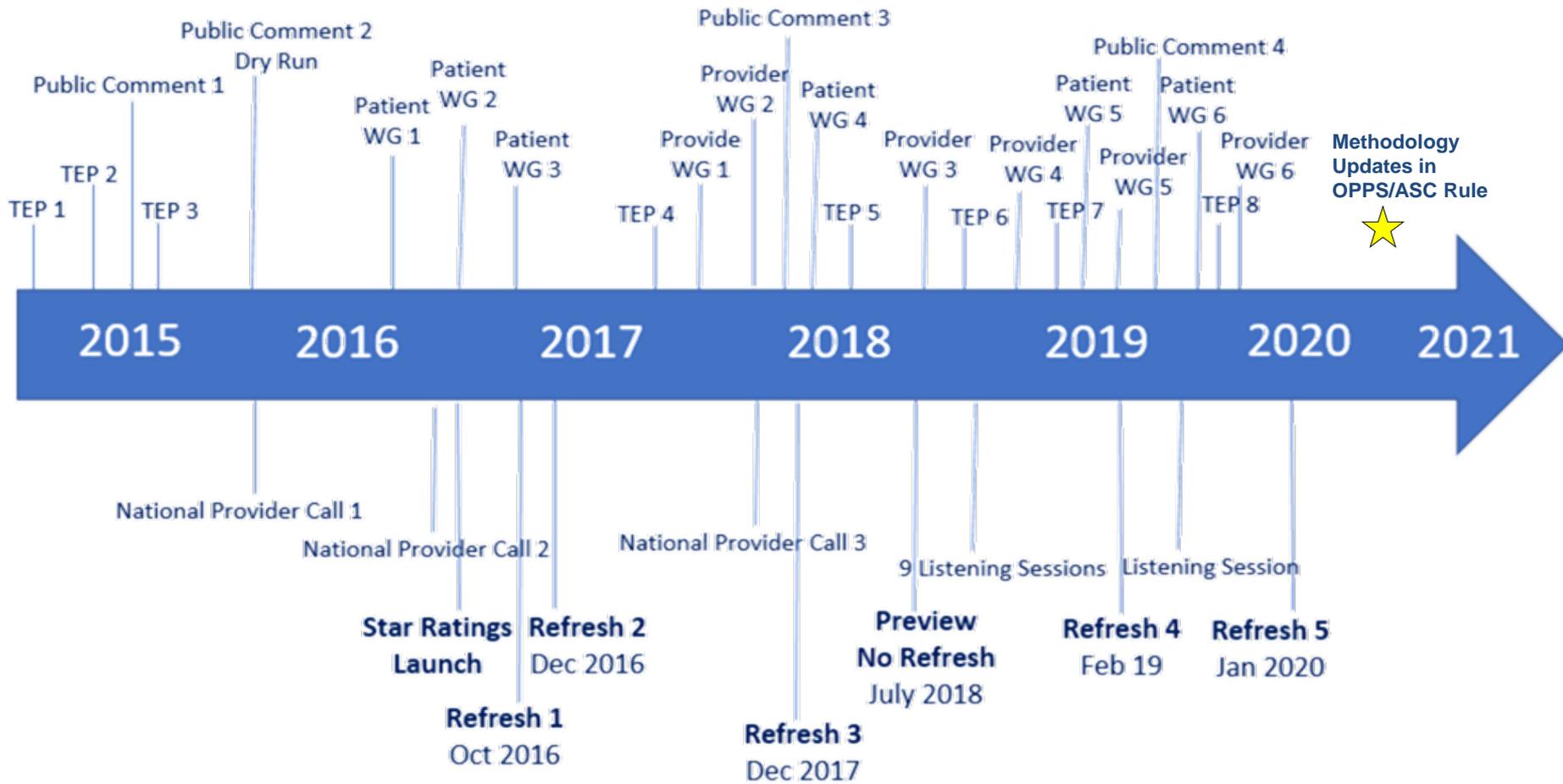
Project Overview & Background

- **Objective:** Develop a methodology to summarize measure information on *Care Compare* (previously *Hospital Compare*) in a way that is useful and easy to interpret for patients and caregivers
- **Background:**
 - 2016 - Overall Star Rating was launched
 - 2017 - Current version (3.0) of star ratings was developed
 - 2020 - CMS finalized version 4.0 of methodology
 - 2021 - Public reporting of version 4.0 initiated (April)

Guiding Principles

- Use methods that are:
 - Scientifically valid
 - Inclusive of hospitals and measure information
 - Account for heterogeneity of available measures and hospital reporting
 - Accommodate changes in the underlying measures
- Aim to fulfill:
 - Alignment with *Care Compare* and other CMS programs
 - Transparency of methods
 - Responsiveness to stakeholder input

Historical Timeline

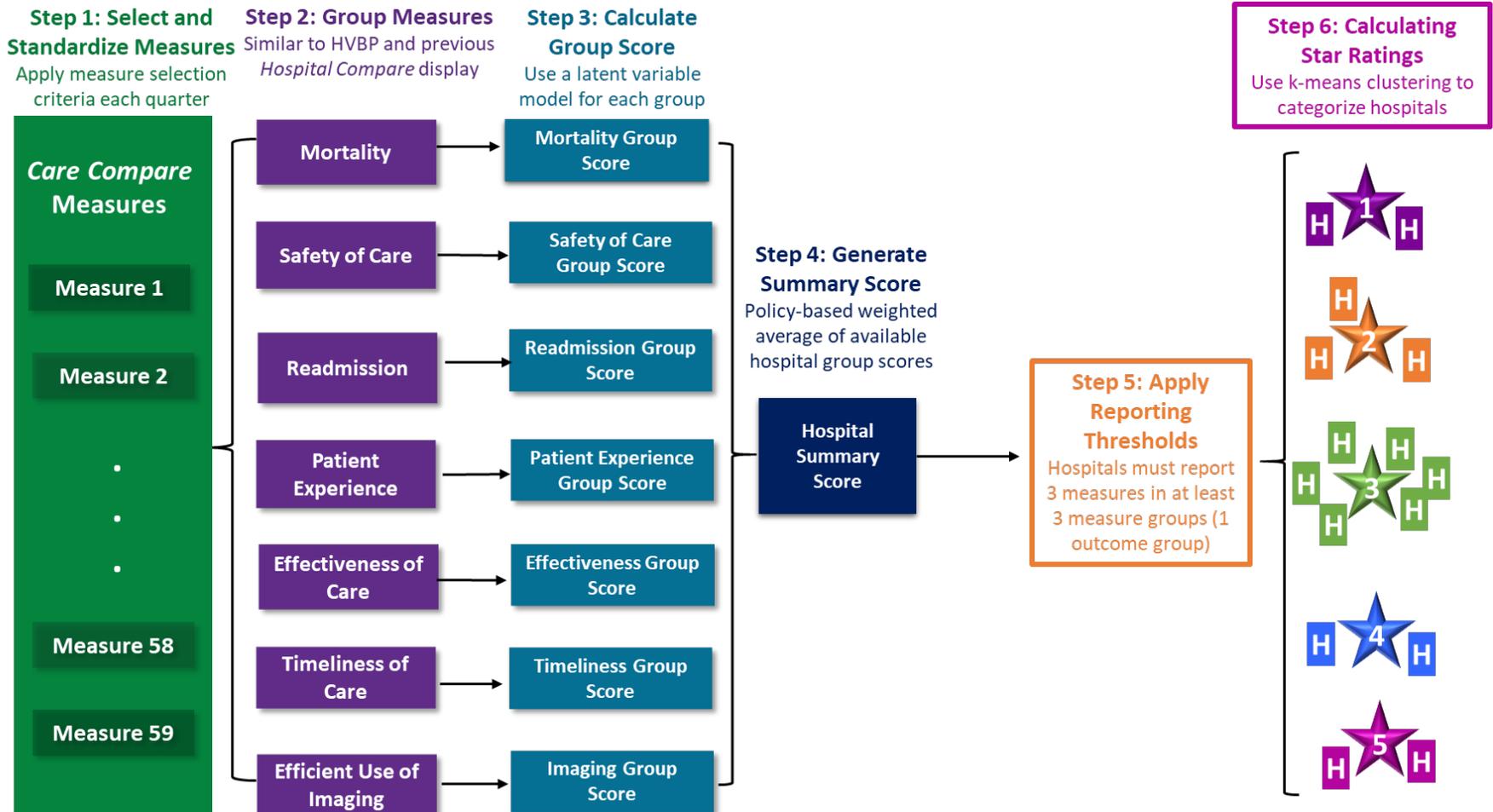


Overall Star Ratings Methodology Updates

Approach to Reevaluation

- Based on prior reevaluation activities and stakeholder engagement
- Identified methodology updates that increase:
 - ***Simplicity*** of methodology
 - ***Predictability*** of star ratings over time
 - ***Comparability*** of ratings between hospitals

Prior Overall Star Rating Methodology (v3.0)

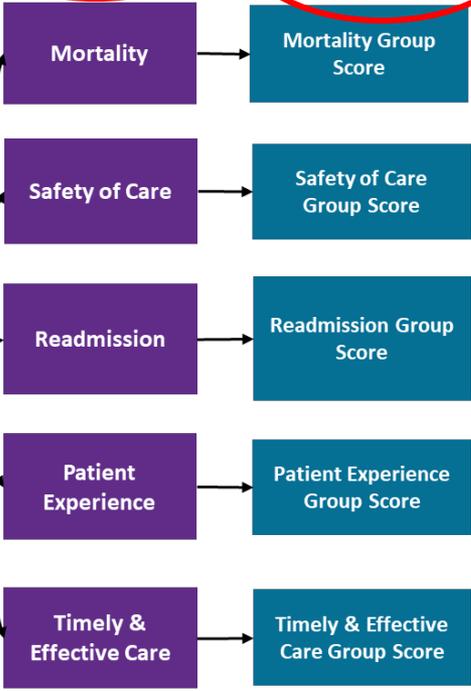


New Star Rating Methodology (v4.0)

Step 1: Select Measures
Apply measure selection criteria each refresh and standardize scores



Step 2: Group Measures
Similar to HVBP and existing Care Compare display



Step 3: Calculate Group Score
Simple average of available measure scores, then standardized for combination

Step 4: Generate Summary Score
Policy-based weighted average of available hospital group scores



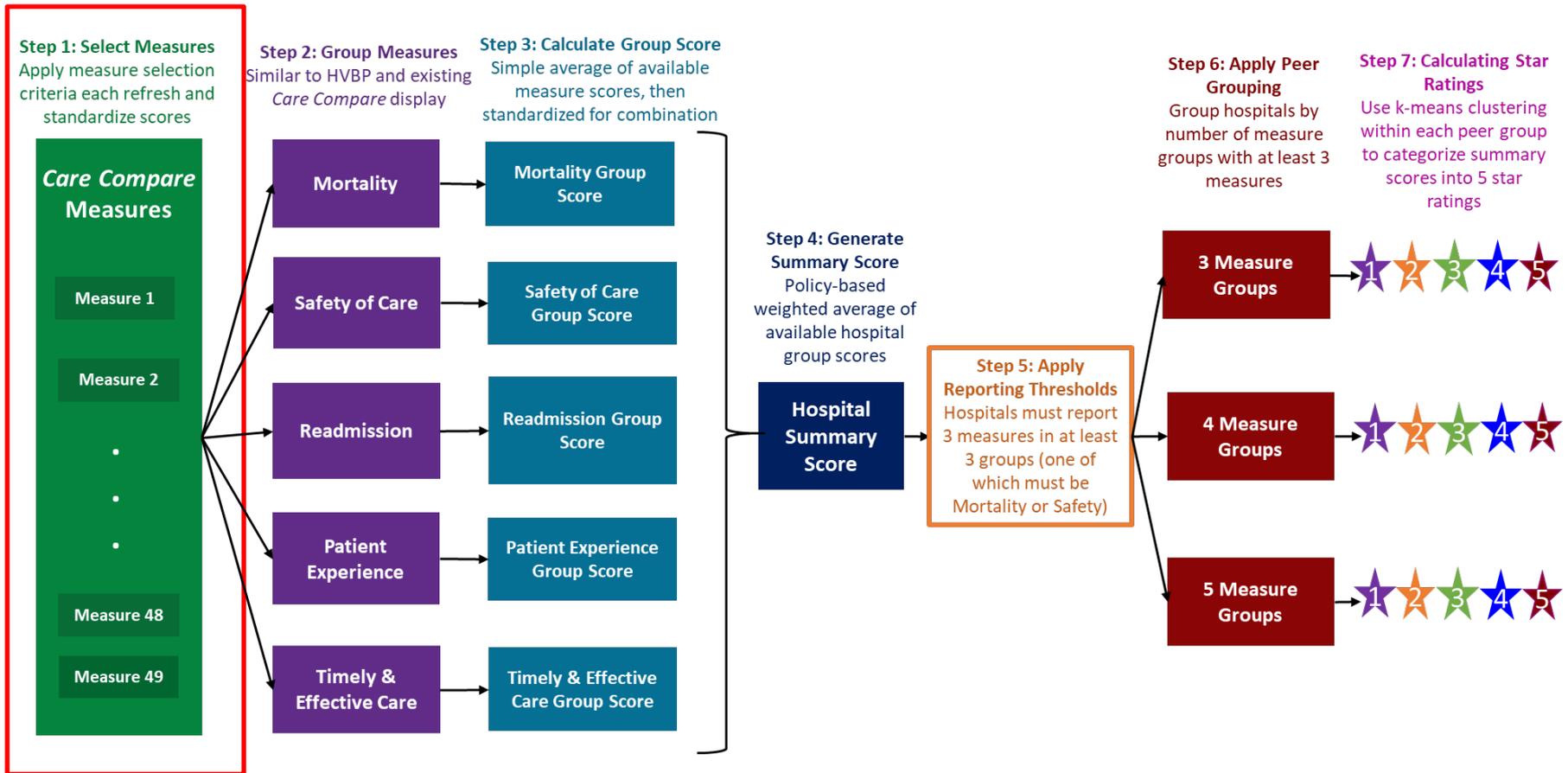
Step 5: Apply Reporting Thresholds
Hospitals must report 3 measures in at least 3 groups (one of which must be Mortality or Safety)

Step 6: Apply Peer Grouping
Group hospitals by number of measure groups with at least 3 measures



Step 7: Calculating Star Ratings
Use k-means clustering within each peer group to categorize summary scores into 5 star ratings

Step 1: Measure Inclusion and Standardization

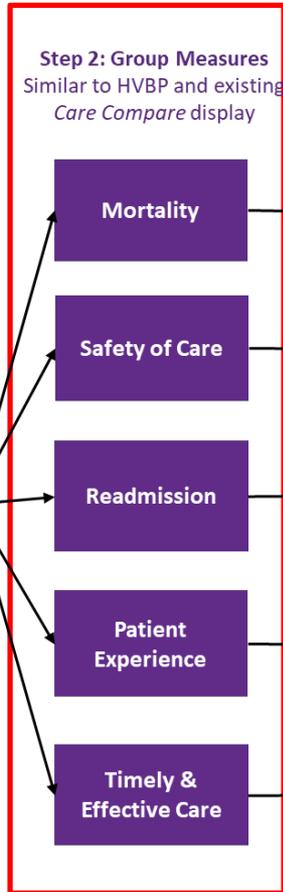


Updates to Step 1: Measure Inclusion and Standardization

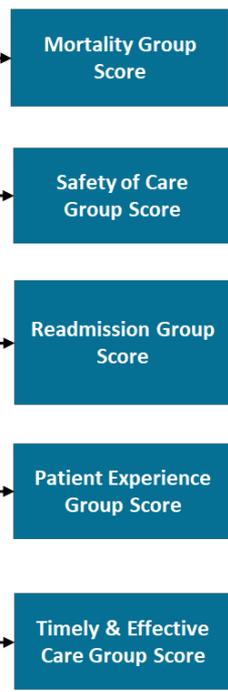
- **Version 3.0:** Select and standardize measure scores using Z-scores.
- **Version 4.0:** No substantial changes.

Updates to Step 2: Measure Grouping

Step 1: Select Measures
Apply measure selection criteria each refresh and standardize scores



Step 3: Calculate Group Score
Simple average of available measure scores, then standardized for combination

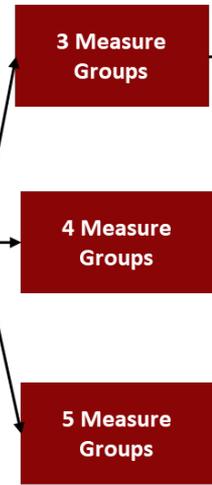


Step 4: Generate Summary Score
Policy-based weighted average of available hospital group scores



Step 5: Apply Reporting Thresholds
Hospitals must report 3 measures in at least 3 groups (one of which must be Mortality or Safety)

Step 6: Apply Peer Grouping
Group hospitals by number of measure groups with at least 3 measures



Step 7: Calculating Star Ratings
Use k-means clustering within each peer group to categorize summary scores into 5 star ratings



Updates to Step 2: Measure Grouping

- **Version 3.0:** 7 measure groups
 - Mortality, Safety of Care, Readmission, and Patient Experience, Timeliness of Care, Effectiveness of Care, and Efficient Use of Medical Imaging
- **Version 4.0:** 5 measure groups
 - Mortality, Safety of Care, Readmission, and Patient Experience, **Timely & Effective Care**
 - *Some measures removed due to Meaningful Measures Initiative*

Updates to Step 2: Impact

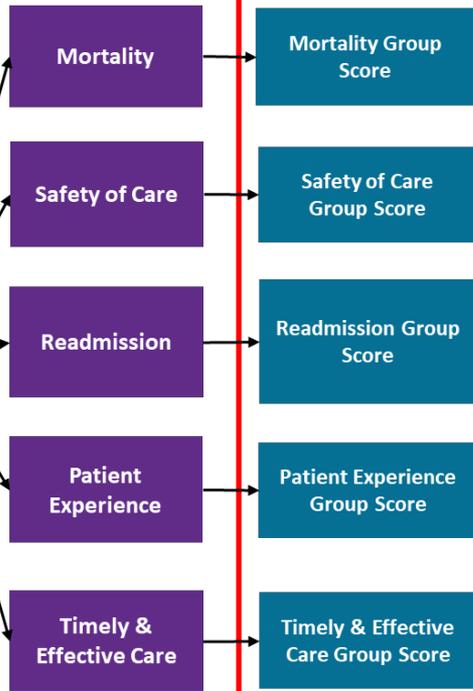
- 180 more hospitals meeting the reporting threshold to receive a star rating
- 157 (87%) of which are critical access hospitals

Updates to Step 3: Measure Group Score Calculation

Step 1: Select Measures
Apply measure selection criteria each refresh and standardize scores



Step 2: Group Measures
Similar to HVBP and existing Care Compare display



Step 3: Calculate Group Score
Simple average of available measure scores, then standardized for combination

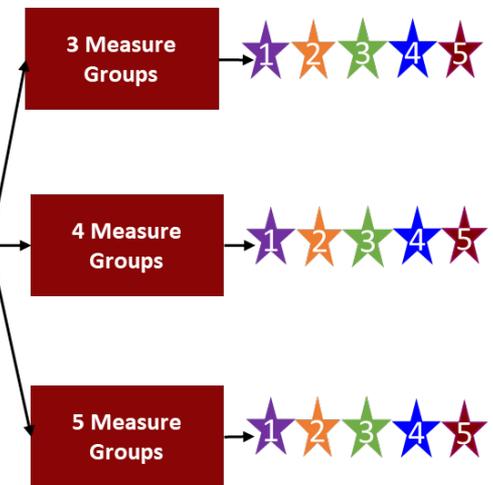


Step 4: Generate Summary Score
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Step 7: Calculating Star Ratings
Use k-means clustering within each peer group to categorize summary scores into 5 star ratings

Updates to Step 3: Measure Group Score Calculation

- **Version 3.0:** Latent variable model
- **Version 4.0: Simple average of measure scores.**
 - Equal weighting of each measure in a group
 - Measure weights will differ depending on number of measures in each measure group
 - Measure group scores are then standardized to allow for comparability across hospitals

Updates to Step 3: Measure Group Score Calculation Example

Measure Name	Example Measure Score	Standardized Measure Score	Measure Weight	Weighted Standardized Measure Scores	Safety of Care Measure Group Score
Hip/Knee Complications	3.22%	-1.13	12.5%	-0.14	0.23
HAI-1 (CLABSI)	1.233	-0.75	12.5%	-0.09	
HAI-2 (CAUTI)	0.747	0.09	12.5%	0.01	
HAI-3 (SSI) from Colon Surgery	0.000	1.21	12.5%	0.15	
HAI-4 (SSI) Abdominal Hysterectomy	0.000	0.97	12.5%	0.12	
HAI-5 (MRSA)	0.166	0.98	12.5%	0.12	
HAI-6 (C. difficile)	0.470	0.46	12.5%	0.06	
CMS PSI-90	0.999	0.02	12.5%	0.003	

Updates to Step 3: Measure Group Score Calculation Example

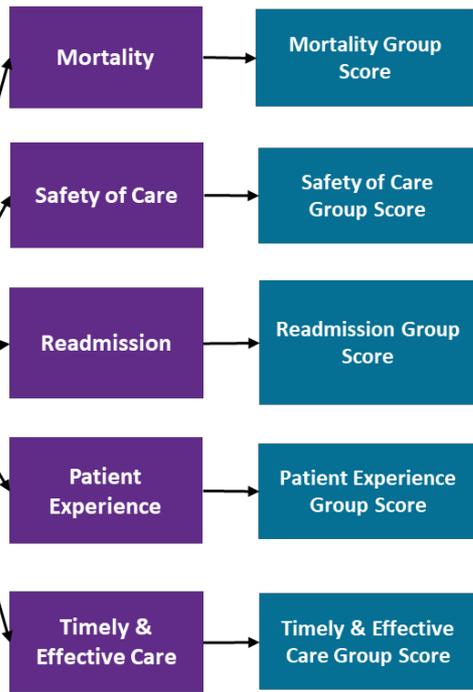
Measure Name	Example Measure Score	Standardized Measure Score	Measure Weight	Weighted Standardized Measure Scores	Safety of Care Measure Group Score
Hip/Knee Complications	3.22%	-1.13	14.3%	-0.16	0.26
HAI-1 (CLABSI)	1.233	-0.75	14.3%	-0.11	
HAI-2 (CAUTI)	0.747	0.09	14.3%	0.01	
HAI-3 (SSI) from Colon Surgery	0.000	1.21	14.3%	0.17	
HAI-4 (SSI) Abdominal Hysterectomy	0.000	0.97	14.3%	0.14	
HAI-5 (MRSA)	0.166	0.98	14.3%	0.14	
HAI-6 (C. difficile)	0.470	0.46	14.3%	0.07	
CMS PSI-90	N/A	N/A	N/A	N/A	

Updates to Step 4: Summary Score Calculation

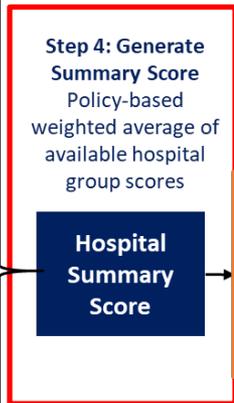
Step 1: Select Measures
Apply measure selection criteria each refresh and standardize scores



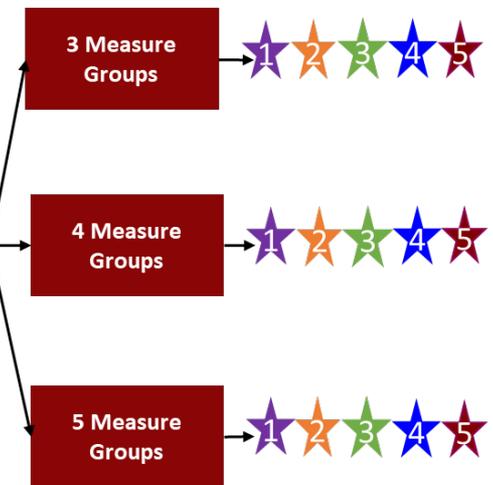
Step 2: Group Measures
Similar to HVBP and existing Care Compare display



Step 3: Calculate Group Score
Simple average of available measure scores, then standardized for combination



Step 6: Apply Peer Grouping
Group hospitals by number of measure groups with at least 3 measures



Step 7: Calculating Star Ratings
Use k-means clustering within each peer group to categorize summary scores into 5 star ratings

Updates to Step 4: Summary Score Calculation

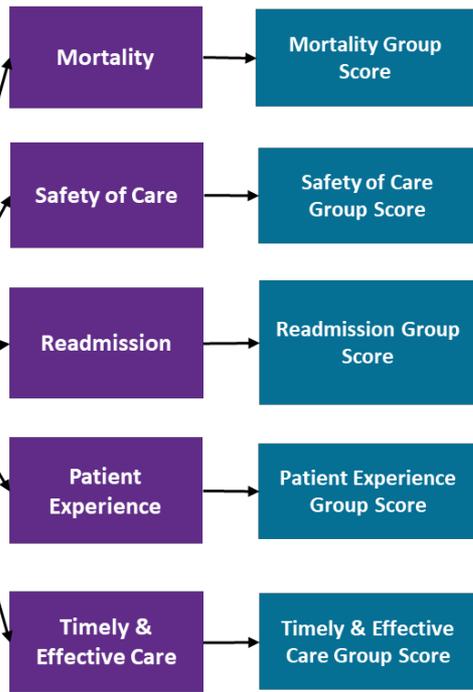
- **Version 3.0:**
 - Mortality, Safety of Care, Readmission, and Patient Experience weight: 22% each
 - Timeliness of Care, Effectiveness of Care, and Efficient Use of Medical Imaging weight: 4% each
- **Version 4.0:**
 - Mortality, Safety of Care, Readmission, and Patient Experience weight: 22% each
 - **Timely & Effective Care weight: 12%**

Updates to Step 5: Reporting Requirements

Step 1: Select Measures
Apply measure selection criteria each refresh and standardize scores



Step 2: Group Measures
Similar to HVBP and existing *Care Compare* display



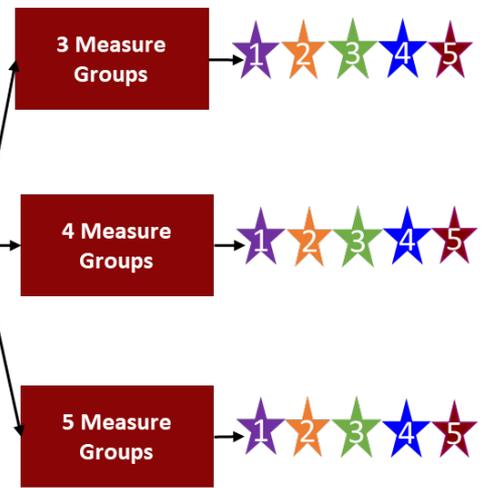
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Step 5: Apply Reporting Thresholds
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Step 7: Calculating Star Ratings
Use k-means clustering within each peer group to categorize summary scores into 5 star ratings

Updates to Step 5: Reporting Requirements

- **Version 3.0:** To receive a star rating, hospitals must report ≥ 3 measures in 3 measure groups
- **Version 4.0:** To receive a star rating, hospitals must report ≥ 3 measures in 3 measure groups, **one of which must be Mortality or Safety of Care**

Updates to Step 5: Impact

- Using October 2019 *Hospital Compare* (now *Care Compare*) data, requiring Mortality or Safety of Care reduced number of hospitals eligible for a star rating
- 125 hospitals no longer received a star rating
 - 68 CAHs
 - 48 safety-net hospitals
 - 16 specialty hospitals

New Step 6: Peer Grouping

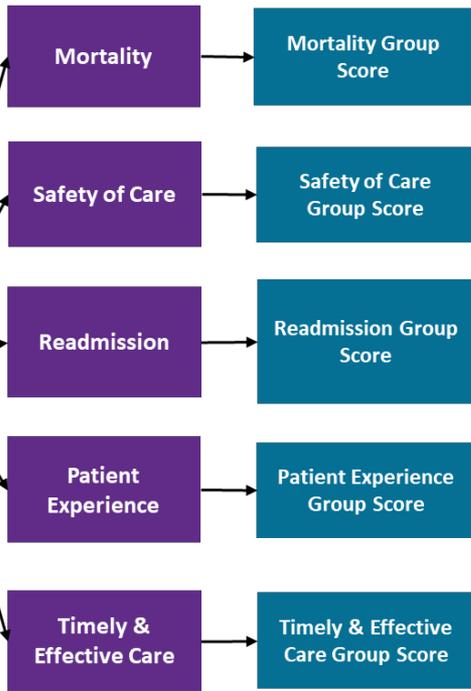
- **Version 3.0:** No peer grouping
- **Version 4.0:** Peer group hospitals based on number of measure groups for which they report ≥ 3 measures (3, 4, or 5 measure groups)

New Step 6: Peer Grouping

Step 1: Select Measures
Apply measure selection criteria each refresh and standardize scores



Step 2: Group Measures
Similar to HVBP and existing Care Compare display

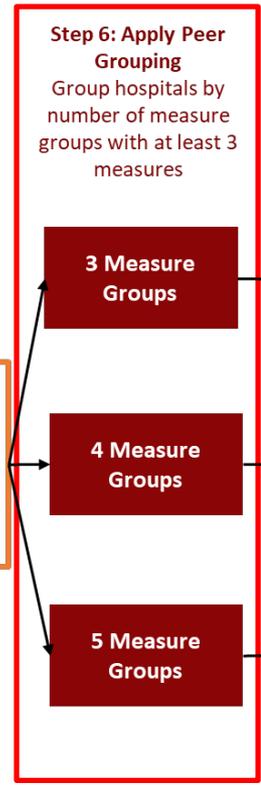


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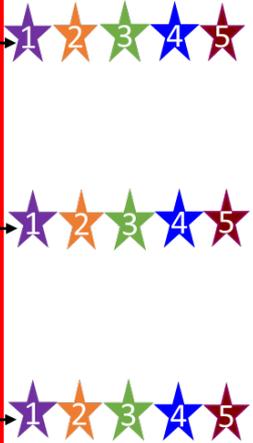
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Step 7: Calculating Star Ratings
Use k-means clustering within each peer group to categorize summary scores into 5 star ratings



New Step 6: Peer Grouping Impact

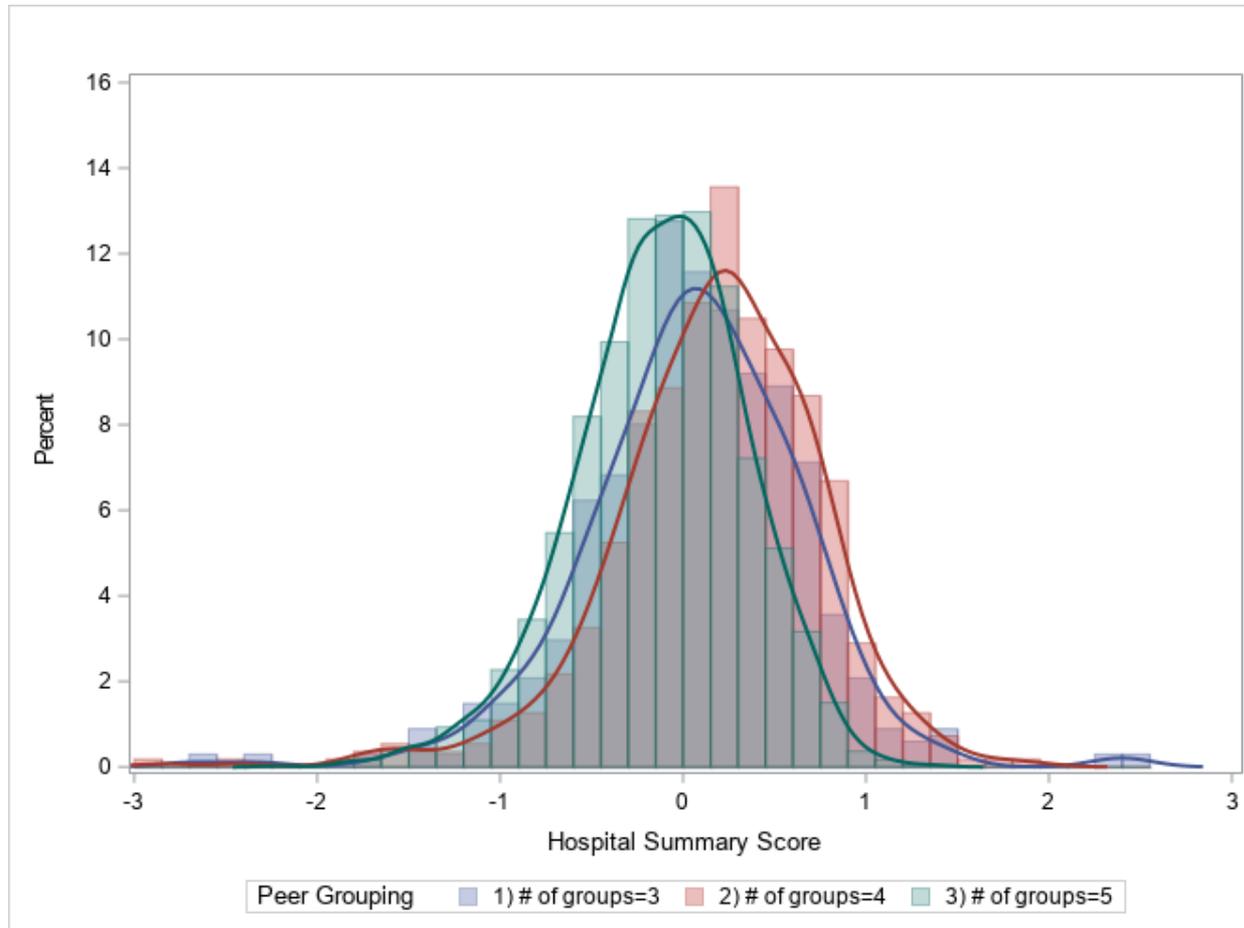
- Hospitals by peer measure group
 - 3 measure peer group - 348 (10%)
 - 4 measure peer group - 583 (17%)
 - 5 measure peer group - 2,509 (73%)
- >95% of hospitals assigned to the same peer measure group between 2016-2019
- Peer measure groups reflect hospital differences (e.g., size, volume, case and service mixes)
 - Hospitals with ≥ 3 measures in 3 and 4 measure groups are more likely to be CAHs (58% and 52% of the peer groups, respectively)
 - Hospitals with ≥ 3 measures in all 5 measure groups tend to be Safety-Net (19%) and Teaching (56%) hospitals

New Step 6: Peer Grouping by Measure Peer Groups

Peer Group	% Hospitals Reporting Group				
	Mortality	Safety of Care	Readmission	Timely & Effective Care	Patient Experience
3 Measure Groups	86%	15%	86%	96%	17%
4 Measure Groups	92%	11%	100%	99%	98%
5 Measure Groups	100%	100%	100%	100%	100%

*October 2019 *Hospital Compare* (now *Care Compare*) data

Distribution of Overall Star Ratings by Peer Group

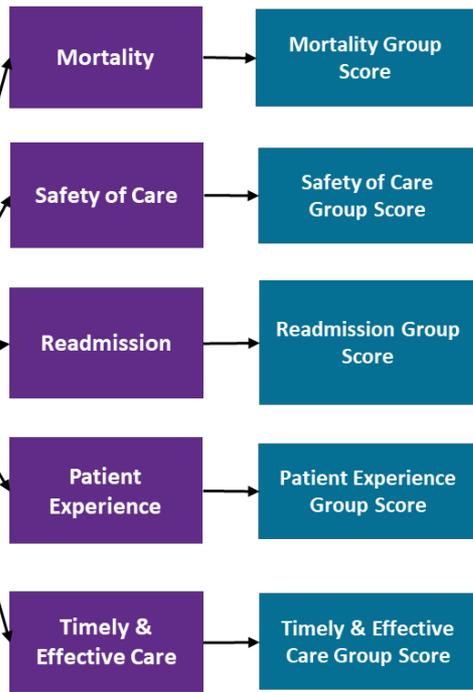


Updates to Step 7 (Previously Step 6): Assigning Star Ratings

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Step 2: Group Measures
Similar to HVBP and existing Care Compare display



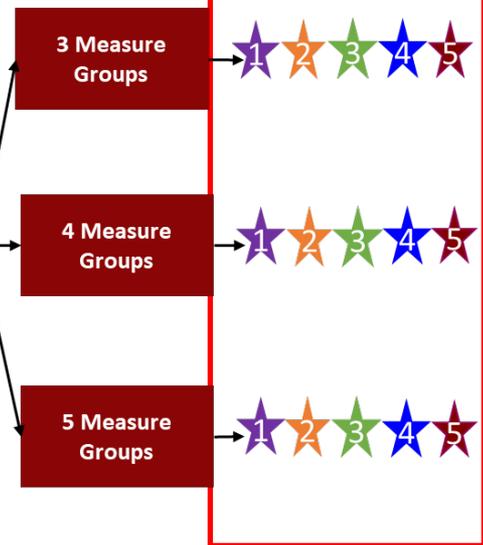
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Step 7: Calculating Star Ratings
Use k-means clustering within each peer group to categorize summary scores into 5 star ratings

Updates to Step 7 (Previously Step 6): Assigning Star Ratings

- **Version 3.0:** K-means clustering to assign hospitals to 1 of 5 star categories
- **Version 4.0:** K-means clustering to assign hospitals to 1 of 5 star categories, **k-means clustering occurs within each peer group**

Updates to Step 7 (Previously Step 6): Impact

- 1,585 (50%) hospitals receive the same star rating
- 1,423 (45%) hospitals shift up or down 1 star
- 150 (5%) hospitals shift up or down ≥ 2 stars

Distribution of Overall Star Ratings

Overall Star Rating	April 2021 (Version 4.0) # Hospitals (%)	December 2017-January 2020 (Version 3.0) # Hospitals (%)
★★★★★	455 (13.6%)	375 (11.6%)
★★★★	988 (29.4%)	1049 (32.5%)
★★★	1019 (30.4%)	1000 (31.0%)
★★	690 (20.6%)	597 (18.5%)
★	204 (6.1%)	208 (6.4%)

Distribution of Overall Star Ratings by Peer Group – April 2021

Overall Star Rating	3-Measure groups # Hospitals (%)	4-Measure groups # Hospitals (%)	5-Measure groups # Hospitals (%)
★★★★★	35 (10.4%)	39 (7.1%)	381 (15.4%)
★★★★	93 (27.6%)	143 (25.86%)	752 (30.5%)
★★★	111 (32.9%)	194 (35.1%)	714 (29.0%)
★★	72 (21.4%)	144 (26.0%)	474 (19.2%)
★	26 (7.7%)	33 (6.0%)	145 (5.9%)

Next Steps

- Confidential hospital preview period January 27 – February 26 2021
- Overall Star Rating to be published on Care Compare April 2021

Thank You

- For more information regarding Star Ratings, visit <https://qualitynet.cms.gov/inpatient/public-reporting/overall-ratings>.
- For additional questions, please submit them to the [QualityNet Question and Answer Tool](#)*

*https://cmsqualitysupport.servicenowservices.com/qnet_qa

Overall Hospital Quality Star Ratings on Care Compare
2021 OPPS Rule Methodology

Question & Answer Session

Continuing Education (CE) Approval

This program has been approved for [CE credit](#) for the following boards:

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 - Board of Registered Nursing (Provider #16578)
- **Florida-only credit**
 - Board of Clinical Social Work, Marriage & Family Therapy and Mental Health Counseling
 - Board of Registered Nursing
 - Board of Nursing Home Administrators
 - Board of Dietetics and Nutrition Practice Council
 - Board of Pharmacy

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Appendix

Measures removed from Hospital IQR and Hospital OQR Programs resulting from the Meaningful Measures Initiative

- From the Effectiveness of Care Measure Group
 - Influenza Immunizations (IMM-2)
 - Influenza Vaccination Coverage Among Healthcare Personnel (OP-27)
 - Aspirin at Arrival (OP-4)
 - Colonoscopy Interval for Patients with a History of Adenomatous Polyps (OP-30)
 - Incidence of Potentially Preventable VTE (VTE-6)
- From the Timeliness of Care Measure Group
 - Median Time from ED Arrival to ED Departure for Admitted ED Patients (ED-1b)
 - Median Time to ECG (OP-5)
 - Door to Diagnosis Evaluation by a Qualified Medical Professional (OP-20)
 - Median Time to Pain Management for Long Bone Fracture (OP-21)
 - Median Time to Fibrinolysis (OP-1)
- From the Efficient Use of Medical Imaging Group
 - Thorax CT – Use of Contrast Material (OP-11)
 - Simultaneous Use of Brain Computed Tomography (CT) and Sinus Computed Tomography (CT) (OP-14)