Appendices

Appendices for the *2015 National Impact Assessment of the Centers for Medicare & Medicaid Services (CMS) Quality Measures Report* (2015 Impact Report) correspond to the chapters in which they are first referenced and are listed sequentially in the order they are identified in the report. Appendix i-1, for example, is the first appendix referenced in the Introduction. All remaining chapters (1 through 10) use the chapter number to identify the appendix, followed by the reference number within each appendix (e.g., Appendix 1-1 is the first appendix referenced in Chapter 1).

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Appendix i: Introduction

Appendix i-1: National Impact Assessment of CMS Quality Measures—Technical Expert Panel (TEP)

Name	Organization	Location
George Isham, MD, MS **TEP Chair**	Senior Advisor to HealthPartners	Minneapolis, MN
Cheryl Damberg, PhD, MPH **TEP Co-Chair**	Senior Policy Researcher, RAND	Santa Monica, CA
Karen Adams, PhD, MT	Vice President, National Priorities, National Quality Forum	Washington, DC
Sean Berenholtz, MD, MHS, FCCM	Associate Professor, Anesthesia/Critical Care Medicine, Surgery, and Health Policy & Management, Johns Hopkins Schools of Medicine & Bloomberg School of Public Health; Medical Director, Anesthesiology/CCM Perioperative Safety Director, Adult Surgical Critical Care Performance Improvement; Physician Director, Inpatient Quality and Safety Armstrong Institute for Patient Safety and Quality	Baltimore, MD
J. Ganesh Bhat, MD	Co-Principal, Atlantic Dialysis Management Services	Ridgewood, NY
Renee Demski, MSW, MBA	Senior Director, Quality Improvement, John Hopkins Health System Senior Director, Armstrong Institute for Patient Safety and Quality, Johns Hopkins Health System	Baltimore, MD
Joyce Dubow, MUP	Senior Directory, Health Care Reform, American Association of Retired Persons	Washington, DC
Gerry Fairbrother, PhD	Senior Fellow, Academy Health and Adjunct Professor of Pediatrics at the University of New Mexico and University of Cincinnati	Washington, DC
Stephen F. Jencks, MD, MPH	Consultant in Healthcare Safety and Quality	Baltimore, MD
Eugene A. Kroch, PhD	Vice President and Chief Scientist, Premier, Inc.	Swarthmore, PA
Allen Leavens, MD, MPH	Senior Director, National Quality Forum	Washington, DC
Joanne Lynn, MD, MA, MS	Director, Center on Elder Care and Advanced Illness, Altarum Institute	Chevy Chase, MD
David Nau, PhD, RPh, CPHQ	Senior Director, Research & Performance Measurement, Pharmacy Quality Alliance	Lexington, KY
Debra Saliba, MD, MPH	Anna and Harry Borun Chair in Geriatrics and Gerontology at UCLA ; Research Physician, Veterans Affair Greater Los Angeles Healthcare System Geriatric Research, Educational and Clinical Center; Director, UCLA/JH Borun Center for Gerontological Research; Senior Natural Scientist, RAND Health	Santa Monica, CA
Diane Stollenwerk, MPP	President of Community Alliances, National Quality Forum	Washington, DC
Christopher Tompkins, PhD, MMHS	Associate Professor, The Heller School for Social Policy and Management, Brandeis University	Waltham, MA
Joel S. Weissman, PhD	Deputy Director/Chief Scientific Officer, Center for Surgery and Public Health, Brigham and Women's Hospital	Boston, MA
Neil S. Wenger, MD, MPH	Director, Assessing Care of Vulnerable Elders (ACOVE) UCLA School of Medicine and RAND Health	Santa Monica, CA

Appendix i-2: Federal Assessment Steering Committee (FASC) Member Listing

Name	Role	Agency
Kate Goodrich, MD, MHS	Project Sponsor	Centers for Medicare and Medicaid Services, Center for Clinical Standards and Quality, Quality Measurements and Health Assessment Group
Noni Bodkin, PhD	Project Lead	Centers for Medicare and Medicaid Services, Center for Clinical Standards and Quality, Quality Measurements and Health Assessment Group
Melissa Evans, PhD, MSAE	Project Support	Centers for Medicare and Medicaid Services, Center for Clinical Standards and Quality, Quality Measurements and Health Assessment Group
Julia Mikulla, BSN, MSc, MBA	Former Project Lead	Centers for Medicare and Medicaid Services, Center for Clinical Standards and Quality, Quality Measurements and Health Assessment Group
Robert Kambic, MSH	Member	Centers for Medicare and Medicaid Services, Quality Improvement Group
Pam Owens, PhD	Member	Agency for Healthcare Research and Quality
Girma Alemu, MD, MPH	Member	Health Resources and Services Administration
Lok Wong Samson, MHS, PhD	Member	Office of the Assistant Secretary for Planning and Evaluation
Ann Page, RN, MPH	Member	Office of the Assistant Secretary for Planning and Evaluation
Elizabeth Flow-Delwiche, PhD	Member	Centers for Medicare and Medicaid Services, Center for Clinical Standards and Quality, Quality Measurements and Health Assessment Group
Mindy Hangsleben, BS	Member	Office of the National Coordinator for Health Information Technology
Gail Janes, PhD, MS	Member	Centers for Disease Control
Lisa Patton, PhD	Member	Substance Abuse and Mental Health Services Administration
Ernest Moy, MD, MPH	Member	Agency for Healthcare Research and Quality
Daniel Andersen, PhD, MS, MPH	Member	Centers for Medicare and Medicaid Services, Center for Clinical Standards and Quality, Survey and Certification Group

Appendix i-3: Programs Addressed by Research Questions

Programs	Ch. 1 NQS Priorities	Ch. 2 Measures Under Consideration	Ch. 3 Physician Adoption of PQRS Measures	Ch. 4 Measure Alignment	Ch. 5 Populations Reached	Ch. 6 Unintended Consequences	Ch. 7 Trends in Performance and Disparities	Ch. 8 Hospital Process Measures and Patient Outcomes	Ch. 9 Patient Experiences and Predicted Costs
Hospital Setting									
Hospital Inpatient Quality Reporting Program*	✓	✓		✓	✓	✓	✓	✓	✓
Hospital Value-Based Purchasing Program[i]*	✓	✓		✓	✓	✓	✓	✓	
Hospital Readmissions Reduction Program	✓	✓		✓	✓	✓			
Hospital-Acquired Condition Reduction Program	✓	✓		✓	✓	✓			
Medicare and Medicaid Electronic Health Record (EHR) Incentive Program for Eligible Hospitals and Critical Access Hospitals	✓				✓				
Hospital Outpatient Quality Reporting Program*	✓	✓		✓	✓	✓	✓		
Ambulatory Surgical Center Quality Reporting Program	✓	✓		✓	✓				
Inpatient Psychiatric Facility Quality Reporting Program	✓	✓		✓	✓				
Prospective Payment System-Exempt Cancer Hospitals Quality Reporting Program	✓	✓		✓	✓				

*Measures from these programs with a minimum of three consecutive years of comparable data will be analyzed for trends.

[i] The Hospital Value-Based Purchasing Program (Hospital VBP Program) will not be evaluated for trends because the program has not existed long enough to evaluate trends. However, many measures used in the Hospital VBP Program have been used for over three years. As such, measures from the Hospital VBP Program will be assessed, but it will not be possible to draw conclusions about the program as a whole.

Appendix i-3: Programs Addressed by Research Questions

Programs	Ch. 1 NQS Priorities	Ch. 2 Measures Under Consideration	Ch. 3 Physician Adoption of PQRS Measures	Ch. 4 Measure Alignment	Ch. 5 Populations Reached	Ch. 6 Unintended Consequences	Ch. 7 Trends in Performance and Disparities	Ch. 8 Hospital Process Measures and Patient Outcomes	Ch. 9 Patient Experiences and Predicted Costs
Ambulatory Setting									
Physician Quality Reporting System[ii]	✓	✓	✓	✓	✓	✓			
Medicare Electronic Prescribing Incentive Program	✓								
Physician Feedback Program	✓	✓			✓				
Medicare and Medicaid Electronic Health Record (EHR) Incentive Program for Eligible Professionals	✓				✓				
Medicare Shared Savings Program	✓	✓		✓	✓				
Physician Compare	✓	✓				✓			
Medicare Part C* (Display and Star Ratings Measures)	✓			✓	✓	✓	✓		
Medicare Part D* (Display and Star Ratings Measures)	✓			✓	✓	✓	✓		
Core Set of Children's Health Care Quality Measures for Medicaid and CHIP (Child Core Set)	✓			✓					
Core Set of Health Care Quality Measures for Adults Enrolled in Medicaid (Medicaid Adult Core Set)	✓			✓					

*Measures from these programs with a minimum of three consecutive years of comparable data will be analyzed for trends.

[ii] This is a voluntary reporting program that allows physicians to report self-selected measures. For this reason, reporting is inconsistent over time and limits the research team's ability to draw conclusions from trend data.

Appendix i-3: Programs Addressed by Research Questions

Programs	Ch. 1 NQS Priorities	Ch. 2 Measures Under Consideration	Ch. 3 Physician Adoption of PQRS Measures	Ch. 4 Measure Alignment	Ch. 5 Populations Reached	Ch. 6 Unintended Consequences	Ch. 7 Trends in Performance and Disparities	Ch. 8 Hospital Process Measures and Patient Outcomes	Ch. 9 Patient Experiences and Predicted Costs
PAC/LTC Setting									
Nursing Home Quality Initiative*	✓			✓	✓	✓	✓		
Home Health Quality Reporting Program*	✓	✓		✓	✓	✓	✓		
End-Stage Renal Disease Quality Incentive Program*	✓	✓		✓	✓	✓	✓		
Hospice Quality Reporting Program	✓	✓		✓	✓				
Inpatient Rehabilitation Facilities Quality Reporting Program	✓	✓		✓	✓				
Long-Term Care Hospitals Quality Reporting Program	✓	✓		✓	✓				

*Measures from these programs with a minimum of three consecutive years of comparable data will be analyzed for trends.

Appendix i-4: 2015 Impact Report Quality Measure List by Chapter

This document can be accessed at:
https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityMeasures/Downloads/2015-Impact-Assessment-Measure-List.xlsx

This Excel file contains a single list of all measures used in the report followed by tabs for measures used within in each chapter. The list includes the NQF endorsement status, NQF number if endorsed, and both the measure title used by the CMS program and the measure title used by NQF.

Appendix i-5: Overlapping Program Measures by Setting, December 31, 2013 (n = 682 Unique Measures)

CMS Quality Measurement Programs	Hospital IQR Program	Hospital VBP Program	HRRP	HAC Reduction Program	Hospital OQR Program	EHR EH	ASCQR Program	IPFQR Program	PCHQR Program	Hospital Compare	PQRS	Physician Feedback Program	EHR EP	MSSP	Physician Compare	Part C	Part D	Medicaid Adult	Medicaid Child	NHQI	HH QRP	ESRD QIP	HQRP	IRFQR Program	LTCHQR Program
Hospital IQR Program	65																								
Hospital VBP Program	22	22																							
HRRP	5	0	5																						
HAC Reduction Program	6	4	0	6																					
Hospital OQR Program	2	0	0	0	26																				
EHR EH	24	6	0	0	1	29																			
ASCQR Program	2	0	0	0	6	0	11																		
IPFQR Program	0	0	0	0	0	0	0	8																	
PCHQR Program	10	10	0	3	0	3	0	0	18																
Hospital Compare	54	22	3	6	20	25	1	4	12	102															
PQRS	1	0	0	0	5	1	3	0	5	3	283														
Physician Feedback Program	2	1	0	0	5	1	3	0	5	4	283	288													
EHR EP	0	0	0	0	0	0	0	0	2	0	61	61	64												
MSSP	0	0	0	0	0	0	0	0	0	0	17	17	13	24											
Physician Compare	0	0	0	0	0	0	0	0	0	0	20	20	14	17	21										
Part C	0	0	0	0	0	0	0	1	0	0	10	10	11	7	6	50									
Part D	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	28								
Medicaid Adult	1	0	0	0	0	1	0	1	0	0	7	7	7	5	2	7	0	26							
Medicaid Child	1	1	0	1	0	0	0	1	1	1	4	4	4	0	0	1	0	3	23						
NHQI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26					
HH QRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81				
ESRD QIP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18			
HQRP	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	10		
IRFQR Program	2	1	0	1	1	0	1	0	1	2	0	0	0	0	0	0	0	0	0	2	0	0	0	5	
LTCHQR Program	5	2	0	4	1	0	1	0	2	5	0	0	0	0	0	0	0	0	1	3	0	0	0	4	9

Appendix 1: Chapter 1—CMS Measures in Relationship to the National Quality Strategy Priorities

Appendix 1-1: HHS Decision Rules for Categorizing Measures of Health, Health Care Quality, and Health Care Affordability

The *HHS Decision Rules for Categorizing Measures of Health, Health Care Quality, and Health Care Affordability* document follows this page.

HHS Decision Rules

for

Categorizing Measures of Health, Health Care Quality, and Health Care Affordability

1/15/14

HHS Decision Rules for Categorizing Measures of Health, Health Care Quality, and Health Care Affordability

1/15/14

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1. Making care safer by reducing harm caused in the delivery of care. 6
2. Ensuring that each person and family is engaged as partners in their care. 9
3. Promoting effective communication and coordination of care. 10
4. Promoting the most effective prevention and treatment practices for the leading causes of mortality, starting with cardiovascular disease. 12
5. Working with communities to promote wide use of best practices to enable healthy living. 13
6. Making quality care more affordable for individuals, families, employers, and governments by developing and spreading new health care delivery models. 14
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I. PURPOSE OF MEASURE CATEGORIZATION

The multiple divisions of the Department of Health and Human Services (HHS) currently use thousands of measures to evaluate and improve US health and health care. Efficiently using these measures— and additional measures under development—requires that HHS well understand what these measures represent. Analyzing HHS' set of measures according to the National Quality Strategy priorities, and setting and level of care is a key step in helping to achieve this understanding. An improved and shared understanding of these measures will facilitate better identification of measure gaps, priorities for new measure development, as well as any instances of a surplus of measures. It will also help improve coordination of new measure development and harmonization of existing measures, and provide insight on how best to move towards achieving a set of highly effective measures that minimizes measurement burden, while providing all stakeholders with useful information on health and healthcare.

II. STANDARDS FOR THE DECISION RULES

A. Logic and transparency.

Decision rules are written, explicit, logic statements that make clear the criteria that must be met in order to assign a measure into a particular measure category. Decision rules shall be available to all stakeholders.

B. Use of standardized definitions.

To the extent possible, rules for categorizing measures shall be consistent with and use standardized definitions of concepts and criteria. Establishing formal links between measure concepts and standardized definitions helps to better link measures and measurement with health services research and databases, and work conducted in the broader national and international arena. To the extent that a standardized definition does not exist, identifying this can provide valuable feedback for health services research and policy makers.

C. Continuous improvement.

Decision rules shall be subject to continuous quality improvement. As decision rules are applied, the need for revision or addition to the rules may become apparent. Measure creators, stewards, or others categorizing measures should document all instances when existing decision rules are insufficient to easily categorize a measure. These instances should be brought to the attention of the HHS Measures Coordination Group, who will analyze the problem and make recommendations for additions or revisions to the decision rules or measure categories, as needed. When such instances are identified internally within HHS, they should be forwarded to the MCG lead who will bring them to the full MCG. When such instances are identified by HHS contractors, the contractor should bring

them to the attention of the Contract Officer's Representative (COR) or Government Task Lead (GTL), who will bring it to the attention of the MCG.

D. Decision rules shall be endorsed by the HHS Measures Policy Council.

The HHS Measures Coordination Group is the operational arm of the HHS Measures Policy Council. Decision rules and subsequent revisions shall take effect upon the date of endorsement by the HHS Measures Policy Council. The HHS Measures Policy Council will take the lead on coordinating HHS decision rules with rules used in the private sector.

III. GENERAL RULES FOR CATEGORIZING MEASURES

A. Timing of categorization.

Newly created measures shall be categorized by their creator when each measure's specifications are developed. Measures already in use shall be reviewed for categorization or re-categorization by the HHS division that is responsible for each measure as part of its annual update and any scheduled comprehensive review. Following the decision rules, measure creators shall document in writing the logic by which the measure is assigned to a specific category. When the logic used to categorize a measure is made explicit, reviewers will have the opportunity to comment on the proposed categorization as part of the measure's creation, endorsement and maintenance processes. This will aid in understanding the validity of the measure, and can help translate measurement results to all stakeholders. A given measure can be re-categorized if there is consensus from the HHS division responsible for the measure or the HHS Measures Policy Council that the measure belongs in a category different than the one initially identified.

B. Person-centered[1] approach.

There are multiple different perspectives through which measures can be understood and categorized. Some measures may relate to more than one aspect of health care. Health care providers, purchasers of health care, measure developers, and others also may all have different views of what a specific measure represents. All of these ways of thinking

[1] Many different words can be used to refer to individuals whose health or healthcare is being measured, including "patient," "client," "consumer," "recipient," "beneficiary," and others. The use of the word, "person," is intended to include these perspectives, while also recognizing the broader life roles of individuals in the communities in which they live. Use of the word "person-centered" also is intended to include families of adults who, with the consent of the individual person, can play an essential role in health and health care. With respect to children and adolescents, we always intend "person-centered" to include families.

about a measure may be valid, but the healthcare system needs consistent categorization by the multiple parties who categorize measures.

In situations of competing views, concerns, and needs, experts remind us that "True north" lies in "the experience of patients, their loved ones, and the communities in which they live."[2] For this reason, in situations of multiple, competing views, categorization of measures shall be informed by considering how they would most likely to be perceived by the persons whose health or health care is being measured, when that person is informed about what is being measured and the evidence about its significance. Considering this perspective will help to maintain a person-centered approach to health care overall; by focusing not just on how health care is delivered, but how we measure, think about, and communicate to the public about these issues. Using a person-centered approach could also help in efforts to educate the public about the relevance of individual performance measures to themselves.

IV. RULES FOR CATEGORIZING MEASURES ACCORDING TO NATIONAL QUALITY STRATEGY PRIORITIES

A. The National Quality Strategy priorities:

1. Making care safer by reducing harm caused in the delivery of care.
2. Ensuring that each person and family is engaged as partners in their care.
3. Promoting effective communication and coordination of care.
4. Promoting the most effective prevention and treatment practices for the leading causes of mortality, starting with cardiovascular disease.
5. Working with communities to promote wide use of best practices to enable healthy living.
6. Making quality care more affordable for individuals, families, employers, and governments by developing and spreading new health care delivery models.

Adherence to General Rules.

Categorization of measures according to the National Quality Strategy priorities shall follow the General Rules for Categorizing Measures in Section III, above.

Measures of Disparities in Health and Health Care (Inequity in health resources and care).

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[2] D.M. Berwick. A User's Manual for the IOM's 'Quality Chasm' Report. Health Affairs, 21, no.3 (2002):80-90.

The categories below do not include a separate category for measures of heath care equity or disparities in health or health care. Although concern with eliminating disparities in care and taking into consideration the different health and health care needs of individuals are explicit principles of the National Quality Strategy, the absence of a separate category for such measures is due to the belief that all measures of health and health care can serve as such measures. Although we recognize that not all measures are specified for stratification according to such concepts as race, ethnicity, or socio-economic status, when measures are implemented across different groups and the results stratified, they can provide reliable information on differences in the health or healthcare across these groups, and thus provide information on disparities or inequities in health and health care.

Number of categorizations.

Some measures may relate to more than one NQS priority. For example, a measure of the delivery of inappropriate care may be categorized as a measure of healthcare waste because it is delivering care that is not needed. If such care also exposes the patient to risk, it can be conceived of as a measure of patient safety. In the future, composite measures might assess the combination of effective care and care coordination along with patient engagement or some other combination of dimensions of care. When a measure meets the decision rules for categorization into more than one NQS priority, the measures shall be mapped to all these NQS priorities. However, when a measure is assigned to more than one NQS priority category, one priority shall be designated as the measure's primary category and all other assignable categories shall be assigned as a secondary categorization. Determination of the measure's primary category shall be made by determining which NQS priority's decision rules the measure most strongly meets.

B. Criteria for categorizing measures.

Each measure shall be categorized under the NQS priority or priorities to which it applies using the decision rules set forth below. When a measure does not meet the decision rules for any of the NQS priorities it shall be designated as "Not Assignable to a National Quality Strategy Priority."

1. Making care safer by reducing harm caused in the delivery of care.

This priority has two components:

a. "making care safer." This means that the measure must address either an explicit structure or process intended to make care safer, or the outcome of the presence or absence of such a structure or process; and

b. harm "caused in the delivery of care." This means that the structure, process or outcome described in "a" must occur as a part of or as a result of the delivery of care.

Applicable definition:

"Making care safer" shall be defined according to the National Library of Medicine (NLM) MeSH definition of safety; i.e., increasing "Freedom from exposure to danger and protection from the occurrence or risk of injury or loss including personal safety as well as the safety of property." This includes "patient safety" which includes "efforts to reduce risk, to address and reduce incidents and accidents that may negatively impact healthcare consumers" and "safety management," defined as "The development of systems to prevent accidents, injuries, and other adverse occurrences. . ."

Criteria for inclusion:

Include in this category measures that meet criteria "a" or "b" below:

a. The measure addresses a structure or process designed to reduce risk *in the delivery of health care* to healthcare consumers and employees in all settings in which health care is delivered, including institutional facilities, outpatient and ambulatory care settings, the home, and other locations in which care may be provided such as a place of employment or site of an accident or emergency;

OR

b. The measure addresses the occurrence of a health or health care outcome that results from the presence or absence of structures or processes identified in item a.

Additional instructions for assigning measures into this category:

a. **Measure must be linked to the delivery of care.** Measures of health care safety address efforts to reduce the presence of a specific risk to the person receiving health care or health care worker *that is caused by the delivery of health care*. All measures in this category of health care safety must address a structure or process that is part of care delivery or an adverse outcome (i.e., errors, harm, complications, or death) that is the result of care delivery. For example, failure to receive a mammogram may increase the risk for late detection of breast cancer; however, this is not a safety measure as it did not involve risk caused by the delivery of health care. This measure would be a measure of effective treatment practices in category 4, below. However, measures of the incidence of pressure ulcers in a nursing home or measures of processes to prevent these pressure ulcers are examples of a health care safety measure because it addresses processes or outcomes that are concerned with the reduction of risk that takes place during care delivery.

b. **Determining measures of safety versus affordability.** When there is a question about whether a measure, for example a measure of the provision of inappropriate

care, should be assigned to the category of "Making care safer . . ." because it could result in harm, or the category of "Making quality care more affordable . . . ." because the provision of inappropriate care also is a measure of waste, examine the measure from the perspective of the person whose care is being measured. If the provision of inappropriate care; e.g., such as an unnecessary invasive procedure would or should be perceived by a knowledgeable patient as placing the patient at significant risk, categorize the measure as a measure of patient safety. If the measure measures the delivery of inappropriate care that does not place the person's health at risk, e.g., measures of certain unnecessary radiologic or laboratory studies, categorize the measure as a measure of waste under "Making quality care more affordable."

c. **Measures of Safety Culture.** Include in this category measures of organizations' safety cultures and characteristics that define "high reliability organizations" (HROs).[3] Features of cultures of safety include:

- acknowledgment of the high-risk nature of an organization's activities and the determination to achieve consistently safe operations;
- a blame-free environment where individuals are able to report errors or near misses without fear of reprimand or punishment;
- encouragement of collaboration across ranks and disciplines to seek solutions to health care safety problems; and
- organizational commitment of resources to address safety concerns.

Characteristics of HROs similarly include:

- *Sensitivity to Operations* that make every employee and team mindful of the complexities of systems to eliminate errors,
- *Reluctance to Simplify* explanations of difficulties and problems they face,
- *Proactive Preoccupation with Failure* and Near misses,
- *Deference to Expertise* so that staff at every level comfortably share information to report and solve problems, and a
- *Commitment to Resilience* in quickly containing errors and developing the capacity for continuous improvement and learning.

[3] HROs can be defined as organizations that consistently minimize adverse events despite carrying out intrinsically complex and hazardous work. (See: http://psnet.ahrq.gov/primer.aspx?primerID=5)

d. **Handling of measures of mortality and complications of health care delivery.** As above, sometimes a measure (particularly measures of mortality or complication of care delivery) may meet the decision rules for both "Making Care Safer" and "Promoting the most effective prevention and treatment practices." While many measures of patient mortality and complications are expected to be assigned to "Promoting the most effective prevention and treatment practices" because of their relationship to a disease process, measures of mortality or complications of care related to or resulting from the delivery of care would be categorized under "Making care safer…" (e.g., Rate of Complications of Anesthesia; Accidental Puncture or Laceration Rate).

2. Ensuring that each person and family is engaged as partners in their care.

This priority has two components:
1) the experience of each person and their family; and
2) the extent to which they are "engaged as partners in their care."

Applicable definitions:

The concept of person/family "engagement" is defined as "a set of behaviors by patients, family members, and health professionals and a set of organizational policies and procedures that foster both the inclusion of patients and family members as active members of the health care team and collaborative partnerships with providers and provider organizations."[4]

Criteria for inclusion:

Include in this category only measures of either:

a. Organizational structures or processes that foster both the inclusion of persons and family members as active members of the health care team and collaborative partnerships with providers and provider organizations;

OR

[4] Guide to Patient and Family Engagement: Environmental Scan Report. May 2012. Agency for Healthcare Research and Quality. Rockville, MD. http://www.ahrq.gov/research/findings/final-reports/ptfamilyscan/index.html. Accessed 7/15/13.

b. Person or family-reported experiences (outcomes) of being engaged as active members of the health care team and in collaborative partnerships with providers and provider organizations.

Additional instructions for assigning measures into this category:

a. Include in this category measures that address:

   1) engaging both the person and his/her family in their care;
   2) engaging only the person in their care, or
   3) only the engagement of families.

   This is because some methods (e.g., CAHPS survey questions) may address these separately but address all dimensions when individual measures are combined.

b. Include in this category measures that address the "personalization" of health care and personalized risk assessments.

c. Include in this category measures of cultural sensitivity, patient decision-making support, or care that reflects patient preferences.

d. Include in this category measures of patient adherence to activities prescribed by a health care provider, such as patient adherence to medication therapy or follow-up appointments.

3. Promoting effective communication and coordination of care.

This priority has two components:
1) the promotion of effective communication and coordination of care (emphasis added); and
2) "communication and coordination of care."

For purpose of categorization, assume that all actions to promote effective coordination of care involve efforts to promote effective communication.

Applicable definitions:

This category uses the following definition of care coordination:

"Care coordination is a conscious effort to ensure that all key information needed to make clinical decisions is available to patients and providers. It is defined as the deliberate organization of patient care activities between two or more participants involved in a patient's care to facilitate appropriate delivery of health care services."[5]

Criteria for inclusion:

Include in this category measures of:

a. Structures or processes of the *deliberate organization of health care activities* between two or more participants involved in a person's care to facilitate the appropriate delivery of health care services, including the marshalling of personnel and other resources needed to facilitate appropriate delivery of health care services. (Include only measures of actions whose purpose is to improve coordination of care *between health care providers*. Actions designed to improve communication between persons receiving care / families and their provider(s) shall be categorized under, "Ensuring that each person and family is engaged as partners in their care.");

OR

b. Person-reported experiences of the extent to which their care was deliberately organized between two or more participants involved in a person's care to facilitate the appropriate delivery of health care services (outcomes). This can include reports by a person receiving care of the extent to which personnel and other resources were marshaled to carry out all required health care activities or information was exchanged among participants responsible for different aspects of the person's health care.

OR

c. Outcomes that primarily reflect successful care coordination; e.g., 30-day readmission, avoidable admissions from post-acute care facilities, emergency department visits, and service duplication.

Additional instructions for assigning measures into this category:

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[5] US DHHS. "National Healthcare Quality Report 2012." AHRQ Publication N: 13-0002. May 2013. Available at: www.ahrq.gov/research/findings/nhqrdr/nhqr12/nhqr12_prov.pdf.

Include in this category measures of the use of electronic health records, and other information technology that facilitates communication between health care providers.

4. Promoting the most effective prevention and treatment practices for the leading causes of mortality, starting with cardiovascular disease.

This priority includes measures of practices to promote effective prevention and treatment of health conditions.

Applicable definitions:

This category uses the definition of "effective" put forth by the Institute of Medicine:

Care that is consistent with systematically acquired evidence to determine whether an intervention, such as a preventive service, diagnostic test, or therapy, produces better outcomes than alternatives – including the alternative of doing nothing.[6]

Criteria for inclusion:

Include in the category measures whose specifications:

a. include measurement of a specific practice or practices related to treatment, management and prevention of complications/disability among individuals *with an existing health condition or conditions*;

OR

b. Patient-centered outcomes of a disease state or states.

Additional instructions for assigning measures into this category:

a. Although the priority addresses, "the most effective" prevention and treatment practices, it is beyond the scope of these decision rules to distinguish "most effective" practices from "lesser effective" practices. Therefore, this portion of the priority is not operationalized in these decision rules.

b. When categorizing measures of prevention or behavior changes, categorize measures whose specifications address a specific diagnosed condition or conditions

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[6] Institute of Medicine, 2001. Crossing the Quality Chasm: A New Health System for the 21st Century. National Academy Press. Washington DC.

under this category. Measures of prevention should be included in this category when the preventive practice is recommended specifically because of its relationship to an existing condition(s). An example would be screening for retinopathy in patients with diabetes. Similarly a measure of exercise as part of cardiac rehabilitation would be categorized under "Promoting the most effective prevention and treatment practices for the leading causes of mortality. Measures of screening, prevention activities, and health behaviors that do not specify a particular diagnosed condition or conditions, (such as a measure of exercise as it relates to good health generally) are to be classified under, "Working with communities to promote wide use of best practices to enable healthy living."

5. Working with communities to promote wide use of best practices to enable healthy living.

This priority has two components:
1) working with communities; and
2) promotion of practices to enable healthy living.

Applicable definitions:

a. A community is defined as follows:
"Community is a group of people who have common characteristics; communities can be defined by geographic proximity, race, ethnicity, age, occupation, interest in particular problems or outcomes, or other similar common bonds."[7]

b. A practice to enable healthy living is defined as any intervention to improve the health behaviors or health of a group of individuals.

Criteria for inclusion:

Include in this category only measures whose specifications explicitly include:

a. Outcomes and indicators of the health of a community; examples include prevalence of obesity, incidence of dental decay or cavities in children, days of school missed, etc.

OR

[7] Derived from: Turnock, BJ. Public Health: What It Is and How It Works. Jones and Bartlett, 2009.

b. Measurement of process(es) – regardless of the environment or setting of the process(es) – focused on primary prevention of disease or general screening for early detection of disease unrelated to a current or prior condition. Examples include immunization of healthy individuals, counseling on smoking cessation, best practices for housing programs, age-based colon cancer screening, etc. Screening done in individuals at increased risk due to a preexisting condition should go under Priority #4).

OR

c. Structural components deemed necessary to support promotion of health and well-being; examples include establishment and maintenance of electronic public health information systems, capacity for providing preventive and health maintenance services, etc.

Additional instructions for assigning measures to this category:

Include in this category measures of structures or processes designed to prevent accidents and injuries in the community that are not directly related to health care:

6. Making quality care more affordable for individuals, families, employers, and governments by developing and spreading new health care delivery models.

This priority addresses measurement of the affordability of health care.

Applicable definitions:

Affordability is defined as including health care costs, health care expenditures, resource use, and efficiency. This includes measures of unnecessary health services, inefficiencies in health care delivery, high prices, and fraud.

Criteria for inclusion:

Include in this category measures whose specifications explicitly include a measure of affordability of healthcare for individuals, families, employers, or governments.

Include measures of access to care in this category.

7. Measures not able to be categorized.

Measures that do not meet the decision rules for assignment to any National Quality Strategy priority shall be assigned to the category of: "Not assignable to a National Quality Strategy priority."

V. RULES FOR CATEGORIZING MEASURES ACCORDING TO SETTING OF CARE AND UNIT OF ANALYSIS.

A. Categorizing measures according to "Settings of Care."

People receive health care in many different places – in the office of a clinician or group practice, in a hospital or nursing home, in an urgent care center, or at the site of a traffic accident, for example. This means that efforts to improve health care quality must address care delivered in all these places. Similarly, measures of health care quality will need to address care delivered in all these settings. Categorizing measures according to the setting(s) of care to which they apply will enable HHS to assess the comprehensiveness of its measure set and more easily identify measure gaps.

A "setting of care" is defined as the type of place in which a person receiving healthcare would perceive that they are in, when healthcare is delivered. The "setting of care" measures categories listed below were derived from a review of how "settings of care" is treated in the following categorization and classification approaches used in or related to health care:

1. The Federal Department of Health and Human Service's Measures Inventory;
2. National Quality Forum's measures database (NQF's "Quality Positioning System");
3. National Quality Measures Clearinghouse, which uses standard terminology (Controlled Vocabulary Concepts) to classify various measure attributes;
4. AHRQ's Common Formats - definitions and formats providers are required to use to submit information on patient safety events;
5. Census Bureau classification system for all settings that are inpatient and/or residential (i.e., called group quarters);
6. North American Industry Classification System (NAICS) - the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy;
7. 2010 Standard Occupational Classification (SOC) system used by Federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data;
8. "Places of care" categories used in the Medical Expenditure Panel Survey;
9. "Places of care" categories used in the NHANES Survey;
10. "Place of service" codes used in the UB 04 claim form; and
11. "Place of service" codes used in the CMS 1500 claim form.

The resulting categories specified below reflect the dual goals of

1) when appropriate, achieving as much consistency as possible with the above categorization approaches; and

2) ensuring that the resulting categories are logical and useful to the diverse public and private sector programs delivering health care and measuring healthcare quality.

When categorizing a measure according to the setting (or settings) of care to which it applies, assign it to the category(ies) below that are reflected in the measure's specifications. If a measure's specifications do not include any setting of care, categorize the measures as "measure does not specify a setting of care delivery."

Setting of care categories:

1. Adult day care facility
2. Ambulance or site of an emergency that is not a home
3. Ambulatory Surgery Site
4. Behavioral Health / Mental Health / Substance Abuse Treatment Setting
   a. Inpatient
   b. Outpatient (including intensive outpatient services)
   c. Partial Hospitalization
   d. Residential
5. Birthing Center
6. Community Sites of wellness services or non-medical health services; e.g., senior centers, community centers, places of worship, gyms, other non-medical places offering one or more health related services such as exercise or nutrition classes
7. Correctional Institution (includes prisons and jails)
8. Dialysis Facility
   a. Inpatient
   b. Outpatient
9. Employment site
10. Home (a person's personal residence that is not a residential facility or operated as a group home)
11. Hospice facility (inpatient)
12. Hospital/Acute Care Facility – Inpatient
    a. Critical Access Hospitals
13. Hospital/Acute Care Facility – Outpatient
14. Imaging Facility
15. Laboratory
16. Office or clinic
    a. Clinician Office
    b. Urgent Care Office
    c. School-based clinic
    d. Community Health Center (e.g. public health clinic, community-based organization (CBO), Federally Qualified Health Center (FQHC) or FQHC "look-alikes.")
    e. Retail-based clinics located in settings such as drugstores, food stores and other retail settings.
    f. Mobile Unit

   g. Other (specify: _____)
17. Pharmacy
18. Post-Acute or Long Term Care Facility
   a. Long Term Acute Care Hospital
   b. Skilled Nursing Facility
   c. Nursing Facility
   d. Inpatient Rehabilitation Facility
   e. Intermediate Care Facility/ MR
19. Residential Facilities
   a. Mental health or substance abuse residential care facility/group home
   b. Residential care facility for people with intellectual disabilities
   c. Assisted Living Facility
20. Other (Specify: _____)
21. Measure does not specify a setting of care delivery
22. Not Applicable; e.g., a health outcome that is measured for a geopolitical community that is not a reflection of care or service delivered in a particular setting.

B. Categorizing measures according to "Level of analysis."

All measures target a level of the healthcare system that is held accountable for performance. This level—that also is the focus of measurement and targeted improvement—is called the level of analysis. Categorize each measure according to its level of analysis.

1. Individual Health Care Provider
   a. Physician
   b. Nurse
   c. Dentist
   d. Licensed clinician/therapist
   e. Other behavioral health practitioner (non-MD, non-RN, e.g., paraprofessional or peer counselor)
   f. Aide
   g. Team
   h. Other (Specify: _____)
2. Health care delivery organization (public or private); e.g. group practice, hospital, home health agency, public hospital or health program
3. Health Plan, such as a managed care plan or other health insurance plan
4. Health Care Delivery System
   a. Integrated Delivery System (i.e., a network of health care providers and organizations which provides or arranges to provide a coordinated continuum of services to a defined population and is willing to be held clinically and fiscally accountable for the clinical outcomes and health status of the population served. An Integrated Delivery System may own or could be closely aligned with an insurance product.)
   b. Accountable Care Organization

c. Medical Home
d. Other

5. Geopolitical unit
   a. Community, County or City
   b. National
   c. Regional
   d. State
6. Other (Specify: _____)
   e.g., an internet community or other community that is not a geopolitical unit. ("Community" is defined as a group of people who have common characteristics; communities can be defined by geographic proximity, race, ethnicity, age, occupation, interest in particular problems or outcomes, or other similar common bonds. (Turnock, BJ. Public Health: What It Is and How It Works. Jones and Bartlett, 2009.))

Appendix 2: Chapter 2—Measures Under Consideration: Addressing Measure Needs

Appendix 2-1: MAP Measure Selection Criteria[iii]

1. NQF-endorsed measures are required for program measure sets, unless no relevant endorsed measures are available to achieve a critical program objective.

   Demonstrated by a program measure set that contains measures that meet the NQF endorsement criteria, including: Importance to measure and report, scientific acceptability of measure properties, feasibility, usability and use, and harmonization of competing and related measures.

   Sub-criterion 1.1 Measures that are not NQF-endorsed should be submitted for endorsement if selected to meet a specific program need

   Sub-criterion 1.2 Measures that have had endorsement removed or have been submitted for endorsement and were not endorsed should be removed from programs

   Sub-criterion 1.3 Measures that are in reserve

2. Program measure set adequately addresses each of the National Quality Strategy's three aims.

   Demonstrated by a program measure set that addresses each of the National Quality Strategy (NQS) aims and corresponding priorities. The NQS provides a common framework for focusing efforts of diverse stakeholders on:

   Sub-criterion 2.1 Better care, demonstrated by patient- and family-centeredness, care coordination, safety, and effective treatment

   Sub-criterion 2.2 Healthy people/healthy communities, demonstrated by prevention and well-being

   Sub-criterion 2.3 Affordable care

3. Program measure set is responsive to specific program goals and requirements.

   Demonstrated by a program measure set that is "fit for purpose" for the particular program.

   Sub-criterion 3.1 Program measure set includes measures that are applicable to and appropriately tested for the program's intended care setting(s), level(s) of analysis, and population(s)

[iii] National Quality Forum. MAP Measure Selection Criteria. MAP Task Forces. http://www.qualityforum.org/MAP_Task_Forces.aspx. Published October 15, 2013. Accessed September 24, 2014.

Sub-criterion 3.2 Measure sets for public reporting programs should be meaningful for consumers and purchasers

Sub-criterion 3.3 Measure sets for payment incentive programs should contain measures for which there is broad experience demonstrating usability and usefulness (Note: For some Medicare payment programs, statute requires that measures must first be implemented in a public reporting program for a designated period)

Sub-criterion 3.4 Avoid selection of measures that are likely to create significant adverse consequences when used in a specific program.

Sub-criterion 3.5 Emphasize inclusion of endorsed measures that have eMeasure specifications available

4. Program measure set includes an appropriate mix of measure types

   Demonstrated by a program measure set that includes an appropriate mix of process, outcome, experience of care, cost/resource use/appropriateness, composite, and structural measures necessary for the specific program.

   Sub-criterion 4.1 In general, preference should be given to measure types that address specific program needs

   Sub-criterion 4.2 Public reporting program measure sets should emphasize outcomes that matter to patients, including patient- and caregiver-reported outcomes

   Sub-criterion 4.3 Payment program measure sets should include outcome measures linked to cost measures to capture value

5. Program measure set enables measurement of person- and family-centered care and services.

   Demonstrated by a program measure set that addresses access, choice, self-determination, and community integration

   Sub-criterion 5.1 Measure set addresses patient/family/caregiver experience, including aspects of communication and care coordination

   Sub-criterion 5.2 Measure set addresses shared decision-making, such as for care and service planning and establishing advance directives

   Sub-criterion 5.3 Measure set enables assessment of the person's care and services across providers, settings, and time

6. Program measure set includes considerations for healthcare disparities and cultural competency.

   Demonstrated by a program measure set that promotes equitable access and treatment by considering healthcare disparities. Factors include addressing race, ethnicity, socioeconomic status, language, gender, sexual orientation, age, or geographical considerations (e.g., urban vs. rural). Program measure set also can address populations at risk for healthcare disparities (e.g., people with behavioral/mental illness).

   Sub-criterion 6.1 Program measure set includes measures that directly assess healthcare disparities (e.g., interpreter services)

   Sub-criterion 6.2 Program measure set includes measures that are sensitive to disparities measurement (e.g., beta blocker treatment after a heart attack), and that facilitate stratification of results to better understand differences among vulnerable populations

7. Program measure set promotes parsimony and alignment.

   Demonstrated by a program measure set that supports efficient use of resources for data collection and reporting, and supports alignment across programs. The program measure set should balance the degree of effort associated with measurement and its opportunity to improve quality.

   Sub-criterion 7.1 Program measure set demonstrates efficiency (i.e., minimum number of measures and the least burdensome measures that achieve program goals)

   Sub-criterion 7.2 Program measure set places strong emphasis on measures that can be used across multiple programs or applications (e.g., Physician Quality Reporting System [PQRS], Meaningful Use for Eligible Professionals, Physician Compare)

Appendix 2-2: National Quality Strategy Priorities[iv] (NQS Domains)

1. Making care safer by reducing harm caused in the delivery of care (Safety).
2. Ensuring that each person and family is engaged as partners in their care (Patient Engagement).
3. Promoting effective communication and coordination of care (Care Coordination).
4. Promoting the most effective prevention and treatment practices for the leading causes of mortality, starting with cardiovascular disease (Effective Treatment).
5. Working with communities to promote wide use of best practices to enable healthy living (Healthy Communities).
6. Making quality care more affordable for individuals, families, employers, and governments by developing and spreading new health care delivery models (Affordable Care).

[iv] U.S. Department of Health and Human Services. *Report to Congress: National Strategy for Quality Improvement in Health Care*. Washington, DC: U.S. Dept of Health and Human Services. 2011

Appendix 2-3: Program Summary of Number of Measures Submitted, MAP Recommendations and Implementation Status of Not Supported Measures, 2011

CMS Program	Total Number of Measures Submitted	MAP Support-Support Direction n (%)	Not Supported n (%)	Not Supported but Used n (%)
Ambulatory Surgical Center Quality Reporting Program	0	N/A	0	N/A
End-Stage Renal Disease Quality Incentive Program	5	4 (80%)	1 (20%)	0
Home Health Quality Reporting Program	0	N/A	0	N/A
Hospice Quality Reporting Program	6	6 (100%)	0	0
Hospital-Acquired Condition Reduction Program	0	N/A	0	N/A
Hospital Inpatient Quality Reporting Program	22	19 (86%)	2 (9%)	0
Hospital Outpatient Quality Reporting Program	0	N/A	0	N/A
Hospital Readmissions Reduction Program	0	N/A	0	N/A
Hospital Value-Based Purchasing Program	13	4 (31%)	9 (69%)	1 (8%)
Inpatient Psychiatric Facility Quality Reporting Program	6	6 (100%)	0	0
Inpatient Rehabilitation Facility Quality Reporting Program	8	8 (100%)	0	0
Long-Term Care Hospitals Quality Reporting Program	8	8 (100%)	0	0
Medicare Shared Savings Program	0	N/A	0	N/A
Physician Quality Reporting System	153	41 (27%)	112 (73%)	16 (10%)
Physician Feedback Program	7	7 (100%)	0	0
Physician Compare	0	N/A	0	N/A
Prospective Payment System-Exempt Cancer Hospitals Quality Reporting Program	5	5 (100%)	0	0
Total	**233**	**108 (43%)**	**125 (54%)**	**17 (7%)**

Appendix 2-4: Program Summary of Number of Measures Submitted, MAP Recommendations and Implementation Status of Not Supported Measures, 2012

CMS Program	Total Number of Measures Submitted	MAP Support/ Support Direction n (%)	Not Supported n (%)	Not Supported but Used n (%)
Ambulatory Surgical Center Quality Reporting Program	5	4 (80%)	0	0
End-Stage Renal Disease Quality Incentive Program	21	20 (95%)	1 (5%)	0
Home Health Quality Reporting Program	2	2 (100%)	0	0
Hospice Quality Reporting Program	7	7 (100%)	0	0
Hospital-Acquired Condition Reduction Program	25	16 (64%)	9 (36%)	0
Hospital Inpatient Quality Reporting Program	20	17 (85%)	3 (15%)	2 (10%)
Hospital Outpatient Quality Reporting Program	7	6 (86%)	0	0
Hospital Readmissions Reduction Program	6	5 (83%)	1 (17%)	0
Hospital Value-Based Purchasing Program	17	16 (94%)	1 (6%)	0
Inpatient Psychiatric Facility Quality Reporting Program	5	4 (80%)	1 (20%)	0
Inpatient Rehabilitation Facilities Quality Reporting Program	10	9 (90%)	1 (10%)	0
Long-Term Care Hospitals Quality Reporting Program	29	25 (86%)	4 (14%)	0
Medicare Shared Savings Program	0	N/A	0	0
Physician Quality Reporting System	281	145 (52%)	136 (48%)	9 (3%)
Physician Feedback Program	50[v]	32[vi] (64%)	0	0
Physician Compare	50	11 (26%)	0	0
Prospective Payment System-Exempt Cancer Hospitals Quality Reporting Program	19	19 (100%)	0	0
Total	**504**	**338 (67%)**	**157 (31%)**	**11 (2%)**

[v] Physician Feedback/Quality and Resource Utilization & Reports, Physician-Value Based Payment Modifier, and Physician Compare were submitted as one program in 2012; as such the 50 measures are only counted once in the total count of measures.

[vi] The MAP did not provide specific recommendations for 27 of the 50 measures submitted for Physician Feedback Program and Physician Compare, one measure submitted for Ambulatory Surgical Center Quality Reporting, and one measure submitted for Hospital Outpatient Quality Reporting Program. Map recommendations for 20 out of 27 Physician Feedback Program measures were found in 2013 MAP meeting documents.

Appendix 2-5: Program Summary of Number of Measures Submitted, and MAP Measure Recommendations, 2013

CMS Program	Total Number of Measures Submitted[vii]	MAP Support/ Support Direction n (%)	Not Supported n (%)
Ambulatory Surgical Center Quality Reporting Program	1	1 (100%)	0
End-Stage Renal Disease Quality Incentive Program	20	16 (80%)	4 (20%)
Home Health Quality Reporting Program	4	4 (100%)	0
Hospice Quality Reporting Program	0	N/A	0
Hospital-Acquired Condition Reduction Program	4	2 (50%)	2 (50%)
Hospital Inpatient Quality Reporting Program	10	10 (100%)	0
Hospital Outpatient Quality Reporting Program	4	1 (25%)	3 (75%)
Hospital Readmissions Reduction Program	3	2 (67%)	1 (33%)
Hospital Value-Based Purchasing Program	14	4 (29%)	10 (71%)
Inpatient Psychiatric Facility Quality Reporting Program	10	3 (30%)	7 (70%)
Inpatient Rehabilitation Facilities Quality Reporting Program	8	8 (100%)	0
Long-Term Care Hospitals Quality Reporting Program	3	3 (100%)	0
Medicare Shared Savings Program[viii]	97	7 (10%)	5 (5%)
Physician Quality Reporting System[ix]	107	70 (69%)	12 (11%)
Physician Feedback Program[x]	158	68 (43%)	66 (42%)
Physician Compare[xi]	107	22 (21%)	66 (62%)
Prospective Payment System-Exempt Cancer Hospitals Quality Reporting Program	6	6 (100%)	0
Total	**556**	**227 (41%)**	**176 (32%)**

[vii] The number of measures that are shown as "submitted" have been adjusted to account for measures that were withdrawn from consideration by CMS subsequent to the pre-rulemaking measure list being posted on the NQF web page.
[viii] The MAP did not provide for 85 measures submitted for the Medicare Shared Savings Program.
[ix] The MAP did not provide recommendation for 25 measures submitted for the Physician Quality Reporting System.
[x] The MAP did not provide recommendation for 24 measures submitted for the Physician Feedback Program.
[xi] The MAP did not provide recommendation for 19 measures submitted for Physician Compare.

Appendix 2-6: Physician Quality Reporting System (PQRS) Measures Implemented and Not Supported by MAP

PQRS #	Measure Title
336	Maternity Care: Post-Partum Follow-Up and Care Coordination
343	Screening Colonoscopy Adenoma Detection Rate
344	Rate of Carotid Artery Stenting (CAS) for Asymptomatic Patients, Without Major Complications (Discharged to Home by Post-Operative Day #2)
350	Total Knee Replacement: Shared Decision-Making: Trial of Conservative (Non-surgical) Therapy
354	Anastomotic Leak Intervention
355	Unplanned Reoperation within the 30 Day Postoperative Period
356	Unplanned Hospital Readmission within 30 Days of Principal Procedure
357	Surgical Site Infection (SSI)
358	Patient-Centered Surgical Risk Assessment and Communication

Appendix 3: Chapter 3—Physician Adoption of PQRS Measures

Appendix 3-1: Physician Specialties Considered in Analysis

Physician Compare Specialty	Final Specialty Category	Specialty Category For Figure 3-2 * = Not included in figure
Addiction Medicine	Other	*
Allergy/Immunology	Other	*
Anesthesiology	Anesthesiology	Anesthesiology
Cardiac Electrophysiology	Cardiology	Cardiology
Cardiac Surgery	Cardiac Surgery	Cardiac Surgery
Cardiovascular Disease (Cardiology)	Cardiology	Cardiology
Colorectal Surgery (Proctology)	Other Surgery	*
Critical Care (Intensivists)	Pulmonary	Pulmonary
Dermatology	Dermatology	Dermatology
Diagnostic Radiology	Radiology	Radiology
Emergency Medicine	Emergency Medicine	Emergency Medicine
Endocrinology	Endocrinology	Endocrinology
Family Practice	Primary Care	Primary Care
Gastroenterology	Gastroenterology	Gastroenterology
General Practice	Primary Care	Primary Care
General Surgery	General Surgery	General Surgery
Geriatric Medicine	Primary Care	Primary Care
Geriatric Psychiatry	Psychiatry	Psychiatry
Gynecological Oncology	Obstetrics/Gynecology	*
Hand Surgery	Other Surgery	*
Hematology	Hematology/Oncology	Hematology/Oncology
Hematology/Oncology	Hematology/Oncology	Hematology/Oncology
Hospice/Palliative Care	Other	*
Infectious Disease	Infectious Diseases	Infectious Diseases
Internal Medicine	Primary Care	Primary Care
Interventional Pain Management	Other	*
Interventional Radiology	Radiology	Radiology
Maxillofacial Surgery	Other Surgery	*
Medical Oncology	Hematology/Oncology	Hematology/Oncology
Nephrology	Nephrology	Nephrology
Neurology	Neurology	Neurology
Neuropsychiatry	Neurology	Neurology
Neurosurgery	Other Surgery	*
Nuclear Medicine	Radiology	Radiology
Obstetrics/Gynecology	Obstetrics/Gynecology	*

Appendix 3-1: Physician Specialties Considered in Analysis

Physician Compare Specialty	Final Specialty Category	Specialty Category For Figure 3-2 * = Not included in figure
Ophthalmology	Ophthalmology	Ophthalmology
Orthopedic Surgery	Orthopedic Surgery	Orthopedic Surgery
Otolaryngology	Other Surgery	*
Pain Management	Other	*
Pathology	Pathology	Pathology
Peripheral Vascular Disease	Other	*
Physical Medicine And Rehabilitation	Other	*
Plastic And Reconstructive Surgery	Other Surgery	*
Podiatry	Podiatry	*
Preventative Medicine	Primary Care	Primary Care
Psychiatry	Psychiatry	Psychiatry
Pulmonary	Pulmonary	Pulmonary
Radiation Oncology	Hematology/Oncology	Hematology/Oncology
Rheumatology	Rheumatology	Rheumatology
Sleep Laboratory/Medicine	Other	*
Sports Medicine	Other	*
Surgical Oncology	Other Surgery	*
Thoracic Surgery	Thoracic Surgery	Thoracic Surgery
Urology	Urology	Urology
Vascular Surgery	Vascular Surgery	Vascular Surgery

Appendix 4: Chapter 4—Measure Alignment: CMS, State, and Veterans Health Administration Measures

Appendix 4-1: List of Conditions or Topics Used to Categorize State and VHA Quality Measures

Topic or Condition
Accountable Care Organizations
Blood Products/Transfusion
Cancer
Cardiovascular
Central Nervous System
Cerebrovascular
Chronic and Elder Care
Communicable Diseases
Communication
Community Care Coordination/Transitions of Care
Dental
Diabetes
Diagnostic Imaging
Disability
Ears, Nose, and Throat
Emergency Care
Eyes/Vision
Functional Status
Gastrointestinal
Health Services Administration
Health Services Administration-Access
Health Services Administration-Cost
Health Services Administration-Drug Plans
Health Services Administration-Health Information Technology
Health Services Administration-Health Plans
Health Services Administration-Patient Care Management
Health Services Administration-Patient Education
Health Services Administration-Patient Experience
Health Services Administration-Professional Education
Health Services Administration-Quality Improvement
Health Services Administration-Research Utilization
Health Status

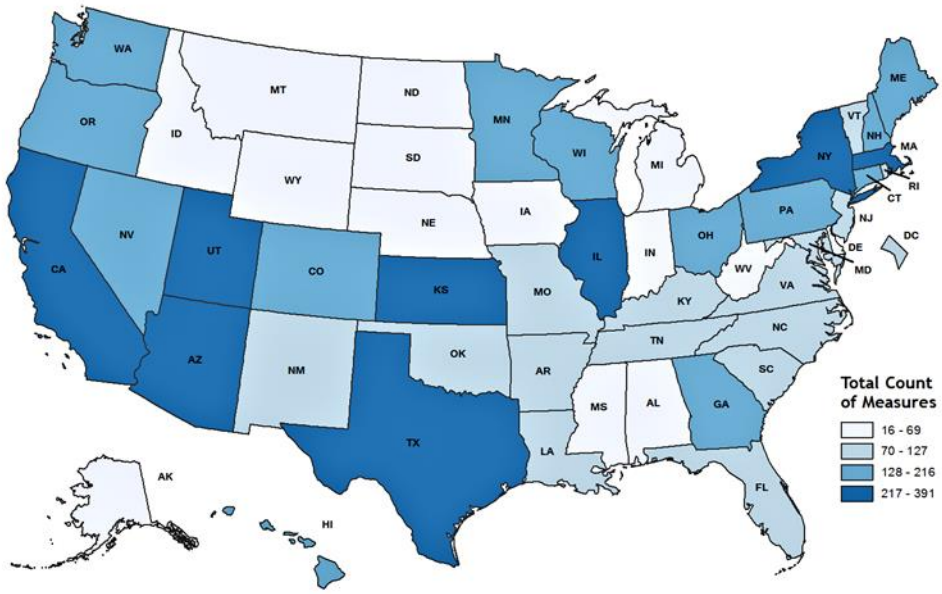
Appendix 4-1: List of Conditions or Topics Used to Categorize State and VHA Quality Measures

Topic or Condition
Immunizations
Infant & Child Health
Mental Health Care & Substance-Related Care
Mortality
Musculoskeletal
Nutrition & Exercise
Obesity
Pain
Palliative Care
Patient Safety
Preventive Care
Public Health
Readmission
Renal & Genitourinary
Reproductive Health
Respiratory
Screening
Surgical Procedures
Women's Health

Appendix 4-2: Number of Healthcare Programs per State Using Quality Measures, December 31, 2013

Number of Programs by State							
AK	2	**ID**	3	**MT**	3	**RI**	5
AL	3	**IL**	6	**NC**	7	**SC**	4
AR	9	**IN**	3	**ND**	3	**SD**	2
AZ	8	**KS**	4	**NE**	2	**TN**	6
CA	11	**KY**	3	**NH**	4	**TX**	7
CO	6	**LA**	7	**NJ**	2	**UT**	5
CT	7	**MA**	9	**NM**	12	**VA**	4
DC	6	**MD**	6	**NV**	4	**VT**	6
DE	2	**ME**	6	**NY**	9	**WA**	6
FL	5	**MI**	4	**OH**	5	**WI**	13
GA	3	**MN**	5	**OK**	7	**WV**	4
HI	4	**MO**	4	**OR**	7	**WY**	2
IA	3	**MS**	2	**PA**	11	**Total**	**271**

Appendix 4-3: Geographical Variation in the Total Number of Quality Measures Across States, December 31, 2013



Appendix 4-4: Total Number of Quality Measures by Program Type (Excludes VHA Measures), December 31, 2013

Program Type	Total Number of Measures	Percent
Medicaid MCO	1,568	22%
Report Card	1,438	21%
Medicaid FFS	1,136	16%
Dual Eligible	464	7%
HAI Reporting	339	5%
Health Home	273	4%
PCMH	259	4%
Medicaid BH MCO	201	3%
State Alignment Initiative	154	2%
Medicaid ACO	70	1%
Exchange	62	1%
Other	1,041	15%
Total	**7,005**	**100%**

Appendix 4-5: Purpose Types Indicated by State Programs and VHA for Using Quality Measures, December 31, 2013

Purpose Type	Number of Programs
Quality Improvement	162
Public Reporting	103
Pay for Performance	40
External Quality Review Organization Audit	25
Contract Compliance	17
Accreditation/Licensing/Certification	5
Physician Tiering	1
Other	48
Total	**401**

Appendix 4-6: Distribution of Conditions and Topics of State-Used Quality Measures, December 31, 2013

Condition or Topic	Number of Measures	%[xii]
Patient Safety	750	11%
Cardiovascular	680	10%
Mental Health Care & Substance-related Care	451	6%
Respiratory	423	6%
Diabetes	404	6%
Preventive Care	395	6%
Health Services Administration-Patient Experience	351	5%
Health Services Administration-Utilization	342	5%
Surgical Procedures	316	5%
Health Services Administration	282	4%
Mortality	252	4%
Immunization	246	4%
Health Services Administration-Patient Care Management	183	3%
Cancer	179	3%
Care Coordination	154	2%
Health Services Administration-Access	154	2%
Infant & Child Health	153	2%
Maternal	141	2%
Nutrition & Exercise	127	2%
Dental	122	2%
Readmission	105	1%
Health Services Administration-Cost	93	1%
Reproductive Health	93	1%
Health Services Administration-Health Plan	71	1%
Health Services Administration-Quality Improvement	68	1%
Musculoskeletal	57	1%
Ears, Nose, and Throat	50	1%
Health Services Administration-Professional Education	47	1%
Functional Status	38	1%
Community Care Coordination/Transitions of Care	35	0%
Communicable Diseases	30	0%
Renal & Genitourinary	30	0%
Chronic & Elder Care	24	0%
Pain	23	0%
Cerebrovascular	18	0%
Screening	15	0%
Health Services Administration-Drug Plan	14	0%
Public Health	14	0%

[xii] Percentages were rounded up to the nearest whole number.

Appendix 4-6: Distribution of Conditions and Topics of State-Used Quality Measures, December 31, 2013

Condition or Topic	Number of Measures	%[xii]
Blood Products/Transfusion	12	0%
Health Services Administration-Patient Education	12	0%
Obesity	12	0%
Diagnostic Imaging	10	0%
Health Services Administration-Health Information Technology	9	0%
Eyes/Vision	7	0%
Communication	4	0%
Palliative Care	4	0%
Central Nervous System	3	0%
Gastrointestinal	2	0%
Total	**7005**	**100%**

Appendix 4-7: State-Used Quality Measures by Measure Type, December 31, 2013

Measure Type	Number of Measures	%
Process	4,624	66%
Outcome	1,422	20%
Patient Perspective	300	4%
Intermediate Outcome	269	4%
Structure	118	2%
Composite	106	2%
Efficiency	97	1%
Cost/Resource Use	69	1%
Total	**7,005**	**100%**

Appendix 4-8: Distribution of Condition or Topic of VHA Quality Measures, December 31, 2013

Condition or Topic	Number of Measures	%
Cardiovascular	77	15%
Health Services Administration-Quality Improvement	77	15%
Patient Safety	61	12%
Mental Health Care & Substance-related Care	52	10%
Health Services Administration-Patient Experience	47	9%
Diabetes	31	6%
Surgical Procedures	30	6%
Health Services Administration	19	4%
Mortality	18	4%
Respiratory	18	4%
Cancer	13	3%
Health Services Administration-Access	13	3%
Health Services Administration-Patient Care Management	12	2%
Immunization	12	2%
Central Nervous System	10	2%
Health Services Administration-Utilization	7	1%
Readmission	5	1%
Functional Status	3	1%
Obesity	2	0%
Pain	2	0%
Preventive Care	2	0%
Screening	2	0%
Renal & Genitourinary	1	0%
Total	**514**	**100%**

Appendix 4-9: VHA Quality Measures by Measure Type, December 31, 2013

Measure Type	Number of Measures	%
Process	204	40%
Structure	108	21%
Outcome	68	13%
Intermediate Outcome	47	9%
Patient Perspective	45	9%
Composite	28	5%
Cost/Resource Use	7	1%
Efficiency	7	1%
Total	**514**	**100%**

Appendix 5: Chapter 5—CMS Measures: Populations Reached

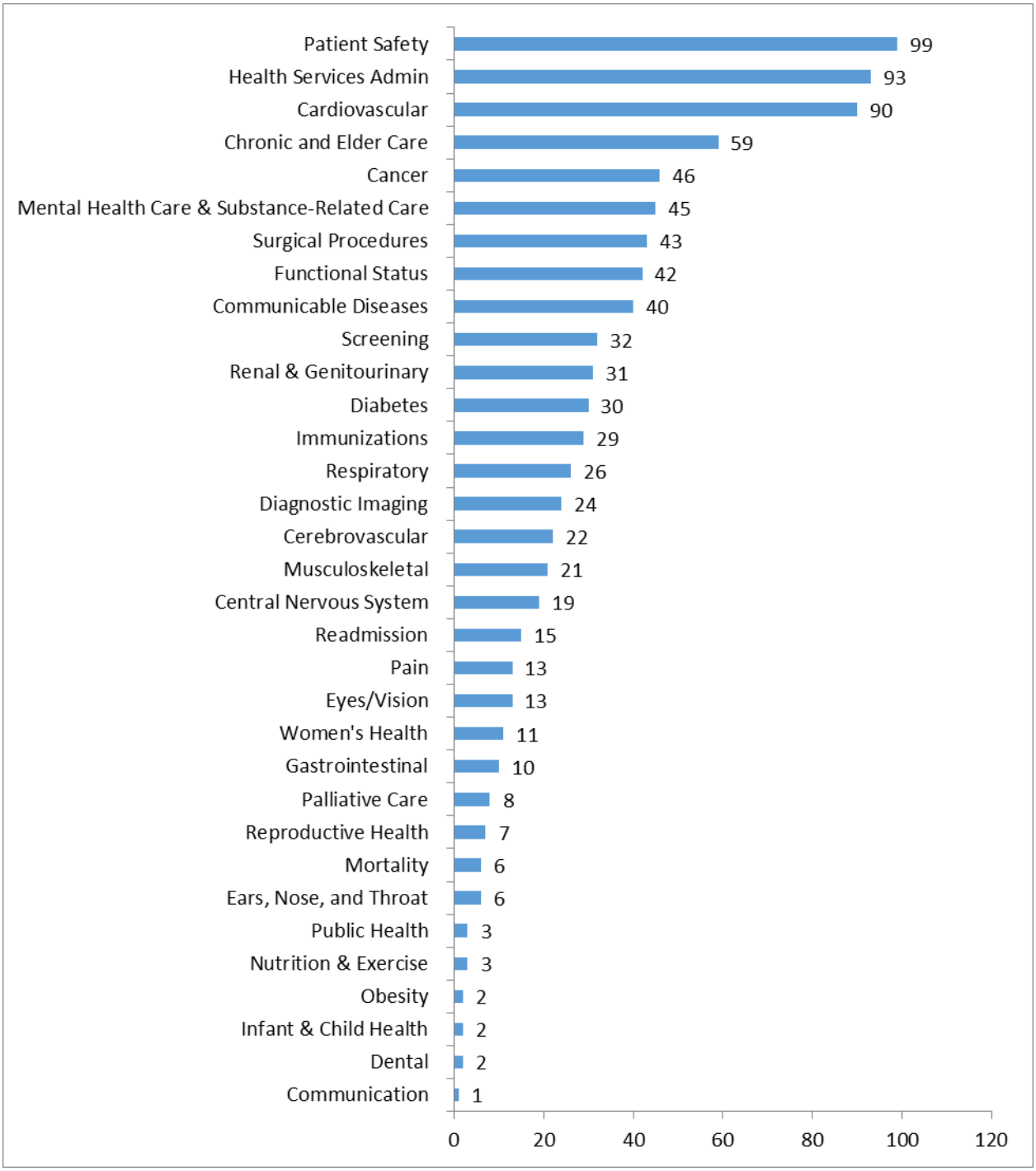
Appendix 5-1: Measure Specification Sources

Program	Measure Specification Sources
Ambulatory Surgical Center Quality Reporting Program	http://www.qualitynet.org
Medicare and Medicaid Electronic Health Record (EHR) Incentive Program for Eligible Hospitals and Critical Access Hospitals	http://www.cms.gov/Regulations-and-guidance/Legislation/EHRIncentivePrograms/eCQM_Library.html
Medicare and Medicaid Electronic Health Record (EHR) Incentive Program for Eligible Professionals	http://www.cms.gov/Regulations-and-guidance/Legislation/EHRIncentivePrograms/eCQM_Library.html
End-Stage Renal Disease Quality Incentive Program	http://www.dialysisreports.org/ESRDMeasures.aspx
Home Health Quality Reporting Program	http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/HHQIQualityMeasures.html
Hospice Quality Reporting Program	http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Hospice-Quality-Reporting/Data-Collection.html
Hospital-Acquired Condition Reduction Program	http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228759488899
Hospital Inpatient Quality Reporting Program	http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1141662756099 Additional information: Resources for CLABSI, CAUTI, MRSA and CDI available at: http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138115987129
Hospital Outpatient Quality Reporting Program	http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1196289981244.
Hospital Readmissions Reduction Program	http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1228772412458
Hospital Value-Based Purchasing Program	http://qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1228772039937
Inpatient Rehabilitation Facilities Quality Reporting Program	http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/IRF-Quality-Reporting/IRF-Quality-Reporting-Program-Measures-Information-.html
Long-Term Care Hospitals Quality Reporting Program	http://www.cms.hhs.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/LTCH-Quality-Reporting/index.html
Medicare Part C (Display or Star Ratings)	http://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovGenIn/PerformanceData.html http://www.ncqa.org http://www.hosonline.org http://www.ma-pdpcahps.org
Medicare Part D (Display or Star Ratings)	http://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovGenIn/PerformanceData.html http://www.ncqa.org http://www.ma-pdpcahps.org

Appendix 5-1: Measure Specification Sources

Program	Measure Specification Sources
Medicare Shared Savings Program	http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Quality_Measures_Standards.html
Nursing Home Quality Initiative	MDS Quality Measures User's Manuals at: http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/NHQIQualityMeasures.html
Physician Feedback Program	http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/2012-QRUR.html
Physician Quality Reporting System	http://www.cms.gov and http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/PQRS/index.html
Physician Value-Based Payment Modifier Program	Specifications links available at: http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/ValueBasedPaymentModifier.html
Prospective Payment System-Exempt Cancer Hospitals Quality Reporting Program	Specifications links available at: http://www.facs.org/cancer/qualitymeasures.html Other Quality Net resources at: http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1228772390161
Inpatient Psychiatric Facility Quality Reporting Program	Specifications links available at: https://manual.jointcommission.org/releases/TJC2013B/ Additional information at: http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier3&cid=1228772390161

Appendix 5-2: Distribution of Medicare Quality Measures by Condition, December 31, 2013



Appendix 5-3: Quality Measure Exclusion Categories

Exclusion #	Exclusion Category	Data Descriptions
1	Payer Medicare FFS	0 = No 1 = Yes 2 = N/A Payer as stated in measure specifications. If more than one payer per program, each payer must be listed separately
	Payer Medicare Part C	
	Payer Medicare Part D	
	Payer Medicaid	
	Payer Other	
2	Continuity of Enrollment	0 = Not exclusion 1 =Exclusion **Examples From Specifications:** a. Criteria for continuous enrollment and/or coverage gaps as described in measure specifications b. Exceeds allowable gap for continuous enrollment c. Beneficiaries not enrolled Part A and B 12 months prior d. Medicare as secondary payer
3	Age = < # Years	Enter lower limit of age parameter in years as described in measure specifications
	Age = > # Years	Enter upper limit of age parameter in years as described in measure specifications
4	Gender	0 = Not applicable (Gender not identified) 1 = Exclude Male 2 = Exclude Female
5	Length of Stay < # Days	Enter lower limit of LOS parameter in days as described in measure specifications
	Length of Stay > # of Days	Enter upper limit of LOS parameter in days as described in measure specifications
6	Treatment Timeframe OR Treatment Frequency	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Screening within measurement year b. Screening within 12 months c. Screening within 24 months d. Not in facility during measurement period e. Assessment between SOC/ROC f. Discharged alive on same day as admission g. One or greater admissions w/in 30 days h. Planned readmissions/readmissions i. Did not have initial assessment/evaluation j. Less than or greater than number of treatments being measures k. Discharge day of arrival l. Did not receive antibiotics during encounter/within 24 hours of arrival m. Did not have same provider x 30 days

Appendix 5-3: Quality Measure Exclusion Categories

Exclusion #	Exclusion Category	Data Descriptions
		n. DC prior to end of day 2 o. Last known well > 2 hours p. LOS < or = 1 day
7	Discontinuation of Care OR Other Patient Reason Not Specified	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Patient lives in a SNF or LTC facility b. moved out of country c. Patient does not have caregiver d. patient not driving e. patient unable to tolerate
8	Patient Specific Reasons	0 = no exclusion 1 = exclusion **Examples From Specifications:** a. Refusal of care/treatment b. Refusal of follow up care c. Refusal due to religious beliefs d. Refusal due to other patient reasons e. AMA f. Elopement
9	Missing Data/Problematic Data/Data Issues	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Medical record not found b. Missing diagnosis c. Unable to confirm diagnosis d. Missing patient specific information e. Incomplete assessment tool f. Not screened g. Problematic data h. insufficient information
10	Transfer Between Facilities	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Transfer from ED b. Transfer from ASC c. Transfer from OP d. Transfer from SNF, ICF, Rehab e. Transfer to another acute care facility i.e. VA, Children's Hospital, etc. f. Discharged to another facility

Appendix 5-3: Quality Measure Exclusion Categories

Exclusion #	Exclusion Category	Data Descriptions
11	Non-Clinical Reasons	0 = Not exclusion 1 - Exclusion **Examples From Specifications:** a. Language barrier b. Not included in denominator c. Patients who received a recertification (NH) d. Patient lives in a skilled nursing facility e. Not seen in ED/not admitted through ED f. Not in ICU g. Direct admit to ICU h. Illiterate i. Patient not assigned to inpatient bed j. Well baby nursery/NICU k. observation patient/services
12	Treatment OR Occurrence Prior to Arrival	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Antibiotic prior to arrival b. Beta-blocker prior to arrival c. Fall outside ASC prior to arrival d. Complication occurred prior to arrival ***OR*** e. Complication occurred on index admission f. Intermittent catheterization prior to arrival g. VTE present on arrival h. present on admission
13	Baseline Outside Measurement Parameters OR Not Done During Measurement Timeframe	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Greater than or less than measurement range b. Negative findings (i.e. patients who screen "negative for pain" are excluded) c. Normal or baseline condition/performance (i.e. able to walk/dress/perform ADL's or no restraints required) d. Not on a medication regimen (i.e. not on any oral medications) e. treatment not done because patient not on prior
14	Procedure Specific Exclusion	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Designated procedure exclusions (i.e. transplant procedure or previous CABG) b. Measuring one procedure vs. another, such as hemodialysis vs. peritoneal dialysis c. Procedure cancelled d. Post op stay < 2 days e. surgery < 60 minutes

Appendix 5-3: Quality Measure Exclusion Categories

Exclusion #	Exclusion Category	Data Descriptions
15	Medical Diagnosis or Other Clinical Reasons	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Allergy/contraindication/adverse reaction b. Infection c. Urgent/emergent medical condition d. Patient not ambulatory e. Patient has specific condition, for example: 1- Pregnancy or neonatal 2- End-stage organ failure 3 - History of cancer (Preventive measures) f. Totally dependent in locomotion g. Totally dependent in ADLs h. Totally dependent in bed mobility/transfer i. Comatose j. Patient not responsive
16	Provider Discretion	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Physician documented reason
17	Exclusion Due to Psychiatric Diagnosis or Cognitive Impairment	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Patient has specific psychiatric diagnosis b. Tourette's c. On antipsychotic medication prior to arrival d. Cognitive Impairment e. Alzheimer's f. Unable to self-report g. Dementia
18	Clinical Trials	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Patient enrolled in a clinical trial during the measurement period
19	End-of -Life Care	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Hospice b. Palliative Care c. Comfort Measures d. Death/Expired e. Terminal illness

Appendix 5-3: Quality Measure Exclusion Categories

Exclusion #	Exclusion Category	Data Descriptions
20	System Reasons	0 = Not exclusion 1 = Exclusion **Examples From Specifications:** a. Vaccine not available b. Facility Reporting: Denominator < reportable number (<20, <30, etc.) c. Facilities that do not treat in-center hemodialysis patient's d. Facilities with a CMS certification after a certain date (as noted in specifications) e. Facility exclusions for Structural Measures f. Service from multiple agencies g. non-specified visit

Appendix 6: Chapter 6—Measure Use: Unintended Consequences in Hospitals, Nursing Homes, and Ambulatory Settings

NO APPENDIX FOR THIS CHAPTER

Appendix 7: Chapter 7—CMS Measure Trends in Performance and Disparities

Appendix 7-1: Detailed Methodological Discussion

Measuring Effect Size: Rationale and Technical Details

Analysis of change over time will nearly always result in statistical significance for even trivially small differences when datasets are large. For example, if a measure with 100,000 entries (e.g., beneficiaries, hospital admissions) at each of two points in time changed from a rate of 80.00 percent to 80.35 percent, the change would be considered statistically significant at the $p < .05$ level. Yet, given that result, 350 entries out of 100,000 would have been different at time two from what they were at time one. This relative improvement of just 0.4 percent would be highlighted as being important by labeling it as statistically significant.

Even a few data points could show statistical significance for a small change due to nearly linear trends over time. A measure with four data points (e.g., 70.10 percent, 70.14 percent, 70.16 percent, and 70.20 percent) that changes by one-tenth of a percentage point can generate a *p* value less than .01 for this trivially small change. This time, however, the small *p* value was generated from the lack of variation (i.e., +.04, +.02, +.04) rather than from large sample sizes. Both issues (i.e., number of units being assessed and the variation, or lack thereof) needed to be accommodated for a policy-relevant impact assessment for the tracked quality measures.

A better approach to analyzing changes in quality measures change over time is to assess how much the entire distribution of scores shifts when the population mean changes. Figure 7-1-1 illustrates this graphically. The degree of dispersion around the mean is crucial. A small shift for the average score in a population with little variation around that score improves the quality of healthcare for more people than the same size shift for the average score in a measure with a wide dispersion around the mean.

Figure 7-1-1: **The Contribution of Variation to Population Health Improvement**

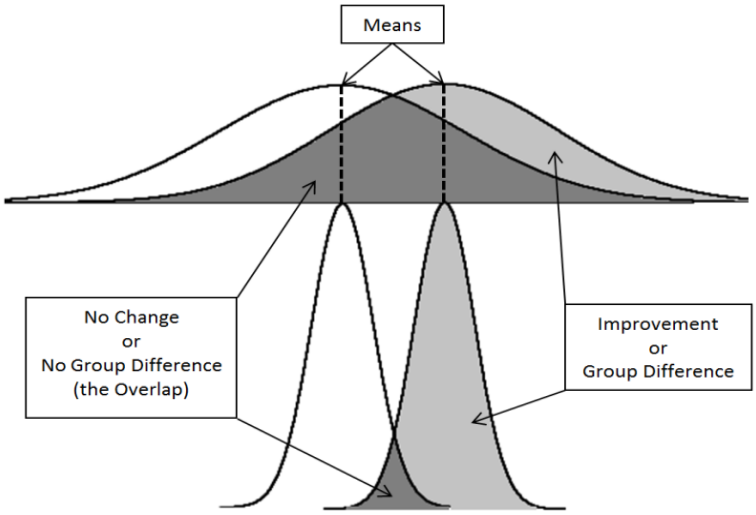


Figure 7-1-1 shows this effect through the difference in the non-overlapping portions of the two scenarios, using the same percentage improvement but for two differently dispersed populations for the measures. The percentage of the population receiving better care is shown by the non-overlapping portions of the curve (i.e., unshaded portions). Clearly, more people receive improved care when there is less variation in care, as indicated in the bottom curve. The policy-relevant implication is that the measure generating the bottom curve improved far more than the measure generating the upper curve because a much larger proportion of the public saw better care with the bottom curve's measure.

The alternative to simply measuring changes in means is to adjust the change in means using a measure of the dispersion of the distribution. That is, an effect size measure should be calculated. A popular measure of effect size is Cohen's d. Cohen, based on his own use of the measure, developed a rule of thumb for interpreting Cohen's d: A value of 0.8 or larger was considered a large effect; a value of greater than or equal to 0.5 but under 0.8 was considered moderate; a value of greater than or equal to 0.2 but less than 0.5 was considered small, and anything less than 0.2 could be dismissed.

A small effect is the smallest effect that is considered strong enough to be taken seriously. In the current research, an effect that was small or greater (Cohen's d >= 0.2), is considered substantial.

Cohen's d takes into account both the mean improvement of a measure and the change in distribution of the measure (i.e., "width" of the curve formed by the results from the providers from across the country). Cohen's d assumes the data are normally distributed data and can be interpreted as a z-score.

The formula used for Cohen's d was: $d = (\hat{Y}_N - \hat{Y}_{N-1})/\hat{s}_{N-1})$, where $\hat{Y}_N$ is the predicted final measurement for a measure; $\hat{Y}_{N-1}$ is the predicted penultimate measurement for a measure, and $\hat{s}_{N-1}$ is the predicted standard deviation of the penultimate measurement. Predictions were made using ordinary least squares (OLS) regression to fit a straight line through the observed annual measures.

It is possible to use Cohen's d as long as the measures being compared over time are not dichotomous. Because of the way standard deviations are calculated for dichotomous measures, Cohen's d is not an appropriate measure of effect size for dichotomous data.

However, many of the measures were collected or reported initially as dichotomous "yes or no" variables. Either the patient received the proper standard of care or not; either the patient died or not. Using Cohen's d required analyzing the data at the level of the provider rather than the level of the patient. The summary measure for each provider was a rate or percent, and a standard deviation could be calculated for that rate or percent.

Not all analyses can be performed at the provider level, however. Provider data was not available in every dataset and individual level analyses are appropriate where provider level data is not available. The analyses of measure performance and improvement by age, sex, and race and ethnicity, for example, were performed at the individual level.

When Cohen's d could not be calculated because available datasets did not include measure variance, an alternative metric was used, Annual Percentage Change (APC). Like Cohen's d, represents a metric for the size of improvement over time. Also like Cohen's d, APC was calculated using linearized, predicted values. The calculation assumed that the underlying data are normally distributed. The formula for

APC is: $\widehat{APC}=(\hat{Y}_N-\hat{Y}_{N-1})$, where $\widehat{APC}$ is the Annual Percent Change, $\hat{Y}_N$ is the predicted rate or score for the final time period, and $\hat{Y}_{N-1}$ is the predicted rate or score for the second-to-last time period.

In contrast to Cohen's d, APC has no established rules of thumb for interpreting effect sizes. Empirical research into the qualities of the distribution of APC across affected measures was conducted by the research team. Based on a comparison of the distribution of Cohen's d across the measures for which it could be calculated against the distribution of APC across the measures for which Cohen's d could not be calculated, it was determined that an APC value of 1.4 percent or 0.014 was approximately equivalent to a Cohen's d of 0.2.

Use of Cohen's d and Annual Percentage Change

As discussed above, both Cohen's d and APC were used as effect size metrics. Cohen's d was used in 2,071 of 4,170 (49.7 percent) of assessments of measure improvement, and APC was used in the remainder. Table 7-1-1 presents effect size measure by level of aggregation for each characteristic. Because data came from many sources and at many levels of aggregation, exceptions to what is presented in Table 7-1-1 exist.

Table 7-1-1: Effect Size Measure Used for Determining Substantial Improvement, by Tabulated Characteristic and Level of Aggregation

Tabulated Characteristic	Effect Size Measure	Level of Aggregation
Affiliation	Cohen's d	Provider
Bed Size	Cohen's d	Provider
Number of episodes	Cohen's d	Provider
Nursing Hours	Cohen's d	Provider
Ownership	Cohen's d	Provider
Safety Net Hospital	Cohen's d	Provider
Teaching Status	Cohen's d	Provider
Urbanicity	Cohen's d	Provider
National Level	APC	National
Age	APC	Population
Sex	APC	Population
Race	APC	Population
Race/Ethnicity	APC	Population
Ethnicity	APC	Population

APC was used for all characteristics when reporting on the Median Time measures included in the Hospital OQR Program. In addition, APC was used for all characteristics for HEDIS®[xiii], HEDIS+HOS, MA CAHPS, PDP CAHPS, HCAHPS, and HOS in Medicare Part C and D.

Defining "High Performing"

Because systematic benchmarks or a systematic benchmarking process did not exist for each measure, the research team created a system to define "high performing." The creation of the benchmark ensured that all measures would be compared against the same standard. To establish this benchmark, the research team met with consultants and agreed that when the desired goal for a measure was 100 percent, a provider that had a score of at least 90 percent during each of the most recent three consecutive years was performing very well. However, the consensus regarding performance on measures in which a lower rate was desirable was that a rate of 10 percent (the converse of 90 percent) was unacceptably high. For example, the research team felt that 10 percent of *High-Risk Residents with Pressure Ulcers* and *Residents Who Were Physically Restrained (Long Stay)* would not qualify as "high performing" for this study. For these reasons, the thresholds of 90 percent for positive measures and five percent for negative measures were established.

[xiii] HEDIS refers to the Healthcare Effectiveness Data and Information Set and is a registered trademark of the National Committee for Quality Assurance (NCQA).

Summary of Performance and Improvement Categories by Program and Measure Type

Appendix 7-2 through Appendix 7-11 illustrate the performance and improvement trends for individual measures by CMS program and measure type.

Appendix 7-2: Performance/Improvement Results for CMS Quality Measures in the Hospital IQR Program With a Minimum of Three Years of Data From 2006–2012

Measure Name	Measure Type	National Quality Strategy Priority	High Performing	Improvement Type
AMI-3: ACE/ARB for LVSD	Process	Effective Treatment	Yes	Substantial
AMI-8a: Primary PCI Received Within 90 Minutes of Hospital Arrival	Process	Effective Treatment	Yes	Substantial
HF-1: Discharge Instructions	Process	Patient Engagement	Yes	Substantial
HF-3: ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)	Process	Effective Treatment	Yes	Substantial
HF-4: Adult Smoking Cessation Advice/Counseling	Process	Patient Engagement	Yes	Substantial
PN-2: Pneumococcal Vaccination Status	Process	Effective Treatment	Yes	Substantial
PN-4: Adult Smoking Cessation Advice/Counseling	Process	Patient Engagement	Yes	Substantial
PN-6: Appropriate Initial Antibiotic Selection	Process	Effective Treatment	Yes	Substantial
PN-7: Influenza Vaccination Status	Process	Effective Treatment	Yes	Substantial
SCIP-CARD-2: Surgery Patients on Beta Blocker Therapy Prior to Admission who Received a Beta Blocker During Perioperative Period	Process	Effective Treatment	Yes	Substantial
SCIP-INF-1: Prophylactic Antibiotic Received Within 1 hour Prior to Surgical Incision	Process	Safety	Yes	Substantial
SCIP-INF-3: Prophylactic Antibiotics Discontinued Within 24 Hours After Surgery End Time (48 Hours for Cardiac Surgery)	Process	Safety	Yes	Substantial
SCIP-INF -4: Cardiac Surgery Patients with Controlled Postoperative Blood Glucose	Process	Safety	Yes	Substantial
SCIP-INF-6: Surgery Patients with Appropriate Hair Removal	Process	Safety	Yes	Substantial
SCIP-INF-9: Surgery Patients Whose Urinary Catheters Were Removed on the First or Second Day after Surgery	Process	Safety	Yes	Substantial
SCIP-VTE-1: Surgery Patients with Recommended Venous Thromboembolism Prophylaxis Ordered	Process	Safety	Yes	Substantial

Appendix 7-2: Performance/Improvement Results for CMS Quality Measures in the Hospital IQR Program With a Minimum of Three Years of Data From 2006–2012

Measure Name	Measure Type	National Quality Strategy Priority	High Performing	Improvement Type
SCIP-VTE-2: Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Pre/Post-surgery	Process	Safety	Yes	Substantial
AMI-1: Aspirin at Arrival	Process	Effective Treatment	Yes	Not Substantial
AMI-2: Aspirin Prescribed at Discharge	Process	Effective Treatment	Yes	Not Substantial
AMI-4: Adult Smoking Cessation Advice/Counseling	Process	Patient Engagement	Yes	Not Substantial
AMI-5: Beta blocker Prescribed at Discharge	Process	Effective Treatment	Yes	Not Substantial
AMI-10: Statin Prescribed at Discharge	Process	Effective Treatment	Yes	Not Substantial
HF-2: Evaluation of Left Ventricular Systolic Function	Process	Effective Treatment	Yes	Not Substantial
PN-3b: Blood Cultures Performed in the Emergency Department Prior to Inertial Antibiotic Received in Hospital	Process	Effective Treatment	Yes	Not Substantial
PN-5c: Initial Antibiotic Received Within 6 Hours of Hospital Arrival	Process	Effective Treatment	Yes	Not Substantial
SCIP-INF-10: Surgery Patients Preoperative Temperature Management	Process	Safety	Yes	Not Substantial
SCIP-INF-2: Prophylactic Antibiotic Selection for Surgical Patients	Process	Safety	Yes	Not Substantial
Cardiac Surgery Registry	Structural	Effective Treatment	Yes	Not Substantial
Hospital Rating	Outcome: Patient Perspective	Patient Engagement	No	Substantial Increase
AMI-7a: Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival	Process	Effective Treatment	No	Substantial Increase
Communication with Nurses	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Communication with Doctors	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Responsiveness of Hospital Staff	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase

Appendix 7-2: Performance/Improvement Results for CMS Quality Measures in the Hospital IQR Program With a Minimum of Three Years of Data From 2006–2012

Measure Name	Measure Type	National Quality Strategy Priority	High Performing	Improvement Type
Pain Control	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Communication about Medicines	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Cleanliness of the Hospital Environment	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Quietness of the Hospital Environment	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Discharge Information	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Recommend Hospital	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
30-Day Risk-Standardized Mortality – AMI	Outcome: Clinical	Effective Treatment	No	Slight Increase
30-Day Risk-Standardized Mortality – PN	Outcome: Clinical	Effective Treatment	No	Slight Increase
30-day Risk-Standardized Readmission – AMI	Outcome: Clinical	Care Coordination	No	Slight Increase
30-day Risk-Standardized Readmission – HF	Outcome: Clinical	Care Coordination	No	Slight Increase
30-day Risk-Standardized Readmission – PN	Outcome: Clinical	Care Coordination	No	Slight Increase
Stroke Care Registry	Structural	Effective Treatment	No	Slight Increase
30-Day Risk-Standardized Mortality – HF	Outcome: Clinical	Effective Treatment	No	Slight Decrease
Registry for Nursing Sensitive Care	Structural	Effective Treatment	No	Slight Decrease

Appendix 7-3: Performance/Improvement Results for CMS Quality Measures in the Hospital OQR Program With a Minimum of Three Years of Data From 2006–2012

Measure Name	Measure Type	National Quality Strategy Priority	High Performing	Improvement Type
OP-6: Perioperative Care: Timing of Prophylactic Parenteral Antibiotics-Ordering Physician	Process	Safety	Yes	Substantial
OP-7: Perioperative Care: Selection of Prophylactic Antibiotics: First or Second Generation Cephalosporin	Process	Safety	Yes	Substantial
OP-4: Aspirin at Arrival	Process	Effective Treatment	Yes	Not Substantial
OP-5: Median Time to ECG	Process	Effective Treatment	No	Slight Increase
OP-1: Median Time to Fibrinolysis	Process	Effective Treatment	No	Slight Increase
OP-2: Fibrinolytic Therapy Received Within 30 Minutes of ED Arrival	Process	Effective Treatment	No	Slight Increase
OP-3: Median Time to Transfer to Another Facility for Acute Coronary Intervention	Process	Effective Treatment	No	Slight Increase

Appendix 7-4: Performance/Improvement Results for CMS Quality Measures in HH QRP With a Minimum of Three Years of Data From 2006–2012

Measure Name	Measure Type	National Quality Strategy Priority	High Performing	Improvement Type
Improvement in Ambulation/Locomotion	Outcome: Clinical	Effective Treatment	No	Substantial Increase
Acute Care Hospitalization	Outcome: Clinical	Care Coordination	No	Slight Increase
ED Use Without Hospitalization	Outcome: Clinical	Care Coordination	No	Slight Increase
Improvement in Bathing	Outcome: Clinical	Effective Treatment	No	Slight Increase
Improvement in Dyspnea	Outcome: Clinical	Effective Treatment	No	Slight Decrease
Improvement in Management of Oral Medications	Outcome: Clinical	Effective Treatment	No	Slight Increase
Improvement in Pain Interfering with Activity	Outcome: Clinical	Effective Treatment	No	Slight Increase
Improvement in Bed Transferring	Outcome: Clinical	Effective Treatment	No	Slight Increase
Patients Able to Live in the Community at Discharge	Outcome: Clinical	Effective Treatment	No	Slight Decrease

Appendix 7-5: Performance/Improvement Results for CMS Quality Measures in Nursing Home Quality Initiative With a Minimum of Three Years of Data From 2006–2012

Measure Name	Measure Type	National Quality Strategy Priority	High Performing	Improvement Type
Residents Who Have Moderate to Severe Pain (Long Stay)	Outcome: Intermediate	Patient Engagement	Yes	Not Substantial
Residents Who Spend Most of Their Time in a Bed or in a Chair (Long Stay)	Outcome: Intermediate	Effective Treatment	Yes	Not Substantial
Residents Who Were Physically Restrained (Long Stay)	Process	Safety	Yes	Not Substantial
Low-Risk Residents with Pressure Ulcers (Long Stay)	Outcome: Clinical	Safety	Yes	Not Substantial
Residents with Delirium (Short Stay)	Outcome: Clinical	Effective Treatment	Yes	Not Substantial
Influenza Vaccination (Short Stay)	Process	Healthy Living	No	Substantial Increase
Pneumococcal Vaccination (Short Stay)	Process	Healthy Living	No	Substantial Increase
Residents with Pressure Ulcers (Short Stay)	Outcome: Clinical	Safety	No	Substantial Increase
Pneumococcal Vaccination (Long stay)	Process	Healthy Living	No	Substantial Increase
Residents Who Have/Had a Catheter Inserted and Left in Their Bladder(Long Stay)	Process	Safety	No	Slight Increase
Residents with a Urinary Tract Infection (Long Stay)	Outcome: Clinical	Safety	No	Slight Increase
Residents Who Lose Too Much Weight (Long Stay)	Outcome: Clinical	Safety	No	Slight Increase
Residents Whose Need for Help with Daily Activities Has Increased (Long Stay)	Outcome: Intermediate	Effective Treatment	No	Slight Increase
Residents Whose Ability to Move in and Around Their Room Got Worse (Long Stay)	Outcome: Intermediate	Effective Treatment	No	Slight Increase
High-risk Residents with Pressure Ulcers (Long Stay)	Outcome: Clinical	Effective Treatment	No	Slight Increase
Residents with Moderate/Severe Pain (Short Stay)	Outcome: Clinical	Effective Treatment	No	Slight Increase
Influenza Vaccination (long stay)	Process	Healthy Living	No	Slight Increase
Residents Who Have Become More Depressed or Anxious(Long Stay)	Outcome: Clinical	Effective Treatment	No	Slight Decrease
Low-Risk Residents Who Lost Control of Their Bowels or Bladder (Long Stay)	Outcome: Intermediate	Effective Treatment	No	Slight Decrease

Appendix 7-6: Performance/Improvement Results for CMS Quality Measures in Medicare Part C With a Minimum of Three Years of Data From 2007–2013

Measure Name	Measure Type	National Quality Strategy Priority	High Performing	Improvement Type
Cholesterol Screening for Patients with Heart Disease	Outcome: Intermediate	Effective Treatment	Yes	Not Substantial
Cholesterol Screening for Patients with Diabetes	Process	Effective Treatment	Yes	Not Substantial
Kidney Function Testing for Members with Diabetes	Process	Effective Treatment	Yes	Not Substantial
Adults' Access to Prevent/Ambulatory Health Services (65+)	Outcome: Access	Affordable Care	Yes	Not Substantial
Adult BMI Assessment	Process	Healthy Living	No	Substantial Increase
Colorectal Cancer Screening	Process	Healthy Living	No	Substantial Increase
Plan Members with Diabetes Whose Blood Sugar Is under Control	Outcome: Intermediate	Effective Treatment	No	Substantial Increase
Rheumatoid Arthritis Management	Process	Effective Treatment	No	Substantial Increase
Glaucoma Testing	Process	Healthy Living	No	Substantial Increase
Osteoporosis Testing in Older Women	Process	Effective Treatment	No	Substantial Increase
Reducing the Risk of Falling	Process	Effective Treatment	No	Slight Increase
Improving or Maintaining Mental Health	Outcome: Clinical	Patient Engagement	No	Slight Increase
Improving or Maintaining Physical Health	Outcome: Clinical	Patient Engagement	No	Slight Increase
Pneumonia Vaccine	Process	Healthy Living	No	Slight Increase
Monitoring Physical Activity	Process	Healthy Living	No	Slight Increase
Breast Cancer Screening, Women 52-69	Process	Healthy Living	No	Slight Increase
Eye Exam to Check for Damage from Diabetes	Process	Effective Treatment	No	Slight Increase
Plan Members with Diabetes Whose Cholesterol Is under Control	Outcome: Intermediate	Effective Treatment	No	Slight Increase
Controlling Blood Pressure	Outcome: Intermediate	Effective Treatment	No	Slight Increase
Annual Flu Vaccine	Process	Healthy Living	No	Slight Increase
Osteoporosis Management in Women Who Had a Fracture	Process	Effective Treatment	No	Slight Increase
Overall Rating of Health Care Quality	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Ease of Getting Needed Care and Seeing Specialists	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Getting Appointments and Care Quickly	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Customer Service	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Members' Overall Rating of Health Plan	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Improving Bladder Control	Process	Effective Treatment	No	Slight Decrease

Appendix 7-7: Performance/Improvement Results for CMS Quality Measures in Medicare Part D With a Minimum of Three Years of Data From 2007–2013

Measure Name	Measure Type	National Quality Strategy Priority	High Performing	Improvement Type
Use of High Risk Medications in the Elderly	Process	Safety	No	Substantial Increase
Taking Blood Pressure Medication	Outcome: Intermediate	Patient Engagement	No	Substantial Increase
Getting Information from Drug Plan	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Getting Needed Prescriptions	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Appropriate Treatment of Hypertension for Diabetics	Process	Effective Treatment	No	Slight Increase
Members' Overall Rating of Drug Plan	Outcome: Patient Perspective	Patient Engagement	No	Slight Increase
Taking Cholesterol Medication	Outcome: Intermediate	Patient Engagement	No	Slight Increase
Taking Oral Diabetes Medication	Outcome: Intermediate	Patient Engagement	No	Slight Increase

Appendix 7-8: Performance/Improvement Results for CMS Quality Measures in End-Stage Renal Disease Quality Incentive Program With a Minimum of Three Years of Data From 2006–2012

Measure Name	Measure Type	National Quality Strategy Priority	High Performing	Measure Type
Facility Percentage of Patients with Hgb ≥12 g/dL	Process	Effective Treatment	Yes	Not Substantial
Facility Percentage of Patients with URR≥65%	Process	Effective Treatment	No	Substantial Increase

Appendix 7-9: Performance/Improvement Results for CMS Outcome Measures With a Minimum of Three Years of Data From 2006–2012

Measure Name	Program	National Quality Strategy Priority	High Performing	Measure Type
Outcome: Access				
Adults' Access to Prevent/Ambulatory Health Services (65+)	Part C	Affordable Care	Yes	Not Substantial
Outcome: Intermediate				
Residents Who Have Moderate to Severe Pain (Long Stay)	NHQI	Patient Engagement	Yes	Not Substantial
Residents Who Spend Most of Their Time in a Bed or in a Chair (Long Stay)	NHQI	Effective Treatment	Yes	Not Substantial
Cholesterol Screening for Patients with Heart Disease	Part C	Effective Treatment	Yes	Not Substantial
Plan Members with Diabetes Whose Blood Sugar Is under Control	Part C	Effective Treatment	No	Substantial Increase
Taking Blood Pressure Medication	Part D	Patient Engagement	No	Substantial Increase
Residents Whose Need for Help with Daily Activities Has Increased (Long Stay)	NHQI	Effective Treatment	No	Slight Increase
Residents Whose Ability to Move in and Around Their Room Got Worse (Long Stay)	NHQI	Effective Treatment	No	Slight Increase
Plan Members with Diabetes Whose Cholesterol Is under Control	Part C	Effective Treatment	No	Slight Increase
Controlling Blood Pressure	Part C	Effective Treatment	No	Slight Increase
Taking Cholesterol Medication	Part D	Patient Engagement	No	Slight Increase
Taking Oral Diabetes Medication	Part D	Patient Engagement	No	Slight Increase
Low-Risk Residents Who Lost Control of Their Bowels or Bladder (Long Stay)	NHQI	Effective Treatment	No	Slight Decline
Outcome: Clinical				
Low-Risk Residents with Pressure Ulcers (Long Stay)	NHQI	Safety	Yes	Not Substantial
Residents with Delirium (Short Stay)	NHQI	Effective Treatment	Yes	Not Substantial
Improvement in Ambulation/Locomotion	HH QRP	Effective Treatment	No	Substantial Increase
Residents with Pressure Ulcers (Short Stay)	NHQI	Safety	No	Substantial Increase
Acute Care Hospitalization	HH QRP	Care Coordination	No	Slight Increase
ED Use Without Hospitalization	HH QRP	Care Coordination	No	Slight Increase
Improvement in Bathing	HH QRP	Effective Treatment	No	Slight Increase
Improvement in Dyspnea	HH QRP	Effective Treatment	No	Slight Decrease

Appendix 7-9: Performance/Improvement Results for CMS Outcome Measures With a Minimum of Three Years of Data From 2006–2012

Measure Name	Program	National Quality Strategy Priority	High Performing	Measure Type
Improvement in Management of Oral Medications	HH QRP	Effective Treatment	No	Slight Increase
Improvement in Pain Interfering with Activity	HH QRP	Effective Treatment	No	Slight Increase
Improvement in Bed Transferring	HH QRP	Effective Treatment	No	Slight Increase
Acute Myocardial Infarction – Mortality	Hospital IQR Program	Effective Treatment	No	Slight Increase
30-Day Risk-Standardized Mortality – PN	Hospital IQR Program	Effective Treatment	No	Slight Increase
30-day Risk-Standardized Readmission – AMI	Hospital IQR Program	Care Coordination	No	Slight Increase
30-day Risk-Standardized Readmission – HF	Hospital IQR Program	Care Coordination	No	Slight Increase
30-day Risk-Standardized Readmission – PN	Hospital IQR Program	Care Coordination	No	Slight Increase
Residents with a Urinary Tract Infection (Long Stay)	NHQI	Safety	No	Slight Increase
Residents Who Lose Too Much Weight (Long Stay)	NHQI	Safety	No	Slight Increase
High-risk Residents with Pressure Ulcers (Long Stay)	NHQI	Effective Treatment	No	Slight Increase
Residents with Moderate to Severe Pain (Short Stay)	NHQI	Effective Treatment	No	Slight Increase
Improving or Maintaining Mental Health	Part C	Patient Engagement	No	Slight Increase
Improving or Maintaining Physical Health	Part C	Patient Engagement	No	Slight Increase
Patients Able to Live in the Community at Discharge	HH QRP	Effective Treatment	No	Slight Decrease
30-Day Risk-Standardized Mortality – HF	Hospital IQR Program	Effective Treatment	No	Slight Decrease
Residents Who Have Become More Depressed or Anxious (Long Stay)	NHQI	Effective Treatment	No	Slight Decrease
Outcome: Patient Perspective				
Hospital Rating	Hospital IQR Program	Patient Engagement	No	Substantial Increase

Appendix 7-9: Performance/Improvement Results for CMS Outcome Measures With a Minimum of Three Years of Data From 2006–2012

Measure Name	Program	National Quality Strategy Priority	High Performing	Measure Type
Communication with Nurses	Hospital IQR Program	Patient Engagement	No	Slight Increase
Communication with Doctors	Hospital IQR Program	Patient Engagement	No	Slight Increase
Responsiveness of Hospital Staff	Hospital IQR Program	Patient Engagement	No	Slight Increase
Pain Control	Hospital IQR Program	Patient Engagement	No	Slight Increase
Communication about Medicines	Hospital IQR Program	Patient Engagement	No	Slight Increase
Cleanliness of the Hospital Environment	Hospital IQR Program	Patient Engagement	No	Slight Increase
Quietness of the Hospital Environment	Hospital IQR Program	Patient Engagement	No	Slight Increase
Discharge Information	Hospital IQR Program	Patient Engagement	No	Slight Increase
Recommend Hospital	Hospital IQR Program	Patient Engagement	No	Slight Increase
Overall Rating of Health Care Quality	Part C	Patient Engagement	No	Slight Increase
Ease of Getting Needed Care and Seeing Specialists	Part C	Patient Engagement	No	Slight Increase
Getting Appointments and Care Quickly	Part C	Patient Engagement	No	Slight Increase
Customer Service	Part C	Patient Engagement	No	Slight Increase
Members' Overall Rating of Health Plan	Part C	Patient Engagement	No	Slight Increase
Getting Information from Drug Plan	Part D	Patient Engagement	No	Slight Increase
Getting Needed Prescriptions	Part D	Patient Engagement	No	Slight Increase
Members' Overall Rating of Drug Plan	Part D	Patient Engagement	No	Slight Increase

Appendix 7-10: Performance/Improvement Results for CMS Process Measures With a Minimum of Three Years of Data From 2006–2012

Measure Name	Program	National Quality Strategy Priority	High Performing	Improvement Type
AMI-3: ACE/ARB for LVSD	Hospital IQR Program	Effective Treatment	Yes	Substantial
AMI-8a: Primary PCI Received Within 90 Minutes of Hospital Arrival	Hospital IQR Program	Effective Treatment	Yes	Substantial
HF-1: Discharge Instructions	Hospital IQR Program	Patient Engagement	Yes	Substantial
HF-3: ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)	Hospital IQR Program	Effective Treatment	Yes	Substantial
HF-4: Adult Smoking Cessation Advice/Counseling	Hospital IQR Program	Patient Engagement	Yes	Substantial
PN-2: Pneumococcal Vaccination Status	Hospital IQR Program	Effective Treatment	Yes	Substantial
PN-4: Adult Smoking Cessation Advice/Counseling	Hospital IQR Program	Patient Engagement	Yes	Substantial
PN-6: Appropriate Initial Antibiotic Selection	Hospital IQR Program	Effective Treatment	Yes	Substantial
PN-7: Influenza Vaccination Status	Hospital IQR Program	Effective Treatment	Yes	Substantial
SCIP-CARD-2: Surgery Patients on Beta Blocker Therapy Prior to Admission who Received a Beta Blocker During Perioperative Period	Hospital IQR Program	Effective Treatment	Yes	Substantial
SCIP-INF-1: Prophylactic Antibiotic Received Within 1 hour Prior to Surgical Incision	Hospital IQR Program	Safety	Yes	Substantial
SCIP-INF-3: Prophylactic Antibiotics Discontinued Within 24 Hours After Surgery End Time (48 Hours for Cardiac Surgery)	Hospital IQR Program	Safety	Yes	Substantial
SCIP-INF-4: Cardiac Surgery Patients with Controlled Postoperative Blood Glucose	Hospital IQR Program	Safety	Yes	Substantial
SCIP-INF-6: Surgery Patients with Appropriate Hair Removal	Hospital IQR Program	Safety	Yes	Substantial
SCIP-INF-9: Surgery Patients Whose Urinary Catheters Were Removed on the First or Second Day after Surgery	Hospital IQR Program	Safety	Yes	Substantial
SCIP-VTE-1: Surgery Patients with Recommended Venous Thromboembolism Prophylaxis Ordered	Hospital IQR Program	Safety	Yes	Substantial
SCIP-VTE-2: Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Pre/Post-surgery	Hospital IQR Program	Safety	Yes	Substantial
OP-6: Perioperative Care: Timing of Prophylactic Parenteral Antibiotics-Ordering Physician	Hospital OQR Program	Safety	Yes	Substantial
OP-7: Perioperative Care: Selection of Prophylactic Antibiotics: First or Second Generation Cephalosporin	Hospital OQR Program	Safety	Yes	Substantial
Facility Percentage of Patients with URR≥65% by Subpopulation, 2006-2011	ESRD QIP	Effective Treatment	Yes	Not Substantial
AMI-1: Aspirin at Arrival	Hospital IQR Program	Effective Treatment	Yes	Not Substantial

Appendix 7-10: Performance/Improvement Results for CMS Process Measures With a Minimum of Three Years of Data From 2006–2012

Measure Name	Program	National Quality Strategy Priority	High Performing	Improvement Type
AMI-2: Aspirin Prescribed at Discharge	Hospital IQR Program	Effective Treatment	Yes	Not Substantial
AMI-4: Adult Smoking Cessation Advice/Counseling	Hospital IQR Program	Patient Engagement	Yes	Not Substantial
AMI-5: Beta blocker Prescribed at Discharge	Hospital IQR Program	Effective Treatment	Yes	Not Substantial
AMI-10: Statin Prescribed at Discharge	Hospital IQR Program	Effective Treatment	Yes	Not Substantial
HF-2: Evaluation of Left Ventricular Systolic Function	Hospital IQR Program	Effective Treatment	Yes	Not Substantial
PN-3b: Blood Cultures Performed in the Emergency Department Prior to Inertial Antibiotic Received in Hospital	Hospital IQR Program	Effective Treatment	Yes	Not Substantial
PN-5c: Initial Antibiotic Received Within 6 Hours of Hospital Arrival	Hospital IQR Program	Effective Treatment	Yes	Not Substantial
SCIP-INF-10: Surgery Patients Preoperative Temperature Management	Hospital IQR Program	Safety	Yes	Not Substantial
SCIP-INF-2: Prophylactic Antibiotic Selection for Surgical Patients	Hospital IQR Program	Safety	Yes	Not Substantial
Residents Who Were Physically Restrained (Long Stay)	NHQI	Safety	Yes	Not Substantial
OP-4: Aspirin at Arrival	Hospital OQR Program	Effective Treatment	Yes	Not Substantial
Cholesterol Screening for Patients with Diabetes	Part C	Effective Treatment	Yes	Not Substantial
Kidney Function Testing for Members with Diabetes	Part C	Effective Treatment	Yes	Not Substantial
Facility Percentage of patients with Hgb ≥12 g/dL	ESRD	Effective Treatment	No	Substantial Increase
AMI-7a: Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival	Hospital IQR Program	Effective Treatment	No	Substantial Increase
Influenza Vaccination (Short Stay)	NHQI	Healthy Living	No	Substantial Increase
Pneumococcal Vaccination (Short Stay)	NHQI	Healthy Living	No	Substantial Increase
Pneumococcal Vaccination (Long Stay)	NHQI	Healthy Living	No	Substantial Increase
Adult BMI Assessment	Part C	Healthy Living	No	Substantial Increase
Colorectal Cancer Screening	Part C	Healthy Living	No	Substantial Increase
Rheumatoid Arthritis Management	Part C	Effective Treatment	No	Substantial Increase
Glaucoma Testing	Part C	Healthy Living	No	Substantial Increase
Osteoporosis Testing in Older Women	Part C	Effective Treatment	No	Substantial Increase

Appendix 7-10: Performance/Improvement Results for CMS Process Measures With a Minimum of Three Years of Data From 2006–2012

Measure Name	Program	National Quality Strategy Priority	High Performing	Improvement Type
Use of High Risk Medications in the Elderly	Part D	Safety	No	Substantial Increase
OP-5: Median Time to ECG	Hospital OQR Program	Effective Treatment	No	Slight Increase
OP-1: Median Time to Fibrinolysis	Hospital OQR Program	Effective Treatment	No	Slight Increase
OP-2: Fibrinolytic Therapy Received Within 30 Minutes of ED Arrival	Hospital OQR Program	Effective Treatment	No	Slight Increase
OP-3: Median Time to Transfer to Another Facility for Acute Coronary Intervention	Hospital OQR Program	Effective Treatment	No	Slight Increase
Reducing the Risk of Falling	Part C	Effective Treatment	No	Slight Increase
Pneumonia Vaccine	Part C	Healthy Living	No	Slight Increase
Monitoring Physical Activity	Part C	Healthy Living	No	Slight Increase
Breast Cancer Screening, Women 52-69	Part C	Healthy Living	No	Slight Increase
Eye Exam to Check for Damage from Diabetes	Part C	Effective Treatment	No	Slight Increase
Annual Flu Vaccine	Part C	Healthy Living	No	Slight Increase
Osteoporosis Management in Women Who Had a Fracture	Part C	Effective Treatment	No	Slight Increase
Appropriate Treatment of Hypertension for Diabetics	Part D	Effective Treatment	No	Slight Increase
Influenza Vaccination (Long Stay)	NHQI	Healthy Living	No	Slight Increase
Residents Who Have/Had a Catheter Inserted and Left in Their Bladder (Long Stay)	NHQI	Safety	No	Slight Increase
Improving Bladder Control	Part C	Effective Treatment	No	Slight Decrease

Appendix 7-11: Performance/Improvement Results for CMS Structural Measures With a Minimum of Three Years of Data From 2006–2012

Measure Name	Program	National Quality Strategy Priority	High Performing	Improvement Type
Cardiac Surgery Registry	Hospital IQR Program	Effective Treatment	Yes	Not Substantial
Stroke Care Registry	Hospital IQR Program	Effective Treatment	No	Slight Increase
Registry for Nursing Sensitive Care	Hospital IQR Program	Effective Treatment	No	Slight Decrease

Appendix 7-12 through Appendix 7-21 illustrate the disparities for individual measures by CMS program.

Appendix 7-12: Disparities Improvement by Measure for Nursing Home Quality Initiative (NHQI) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xivxv]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
NHQI	Influenza Vaccination (Short Stay)	Yes	Yes	No	N/A	Yes	Yes	Yes	No
NHQI	Pneumococcal Vaccination (Short Stay)	Yes	Yes	No	N/A	Yes	Yes	Yes	No
NHQI	Low-Risk Residents Who Lost Control of Their Bowels or Bladder (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Low-Risk Residents Who Lost Control of Their Bowels or Bladder (Long Stay)	No	N/A	Yes	No	No	N/A	No	N/A
NHQI	Residents Who Have/Had a Catheter Inserted and Left in Their Bladder (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Residents with a Urinary Tract Infection (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Residents Who Lose Too Much Weight (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Residents Who Have Moderate to Severe Pain (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A

[xiv] N/A = Not Applicable. For measures where no initial disparity was identified, no assessment of improvement is possible.

[xv] The research team evaluated each measure for each pair of comparison and reference groups. For example, for the ambulatory care process measure *Colorectal Cancer Screening* (NQF #0034), the 85+ age group and the 18–64 age group were compared to the reference group (the 65–84 age group). If a disparity was detected in one or both of these comparisons, an age disparity would be reported for this measure, but the number of disparities found by age would not be reported. If the particular identified disparity improved, then disparities were said to have improved for that quality measure.

Appendix 7-12: Disparities Improvement by Measure for Nursing Home Quality Initiative (NHQI) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xivxv]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
NHQI	Residents Whose Need for Help with Daily Activities Has Increased (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Residents Who Spend Most of Their Time in a Bed or in a Chair (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Residents Whose Ability to Move in and Around Their Room Got Worse (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Residents Who Were Physically Restrained (Long Stay)	Yes	Yes	No	N/A	No	N/A	No	N/A
NHQI	High-Risk Residents with Pressure Ulcers (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Low-Risk Residents with Pressure Ulcers (Long Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Residents with Delirium (Short Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Residents with Moderate/Severe Pain (Short Stay)	Yes	No	Yes	No	No	N/A	No	N/A
NHQI	Residents with Pressure Ulcers (Short Stay)	No	N/A	No	N/A	No	N/A	No	N/A
NHQI	Influenza Vaccination (Long Stay)	Yes	Yes	No	N/A	Yes	Yes	No	N/A
NHQI	Pneumococcal Vaccination (Long Stay)	Yes	Yes	Yes	No	Yes	Yes	Yes	No

Appendix 7-13: Disparities Improvement by Measure for Hospital Inpatient Quality Reporting Program (Hospital IQR Program) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xvi]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Hospital IQR Program	AMI-1: Aspirin at Arrival	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	AMI-10: Statin Prescribed at Discharge	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	AMI-2: Aspirin Prescribed at Discharge	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	AMI-3: ACE/ARB for LVSD	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	AMI-4: Adult Smoking Cessation Advice/ Counseling	No	N/A	No	N/A	Yes	Yes	No	N/A
Hospital IQR Program	AMI-5: Beta blocker Prescribed at Discharge	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	AMI-7a: Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	AMI-8a: Primary PCI Received Within 90 Minutes of Hospital Arrival	No	N/A	Yes	No	Yes	Yes	Yes	Yes
Hospital IQR Program	HF-1: Discharge Instructions	No	N/A	No	N/A	Yes	Yes	No	N/A

[xvi] N/A = Not Applicable. For measures where no initial disparity was identified, no assessment of improvement is possible.

Appendix 7-13: Disparities Improvement by Measure for Hospital Inpatient Quality Reporting Program (Hospital IQR Program) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xvi]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Hospital IQR Program	HF-2: Evaluation of Left Ventricular Systolic Function	No	N/A	No	N/A	Yes	Yes	No	N/A
Hospital IQR Program	HF-3: ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	HF-4: Adult Smoking Cessation Advice/ Counseling	No	N/A	No	N/A	Yes	Yes	No	N/A
Hospital IQR Program	PN-2: Pneumococcal Vaccination Status	No	N/A	No	N/A	Yes	Yes	Yes	Yes
Hospital IQR Program	PN-3b: Blood Cultures Performed in the Emergency Department Prior to Inertial Antibiotic Received in Hospital	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	PN-4: Adult Smoking Cessation Advice/ Counseling	No	N/A	No	N/A	Yes	Yes	No	N/A
Hospital IQR Program	PN-5c: Initial Antibiotic Received Within 6 Hours of Hospital Arrival	No	N/A	No	N/A	No	N/A	Yes	Yes
Hospital IQR Program	PN-6: Appropriate Initial Antibiotic Selection	No	N/A	No	N/A	No	N/A	No	N/A

Appendix 7-13: Disparities Improvement by Measure for Hospital Inpatient Quality Reporting Program (Hospital IQR Program) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xvi]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Hospital IQR Program	PN-7: Influenza Vaccination Status	No	N/A	No	N/A	Yes	Yes	Yes	Yes
Hospital IQR Program	SCIP-CARD-2: Surgery Patients on Beta Blocker Therapy Prior to Admission who Received a Beta Blocker During Perioperative Period	No	N/A	No	N/A	Yes	Yes	Yes	Yes
Hospital IQR Program	SCIP-INF-1: Prophylactic Antibiotic Received Within 1 hour Prior to Surgical Incision	No	N/A	No	N/A	No	N/A	Yes	Yes
Hospital IQR Program	SCIP-INF-10: Surgery Patients Preoperative Temperature Management	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	SCIP-INF-2: Prophylactic Antibiotic Selection for Surgical Patients	No	N/A	No	N/A	No	N/A	No	N/A
Hospital IQR Program	SCIP-INF-3: Prophylactic Antibiotics Discontinued Within 24 Hours After Surgery End Time (48 Hours for Cardiac Surgery)	No	N/A	No	N/A	No	N/A	No	N/A

Appendix 7-13: Disparities Improvement by Measure for Hospital Inpatient Quality Reporting Program (Hospital IQR Program) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xvi]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Hospital IQR Program	SCIP-INF-4: Cardiac Surgery Patients with Controlled Postoperative Blood Glucose	No	N/A	No	N/A	No	N/A	Yes	Yes
Hospital IQR Program	SCIP-INF-6: Surgery Patients with Appropriate Hair Removal	No	N/A	No	N/A	No	N/A	Yes	Yes
Hospital IQR Program	SCIP-INF-9: Surgery Patients Whose Urinary Catheters Were Removed on the First or Second Day after Surgery	No	N/A	No	N/A	Yes	No	No	N/A
Hospital IQR Program	SCIP-VTE-1: Surgery Patients with Recommended Venous Thromboembol-ism Prophylaxis Ordered	No	N/A	No	N/A	Yes	Yes	Yes	Yes
Hospital IQR Program	SCIP-VTE-2: Surgery Patients Who Received Appropriate Venous Thromboembol-ism Prophylaxis Within 24 Hours Pre/Post-surgery	No	N/A	No	N/A	Yes	Yes	Yes	Yes

Appendix 7-14: Disparities Improvement by Measure for Home Health Quality Reporting Program (HH QRP) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xvii]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
HH QRP	Acute Care Hospitalization	Yes	No	No	N/A	Yes	No	No	N/A
HH QRP	Improvement in Dyspnea	No	N/A	No	N/A	No	N/A	No	N/A
HH QRP	ED Use Without Hospitalization	Yes	No	No	N/A	No	N/A	No	N/A
HH QRP	Improvement in Ambulation/ Locomotion	Yes	No	No	N/A	No	N/A	No	N/A
HH QRP	Improvement in Bathing	Yes	No	No	N/A	Yes	No	No	N/A
HH QRP	Improvement in Bed Transferring	Yes	No	No	N/A	Yes	No	No	N/A
HH QRP	Improvement in Management of Oral Medications	Yes	No	No	N/A	No	N/A	No	N/A
HH QRP	Improvement in Pain Interfering with Activity	No	N/A	No	N/A	No	N/A	No	N/A
HH QRP	Patients Able to Live in the Community at Discharge	Yes	No	No	N/A	Yes	No	No	N/A

[xvii] N/A = Not Applicable. For measures where no initial disparity was identified, no assessment of improvement is possible.

Appendix 7-15: Disparities Improvement by Measure for Part C Healthcare Effectiveness Data & Information Set (HEDIS) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xviii,xix]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Part C HEDIS	Breast Cancer Screening, Women 52–69	Yes	No	No	N/A	Yes	No	---	---
Part C HEDIS	Colorectal Cancer Screening	Yes	No	No	N/A	Yes	No	---	---
Part C HEDIS	Cholesterol Screening for Patients with Heart Disease	No	N/A	No	N/A	No	N/A	---	---
Part C HEDIS	Cholesterol Screening for Patients with Diabetes	Yes	No	No	N/A	No	N/A	---	---
Part C HEDIS	Glaucoma Testing	Yes	No	No	N/A	Yes	No	---	---
Part C HEDIS	Adults' Access to Prevent/ Ambulatory Health Services (65+)	No	N/A	No	N/A	Yes	No	---	---
Part C HEDIS	Adult BMI Assessment	Yes	No	No	N/A	No	N/A	---	---
Part C HEDIS	Osteoporosis Management in Women Who Had a Fracture	Yes	No	No	N/A	Yes	No	---	---
Part C HEDIS	Eye Exam to Check for Damage from Diabetes	Yes	No	No	N/A	Yes	No	---	---
Part C HEDIS	Kidney Function Testing for Members with Diabetes	Yes	No	No	N/A	Yes	No	---	---
Part C HEDIS	Plan Members with Diabetes Whose Blood Sugar Is under Control	Yes	No	No	N/A	Yes	No	---	---

[xviii] N/A = Not Applicable. For measures where no initial disparity was identified, no assessment of improvement is possible.
[xix] "---" indicates that the variable, Ethnicity, was not available within the data. As such, no results are presented.

Appendix 7-15: Disparities Improvement by Measure for Part C Healthcare Effectiveness Data & Information Set (HEDIS) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xviii,xix]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Part C HEDIS	Plan Members with Diabetes Whose Cholesterol Is under Control	Yes	No	Yes	No	Yes	No	---	---
Part C HEDIS	Controlling Blood Pressure	No	N/A	Yes	No	Yes	No	---	---
Part C HEDIS	Rheumatoid Arthritis Management	Yes	No	No	N/A	Yes	No	---	---

Appendix 7-16: Disparities Improvement by Measure for Part C Health Outcome Survey (HOS) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xx, xxi]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Part C HOS	Improving Bladder Control	No	N/A	No	N/A	Yes	No	---	---
Part C HOS	Improving or Maintaining Mental Health	Yes	No	No	N/A	No	N/A	---	---
Part C HOS	Monitoring Physical Activity	Yes	No	No	N/A	No	N/A	---	---
Part C HOS	Osteoporosis Testing in Older Women	Yes	No	No	N/A	Yes	No	---	---
Part C HOS	Improving or Maintaining Physical Health	Yes	No	No	N/A	Yes	No	---	---
Part C HOS	Reducing the Risk of Falling	No	N/A	No	N/A	No	N/A	---	---

[xx] N/A = Not Applicable. For measures where no initial disparity was identified, no assessment of improvement is possible.
[xxi] "---" indicates that the variable, Ethnicity, was not available within the data. As such, no results are presented.

Appendix 7-17: Disparities Improvement by Measure for Prescription Drug Plan Consumer Assessment of Healthcare Providers and Systems (PDP CAHPS) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xxii, xxiii]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
PDP CAHPS	Getting Information from Drug Plan	No	N/A	No	N/A	Yes	No	---	---
PDP CAHPS	Getting Needed Prescriptions	No	N/A	No	N/A	Yes	No	---	---
PDP CAHPS	Members' Overall Rating of Drug Plan	No	N/A	No	N/A	Yes	No	---	---

[xxii] N/A = Not Applicable. For measures where no initial disparity was identified, no assessment of improvement is possible.
[xxiii] "---" indicates that the variable, Ethnicity, was not available within the data. As such, no results are presented.

Appendix 7-18: Disparities Improvement by Measure for Medicare Advantage Consumer Assessment of Healthcare Providers and Systems (MA CAHPS) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
MA CAHPS	Annual Flu Vaccine	Yes	No	No	N/A	Yes	No	---	---
MA CAHPS	Customer Service	No	N/A	No	N/A	Yes	No	---	---
MA CAHPS	Ease of Getting Needed Care and Seeing Specialists	No	N/A	No	N/A	Yes	No	---	---
MA CAHPS	Getting Appointments and Care Quickly	No	N/A	No	N/A	Yes	No	---	---
MA CAHPS	Members' Overall Rating of Health Plan	No	N/A	No	N/A	No	N/A	---	---
MA CAHPS	Overall Rating of Health Care Quality	No	N/A	No	N/A	No	N/A	---	---
MA CAHPS	Pneumonia Vaccine	Yes	No	No	N/A	Yes	No	---	---

Appendix 7-19: Disparities Improvement by Measure for Hospital Inpatient Quality Reporting Program (Hospital IQR Program) HCAHPS for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xxiv, xxv]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Hospital IQR Program HCAHPS	Communication with Nurses	No	N/A	No	N/A	Yes	No	---	---
Hospital IQR Program HCAHPS	Communication with Doctors	No	N/A	No	N/A	No	N/A	---	---
Hospital IQR Program HCAHPS	Responsiveness of Hospital Staff	Yes	No	No	N/A	Yes	No	---	---
Hospital IQR Program HCAHPS	Pain Control	Yes	No	No	N/A	Yes	No	---	---
Hospital IQR Program HCAHPS	Communication about Medicines	Yes	No	No	N/A	No	N/A	---	---
Hospital IQR Program HCAHPS	Cleanliness of the Hospital Environment	No	N/A	Yes	No	Yes	No	---	---
Hospital IQR Program HCAHPS	Quietness of the Hospital Environment	No	N/A	No	N/A	No	N/A	---	---
Hospital IQR Program HCAHPS	Discharge Information	No	N/A	No	N/A	No	N/A	---	---
Hospital IQR Program HCAHPS	Hospital Rating	Yes	No	No	N/A	No	N/A	---	---
Hospital IQR Program HCAHPS	Recommend Hospital	No	N/A	No	N/A	No	N/A	---	---

[xxiv] N/A = Not Applicable. For measures where no initial disparity was identified, no assessment of improvement is possible.
[xxv] "---" indicates that the variable, Ethnicity, was not available within the data. As such, no results are presented.

Appendix 7-20: Disparities Improvement by Measure and Hospital Outpatient Quality Reporting Program (Hospital OQR Program) for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xxvi, xxvii]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Hospital OQR Program	OP-4: Aspirin at Arrival	No	N/A	No	N/A	No	N/A	No	N/A
Hospital OQR Program	OP-2: Fibrinolytic Therapy Received Within 30 Minutes of ED Arrival	No	N/A	Yes	No	Yes	No	No	N/A
Hospital OQR Program	OP-7: Perioperative Care: Selection of Prophylactic Antibiotics: First or Second Generation Cephalosporin	No	N/A	No	N/A	No	N/A	No	N/A
Hospital OQR Program	OP-6: Perioperative Care: Timing of Prophylactic Parenteral Antibiotics-Ordering Physician	No	N/A	No	N/A	No	N/A	No	N/A

[xxvi] N/A = Not Applicable. For measures where no initial disparity was identified, no assessment of improvement is possible.
[xxvii] "---" indicates that the variable, Ethnicity, was not available within the data. As such, no results are presented.

Appendix 7-21: Disparities Improvement by Measure for Medicare Part D Program for Age, Sex, Race/Ethnicity, or Race and Ethnicity From 2006–2012[xxviii, xxix]

Program	Measure	Age		Sex		Race or Race/Ethnicity		Ethnicity	
		Disparity	Improving	Disparity	Improving	Disparity	Improving	Disparity	Improving
Part D	Use of High Risk Medications in the Elderly	No	N/A	Yes	No	No	N/A	---	---
Part D	Part D Medication Adherence for Hypertension (Ras Antagonists)	Yes	No	No	N/A	Yes	No	---	---
Part D	Appropriate Treatment of Hypertension for Diabetics	Yes	No	No	N/A	No	N/A	---	---
Part D	Part D Medication Adherence for Cholesterol (Statins)	Yes	No	No	N/A	Yes	No	---	---
Part D	Taking Oral Diabetes Medication	Yes	No	No	N/A	Yes	No	---	---

[xxviii] N/A = Not Applicable. For measures where no initial disparity was identified, no assessment of improvement is possible.
[xxix] "---" indicates that the variable, Ethnicity, was not available within the data. As such, no results are presented.

Appendix 8: Chapter 8—Measure Relationships: Hospital Process Measures and Patient Outcomes

NO APPENDIX FOR THIS CHAPTER

Appendix 9: Chapter 9—Measure Relationships: Patient-Reported Hospital Experiences and Predicted Medicare Costs

Appendix 9-1: Potential Covariates for Experience or Costs From the Literature

Variable	Measure	Data Source	Year	Citations
Region	Nine categorical regions	AHA	N/A	Girotra et al. 2012[1]
Age	Mean and distribution	CART	2012	Borghans et al. 2012[2]; Fenton et al. 2012[3]; Peikes et al. 2009[4]; Zuckerman et al. 2010[5]
Bed Size	Either count of bed size or total admissions	AHA	2011	Girotra et al. 2012[1]
Race	Percent Black	CART	2012	Fenton et al. 2012[3]; Peikes et al. 2009[4]; Zuckerman et al. 2010[5]
Ethnic Group	Percent Hispanic	CART	2012	Fenton et al. 2012[3]; Peikes et al. 2009[4]; Zuckerman et al. 2010[5]
Safety Net Hospital Status	Categorical	AHA	2011	Chatterjee et al. 2012[6]; Girotra et al. 2012[1]; (Fenton et al. 2012[3]; Peikes et al. 2009[4]; Zuckerman et al. 2010[5]—used payer)
Sex	Percent female	CART	2012	Fenton et al. 2012[3]; Peikes et al. 2009[4]; Zuckerman et al. 2010[5]
Urban/rural	Categorical	HCQIS/PRS	2011	Fenton et al. 2012[3]; Peikes et al. 2009[4]; Girotra et al. 2012[1]; Zuckerman et al. 2010[5]

Appendix 9-1: Reference List

(1) Girotra S, Cram P, Popescu I. Patient satisfaction at America's lowest performing hospitals. *Circ Cardiovasc Qual Outcomes.* 2012.

(2) Borghans I, Kleefstra SM, Kool RB, Westert GP. Is the length of stay in hospital correlated with patient satisfaction? *Int J Qual Health Care.* 2012;24(5):443-451.

(3) Fenton JJ, Jerant AF, Bertakis KD, Franks P. The cost of satisfaction: a national study of patient satisfaction, health care utilization, expenditures, and mortality. *Arch Intern Med.* 2012;172(5):405-411.

(4) Peikes D, Chen A, Shore J, Brown R. Effects of care coordination on hospitalization, quality of care, and health care expenditures among Medicare beneficiaries: 15 randomized trials. *JAMA.* 2009;301(6):603-618.

(5) Zuckerman S, Waidmann T, Berenson R, Hadley J. Clarifying sources of geographic differences in Medicare spending. *N Engl J Med.* 2010;363(1):54-62.

(6) Chatterjee P, Joynt KE, Orav EJ, Jha AK. Patient experience in safety-net hospitals: implications for improving care and value-based purchasing. *Arch Intern Med.* 2012;172(16):1204-1210.

Appendix 9-2: Hospital Compare HCAHPS Reported Items and Correlation Matrix

HCAHPS Items[xxx]

1. How often did nurses communicate well with patients?

During this hospital stay…

- How often did nurses treat you with courtesy and respect? (Q1)
- How often did nurses listen carefully to you? (Q2)
- How often did nurses explain things in a way you could understand? (Q3)

2. How often did doctors communicate well with patients?

During this hospital stay…

- How often did doctors treat you with courtesy and respect? (Q5)
- How often did doctors listen carefully to you? (Q6)
- How often did doctors explain things in a way you could understand? (Q7)

3. How often did patients receive help quickly from hospital staff?

During this hospital stay…

- After you pressed the call button, how often did you get help as soon as you wanted it? (Q4)
- How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted? (Q11)

4. How often was patients' pain well controlled?

During this hospital stay…

- How often was your pain well controlled? (Q13)
- How often did the hospital staff do everything they could to help you with your pain? (Q14)

[xxx] The HCAHPS survey instrument can be accessed at: http://hcahpsonline.org/surveyinstrument.aspx.

5. How often did staff explain about medicines before giving them to patients?

Before giving you any new medicine…

- How often did hospital staff tell you what the medicine was for? (Q16)
- How often did hospital staff describe possible side effects in a way you could understand? (Q17)

6. How often were patients' rooms and bathrooms kept clean?

During this hospital stay…

- How often were your room and bathroom kept clean? (Q8)

7. How often was the area around patients' rooms quiet at night?

During this hospital stay…

- How often was the area around your room quiet at night? (Q9)

8. Were patients given information about what to do during their recovery at home?

During this hospital stay…

- Did hospital staff talk with you about whether you would have the help you needed when you left the hospital? (Q19)
- Did you get information in writing about what symptoms or health problems to look out for after you left the hospital? (Q20)

9. How do patients rate the hospital?

- Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay? (Q21)

10. Would patients recommend the hospital to friends and family?

- Would you recommend this hospital to your friends and family? (Q22)

Table 9-2-1: HCAHPS Correlation Matrix

		Medicare Spending per Beneficiary (2012)	Percent of Patients who reported …									
			their nurses "Always" communi-cated well	their doctors "Always" communi-cated well	they "Always" received help as soon as wanted	their pain was "Always" well controlled	that staff "Always" explained about medicines before giving it to them	their room and bathroom were "Always" clean	the area around their room was "Always" quiet at night	that "Yes" they were given information about what to do during their recovery at home	their hospital a 9 or 10 on a scale from 0 (lowest) to 10 (highest)	"Yes", they would definitely recommend the hospital
Medicare Spending per Beneficiary (2012)		1.00										
Percent of Patients who reported …	**their nurses "Always" communicated well**	-0.17**	1.00									
	their doctors "Always" communicated well	-0.20**	0.74**	1.00								
	they "Always" received help as soon as wanted	-0.22**	0.85**	0.68**	1.00							
	their pain was "Always" well controlled	-0.13**	0.84**	0.69**	0.77**	1.00						
	that staff "Always" explained about medicines before giving it to them	-0.23**	0.80**	0.69**	0.75**	0.72**	1.00					
	their room and bathroom were "Always" clean	-0.12**	0.68**	0.50**	0.70**	0.59**	0.60**	1.00				
	the area around their room was "Always" quiet at night	-0.08**	0.60**	0.66**	0.62**	0.85**	0.58**	0.51**	1.00			
	that "Yes" they were given information about what to do during their recovery at home	-0.12**	0.55**	0.37**	0.49**	0.51**	0.46**	0.39**	0.24**	1.00		
	their hospital a 9 or 10 on a scale from 0 (lowest) to 10 (highest)	-0.12**	0.77**	0.59**	0.69**	0.73**	0.68**	0.60**	0.55**	0.59**	1.00	
	"Yes", they would definitely recommend the hospital	-0.04*	0.64**	0.45**	0.53**	0.61**	0.54**	0.48**	0.39**	0.58**	0.91**	1.00

* $p < 0.05$
** $p < 0.01$

Appendix 9-3: Full Ordinary Least Squares (OLS) Regression Model

- General forms:
  - $MSPB_i = \alpha + \beta_0 HCAHPS(3\ items)_i + \beta_j X_{ij} + e_i$
  - $HCAHPS\_PCA_i = \alpha + \beta_0 MSPB_i + \beta_j X_{ij} + e_i$
- $_i$ indexes the hospitals,
- $_j$ indexes each controlling variable by hospital,
- $MSPB_i$ is the average risk-adjusted Medicare Spending Per Beneficiary for hospital i,
- $HCAHPS\_PCA_i$ is the HCAHPS first principal component score for hospital i,
- α is a constant,
- β_0 is the coefficient for HCAHPS score,
- $HCAHPS_i$ is the hospital-specific first principal component from reported HCAHPS scores,
- $\boldsymbol{\beta}_j$ is a group of coefficients capturing the effects of the hospital's characteristics,
- $\boldsymbol{X_{ij}}$ represents a hospital characteristic such as bed size, region, and urbanicity, identified in
- Appendix 9-2: Potential Covariates for Experience or Costs from the Literature
- e_i is the error term that captures the amount not predicted by the model, the residual.

Table 9-3-1: Model Summary for MSPB as the Dependent Variable[xxxi]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.24[xxxii]	0.06	0.06	0.08	0.06	66.48	3	3143	<0.01
2	0.47[xxxiii]	0.22	0.21	0.08	0.16	39.00	16	3127	< 0.01

[xxxi] Dependent Variable: Medicare Spending Per Beneficiary 2012.

[xxxii] Predictors: (Constant), Percent of patients who reported that staff "Always" explained about medicines before giving it to them, Percent of patients who reported that their doctors "Always" communicated well, Percent of patients who reported that they "Always" received help as soon as they wanted.

[xxxiii] Predictors: (Constant), Percent of patients who reported that staff "Always" explained about medicines before giving it to them, Percent of patients who reported that their doctors "Always" communicated well, Percent of patients who reported that they "Always" received help as soon as they wanted, South Atlantic, West North Central, Standard Deviation of Mean of Patients in Hospital, Mountain, Safety Net Hospital Status, Percent Ethnic of Patients in Hospital, Rural Hospital Designation, Mid Atlantic, East South Central, Percent Black in Hospital, Percent female patients in Hospital, Pacific, Mean age of Patients in Hospital, East North Central, Total Hospital Beds, West South Central

Table 9-3-2: Full Model for MSPB as the Dependent Variable

Coefficients[a]		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1.24	0.03		47.68	< 0.01			
	Percent of patients who reported that they "Always" received help as soon as they wanted.	> -0.01	< 0.01	-0.11	-3.98	< 0.01	-0.23	-0.07	-0.07
	Percent of patients who reported that their doctors "Always" communicated well.	> -0.01	< 0.01	-0.06	-2.40	0.02	-0.21	-0.04	-0.04
	Percent of patients who reported that staff "Always" explained about medicines before giving it to them.	> -0.01	< 0.01	-0.10	-3.40	< 0.01	-0.22	-0.06	-0.06
2	(Constant)	1.35	0.05		29.64	< 0.01			
	Percent of patients who reported that they "Always" received help as soon as they wanted.	> -0.01	< 0.01	-0.07	-2.55	0.11	-0.23	-0.05	-0.04
	Percent of patients who reported that their doctors "Always" communicated well.	> -0.01	< 0.01	-0.16	-5.92	< 0.01	-0.21	-0.11	-0.09
	Percent of patients who reported that staff "Always" explained about medicines before giving it to them.	> -0.01	< 0.01	-0.08	-3.00	< 0.01	-0.22	-0.05	-0.05

Table 9-3-2: Full Model for MSPB as the Dependent Variable

Coefficients[a]		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
	Mid Atlantic	-0.06	0.01	-0.21	-6.47	< 0.01	0.08	-0.12	-0.10
	South Atlantic	-0.07	0.01	-0.29	-7.67	< 0.01	0.01	-0.14	-0.12
	East North Central	-0.05	0.01	-0.22	-5.93	< 0.01	0.04	-0.11	-0.09
	East South Central	-0.04	0.01	-0.13	-4.15	< 0.01	> -0.01	-0.07	-0.07
	West North Central	-0.10	0.01	-0.30	-9.99	< 0.01	-0.17	-0.18	-0.16
	West South Central	-0.02	0.01	-0.08	-2.20	0.03	0.13	-0.04	-0.04
	Mountain	-0.10	0.01	-0.28	-9.86	< 0.01	-0.12	-0.17	-0.16
	Pacific	-0.10	0.01	-0.38	-10.71	< 0.01	-0.10	-0.19	-0.17
	Mean age of Patients in Hospital	< 0.02	< 0.01	0.08	3.91	< 0.01	0.01	0.07	0.06
	Standard Deviation of Mean of Patients in Hospital	> -0.01	< 0.01	-0.15	-8.16	< 0.01	-0.13	-0.14	-0.13
	Total Hospital Beds	< 0.01	< 0.01	0.07	2.96	< 0.01	0.15	0.05	0.05
	Percent Black in Hospital	< 0.01	< 0.01	0.13	6.73	< 0.01	0.16	0.12	0.11
	Percent Ethnic of Patients in Hospital	< 0.01	< 0.01	0.12	6.76	< 0.01	0.12	0.12	0.11
	Safety Net Hospital Status	-0.01	0.01	-0.06	-2.88	< 0.01	0.04	-0.05	-0.05
	Percent female patients in Hospital	< 0.01	< 0.01	0.03	1.75	0.08	-0.08	0.03	0.03
	Rural Hospital Designation	-0.02	< 0.01	-0.09	-4.55	< 0.01	-0.09	-0.08	-0.07

Table 9-3-3: Model Summary for HCAHPS_PCA as the Dependent Variable[xxxiv]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.18[xxxv]	0.03	0.03	0.92	0.03	107.91	1	3145	< 0.01
2	0.56[xxxvi]	0.31	0.30	0.78	0.27	77.53	16	3129	< 0.01

Table 9-3-4: Full Model for HCAHPS_PCA as the Dependent Variable

Coefficients		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1.76	0.19		9.51	< 0.01			
	Medicare Spending Per Beneficiary 2012	-1.95	0.19	-0.18	-10.39	< 0.01	-0.18	-0.18	-0.18
2	(Constant)	4.14	.415		9.98	< 0.01			
	Medicare Spending Per Beneficiary 2012	-1.87	0.17	-0.17	-10.72	< 0.01	-0.18	-0.19	-0.16
	Mid Atlantic	-0.44	0.09	-0.15	-4.92	< 0.01	-0.22	-0.09	-0.07
	South Atlantic	-0.04	0.09	-0.02	-0.45	0.66	-0.07	-0.01	-0.01
	East North Central	0.11	0.09	0.04	1.25	0.21	0.06	0.02	0.02
	East South Central	0.39	0.09	0.12	4.18	< 0.01	0.12	0.07	0.06
	West North Central	0.17	0.10	0.05	1.71	0.09	0.10	0.03	0.03
	West South Central	0.54	0.09	0.21	6.04	< 0.01	0.21	0.11	0.09
	Mountain	-0.20	0.10	-0.05	-1.97	0.05	-0.03	-0.04	-0.03
	Pacific	-0.33	0.10	-0.12	-3.46	< 0.01	-0.18	-0.06	-0.05
	Mean age of Patients in Hospital	-0.02	< 0.01	-0.07	-3.92	< 0.01	0.06	-0.07	-0.06
	Standard Deviation of Mean of Patients in Hospital	-0.13	0.01	-0.28	-16.40	< 0.01	-0.19	-0.28	-0.24
	Total Hospital Beds	> -0.01	< 0.01	-0.12	-5.48	< 0.01	-0.25	-0.10	-0.08
	Percent Black in Hospital	-0.01	< 0.01	-0.15	-8.53	< 0.01	-0.17	-0.15	-0.13
	Percent Ethnic of Patients in Hospital	-0.01	< 0.01	-0.12	-7.10	< 0.01	-0.22	-0.13	-0.11
	Safety Net Hospital Status	-0.04	0.05	-0.02	-0.84	0.40	-0.14	-0.02	-0.01
	Percent female patients in Hospital	0.03	< 0.01	0.11	5.89	< 0.01	0.15	0.11	0.09
	Rural Hospital Designation	0.16	0.04	0.07	3.65	< 0.01	0.08	0.07	0.05

[xxxiv] Dependent Variable: HCAHPS factor score 2012
[xxxv] Predictors: (Constant), Medicare Spending Per Beneficiary 2012
[xxxvi] Predictors: (Constant), Medicare Spending Per Beneficiary 2012, East South Central, Mean age of Patients in Hospital, South Atlantic, Percent female patients in Hospital, Mountain, Percent Ethnic of Patients in Hospital, Mid Atlantic, Rural Hospital Designation, West North Central, Safety Net Hospital Status, Standard Deviation of Mean of Patients in Hospital, West South Central, Percent Black in Hospital, Pacific, Total Hospital Beds, East North Central

Appendix 10: Chapter 10—Future Directions

NO APPENDIX FOR THIS CHAPTER