NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES, FIRST REPORT FOR PHASES 1 AND 2: A CONSENSUS REPORT

DRAFT REPORT

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TABLE OF CONTENTS

Executive Summary
Background
Strategic Directions for NQF
National Priorities Partnership
NQF's Consensus Development Process
Evaluating Potential Consensus Standards
Recommendations for Endorsement
Candidate Consensus Standards Recommended for Endorsement
Candidate Consensus Standards Recommended for Time-Limited Endorsement
Candidate Consensus Standards Not Recommended for Endorsement
Additional Recommendations
Notes
Appendix A—Specifications for the National Voluntary Consensus Standards for Patient Outcomes: Phase 1
Appendix B—Steering Committee, Technical Advisory Panels and NQF StaffB-1
Appendix C—NQF-endorsed Consensus Standards: Outcome Measures

- 1 NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES,
- 2 FIRST REPORT FOR PHASES 1 AND 2: A CONSENSUS REPORT

3 **EXECUTIVE SUMMARY**

- 4 The results or outcomes of an episode of healthcare are inherently important because they reflect the
- 5 reason consumers seek healthcare (e.g., to improve function, decrease pain, or survive), as well as the
- 6 result healthcare providers are trying to achieve. Outcome measures also provide an integrative
- 7 assessment of quality reflective of multiple care processes across the continuum of care. There are a
- 8 variety of types of outcome measures such as health or functional status, physiologic measurements,
- 9 adverse outcomes, patient experience with care, and morbidity and mortality. To date NQF has endorsed
- more than 200 outcome measures in a variety of topic areas. As greater focus is placed on evaluating the
- outcome of episodes of care, additional measures of patient outcomes are needed to fill gaps in the current
- 12 portfolio.
- 13 This report presents the results of the evaluation of 12 measures considered under NQF's CDP. Eight
- measures are recommended for endorsement as voluntary consensus standards suitable for public
- 15 reporting and quality improvement.
- Intensive care: in-hospital mortality rate (Phillip R. Lee Institute for Health Policy Studies,
 University of California San Francisco) This measure is paired with OT1-023-09 Intensive care
 unit (ICU) length-of-stay (LOS).
 - Intensive care unit (ICU) length-of-stay (LOS) (Phillip R. Lee Institute for Health Policy Studies, University of California San Francisco). This measure is paired with OT1-024-09 Intensive care: in-hospital mortality rate.
 - Hospital risk-standardized complication rate following implantation of implantable cardioverterdefibrillator (ICD) (Yale University/CMS)
 - Hospital 30-day risk-standardized readmission rates following percutaneous coronary intervention (PCI) (Yale/CMS)
 - 30-Day post-hospital AMI discharge care transition composite measure (Brandeis University/CMS)
 - 30-Day post-hospital heart failure (HF) discharge care transition composite measure (Brandeis University/CMS)
 - Health-related quality of life in COPD patients before and after pulmonary rehabilitation (AACVPR)
- Functional capacity in COPD patients before and after pulmonary rehabilitation (AACVPR)

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35	NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES,
36	FIRST REPORT FOR PHASES 1 AND 2: A CONSENSUS REPORT
37	BACKGROUND
38	The results or outcomes of an episode of healthcare are inherently important because they reflect
39	the reason consumers seek healthcare (e.g., to improve function, decrease pain, or survive), as
40	well as the result healthcare providers are trying to achieve. Patient outcomes reflect the wide
41	assortment of care processes and coordination of efforts among all caregivers as well as other
42	contributing factors that determine the end result of an episode of care.
43	Donabedian defined outcomes as "changes (desirable or undesirable) in individuals and
44	populations that are attributed to healthcare." Outcome measures also provide an integrative
45	assessment of quality reflective of multiple care processes across the continuum of care. There
46	are a variety of types of outcome measures. Some represent an end result such as mortality or
47	function; others are considered intermediate outcomes (e.g., physiological or biochemical values
48	such as blood pressure or LDL cholesterol) that precede and may lead to a longer-range end-
49	result outcome. Sometimes proxies are used to indicate an outcome (e.g., hospital readmission
50	indicates deterioration in health status since discharge). To date NQF has endorsed more than
51	200 outcome measures in a variety of topic areas (Appendix C). As greater focus is placed on
52	evaluating the outcome of episodes of care, additional measures of patient outcomes are needed
53	to fill gaps in the current portfolio.
54	STRATEGIC DIRECTIONS FOR NQF
55	NQF's mission includes three parts: 1) setting national priorities and goals for performance
56	improvement, 2) endorsing national consensus standards for measuring and publicly reporting or
57	performance, and 3) promoting the attainment of national goals through education and outreach
58	programs. As greater numbers of quality measures are developed and brought to NQF for
59	consideration of endorsement, it is incumbent on NQF to assist stakeholders to "measure what

makes a difference" and address what is important to achieve the best outcomes for patients and

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- populations. For more information see http:// 61 www.qualityforum.org/projects/Patient Outcome Measures Phases1-2.aspx. 62 Several strategic issues have been identified to guide consideration of candidate consensus 63 standards: 64 • **Drive toward high performance.** Over time, the bar of performance expectations should 65 be raised to encourage the achievement of higher levels of system performance. 66 67 **Emphasize composites.** Composite measures provide much-needed summary information pertaining to multiple dimensions of performance and are more 68 comprehensible to patients and consumers. 69 **Move toward outcome measurement.** Outcome measures provide information of keen 70 interest to consumers and purchasers, and when coupled with healthcare process 71 measures, they provide useful and actionable information to providers. Outcome 72 measures also focus attention on much-needed system-level improvements, because 73 achieving the best patient outcomes often requires carefully designed care processes, 74 teamwork, and coordinated action on the part of many providers. 75 Focus on disparities in all that we do. Some of the greatest performance gaps relate to 76 care of minority populations. Particular attention should be focused on the most relevant 77 race/ethnicity/language/socioeconomic strata to identify relevant measures for reporting. 78 79 NATIONAL PRIORITIES PARTNERSHIP 80 NQF seeks to endorse measures that address the National Priorities and Goals of the National 81 Priorities Partnership.² The National Priorities Partnership represents those who receive, pay for, 82
- provide, and evaluate healthcare. The National Priorities and Goals focus on these areas:
- patient and family engagement,
- population health,
- safety,
- care coordination,

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• palliative and end-of-life care, and 88 89 overuse. NQF'S CONSENSUS DEVELOPMENT PROCESS (CDP) 90 **Patient Outcomes Project** 91 NQF's "National Voluntary Consensus Standards for Patient Outcomes "project³ seeks to 92 93 endorse additional outcome measures with an emphasis on high-impact (high-volume, highmorbidity, high-cost) conditions and cross-cutting areas. The Patient Outcomes project is 94 structured in several phases: 95 Phases 1 and 2—cross-cutting measures and measures on cardiovascular, pulmonary, 96 97 and bone/joint conditions as well as chronic kidney disease, diabetes, and several types of cancers: and 98 • Phase 3— Child Health and Mental Health. 99 100 Additionally, the project will identify gaps in important outcome measures. **Scope of Patient Outcomes** 101 The Steering Committee defined outcomes quite broadly to encompass a variety of types of 102 patient outcomes within the scope of this project: 103 patient function, symptoms, health-related quality of life (physical, mental, social); 104 intermediate clinical outcomes (physiologic, biochemical); 105 • patient experience with care; knowledge, understanding, motivation; health risk status or 106 107 behavior (including adherence); • service utilization as a proxy for patient outcome (e.g., change in condition) or potential 108 109 indicator of efficiency;

non-mortality clinical morbidity related to disease control and treatment;

healthcare-acquired adverse event or complication (non-mortality); and

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mortality.

113	Evaluating Potential Consensus Standards
114	This first report presents the evaluation of an initial group of 12 measures in the areas of
115	pulmonary/intensive care and cardiovascular conditions. Candidate consensus standards were
116	solicited through a Call for Measures in September 2009 and actively sought through searches of
117	the National Quality Measures Clearinghouse, NQF Member websites, and an environmental
118	scan. NQF staff contacted potential measure stewards to encourage submission of measures for
119	this project.
120	Twelve measures were evaluated for suitability as voluntary consensus standards for
121	accountability and public reporting in this first phase.
122	The measures were evaluated using NQF's standard evaluation criteria. ⁴ Either the
123	Pulmonary/ICU Technical Advisory Panel (TAP) or the Cardiovascular TAP rated the sub-
124	criteria for each candidate consensus standard and identified strengths and weaknesses to assist
125	the project Steering Committee (Committee) in making recommendations. The 24-member,
126	multistakeholder Committee provided final evaluations of the four main criteria: importance to
127	measure and report; scientific acceptability of the measure properties; usability; and feasibility,
128	as well as the recommendation for endorsement. Measure developers participated in the TAP and
129	Committee discussions to respond to questions and clarify any issues or concerns.
130	RECOMMENDATIONS FOR ENDORSEMENT
131	This report presents the results of the evaluation of 12 measures considered under NQF's CDP.
132	Eight measures are recommended for endorsement as voluntary consensus standards suitable for
133	public reporting and quality improvement.
134	Candidate Consensus Standards Recommended for Endorsement
135	OT1-007-09: Hospital risk-standardized complication rate following implantation of
136	implantable cardioverter-defibrillator (ICD) (Yale University/CMS) This measure provides
137	hospital specific risk-standardized rates of procedural complications following the implantation
138	of an ICD in Medicare Fee for Service (FFS) patients at least 65 years of age. The measure uses

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139	clinical data available in the National Cardiovascular Data Registry (NCDR) ICD Registry for
140	risk adjustment that has been linked with CMS administrative claims data used to identify
141	procedural complications.
142	
143	This measure was designed to combine clinical data from the National Cardiovascular Data
144	Registry (NCDR) ⁶ ICD Registry and administrative data. All patients over age 65 years are
145	required to be entered into the registry and 70 percent of hospitals report all patients to NCDR.
146	The TAP and SC agree that the measure is important in addressing a costly procedure that has a
147	high complication rate (18 percent). The TAP also commended the strong performance
148	characteristics of the risk model. SC Members were interested in including patients below age
149	65 years. The measure developers advised the Committee that the measure was developed in the
150	Medicare ≥65 fee-for-service population as this is the only cohort of patients in whom the data
151	was available to reliably identifying outcomes (complications and vital status) beyond the index
152	hospitalization. The measure could be applied to a broader population of patients undergoing
153	ICD implantation if the required data elements were available with some additional work to
154	optimize the risk adjustment methodology.
155	A Committee member noted that the variation of values in the technical report is very narrow
156	due to hierarchical modeling and won't discriminate among providers. Others suggested that
157	clustering of complication rate at 18 percent represents opportunity for improvement overall.
158	This measure addresses the National Priority of safety.
159	OT1-008-09: Hospital 30-day risk-standardized readmission rates following percutaneous
160	coronary intervention (PCI) (Yale/CMS) This measure estimates hospital risk-standardized
161	30-day readmission rates following PCI in Medicare Fee for Service (FFS) patients at least 65
162	years of age. As PCI patients may be readmitted electively for staged revascularization
163	procedures, we will exclude such elective readmissions from the measure. The measure uses
164	clinical data available in the National Cardiovascular Disease Registry (NCDR) CathPCI
165	Registry for risk adjustment that has been linked with the CMS administrative claims data used
166	to identify readmissions.
167	

168	The measure developers advised the Committee and TAP that this measure was developed using
169	the same approach as the NQF-endorsed® readmission measure for AMI. Twenty-nine percent of
170	patients undergoing PCI have also had an MI and will be captured in both measures. The major
171	discussion centered on the all-cause readmissions and the 30-day timeframe. Some TAP and
172	Committee members suggested that a 15-day timeframe would be more directly related to the
173	antecedent PCI procedure. The measure developer presented their hazard of readmission
174	analysis over 90 days that found that risk of readmission was greatest in the first 15 days but
175	remained elevated up to 60 days following discharge (with a plateau between 30 to 45 days). The
176	developer asserted that a shorter timeframe would have a stronger association with the initial
177	care of the patients but would miss the substantial number of readmissions between 15 to 30 days
178	that are likely attributable to the care delivered within the index hospitalization and during the
179	transition from that setting.
180	TAP and Committee members noted that the risk model performance characteristics are not as
181	strong as some measures, such as ICU mortality, but are comparable to other readmission
182	measures endorsed by NQF. Again, the Committee recommended broadening the population and
183	not specifying the measure by type of insurance. The developer replied that the measure can be
184	applied to a broader population if the data are available, and inclusion of other populations will
185	require re-estimation of the model covariates. The measure addresses the National Priority of
186	overuse.
187	OT1-016-09: 30-Day post-hospital AMI discharge care transition composite measure
188	(Brandeis University/CMS) This measure scores a hospital on the incidence among its patients
189	during the month following discharge from an inpatient stay having a primary diagnosis of AMI
190	for three types of events: readmissions, ED visits, and evaluation and management (E&M)
191	services.
192	Component measures:
193	• 0505 30-Day all-cause risk standardized readmission rate following acute
194	myocardial infarction (AMI) hospitalization
195	• OT1-002-09: 30-Day post-hospital AMI discharge ED visit rate

196	• OT1-003-09: 30-Day post-hospital AMI discharge evaluation and management
197	service
198	OT1-017-09: 30-Day post-hospital heart failure (HF) discharge care transition composite
199	measure (Brandeis University/CMS) This measure scores a hospital on the incidence among
200	its patients during the month following discharge from an inpatient stay having a primary
201	diagnosis of heart failure for three types of events: readmissions, ED visits, and evaluation and
202	management (E&M) services.
203	Component measures:
204	• 0330 30-Day all-cause risk standardized readmission rate following heart failure
205	hospitalization
206	• OT1-006-09: 30-Day post-hospital HF discharge ED visit rate
207	• OT1-004-09: 30-Day post-hospital HF discharge evaluation and management service
208	
209	These two composite measures were developed using the same methodology. The composite
210	measures bring together NQF-endorsed readmission measures for AMI (0505) and heart failure
211	(0330) and new measures for ED visits and evaluation and management (E&M) services within
212	30 days of discharge for AMI or HF. The development team assigned weights of (-4) for
213	readmissions, (-2) for ED visits, and (+1) for E&M services to arrive at the composite score. The
214	developers suggested that these weightings represent the values of a desirable post-discharge
215	care trajectory in which readmissions are least desirable, ED visits are not desirable but are less
216	so than a readmission, and follow-up outpatient care is desirable.
217	The measure developers presented an analysis of the spread of sample composite scores from
218	high to low and the relative contributions of the three component measures. Some Committee
219	members found the mix of positive and negative weightings arbitrary and confusing; others
220	thought a composite of readmission and ED visits would be more meaningful for care transitions.
221	A majority of Committee members found the composite measures addressed care transitions and
222	the outcomes of hospitalization. These measures address the National Priority of care
223	coordination.

224	OT1-023-09: Intensive care unit (ICU) length-of-stay (LOS) (Phillip R. Lee Institute for
225	Health Policy Studies, University of California San Francisco) This measure is paired with
226	OT1-024-09: Intensive care: in-hospital mortality rate. For all patients admitted to the ICU,
227	total duration of time spent in ICU until time of discharge; both observed and risk-adjusted LOS
228	reported with the predicted LOS measured using an adjustment model based on the (Mortality
229	Probability Model) MPM III.
230	The TAP and Committee agreed that length of stay is an important outcome, particularly in terms
231	of resource use and efficiency; however, all agreed that the ICU LOS measure must be paired
232	with the ICU mortality measure to balance potential unintended consequences of inappropriate
233	reductions in LOS. The LOS measure uses the same risk-adjustment model and data collection as
234	the ICU mortality measure. TAP and Committee members noted some issues around identifying
235	the start of an ICU stay, particularly with patients remaining in the emergency department for
236	long periods of time before admission to the ICU. Again, the Committee noted there are cultural
237	influences that affect the length of stay, so some means to address disparities is strongly
238	recommended. This measure addresses the National Priority of overuse.
239	OT1-024-09: Intensive care: in-hospital mortality rate (Phillip R. Lee Institute for Health
240	Policy Studies, University of California San Francisco) This measure is paired with OT1-
241	023-09: Intensive care unit (ICU) length-of-stay (LOS). For all adult patients admitted to the
242	ICU, the percentage of patients whose outcome is death; both observed and risk-adjusted
243	mortality rates are reported using predicted rates based on the (Mortality Probability Model)
244	MPM III.
245	Both Pulmonary/ICU TAP and Committee members agreed this measure is an important
246	outcome, with documented variation in outcomes. The TAP rated this measure highly for its
247	technical characteristics. The risk model ⁵ has been published and refined over several years. It is
248	parsimonious compared to other models such as APACHE or SAPA III and demonstrates strong
249	performance characteristics. Committee members were extremely interested in how disparities
250	might be handled. Race, ethnicity, and socioeconomic status (SES) are not included in the risk
251	model, which is consistent with NOF's evaluation criteria. The developer noted that data for

252	SES, race, and ethnicity are generally not available. Committee members suggested insurance
253	type or zip code might be proxies. The Committee strongly encouraged the measure developers
254	to consider how to address disparities for future implementation. This measure is voluntarily
255	reported by 246 hospitals in California on www.CalHospitalCompare. Data collection is
256	compatible with EHRs (some vendors have already built in the data elements), and an electronic
257	submission tool is available.
258	Candidate Consensus Standards Recommended for Time-Limited Endorsement ⁷
259	OT1-019-09: Health-related quality of life in COPD patients before and after pulmonary
260	rehabilitation (AACVPR) The percentage of patients with COPD enrolled in pulmonary
261	rehabilitation (PR) who are found to increase their health-related quality of life score (HRQOL).
262	TAP and Committee members noted that a new Medicare benefit for pulmonary rehabilitation
263	effective January 2010 will increase the number of PR providers and as well as referrals to PR.
264	Committee members noted that there are few endorsed measures of quality of life—a significant
265	gap in NQF's portfolio. This measure does not address appropriate referrals for PR and captures
266	only patients who complete PR. TAP members suggest that lack of completing the PR program
267	may indicate a quality problem. The Chronic Respiratory Disease Questionnaire (CRQ) specified
268	in the measure is well tested and validated and widely used in PR programs. However, some
269	alternative tools are equally validated and used widely, such as the St. George's Respiratory
270	Questionnaire (SGRQ).
271	There were some concerns with the selection of the age inclusion. The Pulmonary TAP
272	specifically questioned why age 20 and above was chosen, since COPD generally presents later
273	in life and younger patients usually have asthma and not COPD. The developers responded that
274	the lower age will capture patients with alpha-1 antitrypsin deficiency; however, in the interest of
275	harmonization, ⁸ the developers are willing to use age ≥ 40 years.
276	Although the CRQ tool has been well tested and validated at the individual patient level, this
277	measure, as specified, has not been tested for reliability and validity as a performance measure
278	and is therefore recommended for time-limited endorsement. The HRQOL survey is performed

279	as part of care, and while typically hand-scored at the current time, there is no reason it cannot be
280	embedded in an EHR. AACVPR also anticipates establishing a registry to collect data. This
281	measure addresses the National Priority of patient and family engagement.
282	OT1-020-09: Functional capacity in COPD patients before and after pulmonary
283	rehabilitation (AACVPR) The percentage of patients who are enrolled in pulmonary
284	rehabilitation (PR) who are found to increase their functional capacity by at least 25 meters
285	(176 feet), as measured by a standardized 6-minute walk test (6MWT).
286	The 6MWT is a widely used and well-validated assessment of functional status of individual
287	patients. TAP members were initially concerned with the original submission that specified a 54-
288	meter threshold that seemed quite high. A new publication in February 20109 indicated that a
289	threshold of 25 meters is more reasonable, and the measure was aligned with the newest data.
290	The issues regarding appropriate referral, completion of PR programs, age inclusion, and testing
291	are the same as for the HRQOL measure.
292	Candidate Consensus Standards not Recommended for Endorsement
293	The following measures are included in the AMI and Heart Failure Care Transitions Composite
294	measures recommended for endorsement. Although the Committee recommended them as part of
295	the composite measure, a narrow majority of Committee members did not recommend these as
296	stand-alone measures.
297	OT1-002-09: 30-Day post-hospital AMI discharge ED visit rate (Brandeis University/CMS)
298	This measure estimates the percentage of Medicare beneficiaries (age 65 years and older)
299	discharged from the hospital with a diagnosis of AMI and evidence of an emergency department
300	(ED) visit within 30 days of discharge and prior to a readmission.
301	
302	OT1-006-09: 30-Day post-hospital HF discharge ED visit rate (Brandeis University/CMS)
303	This measure estimates the percentage of Medicare beneficiaries (age 65 years and older)
304	discharged from the hospital with a diagnosis of heart failure (HF) and evidence of an
305	emergency department (FD) visit within 30 days of discharge and prior to a readmission

306	
307	TAP and Committee members were concerned with "all-cause" ED visits, particularly ED visits
308	for issues unrelated to the recent hospitalization. Committee members noted wide variation in
309	local use of EDs, particularly in areas with limited primary care services or where sending
310	patients to the ED after hours is common practice. Committee members noted that the risk model
311	performance is not robust, and the developers replied that these risk models perform similarly to
312	the endorsed readmission measures that use the same methodology.
313	OT1-003-09: 30-Day post-hospital AMI discharge evaluation and management service
314	(Brandeis University/CMS) This measure estimates the percentage of Medicare beneficiaries
315	age 65 years and older discharged from the hospital with the diagnosis of AMI receiving an
316	evaluation and management service within 30 days of the hospital discharge and prior to a
317	hospital readmission or ED visit.
318	
319	OT1-004-09: 30-Day post-hospital HF discharge evaluation and management service
320	(Brandeis University/CMS) This measure estimates the percentage of Medicare beneficiaries
321	age 65 years and older discharged from the hospital with the diagnosis of heart failure receiving
322	an evaluation and management service within 30 days of the hospital discharge and prior to a
323	hospital readmission or ED visit.
324	
325	Committee members agreed that post-discharge follow-up is important but that a specific E&M
326	may not be the only effective mechanism to achieve care coordination. Committee members
327	cited ongoing approaches to reduce readmissions in their own institutions that include nurse
328	visits, as demonstrated in the research of Dr. Mary Naylor, ^{10,11} or other innovative approaches.
329	Committee members reported that some regional CMS carriers do not accept billing for certain
330	types of nurse visits, so innovative approaches to reduce readmissions may be stifled by crediting
331	only E&M services.
332	

Additional Recommendations

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1. Apply measures to the broadest populations poss
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The Committee strongly recommends that measure developers consider the broadest application of measures and not include restrictive specifications, such as payer or coverage type, or age limitations, unless appropriate for the condition.

2. More attention to disparities is needed.

The Committee strongly recommends that measure developers address measurement of disparities in measure specifications. According to NQF measure evaluation criteria, factors such as race, ethnicity, and socioeconomic status should not be included in risk models; however, the data should be collected to allow for stratification. Some providers serve patient populations that are extremely vulnerable to disparities, and the stratified results would not be small numbers.

3. Provide rationale for use of hierarchical modeling.

Committee members recommend that measure developers provide the rationale for using hierarchical modeling and describe the impact on discrimination and usability of the results for public reporting and quality improvement.

NOTES

- 1. Donabedian A, The quality of care. How can it be assessed? *JAMA*, 1988; 260(12):1743-1748.
- 2. National Quality Forum (NQF). *National Priorities Partnership*. Washington, DC: NQF. Available at www.nationalprioritiespartnership.org. Last accessed April 2010.
- 3. www.qualityforum.org/projects/Patient_Outcome_Measures_Phases1-2.aspx. Last accessed April 2010.
- 4. NQF. *Measure Evaluation Criteria*. Washington, DC: NQF, 2008. Available at www.qualityforum.org/docs/measure_evaluation_criteria.aspx. Last accessed April 2010.
- 5. Higgins TL, Teres D, Copes WS, et al., Assessing contemporary intensive care unit outcome: an updated Mortality Probability Admission Model (MPM0-III), *Crit Care Med*, 2007; 35:827–835).
- 6. National Cardiovascular Data Registry (NCDR). Washington, DC: NCDR. Available at www.ncdr.com. Last accessed April 2010.
- Information regarding NQF's time-limited endorsement policy and the 2010 addendum is available at www.qualityforum.org/Measuring Performance/Consensus Devlopment Process's Principle/Consensus_Staandards_Approval_Committee_Decision.aspx.
- 8. Harmonization refers to the standardization of specifications for similar measures on the same topic (e.g., influenza immunization of patients in hospitals, nursing homes, etc.), related measures for the same target population (e.g., eye exam and HbA1c for patients with diabetes), or definitions applicable to many measures (e.g., age designation for children) so that they are uniform or compatible, unless differences are dictated by the evidence. The dimensions of harmonization can include numerator, denominator, exclusions, and data source and collection instructions. The extent of harmonization depends on the relationship of the various measures and the evidence for the specific measure focus, as well as differences in data sources.

- 9. Holland AE, Hill CJ, Rasekaba T, et al., Updating the minimal important difference for six-minute walk distance in patients with chronic obstructive pulmonary disease, *Arch Phys Med Rehabil*, 2010;91(2):221-225.
- 10. Naylor MD, Transitional care for older adults: a cost-effective model, *LDI Issue Brief*, 2004; 9(6):1-4.
- 11. Naylor MD, Feldman PH, Keating S, et al., Translating research into practice: transitional care for older adults, *J Eval Clin Pract*, 2009; 15(6):1164-1170.

The following table presents the detailed specifications for the proposed consensus standards. All information presented has been derived directly from measures developers without modification or alteration (except where measure developers agreed to such modifications) and is current as of April 13, 2010. All proposed voluntary consensus standards are open source, meaning they are fully accessible and disclosed. Measures were developed by the Phillip R. Lee Institute for Health Policy Studies at the University of California at San Francisco; Yale University, Brandeis University; the Center for Medicare and Medicaid Services (CMS); and the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR).

Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
OT1- 024-	Intensive	Philip R. Lee	For all adult	Total number of	Total number of	<18 years of age	Pharmacy data,	Clinicians:
09	care: in-	Institute for	patients	eligible patients	eligible patients	at time of ICU	documentation	Group,
	hospital	Health Policy	admitted to the	whose hospital	who are	admission, ICU	of original self-	Clinicians:
	mortality rate	Studies, Univ	intensive care	outcome is death.	discharged	readmission, <4	assessment	Other
		ersity of	unit (ICU), the		(including deaths	hours in ICU,		
		California	percentage of	Eligible patients	and transfers)	primary		
		San	patients whose	include those with		admission due to		
		Francisco,	hospital	an ICU stay of at	Eligible patients	trauma, burns, or		
		3333	outcome is	least 4 hours and	include those with	immediately post-		
		California	death; both	>18 years of age	an ICU stay of at	CABG, admitted		
		Street, Suite	observed and	whose primary	least 4 hours and	to exclude		
		265, San	risk-adjusted	reason for	>18 years of age	myocardial		
		Francisco,	mortality rates	admission does	whose primary	infarction (MI)		
		California	are reported	not include	reason for	and subsequently		
		94118	with predicted	trauma, burns, or	admission does	found without MI		
			rates based on	immediately post-	not include	or any other acute		
			the Mortality	coronary artery	trauma, burns, or	process requiring		
			Probability	bypass graft	immediately post-	ICU care		
			Admission	surgery (CABG),	coronary artery			
			(MPM III)	as these patient	bypass graft	<18 years of age		
			model.	groups are known	surgery (CABG),	at time of ICU		

NQF REVIEW DRAFT – DO NOT CITE OR QUOTE

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				to require unique risk-adjustment. Only index (initial) ICU admissions are recorded given that patient characteristics of readmissions are known to differ.	as these patient groups are known to require unique risk-adjustment. Only index (initial) ICU admissions are recorded given that patient characteristics of readmissions are known to differ.	admission (with time of ICU admission abstracted preferably from ICU vital signs flowsheet), ICU readmission (i.e. not the patient's first ICU admission during the current hospitalization), <4 hours in ICU, primary admission due to trauma, burns, or immediately post-CABG, admitted to exclude myocardial		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Number	Title	Steward	Description			infarction (MI) and subsequently found without MI or any other acute process requiring ICU care Adjustments: risk-adjustment devised specifically for this measure/condition Risk-adjustment variables include: age, heart rate >=150, SBP <=90, chronic renal, acute renal, GIB, cardiac		Analysis
						arrhythmia,		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			Measure Description	Numerator	Denominator	Exclusions / Adjustments intracranial mass effect, mechanical ventilation, received CPR, cancer, cerebrovascular incident, cirrhosis, coma, status post elective surgery, zero factor status (no risk factors other than age), and full code status (no restrictions on therapies or interventions at		Level of Analysis
						the time of ICU admission). The risk-adjustment		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						model is based on the MPM III (mortality probability model) with		
						coefficients customized for the population of interest.		
OT1-023-	Intensive	Philip R. Lee	For all patients	For all eligible	Total number of	<18 years of age	Pharmacy data,	
09	care unit	Institute for Health Policy	admitted to the ICU, total	patients admitted to the ICU, the	eligible patients who are	at time of ICU admission, ICU	documentation of original self-	Group, Clinicians:
	(ICU) length- of-stay	Studies,	duration of time	time at discharge	discharged	readmission, <4	assessment	Other
	(LOS)	University of	spent in the ICU	from ICU (either	(including deaths	hours in ICU,	dssessment	Other
	(200)	California	until time of	death or physical	and transfers)	primary		
		San	discharge; both	departure from	,	admission due to		
		Francisco,	observed and	the unit) minus	Eligible patients	trauma, burns, or		
		3333	risk-adjusted	the time of	include those with	immediately post-		
		California	LOS reported	admission (first	an ICU stay of at	CABG, admitted		
		Street, Suite	with the	recorded vital	least 4 hours and	to exclude		
		265, San	predicted LOS	sign on ICU flow	>18 years of age	myocardial		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Nullibei	Title		-	1 ()	1 .			Allalysis
		Francisco,	measured using	sheet)	whose primary	infarction (MI)		
		California	a adjustment		reason for	and subsequently		
		94118	model based on	Eligible patients	admission does	found without MI		
			the (Mortality	include those with	not include	or any other acute		
			Probability	an ICU stay of at	trauma, burns, or	process requiring		
			Model) MPM	least 4 hours and	immediately post-	ICU care		
			III	>18 years of age	coronary artery			
				whose primary	bypass graft	<18 years of age		
				reason for	surgery (CABG),	at time of ICU		
				admission does	as these patient	admission (with		
				not include	-	time of ICU		
				trauma, burns, or	to require unique	admission		
				immediately post-	risk-adjustment.	abstracted		
				coronary artery	Only index	preferably from		
				bypass graft	(initial) ICU	ICU vital signs		
				surgery (CABG),	admissions are	flowsheet), ICU		
				as these patient	recorded given	readmission (i.e.		
				groups are known	that patient	not the patient's		
				to require unique	characteristics of	first ICU		
				risk-adjustment.	readmissions are	admission during		
				Only index	known to differ.	the current		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				(initial) ICU admissions are recorded given that patient characteristics of readmissions are known to differ.		hospitalization), <4 hours in ICU, primary admission due to trauma, burns, or immediately post- CABG, admitted to exclude myocardial infarction (MI) and subsequently found without MI or any other acute process requiring ICU care Adjustments: risk-adjustment devised specifically for this		Timulyono

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						measure/condition Risk-adjustment variables include: age, heart rate >=150, SBP <=90, chronic renal, acute renal, GIB, cardiac arrhythmia, intracranial mass effect, mechanical ventilation, received CPR, cancer, cerebrovascular incident, cirrhosis, coma,		
						status post elective surgery, zero factor status (no risk factors		

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Measure Number	Measure Title	Measure Steward	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments other than age),		Analysis
						and full code		
						status (no		
						restrictions on		
						therapies or		
						interventions at		
						the time of ICU		
						admission). The		
						LOS risk-		
						adjustment model		
						is based on the		
						MPM III		
						(mortality		
						probability		
						model) with		
						coefficients		
						customized for		
						the population of		
						interest.		
OT1-007-	Hospital risk-		This measure	This outcome	The target	We are using this	Electronic	Population
09	standardized	Medicare &	provides	measure does not	population for this	field to define	adminstrative	: national,

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
	complication	Medicaid	hospital specific	have a traditional	measure includes	exclusions to the	data/claims,	Facility/A
	rate	Services	risk-	numerator and	inpatient or	patient cohort:	Survey: Patient	gency
	following	(CMS), 7500	standardized	denominator like	outpatient ICD	(1) Non Medicare		
	implantation	Security	rates of	a core process	implants for	fee-for-service		
	of	Boulevard,	procedural	measure (e.g.,	Medicare fee-for-	patients on the		
	implantable	Baltimore,	complications	percentage of	service (FFS)	first day of the		
	cardioverter-	Maryland	following the	adult patients with	beneficiaries at	patient stay.		
	defibrillator	21244	implantation of	diabetes aged 18-	least 65 years of	Rationale:		
	(ICD)		an ICD in	75 years receiving	age at the time of	Outcome data are		
			Medicare Fee-	one or more	implantation who	being derived		
			For-Service	hemoglobin A1c	have matching	only for Medicare		
			(FFS) patients	tests per year);	information in the	fee-for-service		
			at least 65 years	thus, we are using	National	patients.		
			of age. The	this field to define	Cardiovascular	(2) Not the first		
			measure uses	the outcome (ie	Disease Registry	claim in the same		
			clinical data	adverse events)	(NCDR) ICD	claim bundle.		
			available in the	following ICD	Registry.	When several		
			National	implantation.	The patient cohort	claims in the		
			Cardiovascular	The measured	is defined by	same hospital		
			Data Registry	outcome for each	ICD-9 procedures	representing the		
			(NCDR) ICD	index admission	codes from	same patient stay		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			Registry for risk	is one or more	inpatient claims	exist in the data		
			adjustment that	complications or	and Healthcare	together		
			has been linked	mortality within	Common	(bundled), any		
			with CMS	30 or 90 days	Procedure Coding	claim other than		
			administrative	(depending on the	System/Current	the first in such a		
			claims data used	complication)	Procedural	bundle is		
			to identify	following ICD	Terminology	excluded.		
			procedural	implantation.	(HCPCS/CPT)	Rationale:		
			complications.	Complications are	procedure codes	Inclusion of these		
				counted in the	from outpatient	patients could		
				measure only if	claims as outlined	result in duplicate		
				they occur during	in the	counting in the		
				a hospital	denominator	measure.		
				admission.	details.	(3)Patient stays		
						which lack 90-		
				Complications are	Complications are	days of Medicare		
				identified using	identified using	fee-for-service		
				International	International	enrollment post		
				Classification of	Classification of	discharge.		
				Diseases, 9th	Diseases, 9th	Patients who		
				Revision, Clinical	Revision, Clinical	cannot be tracked		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				Modification	Modification	for 90 days		
				(ICD-9-CM)	(ICD-9-CM)	following		
				diagnosis and	diagnosis and	discharge are		
				procedure codes	procedure codes	excluded.		
				as well as the	as well as the	Rationale: There		
				Medicare	Medicare	will not be		
				Enrollment	Enrollment	adequate follow-		
				Database (vital	Database (vital	up data to assess		
				status) as	status) as	complications.		
				indicated below:	indicated below:	(4)Previous ICD		
				Complications	Complications	placement. Patient		
				measured for 30	measured for 30	stays in which the		
				days:	days:	patient had an		
				(1) Pneumothorax	(1) Pneumothorax	ICD implanted		
				or hemothorax	or hemothorax	prior to the index		
				plus a chest tube	plus a chest tube	hospital stay are		
				Definition: (a)	Definition: (a)	excluded.		
				Pneumothorax /	Pneumothorax /	Rationale: Ideally,		
				hemothorax:	hemothorax:	the measure		
				512.1 or 511.8	512.1 or 511.8	would include		
				(diagnosis code)	(diagnosis code)	patients with a		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Measure Number	Measure Title	Measure Steward	Measure Description	(b) Chest tube: 34.04, 34.05, 34.06, or 34.09 (procedure code) (2) Hematoma plus a blood transfusion or evacuation Definition: (a) Hematoma: 998.1 (diagnosis code) (b) Blood transfusion: 518.7, 287.4, V59.01, V58.2 (diagnosis code),	(b) Chest tube: 34.04, 34.05, 34.06, or 34.09 (procedure code) (2) Hematoma plus a blood transfusion or evacuation Definition: (a) Hematoma: 998.1 (diagnosis code) (b) Blood transfusion: 518.7, 287.4, V59.01, V58.2 (diagnosis code),	Adjustments prior ICD, as this is a population known to be at high risk of adverse outcomes. However, for these patients it is difficult to distinguish in the administrative data whether adverse events such as infection were complications of the second ICD		Level of Analysis
				or 99.00, 99.03,	or 99.00, 99.03,	placement or were		
				99.04 (procedure code);	99.04 (procedure code);	present on admission. The		
				Evacuation: 34.04, 34.09	Evacuation: 34.04, 34.09	indications for reimplantation		

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Measure Number	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				(procedure code)	(procedure code)	include events		
				(3) Cardiac	(3) Cardiac	included in our		
				tamponade or	tamponade or	definition of		
				pericardiocentesis	pericardiocentesis	procedural		
				Definition: (a)	Definition: (a)	complications		
				Cardiac	Cardiac	such as device		
				tamponade: 420,	tamponade: 420,	infection, device		
				423.0, 423.3,	423.0, 423.3,	malfunction, or		
				423.9 (diagnosis	423.9 (diagnosis	lead		
				code), or 37.0,	code), or 37.0,	dislodgement.		
				37.12 (procedure	37.12 (procedure	Given current		
				code)	code)	coding practices,		
				(4) Death	(4) Death	we are unable to		
				Source: Medicare	Source: Medicare	determine		
				enrollment	enrollment	whether a		
				database	database	'complication'		
				Complications	Complications	code is present on		
				measured for 90	measured for 90	admission or in		
				days	days	fact represents a		
				(5) Mechanical	(5) Mechanical	procedural		
				complications	complications	complication. In		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			_	requiring a system revision	requiring a system revision	order to avoid misclassification,		-
				Definition: (a)	Definition: (a)	we exclude these		
				Mechanical	Mechanical	patients from the		
				complications	complications	measure.		
				with system revision: 996.0	with system revision: 996.0	See above. We		
				(diagnosis code)	(diagnosis code)	are deriving the		
				(b) System	(b) System	corresponding		
				revision: 37.75, 37.79, 37.97,	revision: 37.75, 37.79, 37.97,	codes based on the data for		
				37.99, or	37.79, 37.97, 37.99, or	exclusion.		
				00.52(procedure	00.52(procedure			
				code)	code)	Adjustments:		
				(6) Device related infection	(6) Device related infection	risk-adjustment devised		
				Definition: (a)	Definition: (a)	specifically for		
				Infection: 996.61	Infection: 996.61	this		
				(diagnosis code)	(diagnosis code)	measure/condition		
				(7) Additional ICD implantation	(7) Additional ICD implantation	We developed a risk adjustment		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Number	Title	Stewart	Description	Definition: (a) Inpatient or outpatient ICD implantation: 00.50, 00.51, 00.52, 00.53, 00.54, or 37.94 (procedure codes) (b) Outpatient ICD implantation: 33216, 33217, 33218, 33220,33223, 33240, 33241, or 33249 (CPT codes)	Definition: (a) Inpatient or outpatient ICD implantation: 00.50, 00.51, 00.52, 00.53, 00.54, or 37.94 (procedure codes) (b) Outpatient ICD implantation: 33216, 33217, 33218, 33220,33223, 33240, 33241, or 33249 (CPT codes)	model for the measure and calculated hospital 30-day risk-standardized complication rates (RSCRs) using hierarchical regression. Because of the natural clustering of the observations within hospitals, we estimated hierarchical generalized linear models (HGLMs). These models extend generalized linear		Allalysis

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Tullioci	Title	Steward	Description			models (GLMs)		Allarysis
						to include		
						additional random		
						terms in the linear		
						predictor.		
						As described in		
						the "Calculation		
						Algorithm," we		
						perform risk		
						adjustment to		
						account for		
						differences in		
						patient severity		
						present before the		
						implantation of		
						the ICD using a		
						hierarchical		
						logistic regression		
						model to calculate		
						RSCRs. The risk		
						adjustment		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			Measure Description	Numerator	Denominator	Exclusions / Adjustments variables are abstracted from the NCDR ICD Registry data. We used logistic regression with stepwise selection (entry p<0.15; retention with p<0.05) for variable selection. We also assessed the direction and	Data Source	Level of Analysis
						magnitude of the regression coefficients. This resulted in a final risk-adjusted complications model that included 13		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Tullion	THE	Steward	Bescription			variables. The final risk		Tilalysis
						adjustment		
						variables include:		
						Demographic		
						(1) Age (10 year		
						increments)		
						(2) Female		
						Admission		
						(3) Hospital		
						Reason		
						Admitted for this		
						procedure		
						Hospitalized:		
						Cardiac		
						Hospitalized:		
						Non-Cardiac		
						History and Risk		
						Factors		
						(4) New York		
						Heart Association		

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Measure Number	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						(NYHA) Class:		
						Current Status		
						NYHA I		
						NYHA II		
						NYHA III		
						NYHA IV		
						(5) Previous		
						Coronary Artery		
						Bypass Graft		
						(CABG)		
						(6) Chronic Lung		
						Disease		
						(7) Hypertension		
						(8) Renal		
						Failure- Dialysis		
						Diagnostics		
						(9)		
						Atrioventricular		
						Conduction		
						(AVC)		
						AVC: Normal		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						AVC:		
						Abnormal- First		
						Degree Heart		
						Block Only		
						AVC:		
						Abnormal-		
						2nd/3rd Degree		
						Heart Block		
						AVC: Paced		
						(any)		
						(10) BUN > 30		
						mg/dl		
						(11) Sodium		
						<135 mg/dl		
						135 to 145 mg/dl		
						>145 mg/dl		
						(12) Systolic		
						Blood Pressure <		
						100mmHG		
						(13) ICD Type		
						Single Chamber		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						Dual Chamber		
						Biventricular		
OT1-008-	Hospital 30-	Centers for	This measure	This outcome	The target	Note: We are	Electronic	Population
09	day risk-	Medicare &	estimates	measure does not	population for this	using this field to	adminstrative	: national,
	standardized	Medicaid	hospital risk-	have a traditional	measure includes	define exclusions	data/claims,	Facility/A
	readmission	Services	standardized 30-	numerator and	inpatient or	to the patient	Survey: Patient	gency
	rates	(CMS), 7500	day readmission	denominator like	outpatient PCI	cohort.		
	following	Security	rates following	a core process	procedures for	(1) PCIs for		
	percutaneous	Boulevard,	PCI in Medicare	measure (e.g.,	Medicare FFS	patients who are		
	coronary	Baltimore,	Fee for Service	percentage of	beneficiaries at	not Medicare FFS		
	intervention	Maryland	(FFS) patients	adult patients with	least 65 years of	beneficiaries on		
	(PCI)	21244	at least 65 years		age at the time of	admission		
			of age. As PCI	75 years receiving	-	Rationale:		
			patients may be	one or more	who have	Patients not		
			readmitted	hemoglobin A1c	matching	enrolled in		
			electively for	tests per year);	information in the	Medicare FFS at		
			staged	thus, we are using	National	the start of the		
			revascularizatio	this field to define	Cardiovascular	episode of care		
			n procedures,	readmissions.	Disease Registry	are excluded as		
			we will exclude	The outcome for	(NCDR) CathPCI	readmission		
			such elective	this measure is	Registry.	information is		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			readmissions	30-day all-cause		currently		
			from the	readmission. We	The patient cohort	available only for		
			measure. The	define a	is defined by	FFS patients.		
			measure uses	readmission as a	International	(2) Patient stays		
			clinical data	subsequent	Classification of	that are not the		
			available in the	hospital inpatient	Diseases, 9th	first claim in the		
			National	admission within	Revision, Clinical	same claim		
			Cardiovascular	30 days of either	Modification	bundle		
			Disease	the discharge date	(ICD-9-CM)	Rationale:		
			Registry	of an admission	procedure codes	Multiple claims		
			(NCDR)	with PCI (for	for both inpatient	from an		
			CathPCI	admitted patients)	and outpatient	individual		
			Registry for risk	or the outpatient	claims and	hospital can be		
			adjustment that	PCI claim end	Current	bundled together.		
			has been linked	date (for patients	Procedural	In order to ensure		
			with the CMS	whose PCI was	Terminology	that the selected		
			administrative	performed as an	(CPT) procedure	PCI is the index		
			claims data used	outpatient	codes for	PCI, those PCI		
			to identify	service).	outpatient claims.	procedures that		
			readmissions.			were not the first		
				In the CathPCI	In the CathPCI	claim in a specific		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Number	THE	Steward	Description	Registry,	Registry,	bundle are		Allarysis
				admissions are	admissions are	excluded.		
				identified with	identified with	(3) The PCI is not		
				field 614	field 614	performed within		
				(PCI=Yes).	(PCI=Yes).	10 days of		
				We do not count	We do not count	admission		
				readmissions	readmissions	Rationale:		
				associated with a	associated with a	Patients who have		
				'staged'	'staged'	a PCI after many		
				revascularization	revascularization	days of		
				_	procedure. Staged	hospitalization are		
				readmissions are	readmissions are	rare and represent		
				not counted in	not counted in	a distinct		
				this measure as	this measure as	population that		
				readmissions	readmissions	likely has risk		
				(some patients	(some patients	factors for		
				have planned	have planned	readmission		
				readmissions for	readmissions for	related to the		
					revascularization	hospitalization		
				procedures – for	procedures – for	that are not well		
				example, to	example, to	quantified in the		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Measure Number	Measure Title	Measure Steward	Measure Description	perform PCI on a second vessel or a second location in the same vessel, or to perform coronary artery bypass graft (CABG) surgery after AMI and a period of recovery outside the hospital). Because admissions for PCI and CABG may be staged or scheduled readmissions, we do not count as	perform PCI on a second vessel or a second location in the same vessel, or to perform coronary artery bypass graft (CABG) surgery after AMI and a period of recovery outside the hospital). Because admissions for PCI and CABG may be staged or scheduled readmissions, we do not count as	registry. It seems clinically sensible to exclude these patients. (4) The patient is transferred out Rationale: Patient stays in which the patient received a PCI and was then transferred to another hospital are excluded as the hospital that performed the PCI procedure does not provide discharge care	Data Source	Level of Analysis
				readmissions those admissions after discharge	readmissions those admissions after discharge	and cannot be fairly held responsible for		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				that include PCI	that include PCI	their outcomes		
				or CABG	or CABG	following		
				procedures unless	procedures unless	discharge.		
				the principal	the principal	(5) The patient		
				discharge	discharge	dies during		
				diagnosis for the	diagnosis for the	hospitalization		
				readmission is	readmission is	Rationale:		
				one of the	one of the	Subsequent		
				following	following	admissions		
				diagnoses (which	diagnoses (which	(readmissions) are		
				are not consistent	are not consistent	not possible.		
				with a scheduled	with a scheduled	(6) The patient		
				readmission):	readmission):	leaves against		
				heart failure (HF),	heart failure (HF),	medical advice		
				acute myocardial	acute myocardial	(AMA)		
				infarction (AMI),	infarction (AMI),	Rationale:		
				unstable angina,	unstable angina,	Hospitals and		
				arrhythmia, and	arrhythmia, and	physicians do not		
				cardiac arrest	cardiac arrest	have the		
				(i.e., readmissions	(i.e., readmissions	opportunity to		
				with these	with these	provide highest		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				diagnoses and a PCI or CABG procedure are counted as readmissions.	diagnoses and a PCI or CABG procedure are counted as readmissions.	quality care. (7) The patient lacks a full month of follow-up in the Medicare program Rationale: Patient stays that cannot be tracked for the full 30-day follow-up period do not provide adequate information to determine readmissions. (8) A subsequent admission with PCI within 30-days of an index admission		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
rameer		Steward .	Beseription			Rationale: A subsequent readmission for PCI within 30 days of the index PCI cannot be considered an index hospital stay; it is a		Timayolo
						readmission. See above. We are deriving the corresponding codes based on the data for exclusion. Adjustments: risk-adjustment devised		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Number	Title	Steward	Description			specifically for this measure/condition We developed a risk adjustment model for the measure and calculate hospital 30-day risk-standardized readmission rates (RSRRs) using hierarchical logistic regression. Because of the natural clustering of the observations within hospitals, we estimated		Analysis

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						hierarchical		
						generalized linear		
						models (HGLMs).		
						These models		
						extend		
						generalized linear		
						models (GLMs)		
						to include random		
						effect on the		
						intercept in the		
						models.		
						As described in		
						the "Calculation		
						Algorithm," we		
						perform risk		
						adjustment to		
						account for		
						differences in		
						patient severity		
						present before the		
						performance of		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						the PCI using a		
						hierarchical		
						logistic regression		
						model to calculate		
						RSRRs. The risk		
						adjustment		
						variables are		
						abstracted from		
						the CathPCI		
						Registry data.		
						We used logistic		
						regression with		
						stepwise selection		
						(entry p<0.05;		
						retention with		
						p<0.01) for		
						variable selection.		
						We also assessed		
						the direction and		
						magnitude of the		
						regression		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						coefficients. This		
						resulted in a final		
						risk-adjusted		
						readmission		
						model that		
						included 20		
						variables. The		
						final risk		
						adjustment		
						variables include:		
						Demographic		
						(1) Age (10 year		
						increments)		
						(2) Female		
						History and Risk		
						Factors		
						(3) Body Mass		
						Index		
						(4) Heart failure-		
						previous history		
						(5) Previous		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						valvular surgery		
						(6)		
						Cerebrovascular		
						Disease		
						(7) Peripheral		
						Vascular Disease		
						(8) Chronic Lung		
						Disease		
						(9) Diabetes		
						None		
						Non-Insulin		
						Diabetes		
						Insulin Diabetes		
						(10) Glomerular		
						Filtration Rate		
						(GFR)		
						Not Measured		
						GFR<30		
						30=GFR<60		
						60=GFR<90		
						GFR=90		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						(11) Renal		
						Failure – dialysis		
						(12)		
						Hypertension		
						(13) History of		
						tobacco use		
						(14) Previous		
						PCI		
						Cardiac Status		
						(15) Heart failure		
						– current status		
						(16) Symptoms		
						present on		
						admission		
						No MI		
						MI within 24		
						hours		
						MI after 24		
						hours		
						Cath Lab Visit		
						(17) Ejection		

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Measure Number	Measure Title	Measure Steward	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments Fraction (EF)		Analysis
						Percentage		
						Not Measured		
						EF<30		
						30=EF<45		
						EF=45		
						PCI Procedure		
						(18) PCI status		
						Elective		
						Urgent		
						Emergency		
						Salvage		
						(19) Highest Risk		
						Lesion – location		
						pRCA/mLAD/pC		
						IRC		
						pLAD		
						Left main		
						Other		
						(20) Highest pre-		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Tumoci	Title	Steward	Description			procedure TIMI flow: none		Miarysis
OT1-016- 09	30-day Post- Hospital Acute Myocardial Infarction (AMI) Discharge Care Transition Composite Measure	Brandeis University/C MS, 415 South St., Waltham, MA 02454	on the incidence among its	The numerator is the weighted sum of the three deviations from their expected values for the individual measures comprising the component measure. The question of appropriate weights on the deviations is difficult and would probably lead to a wide variation in	The composite measure is the weighted sum of three individual measures. Thus, the denominator is one.	N/A	Electronic administrative data/claims	National

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			(E&M)	opinion. The				
			services.	weights of -4, -2,				
				and 1 are selected				
			These events	to represent order				
			are relatively	of magnitude				
			common,	differences in				
			measurable	seriousness of the				
			using readily	three outcomes,				
			available	which most would				
			administrative	agree to (that is to				
			data, and	say: readmission				
			associated with	is more important				
			effective	than ED which is				
			coordination of	more important in				
			care after	a negative way				
			discharge. The	than E & M				
			input for this	service is in a				
			score is the	positive way).				
			result of	The idea of not				
			measures for	using weights was				
			each of these	also considered,				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			three events that	but this was noted				
			are being	to be itself a de				
			submitted	facto weight				
			concurrently	scheme (with all				
			under the	weights the				
			Patient	same), and as				
			Outcomes	such, a weight				
			Measures Phase	scheme that was				
			I project's call	less appropriate				
			for measures	than the one				
			(ED and E&M)	chosen.				
			or is already					
			approved by					
			NQF					
			(readmissions).					
			Each of these					
			individual					
			measures is a					
			risk-adjusted,					
			standardized					
			rate together					

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			with a					
			percentile					
			ranking. This					
			composite					
			measure is a					
			weighted					
			average of the					
			deviations of					
			the three risk-					
			adjusted,					
			standardized					
			rates from the					
			population					
			mean for the					
			measure across					
			all patients in all					
			hospitals.					
			Again, the					
			composite					
			measure is					
			accompanied by					

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Measure	Measure	Measure		Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			a percentile					
			ranking to help					
			with its					
			interpretation.					
OT1-017-	30-Day post-	Brandeis	This measure	The numerator is	The composite	N/A	Electronic	National
09	hospital heart	University,	scores a hospital	the weighted sum	measure is the		administrative	
	failure (HF)	CMS,	on the incidence	of the three	weighted sum of		data/claims	
	discharge	415 South St.	among its	deviations from	three individual			
	care	Waltham,	patients during	their expected	measures. Thus,			
	transition	MA 02454	the month	values for the	the denominator			
	composite		following	individual	is one.			
	measure		discharge from	measures				
			an inpatient stay	comprising the				
			having a	component				
			primary	measure. The				
			diagnosis of	question of				
			heart failure for	appropriate				
			three types of	weights on the				
			events:	deviations is				
			readmissions,	difficult and				
			ED visits and	would probably				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			evaluation and	lead to a wide				
			management	variation in				
			(E&M)	opinion. The				
			services.	weights of -4, -2,				
				and 1 are selected				
			These events	to represent order				
			are relatively	of magnitude				
			common,	differences in				
			measurable	seriousness of the				
			using readily	three outcomes,				
			available	which most would				
			administrative	agree to (that is to				
			data, and	say: readmission				
			associated with	is more important				
			effective	than ED which is				
			coordination of	more important in				
			care after	a negative way				
			discharge. The	than E & M				
			input for this	service is in a				
			score is the	positive way).				
			result of	The idea of not				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			measures for	using weights was				
			each of these	also considered,				
			three events that	but this was noted				
			are being	to be itself a de				
			submitted	facto weight				
			concurrently	scheme (with all				
			under the	weights the				
			Patient	same), and as				
			Outcomes	such, a weight				
			Measures Phase	scheme that was				
			I project's call	less appropriate				
			for measures	than the one				
			(ED and E&M)	chosen.				
			or is already					
			approved by					
			NQF					
			(readmissions).					
			Each of these					
			individual					
			measures is a					
			risk-adjusted,					

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			standardized					
			rate together					
			with a					
			percentile					
			ranking. This					
			composite					
			measure is a					
			weighted					
			average of the					
			deviations of					
			the three risk-					
			adjusted,					
			standardized					
			rates from the					
			population					
			mean for the					
			measure across					
			all patients in all					
			hospitals.					
			Again, the					
			composite					

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			measure is					
			accompanied by					
			a percentile					
			ranking to help					
			with its					
			interpretation.					
OT1-029-	Health-	American	The percentage	Number of	All patients with	Inability to read	external audit,	Population
09	related	Association	of patients with	patients with	COPD, during the	and/or write in	Documentation	:
	quality of life	of	COPD enrolled	clinician	reporting period,	order to complete	of original self-	regional/n
	in COPD	Cardiovascul	in pulmonary	diagnosed COPD	who are enrolled	the self-	assessment,	etwork,
	patients	ar and	rehabilitation	who have	in a PR program.	administered	Management	Clinicians:
	before and	Pulmonary	(PR) who are	participated in PR		CRQ, or presence	data	Group,
	after	Rehabilitatio	found to	and have been	To perform the	of cognitive or		Program:
	pulmonary	n, 401 N.	increase their	found to increase	HRQOL	neuropsychiatric		Other
		Michigan	health-related	their HRQOL	assessment, a	impairment that		
	tion	Avenue,	quality of life	score by 1.0	CRQ is	impairs the		
		Suite 2200,	score	points, as	administered by	patient's ability to		
		Chicago,	(HRQOL).	measured by the	PR staff to each	answer the CRQ		
		Illinois		Chronic	COPD patient	(or similar tool).		
		60611		Respiratory	enrolled in PR, in			
				Disease	a private	Patients enrolled		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions /	Data Source	Level of Analysis
Nullibel	Title	Stewaru	Description	0	·	Adjustments		Allalysis
				Questionnare	interview space.	in PR are to be		
				(CRQ), or a	The numerator is	excluded if he/she		
				similar tool, at the	calculated as	is unable to read		
				beginning and the	follows: A	and/or write, or		
				end of PR.	patient is counted	who have		
					as having	significant		
				To perform the	increased his/her	cognitive or		
				HRQOL	HRQOL score	neuropsychiatric		
				assessment, a	(measured by	impairment that		
				CRQ is	CRQ) if the	would preclude		
				administered by	HRQOL score at	ability to answer		
				PR staff to each	PR program	the CRQ (or		
				COPD patient	completion is at	similar tool).		
				enrolled in PR, in	_	,		
				a private	higher than the	Adjustments:		
				interview space.	HRQOL score at	no risk adjustment		
				The numerator is	PR program	necessary		
				calculated as	1 0	Not applicable		
					entry.	TYOU applicable		
				follows: A	The Chronic			
				patient is counted	Respiratory			
				as having	Disease			

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Nullioci	Title	Steward	Description	increased his/her	Questionnaire	Adjustificitis		Allalysis
				HRQOL score	provides a			
				(measured by	composite score			
				CRQ) if the	of the patient's			
				HRQOL score at	perception of their			
				_	current health			
				PR program				
				completion is at	status and impact			
				least 1.0 points	on daily life.			
				higher than the	The Chronic			
				HRQOL score at	Respiratory			
				PR program	Disease			
				entry.	Questionnaire is a			
				The Chronic	20 item interview			
				Respiratory	instrument that			
				Disease	measures patient			
				Questionnaire	perceptions of			
				provides a	dyspnea, fatigue,			
				composite score	emotional			
				of the patient's	function, and			
				perception of their	,			
				current health	CRQ uses a 7-			

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Nullibei	Title	Stewaru	Description	atatus and immed		Adjustificitis		Allalysis
				status and impact	point numeric			
				on daily life.	Likert-type scale.			
				The Chronic	A change in the			
				Respiratory	score of 0.5 on			
				Disease	the 7 point scale,			
				Questionnaire is a	reflects a clinical			
				20 item interview	significant small			
				instrument that	change			
				measures patient	(Redelmeier, et al.			
				perceptions of	1996; Jaeschke, et			
				dyspnea, fatigue,	al., 1989). A			
				emotional	change of 1.0			
				function, and	reflects a			
				mastery. The	moderate change.			
				CRQ uses a 7-	Reliability and			
				point numeric	validity have been			
				Likert-type scale.	reported in			
				A change in the	multiple studies			
				score of 0.5 on	(Martin, 1994;			
				the 7 point scale,	Guyatt, et al.			
				reflects a clinical	1987).			

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Nullibel	Title	Stewaru	Description	-::C:	Mantin I I	Aujustinents		Allalysis
				significant small	Martin LL.			
				change	Validity and			
				(Redelmeier, et al.	•			
				1996; Jaeschke, et	quality-of-life			
				al., 1989). A	instrument. The			
				change of 1.0	chronic			
				reflects a	respiratory			
				moderate change.	disease			
				Reliability and	questionnaire.			
				validity have been	Clin Nurs Res			
				reported in	1994;3:146-156.			
				multiple studies	Guyatt GH,			
				(Martin, 1994;	Berman LB,			
				Guyatt, et al.	Townsend M,			
				1987).	Puglsey SO,			
				Martin LL.	Chambers LW. A			
				Validity and	measure of			
				reliability of a	quality of life for			
				quality-of-life	clinical trials in			
				instrument. The	chronic lung			
				chronic	disease. Thorax			

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description		1005 10 550 550	Adjustments		Analysis
				respiratory	1987;42:773-778.			
				disease	Redelmeier DA,			
				questionnaire.	Guyatt GH,			
				Clin Nurs Res	Goldstein RS.			
				1994;3:146-156.	Assessing the			
				Guyatt GH,	minimal			
				Berman LB,	important			
				Townsend M,	difference in			
				Puglsey SO,	symptoms: a			
				Chambers LW. A	comparison of			
				measure of	two techniques. J			
				quality of life for	Clin Epidemiol			
				clinical trials in	1996;49:1215-			
				chronic lung	1219.			
				disease. Thorax	Jaeschke R,			
				1987;42:773-778.	Singer J, Guyatt			
				Redelmeier DA,	GH. Measurement			
				Guyatt GH,	of health status			
				Goldstein RS.	ascertaining the			
				Assessing the	minimal clinically			
				minimal	important			

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				important	difference.			
				difference in	Controlled Clin			
				symptoms: a	Trials			
				comparison of	1989;10:407-415.			
				two techniques. J				
				Clin Epidemiol				
				1996;49:1215-				
				1219.				
				Jaeschke R,				
				Singer J, Guyatt				
				GH. Measurement				
				of health status				
				ascertaining the				
				minimal clinically				
				important				
				difference.				
				Controlled Clin				
				Trials				
				1989;10:407-415.				
OT1-020-	Functional	American	The percentage	Number of	All patients with	Patients who are	Management	Population
09	capacity in	Association	of patients with	patients with	COPD, during the	unable to perform	data, pharmacy	:

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
	COPD	for	COPD who are	clinician	reporting period,	a 6MWT for	data,	regional/n
	patients	Cardiovascul	enrolled in	diagnosed COPD	who are enrolled	health and/or	Documentation	etwork,
	before and	ar and	pulmonary	who have	in a pulmonary	safety reasons,	of original self-	Program:
		Pulmonary	rehabilitation	1	rehabilitation	and those who	assessment	Other
	1	Rehabilitatio	(PR) who are	and have been	program.	have not		
	rehabilitation		found to	found to increase		completed at least		
		Michigan	increase their	their functional	To perform the 6	10 PR sessions		
		Avenue,	functional	capacity by at	minute walk test	within 3 months		
		Suite 2200,	capacity by at	least 54 meters	(6MWT) the	of program entry.		
		Chicago,	least 54 meters	(176 feet), as	patient is			
		Illinois	(176 feet), as	measured by	instructed to walk			
		60611	measured by a	6MWT distance	as fast and as far	contraindications		
			standardized 6	at the beginning	as they can in 6	for the 6MWT		
			minute walk test	and the end of	minutes, but they	include the		
			(6MWT).	PR.	are allowed to	following:		
					stop and rest	unstable angina		
				To perform the 6	during the test, if	during the		
				minute walk test	needed. The total	previous month		
				(6MWT) the	distance covered	and myocardial		
				patient is	in 6 minutes is	infarction during		
				instructed to walk	measured (in	the previous		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				as fast and as far	meters or feet).	month. Relative		
				as they can in 6	The numerator is	contraindications		
				minutes, but they	calculated by the	include a resting		
				are allowed to	following	heart rate of more		
				stop and rest	formula: A	than 120, a		
				during the test, if	patient is counted	systolic blood		
				needed. The total	as having	pressure of more		
				distance covered	experienced a	than 180 mm Hg,		
				in 6 minutes is	significant	and a diastolic		
				measured (in	increase in	blood pressure of		
				meters or feet).	functional	more than 100		
				The numerator is	capacity if	mm Hg.		
				calculated by the	(6MWT distance	Additional		
				following	at program	exclusion criteria		
				formula: A	completion -	include		
				patient is counted	6MWT distance	significant		
				as having	at program	orthopedic,		
				experienced a	entry)>= 54	neurological,		
				significant	meters (176 feet).	cognitive or		
				increase in	The 6 minute	psychiatric		
				functional	walk test	impairment.		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				capacity if	(6MWT) is a			
				(6MWT distance	practical, simple,	Adjustments:		
				at program	standardized, and	no risk adjustment		
				completion -	validated test that	necessary		
				6MWT distance	measures the	Not applicable		
				at program	distance that a			
				entry)>= 54	patient can			
				meters (176 feet).	quickly walk on a			
				The 6 minute	flat, hard surface			
				walk test	in a period of 6			
				(6MWT) is a	minutes (6MWD).			
				practical, simple,	It evaluates the			
				standardized, and	global and			
				validated test that	integrated			
				measures the	responses of all			
				distance that a	the systems			
				patient can	involved during			
				quickly walk on a	exercise,			
				flat, hard surface	including the			
				in a period of 6	pulmonary and			
				minutes (6MWD).	cardiovascular			

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				It evaluates the	systems, systemic			
				global and	circulation,			
				integrated	peripheral			
				responses of all	circulation, blood,			
				the systems	neuromuscular			
				involved during	units, and muscle			
				exercise,	metabolism. The			
				including the	6MWT provides			
				pulmonary and	specific testing			
				cardiovascular	related to the			
				systems, systemic	activity of daily			
				circulation,	living,			
				peripheral	walking.(Guyatt,			
				circulation, blood,	G.H., et al., 1984.			
				neuromuscular	Guyatt, G.H., et			
				units, and muscle	al., 1985, Sciurba,			
				metabolism. The	F.C. and W.A.			
				6MWT provides	Slivka, Steele, B).			
				specific testing	In performing the			
				related to the	6MWT, it has			
				activity of daily	been reported that			

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				living,	a 54 meter (176			
				walking.(Guyatt,	feet) difference in			
				G.H., et al., 1984.	6MW difference			
				Guyatt, G.H., et	is clinically			
				al., 1985, Sciurba,				
				F.C. and W.A.	(identified as			
				Slivka, Steele, B).	clear change in			
				In performing the	clinical status)			
				6MWT, it has	when compared to			
				been reported that	differences in			
				a 54 meter (176	self-rating of			
				feet) difference in	walking ability			
				6MW difference	(Redelmeier,			
				is clinically	D.A., et al). The			
				significant	strongest			
				(identified as	indication for the			
				clear change in	6MWT is for			
				clinical status)	measuring the			
				_	-			
				differences in	medical			
				self-rating of	interventions in			

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Nullibel	Title	Stewaru	Description	vyallzina ahility	nationta vyith	Aujustinents		Allalysis
				walking ability	patients with			
				(Redelmeier,	moderate to			
				D.A., et al). The	severe heart or			
				strongest	lung disease.			
				indication for the	Specific			
				6MWT is for	instructions			
				measuring the	regarding the			
				response to	administration of			
				medical	the 6MWT have			
				interventions in	been developed			
				patients with	and published by			
				moderate to	the American			
				severe heart or	Thoracic Society			
				lung disease.	(ATS, 2002).			
				Specific	COPD (chronic			
				instructions	obstructive			
				regarding the	pulmonary			
				administration of	disease includes a			
				the 6MWT have	clinician			
				been developed	diagnosis of			
				and published by	COPD, chronic			

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				the American	bronchitis and / or			
				Thoracic Society	emphysema			
				(ATS, 2002).	(ICD-9 Codes			
				COPD (chronic	include 490-492,			
				obstructive	494, 496:			
				pulmonary	Chronic			
				disease includes a	obstructive			
				clinician	pulmonary			
				diagnosis of	disease (COPD)			
				COPD, chronic	includes chronic			
				bronchitis and / or	bronchitis (ICD-9			
				emphysema	codes 490-491),			
				(ICD-9 Codes	emphysema			
				include 490-492,	(ICD-9 code			
				494, 496:	492),bronchiectas			
				Chronic	is (ICD-9 code			
				obstructive	494), and chronic			
				pulmonary	airway			
				disease (COPD)	obstruction (ICD-			
				includes chronic	9 code 496).			
				bronchitis (ICD-9	These diseases are			

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				codes 490-491),	commonly			
				emphysema	characterized by			
				(ICD-9 code	irreversible			
				492),bronchiectas	airflow limitation.			
				* *	Guyatt, G.H., et			
				494), and chronic	al., Effect of			
				airway	encouragement on			
				obstruction (ICD-	walking test			
				9 code 496).	performance.			
				These diseases are	Thorax, 1984.			
				commonly	39(11): p. 818-22.			
				characterized by	Guyatt, G.H., et			
				irreversible	al., The 6-minute			
				airflow limitation.	walk: a new			
				Guyatt, G.H., et	measure of			
				al., Effect of	exercise capacity			
				encouragement on				
				walking test	chronic heart			
				performance.	failure. Canadian			
				-	Medical			
				39(11): p. 818-22.				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				Guyatt, G.H., et	Journal, 1985.			
				al., The 6-minute	132(8): p. 919-23.			
				walk: a new	Redelmeier, D.A.,			
				measure of	et al., Interpreting			
				exercise capacity	small differences			
				in patients with	in functional			
				chronic heart	status: the six			
				failure. Canadian	minute walk test			
				Medical	in chronic lung			
				Association	disease patients.			
				Journal, 1985.	American Journal			
				132(8): p. 919-23.	of Respiratory			
				Redelmeier, D.A.,				
				et al., Interpreting				
				small differences	155: p. 1278-			
				in functional	1282.			
				status: the six	Sciurba, F.C. and			
				minute walk test	W.A. Slivka, Six			
				in chronic lung	minute walk			
				disease patients.	testing. Seminars			
				American Journal	in Respiratory and			

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				of Respiratory	Critical Care			
				and Critical Care	Medicine, 1998.			
				Medicine, 1997.	19(4): p. 383-392.			
				155: p. 1278-	Steele, B., Timed			
				1282.	walking tests of			
				Sciurba, F.C. and	exercise capacity			
				W.A. Slivka, Six	in chronic			
				minute walk	cardiopulmonary			
				testing. Seminars	illness. Journal of			
				in Respiratory and	Cardiopulmonary			
				Critical Care	Rehabilitation,			
				Medicine, 1998.	1996. 16: p. 25-			
				19(4): p. 383-392.	33.			
				Steele, B., Timed				
				walking tests of				
				exercise capacity				
				in chronic				
				cardiopulmonary				
				illness. Journal of				
				Cardiopulmonary				
				Rehabilitation,				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				1996. 16: p. 25- 33.				

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NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES, FIRST REPORT FOR PHASES 1 AND 2: A CONSENSUS REPORT

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NATIONAL QUALITY FORUM

APPENDIX C: NQF-ENDORSED® OUTCOMES MEASURES as of APRIL 2010

NQF#	TITLE	STEWARD			
Cross-cutting Measures					
541	Proportion of days covered (PDC): 5 rates by therapeutic category	NCQA			
542	Adherence to chronic medications	CMS			
22	Drugs to be avoided in the elderly: a. Patients who receive at least one drug to be avoided, b. Patients who receive at least two different drugs to be avoided	NCQA			
138	Urinary catheter-associated urinary tract infection for intensive care unit (ICU) patients	CDC			
139	Central line catheter-associated blood stream infection rate for ICU and high-risk nursery (HRN) patients	CDC			
140	Ventilator-associated pneumonia for ICU and high-risk nursery (HRN) patients	CDC			
141	Patient fall rate	ANA			
201	Pressure ulcer prevalence	TJC			
202	Falls with injury	ANA			
263	Patient burn	ASCQC			
265	Hospital transfer/admission	ASCQC			
266	Patient fall	ASCQC			
267	Wrong site, wrong side, wrong patient, wrong procedure, wrong implant	ASCQC			
299	Surgical site infection rate	CDC			
337	Decubitus ulcer (PDI 2)	AHRQ			
344	Accidental puncture or laceration (PDI 1) (risk adjusted)	AHRQ			
345	Accidental puncture or laceration (PSI 15)	AHRQ			

NQF#	TITLE	STEWARD
346	Iatrogenic pneumothorax (PSI 6) (risk adjusted)	AHRQ
347	Death in low mortality DRGs (PSI 2)	AHRQ
348	Iatrogenic pneumothorax in non-neonates (PDI 5) (risk adjusted)	AHRQ
349	Transfusion reaction (PSI 16)	AHRQ
350	Transfusion reaction (PDI 13)	AHRQ
351	Death among surgical inpatients with serious, treatable complications (PSI 4)	AHRQ
352	Failure to rescue in-hospital mortality (risk adjusted)	Children's Hospital of Philadelphia
353	Failure to rescue 30-day mortality (risk adjusted)	Children's Hospital of Philadelphia
362	Foreign body left after procedure (PDI 3)	AHRQ
363	Foreign body left in during procedure (PSI 5)	AHRQ
364	Incidental appendectomy in the elderly rate (IQI 24) (risk adjusted)	AHRQ
367	Post operative wound dehiscence (PDI 11) (risk adjusted)	AHRQ
368	Post operative wound dehiscence (PSI 14) (risk adjusted)	AHRQ
376	Incidence of potentially preventable VTE	TJC
450	Postoperative DVT or PE (PSI 12)	AHRQ
531	Patient safety for selected indicators	AHRQ
533	Postoperative respiratory failure (PSI #11)	AHRQ
554	Medication reconciliation post-discharge (MRP)	NCQA
167	Improvement in ambulation/locomotion	CMS
171	Acute care hospitalization (risk-adjusted)	CMS
173	Emergent care (risk adjusted)	CMS
174	Improvement in bathing	CMS
175	Improvement in bed transferring	CMS

NQF#	TITLE	STEWARD
176	Improvement in management of oral medications	CMS
177	Improvement in pain interfering with activity	CMS
178	Improvement in status of surgical wounds	CMS
179	Improvement in dyspnea	CMS
181	Increase in number of pressure ulcers	CMS
182	Residents whose need for more help with daily activities has increased	CMS
183	Low-risk residents who frequently lose control of their bowel or bladder	CMS
184	Residents who have a catheter in the bladder at any time during the 14-day assessment period. (risk adjusted)	CMS
185	Recently hospitalized residents with symptoms of delirium (risk-adjusted)	CMS
186	Recently hospitalized residents who experienced moderate to severe pain at any time during the 7-day assessment period	CMS
187	Recently hospitalized residents with pressure ulcers (risk adjusted)	CMS
191	Residents who lose too much weight	CMS
192	Residents who experience moderate to severe pain during the 7-day assessment period (risk-adjusted)	CMS
193	Residents who were physically restrained daily during the 7-day assessment period	CMS
194	Residents who spent most of their time in bed or in a chair in their room during the 7-day assessment period	CMS
195	Residents with a decline in their ability to move about in their room and the adjacent corridor.	CMS
196	Residents with a urinary tract infection	CMS
197	Residents with worsening of a depressed or anxious mood.	CMS
198	High-risk residents with pressure ulcers	CMS

NQF#	TITLE	STEWARD
199	Average-risk residents with pressure ulcers	CMS
422	Functional status change for patients with knee impairments	FOTO
423	Functional status change for patients with hip impairments	FOTO
424	Functional status change for patients with foot/ankle impairments	FOTO
425	Functional status change for patients with lumbar spine impairments	FOTO
426	Functional status change for patients with shoulder impairments	FOTO
427	Functional status change for patients with elbow, wrist or hand impairments	FOTO
428	Functional status change for patients with general orthopedic impairments	FOTO
429	Change in basic mobility as measured by the AM-PAC	CREcare
430	Change in daily activity function as measured by the AM-PAC	CREcare
442	Functional communication measure: writing	American Speech- Language-Hearing Association
443	Functional communication measure: swallowing	American Speech- Language-Hearing Association
444	Functional communication measure: spoken language expression	American Speech- Language-Hearing Association
445	Functional communication measure: spoken language comprehension	American Speech- Language-Hearing Association
446	Functional communication measure: reading	American Speech- Language-Hearing Association
447	Functional communication measure: motor speech	American Speech-

NQF#	TITLE	STEWARD
		Language-Hearing Association
448	Functional communication measure: memory	American Speech- Language-Hearing Association
449	Functional communication measure: attention	American Speech- Language-Hearing Association
200	Death among surgical in-patients with treatable serious complications (failure to rescue)	AHRQ
530	Mortality for selected conditions	AHRQ
5	CAHPS clinician/group surveys - (adult primary care, pediatric care, and specialist care surveys)	AHRQ
6	CAHPS Health Plan Survey v 4.0 - adult questionnaire	AHRQ
7	NCQA supplemental items for CAHPS 4.0 adult questionnaire (CAHPS 4.0H)	NCQA
8	Experience of Care and Health Outcomes (ECHO) Survey (behavioral health, managed care versions)	AHRQ
9	CAHPS Health Plan Survey v 3.0 children with chronic conditions supplement	AHRQ
10	Young Adult Health Care Survey (YAHCS)	Oregon Health & Science University
11	Promoting Healthy Development Survey (PHDS)	Oregon Health & Science University
166	HCAHPS	AHRQ
228	3-Item Care Transition Measure (CTM-3)	University of Colorado Health Sciences Center
517	CAHPS® Home Health Care Survey	CMS
327	Risk-adjusted average length of inpatient hospital Stay	Premier, Inc
328	Inpatient hospital average length of stay (risk adjusted)	United Health Group
329	All-cause readmission index (risk adjusted)	United Health Group

NQF#	TITLE	STEWARD
330	30-Day all-cause risk standardized readmission rate following heart failure hospitalization (risk adjusted)	CMS
331	Severity-standardized average length of stay—routine care (risk adjusted)	Leapfrog Group
332	Severity-standardized ALOS - special care	Leapfrog Group
333	Severity-standardized ALOS – deliveries	Leapfrog Group
495	Median time from ED arrival to ED departure for admitted ED patients	CMS
496	Median time from ED arrival to ED departure for discharged ED patients	CMS
497	Admit decision time to ED departure time for admitted patients	CMS
498	Door to diagnostic evaluation by a qualified medical personnel	LSU
499	Left without being seen	LSU