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

DRAFT REPORT FOR COMMENTING

TO: NOF Members and Public

FR: NQF Staff

RE: Pre-voting review for National Voluntary Consensus Standards for Patient Outcomes, Second

Report for Phases 1 and 2: A Consensus Report

DA: June 14, 2010

This draft report is from NQF's multiphase Patient Outcomes project. The project seeks to endorse additional consensus standards for patient outcomes in a variety of high-impact (high-volume, high-cost, high-morbidity, or mortality) conditions:

- Phase 1—pulmonary and some cardiovascular conditions;
- Phase 2—cross-cutting measures, diabetes, GI/biliary conditions, cancer, bone and joint, eye care, surgery, infectious disease, and additional cardiovascular measures; and
- Phase 3—child health and mental health.

A Steering Committee of 24 individuals representing a diverse range of stakeholder perspectives reviewed and considered for endorsement a total of 27 candidate patient outcome standards. This draft report recommends 10 measures be considered for endorsement.

The draft document, National Voluntary Consensus Standards for Patient Outcomes, Second Report for Phases 1 and 2: A Consensus Report is posted on the NQF website, along with the following additional information:

- measure submission forms, and
- meeting and call summaries from the Steering Committee.

Pursuant to section II.A of the Consensus Development Process v. 1.8, this draft document, along with the accompanying material, is being provided to you at this time for purposes of review and comment only—not voting. You may post your comments and view the comments of others on the NQF website.

NQF Member comments must be submitted no later than 6:00 pm ET, July 13, 2010. Public comments must be submitted no later than 6:00 pm ET, July 6, 2010.

NQF is now using a program that facilitates electronic submission of comments on this draft report. <u>All</u> <u>comments must be submitted using the online submission process.</u>

Supporting documents related to your comments may be submitted by <u>e-mail</u> to <u>outcomes@qualityforum.org</u>, with "*Comment—Patient Outcomes: Second Report*" in the subject line and your contact information in the body of the e-mail.

Thank you for your interest in NQF's work. We look forward to your review and comments.

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

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- 1 NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES,
- 2 SECOND 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
- 5 the reason consumers seek healthcare (e.g., to improve function, decrease pain, or survive) as
- 6 well as the result healthcare providers are trying to achieve. Outcome measures also provide an
- 7 integrative assessment of quality reflective of multiple care processes across the continuum of
- 8 care. There are a variety of types of outcome measures such as health or functional status,
- 9 physiologic measurements, adverse outcomes, patient experience with care, and morbidity and
- mortality. To date the National Quality Forum (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
- 13 portfolio.
- 14 This second report of NQF's Patient Outcomes project presents the results of the evaluation of
- 15 27 candidate measures considered under NQF's Consensus Development Process (CDP). Ten
- measures are recommended for endorsement as voluntary consensus standards suitable for public
- 17 reporting and quality improvement.
- Proportion of patients with a chronic condition that have a potentially avoidable
 complication during a calendar year (Bridges to Excellence [BTE])
- Proportion of AMI patients that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period) (BTE)
- Proportion of stroke patients that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge period) (BTE)
- Acute myocardial infarction (AMI) mortality rate (Agency for Healthcare Research &
 Quality)
- The STS CABG composite score (Society of Thoracic Surgeons)
- Diabetes composite (National Committee for Quality Assurance)

28	•	Proportion of pneumonia patients that have a potentially avoidable complication (during
29		the index stay or in the 30-day post-discharge period) (BTE)
30	•	30-day post-hospital PNA (pneumonia) discharge care transition composite measure
31		(Center for Medicare and Medicaid Services and Brandeis University)
32	•	Risk adjusted colorectal surgery outcomes measure (American College of Surgeons
33		[ACS])
34	•	Risk-adjusted case-mix-adjusted elderly outcomes measure (ACS)
35		

36	NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES,
37	SECOND REPORT FOR PHASES 1 AND 2: A CONSENSUS REPORT
38	BACKGROUND
39	The results or outcomes of an episode of healthcare reflect the reason consumers seek healthcare
40	(e.g., to improve function, decrease pain, or survive), as well as the result healthcare providers
41	are trying to achieve. Patient outcomes reflect the wide assortment of care processes and
42	coordination of efforts among all caregivers as well as other contributing factors that determine
43	the end result of an episode of care.
44	Donabedian defined outcomes as "changes (desirable or undesirable) in individuals and
45	populations that are attributed to healthcare." Outcome measures also provide an integrative
46	assessment of quality reflective of multiple care processes across the continuum of care. There
47	are a variety of types of outcome measures. Some represent an end result such as mortality or
48	function; others are considered intermediate outcomes (e.g., physiological or biochemical values
49	such as blood pressure or LDL cholesterol) that precede and may lead to a longer-range end-
50	result outcome. Sometimes proxies are used to indicate an outcome (e.g., hospital readmission
51	indicates deterioration in health status since discharge). To date the National Quality Forum
52	(NQF) has endorsed more than 200 outcome measures in a variety of topic areas (Appendix C).
53	As greater focus is placed on evaluating the outcome of episodes of care, additional measures of
54	patient outcomes are needed to fill gaps in the current portfolio.
55	STRATEGIC DIRECTIONS FOR NQF
56	NQF's mission includes three parts: 1) setting national priorities and goals for performance
57	improvement, 2) endorsing national consensus standards for measuring and publicly reporting on
58	performance, and 3) promoting the attainment of national goals through education and outreach
59	programs. As greater numbers of quality measures are developed and brought to NQF for
60	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

populations. For more information see http://

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www.qualityforum.org/projects/Patient Outcome Measures Phases1-2.aspx. 63 Several strategic issues have been identified to guide consideration of candidate consensus 64 65 standards: 66 **DRIVE TOWARD HIGH PERFORMANCE.** Over time, the bar of performance expectations should be raised to encourage the achievement of higher levels of system performance. 67 68 **EMPHASIZE COMPOSITES.** Composite measures provide much-needed summary information pertaining to multiple dimensions of performance and are more comprehensible to 69 70 patients and consumers. 71 MOVE TOWARD OUTCOME MEASUREMENT. Outcome measures provide information 72 of keen interest to consumers and purchasers, and when coupled with healthcare process 73 measures, they provide useful and actionable information to providers. Outcome measures also 74 focus attention on much-needed system-level improvements because achieving the best patient outcomes often requires carefully designed care processes, teamwork, and coordinated action on 75 76 the part of many providers. **CONSIDER DISPARITIES IN ALL WE DO.** Some of the greatest performance gaps relate to 77 care of minority populations. Particular attention should be focused on identifying disparities-78 sensitive performance measures and on identifying the most relevant race/ethnicity/language 79 strata for reporting purposes. 80 81 82 NATIONAL PRIORITIES PARTNERSHIP 83 NQF seeks to endorse measures that address the National Priorities and Goals of the National Priorities Partnership.² The National Priorities Partnership represents those who receive, pay for, provide, and 84 evaluate healthcare. The National Priorities and Goals focus on these areas: 85 86 patient and family engagement, population health, 87 safety, 88 care coordination, 89

90 palliative and end-of-life care, and 91 overuse. NQF'S CONSENSUS DEVELOPMENT PROCESS (CDP) 92 **Patient Outcomes Project** 93 NQF's National Voluntary Consensus Standards for Patient Outcomes project³ seeks to endorse 94 additional outcome measures with an emphasis on high-impact (high-volume, high-morbidity, 95 high-cost) conditions and cross-cutting areas. The Patient Outcomes project is structured in 96 97 several phases: • Phases 1 and 2—cross-cutting measures and measures on cardiovascular, pulmonary, 98 and bone/joint conditions as well as chronic kidney disease, diabetes, infectious disease, 99 eye care and cancer; and 100 • Phase 3— child health and mental health. 101 Additionally, the project will identify gaps in important outcome measures. 102 **Scope of Patient Outcomes** 103 104 The Steering Committee defined outcomes quite broadly to encompass a variety of types of patient outcomes within the scope of this project: 105 106 patient function, symptoms, health-related quality of life (physical, mental, social); intermediate clinical outcomes (physiologic, biochemical); 107 patient experience with care; knowledge, understanding, motivation; health risk status or 108 109 behavior (including adherence); 110 service utilization as a proxy for patient outcome (e.g., change in condition) or potential

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

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

indicator of efficiency;

mortality.

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115	Evaluating Potential Consensus Standards
116	In May 2010, NQF presented a report of the evaluation of an initial group of 12 measures in the
117	areas of pulmonary/intensive care and cardiovascular conditions. This second report presents the
118	results of the evaluation of 27 candidate consensus standards submitted in response to a Call for
119	Measures in September 2009 and actively sought through searches of the National Quality
120	Measures Clearinghouse, NQF Member websites, and an environmental scan. NQF staff
121	contacted potential measure stewards to encourage submission of measures for this project. The
122	candidate consensus standards were evaluated for suitability as voluntary consensus standards
123	for accountability and public reporting.
124	The measures were evaluated using NQF's standard evaluation criteria. ⁴ Technical Advisory
125	Panels (TAPs) rated the subcriteria for each condition-specific candidate consensus standard and
126	identified strengths and weaknesses to assist the project Steering Committee (Committee) in
127	making recommendations. The 24-member, multistakeholder Committee provided final
128	evaluations of the four main criteria: importance to measure and report, scientific acceptability of
129	the measure properties, usability, and feasibility, as well as the recommendations for
130	endorsement. The Committee evaluated the subcriteria for three cross-cutting measures that were
131	not evaluated by a TAP. Measure developers participated in the TAP and Committee discussions
132	to respond to questions and clarify any issues or concerns.
133	RECOMMENDATIONS FOR ENDORSEMENT
134	This report presents the results of the evaluation of 27 measures considered under NQF's CDP.
135	As a result of the Committee discussions, three measures were considered out of scope as
136	outcome measures, and two measures were withdrawn by the measure steward from further
137	consideration. Ten measures are recommended for endorsement as voluntary consensus
138	standards suitable for public reporting and quality improvement.
139	

Candidate Consensus Standards Recommended for Endorsement

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141	OT2-022-09: Proportion of patients with a chronic condition that have a potentially
142	avoidable complication during a calendar year (Bridges to Excellence [BTE]) Percent of
143	adult population aged 18-65 years who were identified as having at least one of the following six
144	chronic conditions: diabetes mellitus (DM), congestive heart failure (CHF), coronary artery
145	$disease\ (CAD),\ hypertension\ (HTN),\ chronic\ obstructive\ pulmonary\ disease\ (COPD),\ or\ asthma,$
146	were followed for one-year, and had one or more potentially avoidable complications (PACs).
147	The Committee was very supportive of this patient-centered measure that provides
148	understandable information about complications. The measure developer noted that this measure
149	was developed as a by-product of their work for the Prometheus episode payment model ⁵ and the
150	episode for chronic conditions is one year. When determining the appropriate care a patient
151	should receive during an episode, the developers created the concept of "potentially avoidable
152	complications" (PACs) - things that should not generally occur to patients. The PACs were
153	identified by an expert panel (convened by the measure developer) as three types: PACs
154	associated with the index condition, PACs associated with co-morbidities, and PACs associated
155	with a patient safety failure. The measure is a sum of all PACs occurring during the year as
156	determined by coding from administrative data. The developers advise that present on admission
157	conditions are not included in the PACs nor are patient factors that are considered risk factors.
158	To date the measure has been developed only in the commercial population for patients below 65
159	years of age. The developers acknowledge that not all PACs may be avoidable all of the time and
160	a target of 0 percent is not appropriate. Current performance on this measure is approximately 70
161	percent, which indicates much room for improvement. This measure is not appropriate for use at
162	the individual clinician level and should only be used at the group, plan, or system level of
163	analysis. This measure addresses the priority area of patient safety.
164	
165	OT1-030-09: Proportion of AMI patients that have a potentially avoidable complication
166	(during the index stay or in the 30-day post-discharge period) (BTE)
167	Percent of adult population aged 18-65 years who were admitted to a hospital with acute
168	myocardial infarction (AMI), were followed for one month after discharge, and had one or more

169	potentially avoidable complications (PACs). PACs may occur during the index stay or during the
170	30-day post discharge period.
171	This measure counts the PACs for 30 days after a primary discharge diagnosis of AMI. The
172	Committee discussed the risk-adjustment methodology used with the developers who reported
173	that RAND is comparing this methodology to other methods. Committee members were
174	supportive of the model, which is based on a combination of factors with both clinical
175	significance and as well as statistical significance. The Committee felt risk models should
176	include risk factors that are clinically meaningful and not just statistically significant. The
177	Committee agreed that the model may evolve over time with more use. The developers explained
178	that CABG patients are excluded as they represent a slightly different population. The
179	Committee recommended this measure because it is meaningful to patients and highlights
180	important adverse outcomes. The measure addresses the priority area of patient safety.
181	
182	OT1-031-09: Proportion of stroke patients that have a potentially avoidable complication
183	(during the index stay or in the 30-day post-discharge period) (BTE)
184	Percent of adult population aged 18-65 years who were admitted to a hospital with stroke, were
185	followed for one month after discharge, and had one or more potentially avoidable
186	complications (PACs). PACs may occur during the index stay or during the 30-day post
187	discharge period.
188	Similar to measure #OT1-030-09, this measure counts the PACs for patients discharged with
189	stroke. The developer acknowledged that some PACs are not entirely preventable. The measure
190	developer's expert panel believed that while some complications might be preventable, all
191	complications were included because the goal is not to reach zero PACs but to reduce PACs
192	from current high levels. The Committee recommended the measure because it provides
193	important information for patients and offers an important outcome to improve. The measure
194	addresses the priority area of patient safety.
195	
196	OT2-013-09: Proportion of pneumonia patients that have a potentially avoidable
197	complication (during the index stay or in the 30-day post-discharge period) (BTE)

198	Percent of adult population aged 18-65 years who were admitted to a hospital with pneumonia,
199	were followed for one month after discharge, and had one or more potentially avoidable
200	complications (PACs). PACs may occur during the index stay or during the 30-day post
201	discharge period.
202	This measure counts the PACs for 30 days after hospitalization with a primary diagnosis of
203	pneumonia. As they had with other PAC measures described above, the Committee rated the
204	measure very highly on importance, usability, and feasibility. Consumer members noted the
205	great salience for patients. The measure addresses the priority area of patient safety.
206	
207	OT1-010-09): Acute myocardial infarction (AMI) mortality rate (Agency for Healthcare
208	Research & Quality [AHRQ])
209	Number of deaths per 100 discharges with a principal diagnosis code of acute myocardial
210	infarction.
211	This measure provides a rate of in-hospital AMI mortality using administrative data. It was
212	compared to another in-hospital AMI mortality measure from The Joint Commission that is
213	currently endorsed by NQF. The Joint Commission is no longer reporting their in-hospital AMI
214	mortality measure on their website in favor of CMS's 30-day mortality measure. This candidate
215	AMI mortality measure from AHRQ differs from those measures in that the risk-adjustment
216	model is based on all patient refined diagnosis related groups (APR DRGs), uses administrative
217	coding rather than manual medical record abstraction, and does include transfers into the facility
218	Reliability of the coding was demonstrated to be 9398 percent. The population measured is
219	determined by the principal diagnosis and the definition of AMI is harmonized with the endorsed
220	30-day AMI mortality measure from CMS. Committee members asked the developers whether
221	the 30 percent of AMI patients that are excluded with a secondary AMI diagnosis who were not
222	captured in the measure currently. The developer clarified that most excluded patients
223	experienced an AMI postoperatively and the Committee suggested that future measures should
224	address this population.
225	

OT1-013-09: The STS CABG composite score (Society of Thoracic Surgeons [STS])

227	This multidimensional performance measure is comprised of four domains consisting of 11
228	individual NQF-endorsed cardiac surgery metrics: (1) operative care—use of the internal
229	mammary artery; (2) perioperative medical care (use of preoperative beta blockade; discharge
230	beta blockade, antiplatelet agents, and lipid-lowering agents—an "all-or-none" measure); (3)
231	risk-adjusted operative mortality; and (4) risk-adjusted postoperative morbidity (occurrence of
232	postoperative stroke, renal failure, prolonged ventilation, re-exploration, or deep sternal wound
233	infection—an "any-or-none" measure).
234	The STS database collects data from 90 percent of hospitals performing CABG surgery and 95
235	percent of all of the CABG surgeries performed in the United States. The Committee generally
236	supported the method of combining process and outcome measures to create a summary score
237	and noted the equal weightings of the four domains. The Committee, however, had numerous
238	concerns with the specified 98 percent confidence levels required for reporting the measure and
239	the embedded star reporting system as reporting protocols have not been specified in other NQF
240	endorsed measures. The Committee expressed numerous concerns with the specifics of the
241	reporting system presented with this measure. The use of 98 percent confidence limits was felt to
242	be unprecedented and atypical for performance measurement and the Committee strongly
243	recommended that NQF adopt standard statistical reporting criteria that embraces the more
244	typical 95 percent confidence interval used by most reporting initiatives. Many Committee
245	members voiced concern that the star system does not provide understandable information for
246	the public as the public might interpret the one, two, and three stars as good, better, and best,
247	respectively, when, according to the developers, the stars indicate performing below the STS
248	average, performing at the STS average, and performing above the STS average, respectively.
249	
250	The Steering Committee recommended the composite measure methodology with a numerical
251	result and confidence intervals only. The Committee did not recommend that the star reporting
252	system using the 98 percent confidence intervals be part of the endorsement. Until NQF
253	establishes policies addressing the inclusion of reporting mechanisms, the Committee
254	recommended the composite measure should be endorsed without an embedded reporting
255	mechanism.

256			
257	In addition, the Committee recommended that NQF consider adopting overall policies that		
258	distinguish between how the measure is calculated and how it is reported. If reporting		
259	mechanisms are to be considered by NQF, appropriate evaluation criteria, testing, and standards		
260	should be established.		
261			
262	OT1-029-09: I	Diabetes composite (National Committee for Quality Assurance [NCQA])	
263	The percentage of individuals 18-75 years of age with diabetes (type 1 and type 2) who had each		
264	of the following	3:	
265	• HbA1c	poor control (>9.0 percent)*	
266	• HbA1c	control (<8.0 percent)	
267	• HbA1c	control for a special population (<7.0 percent)	
268	• Blood p	ressure control (≥140/90 mm Hg)*	
269	• Eye exa	mination	
270	• Smokin	g status and cessation advice or treatment	
271	• LDL co	$ntrol\ (\ge 130\ mg/dL)$	
272	• LDL co	$ntrol\ (<100\ mg/dL)$	
273	• Nephro	pathy assessment	
274	This composite measure includes eight endorsed component measures which were recently		
275	reviewed by the Diabetes TAP for their scheduled maintenance review. While the Committee did		
276	not recommend endorsement of the measure #OT1-028-09 HbA1c control (<7.0 percent) as a		
277	standalone measure as discussed later in this report, the Committee was supportive of all three		
278	HbA1c control measures being used together to describe the complete picture of diabetes		
279	management by a provider. The composite uses threshold cutoffs and weights to generate a		
280	summary score out of a possible 100 points.		
281			
282	OT2-005-09: 3	80-day post-hospital PNA (pneumonia) discharge care transition composite	
283	measure (Brai	ndeis University/Centers for Medicare & Medicaid Services [CMS])	

284	This measure scores a hospital on the incidence among its patients during the month following
285	discharge from an inpatient stay having a primary diagnosis of PNA for three types of events:
286	readmissions, ED visits, and evaluation and management (E&M) services.
287	This pneumonia transition composite measure is similar to the care transition composite
288	measures for AMI and heart failure that were recommended in the first report of Patient
289	Outcomes Phases 1 and 2. This composite measure combines the NQF-endorsed® 30-day
290	readmission measure for pneumonia and two new measures: 30-day ED visit measure and 30-
291	day E&M service measure. All three component measures are risk-adjusted using the same risk-
292	adjustment methodology as the previously recommended measures. The Committee rated the
293	measure very highly on importance, usability, and feasibility. The Committee evaluated the new
294	component measures and found them to be satisfactory as components for the composite
295	measure though not sufficiently usable as stand alone measures. The composite measure
296	addresses the priority area of care coordination.
297	
298	OT2-002-09: Risk-adjusted colorectal surgery outcomes measure (American College of
298 299	OT2-002-09: Risk-adjusted colorectal surgery outcomes measure (American College of Surgeons [ACS])
299	Surgeons [ACS])
299 300	Surgeons [ACS]) This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite
299 300 301	Surgeons [ACS]) This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal surgery.
299 300 301 302	Surgeons [ACS]) This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal surgery. This surgery outcome measure captures mortality and major morbidity for colorectal surgery and
299 300 301 302 303	Surgeons [ACS]) This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal surgery. This surgery outcome measure captures mortality and major morbidity for colorectal surgery and the measures is currently used in the National Surgical Quality Improvement Program (NSQIP) ⁶
299 300 301 302 303 304	Surgeons [ACS]) This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal surgery. This surgery outcome measure captures mortality and major morbidity for colorectal surgery and the measures is currently used in the National Surgical Quality Improvement Program (NSQIP) ⁶ where 270 hospitals participate. The measure has been specified for broader implementation by
299 300 301 302 303 304 305	Surgeons [ACS]) This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal surgery. This surgery outcome measure captures mortality and major morbidity for colorectal surgery and the measures is currently used in the National Surgical Quality Improvement Program (NSQIP) ⁶ where 270 hospitals participate. The measure has been specified for broader implementation by hospitals who do not participate in NSQIP. The risk-adjustment model uses a parsimonious set
299 300 301 302 303 304 305	Surgeons [ACS]) This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal surgery. This surgery outcome measure captures mortality and major morbidity for colorectal surgery and the measures is currently used in the National Surgical Quality Improvement Program (NSQIP) ⁶ where 270 hospitals participate. The measure has been specified for broader implementation by hospitals who do not participate in NSQIP. The risk-adjustment model uses a parsimonious set of clinical risk factors collected in the database. The sample size requirement of 65 cases per
299 300 301 302 303 304 305 306	Surgeons [ACS]) This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal surgery. This surgery outcome measure captures mortality and major morbidity for colorectal surgery and the measures is currently used in the National Surgical Quality Improvement Program (NSQIP) ⁶ where 270 hospitals participate. The measure has been specified for broader implementation by hospitals who do not participate in NSQIP. The risk-adjustment model uses a parsimonious set of clinical risk factors collected in the database. The sample size requirement of 65 cases per year would capture only 40 percent to 50 percent of hospitals but would capture 85 percent of
299 300 301 302 303 304 305 306 307	Surgeons [ACS]) This is a hospital based, risk-adjusted, case-mix-adjusted morbidity and mortality composite outcome measure of adults 18+ years undergoing colorectal surgery. This surgery outcome measure captures mortality and major morbidity for colorectal surgery and the measures is currently used in the National Surgical Quality Improvement Program (NSQIP) ⁶ where 270 hospitals participate. The measure has been specified for broader implementation by hospitals who do not participate in NSQIP. The risk-adjustment model uses a parsimonious set of clinical risk factors collected in the database. The sample size requirement of 65 cases per year would capture only 40 percent to 50 percent of hospitals but would capture 85 percent of colorectal surgery cases. Overall, the Steering Committee rated the measure highly though rated

312 OT1-015-09: Risk-adjusted case-mix-adjusted elderly outcomes measure (ACS)

313	This is a hospital based, risk-adjusted, case-mix-adjusted elderly surgery aggregate clinical
314	outcomes measure of adults 65 years of age and older.
315	This surgery outcomes measure captures mortality and major morbidity for many different
316	surgeries. Groups of risk-similar surgeries are scaled and the scores are used in the regression
317	model. The Committee supported the broad scope of the measure and clarified with the
318	developer that hip fractures from standing or walking would be included in the measure, though
319	a fracture from a fall or other major trauma would not be. Committee members suggested that a
320	separate measure for outcomes of hip fracture would fill a huge gap for the elderly population as
321	well as a similar measure for patients under the age of 65. As with the colorectal surgery
322	measure, Committee member highlighted the data abstraction burden and the need to conform to
323	the NSQIP methodology as challenges to feasibility for non-NSQIP hospitals. This measure
324	addresses the priority area of patient safety.
325	
326	Candidate Consensus Standards not Recommended for Endorsement
327	OT1-011-09: Post-operative stroke or death in asymptomatic patients undergoing carotid
328	endarterectomy (Society for Vascular Surgery [SVS])
329	Percentage of patients without carotid territory neurologic or retinal symptoms within the 12
330	
331	months immediately preceding carotid endarterectomy (CEA) who experience stroke or death
221	months immediately preceding carotid endarterectomy (CEA) who experience stroke or death following surgery while in the hospital. This measure is proposed for both hospitals and
332	
	following surgery while in the hospital. This measure is proposed for both hospitals and
332	following surgery while in the hospital. This measure is proposed for both hospitals and individual surgeons.
332 333	following surgery while in the hospital. This measure is proposed for both hospitals and individual surgeons. Stroke and death are typical outcomes to assess in patients undergoing carotid endarterectomy
332333334	following surgery while in the hospital. This measure is proposed for both hospitals and individual surgeons. Stroke and death are typical outcomes to assess in patients undergoing carotid endarterectomy (CEA). The Committee has numerous concerns with this in-hospital measure for asymptomatic
332333334335	following surgery while in the hospital. This measure is proposed for both hospitals and individual surgeons. Stroke and death are typical outcomes to assess in patients undergoing carotid endarterectomy (CEA). The Committee has numerous concerns with this in-hospital measure for asymptomatic patients undergoing CEA, including the 2-day average length of stay for carotid endarterectomy
332 333 334 335 336	following surgery while in the hospital. This measure is proposed for both hospitals and individual surgeons. Stroke and death are typical outcomes to assess in patients undergoing carotid endarterectomy (CEA). The Committee has numerous concerns with this in-hospital measure for asymptomatic patients undergoing CEA, including the 2-day average length of stay for carotid endarterectomy patients which limits the window for capturing stroke complications and the lack of a
332 333 334 335 336 337	following surgery while in the hospital. This measure is proposed for both hospitals and individual surgeons. Stroke and death are typical outcomes to assess in patients undergoing carotid endarterectomy (CEA). The Committee has numerous concerns with this in-hospital measure for asymptomatic patients undergoing CEA, including the 2-day average length of stay for carotid endarterectomy patients which limits the window for capturing stroke complications and the lack of a standardized evaluation for stroke. TAP members noted the variation in diagnosis of stroke

341	measurement. In addition, data were not provided by the measure developer on the reliability of
342	the results and the stroke diagnosis.
343	
344	OT1-012-09: Coronary artery bypass graft (CABG) procedure and postoperative stroke
345	during the hospitalization or within 7 days of discharge (Ingenix)
346	This measure identifies patients 20 years and older with a coronary artery bypass graft (CABG)
347	procedure who had a postoperative stroke (CVA) during the hospitalization or within seven days
348	of discharge.
349	NQF has previously endorsed a risk-adjusted, 30-day postoperative stroke morbidity measure for
350	CABG patients from STS. The Committee did not believe that this candidate measure provided
351	added value as it is not risk-adjusted and includes a shorter observation period. The
352	Cardiovascular TAP noted that strokes are more frequently identified by neurologists rather than
353	surgeons and that use of a stroke assessment tool would standardize capture of the data.
354	
355	OT1-028-09: HbA1c control for a selected population (National Committee for Quality
356	Assurance [NCQA])
357	Comprehensive diabetes care: The percentage of patients 18-65 years of age with either type I or
358	type II diabetes who had an HbA1c level of less than or equal to 7.0 percent.
359	This candidate standard is part of a group of process and outcome measures for diabetes, most of
360	which have been endorsed by NQF. This measure assesses a smaller population compared to the
361	other HbA1c control measures, focusing on younger patients without significant comorbidities.
362	The Diabetes/Metabolic TAP and Steering Committee members discussed the implications of the
363	recent published results of the ADVANCE ⁷ and ACCORD trials, ^{8,9} that suggested that very strict
364	control does not lead to better clinical outcomes and may be associated with significant side
365	effects. Committee members also noted that the measure is not risk-adjusted. The Committee
366	thought this measure would be valuable when used with the other NQF-endorsed HbA1c control
367	measures (#0575: HgbA1c <8% and #0059: HgbA1c >9%) as a group, but not as a stand-alone
368	measure. The measure developer did not agree with grouping the three HbA1c control measures

369	together so the Committee did not recommend this measure, except within the diabetes
370	composite measure.
371	
372	OT2-003-09: 30-day post-hospital PNA discharge ED measure (Brandeis University/CMS)
373	This measure estimates the percentage of Medicare beneficiaries age 65 years and older
374	discharged from the hospital with the diagnosis of pneumonia (PNA) who had an emergency
375	department (ED) visit within 30 days of the hospital discharge and prior to any hospital
376	readmission.
377	
378	OT2-004-09: 30-day post-hospital PNA discharge evaluation and management service visit
379	measure (Brandeis University/CMS)
380	This measure estimates the percentage of eligible Medicare hospital discharges with a diagnosis
381	of pneumonia (PNA) for which beneficiaries receive an evaluation and management (E&M)
382	service within 30 days of hospital discharge and prior to a hospital readmission or ED visit.
383	These two measures are included in the recommended pneumonia care transition composite
384	measure previously recommended. As with the care transition composite measures for heart
385	failure and AMI, the Committee did not consider the individual measures for ED visits and E&M
386	service sufficiently strong as stand-alone measures. Concerns were raised by some Committee
387	members on the use of a hierarchical risk model and they pointed to the information provided in
388	the technical report that demonstrates that application of the hierarchical model eliminated 50
389	percent of the outliers.
390	
391	OT2-008-09: Bariatric surgery and complications during the hospitalization or within 180
392	days of discharge (Ingenix)
393	This measure identifies patients 12 years and older with bariatric surgery who had a defined
394	complication during hospitalization or within 180 days of discharge.
395	
396	OT2-012-09: Bariatric surgery and complications during the hospitalization or within 30
397	days of discharge (Ingenix)

398	This measure identifies patients 12 years and older with bariatric surgery who had a defined
399	complication during hospitalization or within 30 days of discharge.
400	The GI/Biliary TAP and Steering Committee had concerns with the lack of risk adjustment for
401	these measures. Committee members felt that patient risk was likely to vary based on degree of
402	obesity (body mass index [BMI]) 30-35 compared to BMI >50), type of surgery (laparoscopy
403	compared to open surgical procedures) and comorbidities. The developer offered possible
404	stratifications for BMI (30-34.9; 35-39.9 and >40) by four types of procedure or by the number
405	of co-morbidities. The developer noted that only 55 percent of bariatric surgery cases include the
406	codes to capture BMI. Committee members felt that these measures need further development
407	and testing to determine the best methods to adjust for patient risk factors before they could be
408	considered for endorsement.
409	
410	OT2-015-09: Functional assessment of chronic illness therapy-fatigue (FACIT-F) (FACIT)
411	The Functional Assessment of Chronic Illness Therapy-Fatigue Scale (FACIT-F Scale) is a 13-
412	item questionnaire that assesses self-reported fatigue and its impact upon daily activities and
413	function. It was developed in 1994-1995 to meet a growing demand for the precise evaluation of
414	fatigue associated with anemia in cancer patients. Subsequent to its development, it has been
415	employed in over 70 published studies including over 20,000 people. Since 1995, studied groups
416	have included cancer patients receiving chemotherapy, cancer patients not receiving
417	chemotherapy, long term cancer survivors, childhood cancer survivors and several other clinical
418	samples including people with rheumatoid arthritis, multiple sclerosis, psoriasis, paroxysmal
419	nocturnal hemoglobinuria, and Parkinson's disease, as well as the general United States
420	population. In all cases, the FACIT-F Scale has been found to be reliable and valid. It has been
421	validated for use in adults with chronic health conditions. There is also a validated modified
422	version suitable with pediatric populations. It has been translated into over 60 non-English
423	languages.
424	OT2-016-09: Functional assessment of cancer therapy-lung (FACT-L) (FACIT)
425	The Functional Assessment of Cancer Therapy-Lung (FACT-L) Scale is a 36-item self-report
126	instrument which measures multidimensional quality of life. It was developed from 1087-1003

127	and was first published in 1995. The FACT-L meets a growing need for disease-specific health-
128	related quality of life (HRQOL) questionnaires that address the general and unique concerns of
129	patients diagnosed with lung cancer. Subsequent to its development, it has been employed in
130	over 20 papers from 15 unique data sets including over 2,500 people with lung cancer. Since
131	1995, studied groups have included cancer patients receiving chemotherapy, cancer patients
132	receiving radiotherapy, terminally-ill patients, and disease-free survivors. In all cases, the
133	FACT-L scale has been found to be reliable and valid. It has been validated with adult lung
134	cancer patients and disease-free survivors.
135	OT2-017-09: Functional assessment of cancer therapy-breast (FACT-B) (FACIT)
136	The measurement system, under development since 1987, began with the creation of a generic
137	CORE questionnaire called the Functional Assessment of Cancer Therapy-General (FACT-G).
138	The FACT-G (now in Version 4) is a 27-item compilation of general questions divided into four
139	primary QOL domains: physical well-being, social/family well-being, emotional well-being, and
140	functional well-being. It is considered appropriate for use with patients with any form of cancer,
141	and has also been used and validated in other chronic illness conditions (e.g., HIV/AIDS and
142	multiple sclerosis) and in the general population (using a slightly modified version). In the case
143	of FACT-B, it is comprised of the aforementioned FACT-G plus the 9-item BCS (breast cancer
144	subscale). Combined, the questionnaire is called the FACT-B.
145	OT2-019-09: Functional assessment of cancer therapy-general version (FACT-G) (FACIT)
146	The FACIT Measurement System is a collection of QOL questionnaires targeted to the
147	management of chronic illness. "FACIT" (Functional Assessment of Chronic Illness Therapy)
148	was adopted as the formal name of the measurement system in 1997 to portray the expansion of
149	the more familiar "FACT" (Functional Assessment of Cancer Therapy) series of questionnaires
450	into other chronic illnesses and conditions. Thus, FACIT is a broader, more encompassing term
451	that includes the FACT questionnaires under its umbrella. The measurement system, under
152	development since 1987, began with the creation of a generic CORE questionnaire called the
153	Functional Assessment of Cancer Therapy-General (FACT-G). The FACT-G (now in Version 4)
154	is a 27-item compilation of general questions divided into four primary QOL domains: physical
155	well-being, social/family well-being, emotional well-being, and functional well-being. It is

156	considered appropriate for use with patients with any form of cancer, and has also been used
157	and validated in other chronic illness conditions (e.g., HIV/AIDS and multiple sclerosis) and in
158	the general population (using a slightly modified version).
159	These measures are a sample of patient-level survey tools available from Functional Assessment
160	of Chronic Illness Therapy (FACIT) ¹¹ that assess patient functioning and quality of life that are
161	generally used in clinical trials and care management. The tools are well-tested and widely used
162	at the individual patient level; however, the tools have not been used to assess the quality of care
163	at a clinician or practice level. The Cancer TAP and Steering Committee agreed the survey tools
164	are excellent, but believed that additional work was needed to determine how they could be used
165	for public reporting and making comparisons among providers.
166	
167	Condidate Concensus Standards without Final Decommendation
167	Candidate Consensus Standards without Final Recommendation
168	OT1-009-09: Optimal diabetes care (Minnesota Community Measurement)
169	The percentage of adult diabetes patients who have optimally managed modifiable risk factors
170	(A1c, LDL, blood pressure, tobacco non-use, and daily aspirin usage) with the intent of
171	preventing or reducing future complications associated with poorly managed diabetes.
172	Patients ages 18-75 with a diagnosis of diabetes, who meet all the numerator targets of this
173	$composite\ measure:\ A1c<8.0,\ LDL<100,\ blood\ pressure\ (BP)<130/80,\ tobacco\ non-user,\ and$
174	for patients age 41+ daily aspirin use unless contraindicated.
175	The Committee noted that this "all or none" composite measure aligns with endorsed component
176	measures with the exception of the BP target level at <130/80. Committee members referred to
177	the recently published results of the ACCORD trial 10 that did not find improved outcomes for
178	aggressive blood pressure management below 140/90, while the occurrence of adverse outcomes
179	such as syncope were higher. The Committee generally supported the measure but asked the
180	developers about any potential changes to the measure in light of the ACCORD trial. The
181	developers responded that the measure is based on the guidelines from the Institute for Clinical
182	Systems Improvement (ICSI) and they will wait until any changes are made to the guidelines
183	before considering changes to the measure. ICSI expects to complete its review of the diabetes

483

484	guidel	ines in August 2010. Overall the Committee was supportive of the measure and would
485	recom	mend after resolution of the BP threshold. In addition, some Committee members
486	sugges	sted that the developer should also consider including eye exams and screening for renal
487	function	on.
488		
489	Gaps	in Desirable Outcome Measures
490	During	g its deliberations, the Committee noted the lack of measures for important outcomes,
491	particu	alarly in the areas of health status and functional status. As part of the Patient Outcomes
492	projec	t, the TAPs and Committee are formulating recommendations for development of
493	import	ant, desirable outcome measures. The recommendations will be presented in a later report.
494		
495	Addit	ional Recommendations
496	1.	Apply measures to the broadest populations possible.
497		The Committee strongly recommends that measure developers consider the broadest
498		application of measures and not include restrictive specifications, such as payer or
499		coverage type, or age limitations, unless appropriate for the condition.
500		
501	2.	Give more attention to disparities.
502		The Committee strongly recommends that measure developers address measurement of
503		disparities in measure specifications. According to NQF measure evaluation criteria,
504		factors such as race, ethnicity, and socioeconomic status should not be included in risk
505		models; however, the data should be collected to allow for stratification. Some providers
506		serve patient populations that are extremely vulnerable to disparities, and for facilities
507		located in areas of underserved populations, the stratified results would not necessarily be

3. Provide rationale for use of hierarchical modeling.

small numbers.

508

509

510

511		Committee members recommend that measure developers provide the rationale for using
512		hierarchical modeling and describe the impact on discrimination and usability of the
513		results for public reporting and quality improvement compared to other methods. The
514		Committee also discussed the use of stepwise modeling that can leave out important
515		confounders or effect modifiers.
516		
517	4.	Consider endorsing reporting mechanisms.
518		NQF should consider whether evaluation and endorsement should extend to reporting
519		mechanisms and rating systems as a general policy for all projects. If so, appropriate
520		criteria should be established for this evaluation.

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.
- NQF, Measure Evaluation Criteria, Washington, DC: NQF; 2008. Available at <u>www.qualityforum.org/docs/measure_evaluation_criteria.aspx</u>. Last accessed April 2010.
- 5. Information regarding the Prometheus payment model is available at www.prometheuspayment.org.
- 6. Information regarding the American College of Surgeons' National Surgical Quality Improvement Program (NSQIP) is available at https://acsnsqip.org/main/about_overview.asp.
- 7. Information regarding the Action in Diabetes and Vascular Disease: Preterax and Diamicro MR Controlled Evaluation (ADVANCE) trial is available at www.advance-trial.com/static/html/prehome/prehome.asp.
- 8. ACCORD Study Group, Effects of intensive glucose lowering in type 2 diabetes, *N Engl J Med*, 2008;358(24):2545-2559. Epub 2008 Jun 6. Press announcement available at http://public.nhlbi.nih.gov/newsroom/home/GetPressRelease.aspx?id=2573.
- 9. ACCORD Study Group, Effects of intensive blood-pressure control in type 2 diabetes mellitus, *N Engl J Med*, 2010;362(17):1575-1585. Epub 2010 Mar 14.
- 10. Information regarding the FACIT tools is available at www.facit.org.
- 11. ACCORD Study Group, Effects of intensive blood-pressure control in type 2 diabetes mellitus, *N Engl J Med*, 2010;362(17):1575-1585. Epub 2010 Mar 14.

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
OT1-010- 09	Acute myocardial infarction (AMI) mortality rate	Agency for Healthcare Research and Quality	Number of deaths per 100 discharges with a principal diagnosis code of acute myocardial infarction.	Number of inpatient deaths (DISP = 20) among cases meeting the inclusion and exclusion rules for the denominator.	All discharges, age 18 years and older, with a principal diagnosis code of acute myocardial infarction.	• Missing discharge disposition (DISP = missing) • Transferring to another short-term hospital (DISP = 2) • MDC 14 (pregnancy, childbirth, and puerperium) Case-Mix Adjustment: Adjustments were made for age, 3M™ All Patient Refined Diagnosis	Electronic adminstrative data/claims	Facility/

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments Groups Risk of Mortality subclass, MDC and transfer in status using a regression- based standardization methodology.		Analysis
OT1-013- 09	The STS CABG composite score®	The Society of Thoracic Surgeons (STS)	performance measure is	measure, it is impractical to separately discuss the numerator and denominator. The following	Please see response in numerator statement above.	Please see response in numerator statement above.	Electronic health/ medical records, electronic clinical data, registry data, lab data, pharmacy data, paper medical record/	Facility/ Agency

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Measure Number	Measure	Measure Steward	Measure Description	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	(use of the internal mammary artery); 2) Perioperative Medical Care (use of preoperative beta blockade, discharge beta blockade, antiplatelet agents, and lipid-lowering agents—an "all-or-none" measure); 3) Risk-adjusted Operative Mortality; and 4) Risk-adjusted Postoperative Morbidity (occurrence of	score is calculated and how these are		Adjustments	flowsheet	Analysis

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			postoperative					
			stroke, renal					
			failure, prolonged					
			ventilation, re-					
			exploration, or					
			deep sternal					
			wound					
			infection—an					
			"any-or-none"					
			measure).					
			All measures are					
			based on audited					
			clinical data					
			collected in a					
			prospective					
			registry and are					
			risk-adjusted					
			(with the					
			``					
			exception of					
			internal mammary					

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			artery use and the					
			four perioperative					
			medications).					
			Based on their					
			percentage scores,					
			a 1 (below					
			average), 2					
			(average), or 3					
			(above average)					
			star rating is					
			provided for each					
			STS database					
			participant for					
			each performance					
			domain and					
			overall.					
			Furthermore, the					
			composite score is					
			also					

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions /	Data Source	Level of Analysis
Number	Title	Stewaru	•			Adjustments		Allalysis
			deconstructed into					
			its components to					
			facilitate					
			performance					
			improvement					
			activities by					
			providers. This					
			scoring					
			methodology has					
			now been					
			implemented for					
			over two years					
			and has become					
			for many					
			stakeholders the					
			preferred method					
			of evaluating					
			cardiac surgery					
			performance. STS					
			plans to make this					
			report publicly					

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
			available in the					
			near future.					
			(Additional					
			materials are					
			available upon					
			request.)					
OT1-015-	Risk	American	This is a hospital-	The outcome of	Patients	Adjustments:	Electronic	Facility/
09	adjusted	College of	based, risk-	interest is	undergoing any	From 271,368	Health/	Agency
	case mix	Surgeons	adjusted, case	hospital-specific	ACS NSQIP	patient records	Medical	
	adjusted		mix-adjusted,	risk-adjusted	listed (CPT)	in the 2008	Records,	
	elderly		elderly surgery,	mortality, a return	surgical	ACS NSQIP	Electronic	
	surgery		aggregate, clinical	to the operating	procedure who	data file, 83,832	clinical data,	
	outcomes		outcomes	room, or any of	are 65 years of	acceptable	paper	
	measure		measure of adults	the following	age or older (see	records from	medical	
			65 years of age	morbidities as	separate list of	211 hospitals	record/	
			and older.	defined by	ACS NSQIP CPT	(mean/hospital	flowsheet	
				American College	codes).	= 397) were		
				of Surgeons		analyzed.		
				National Surgical	Data are derived	-		
				Quality	from a systematic	Records were		
				Improvement	sample collected	included if		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				Program (ACS	over a one-year	patients were		
				NSQIP): Cardiac	period	65 years of age		
				arrest requiring	constructed to	or older and		
				CPR, myocardial	meet sample size	excluded either		
				infarction, DVT	requirements	because of		
				requiring therapy,	specified for the	missing values		
				sepsis, septic	measure.	for critical		
				shock, deep		variables or		
				incisional SSI,		because the		
				organsSpace SSI,		primary CPT		
				wound disruption,		code could not		
				unplanned		be categorized		
				reintubation		into 1 of the 136		
				without prior		pre-established		
				ventilator		CPT "Groups."		
				dependence,		These		
				pneumonia		categorizations		
				without pre-		have been		
				operative		defined and		
				pneumonia,		implemented for		
				pulmonary		risk-adjustment		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description	1 1'		Adjustments		Analysis
				embolism,		in previously		
				progressive renal		published		
				insufficiency or		research.*		
				acute renal failure				
				without pre-		An outcome		
				operative renal		was defined as		
				failure or dialysis,		30-day		
				or UTI within 30		mortality or any		
				days of any ACS		serious		
				NSQIP listed		morbidity		
				(CPT) surgical		including:		
				procedure.		cardiac arrest		
				procedure.		requiring CPR,		
				Targeted events		myocardial		
				within 30 days of		infarction, DVT		
				1				
				the operation are		requiring		
				included.		therapy, sepsis,		
						septic shock,		
						organ space		
						SSI, deep		
						incisional SSI,		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			100			wound		y
						disruption,		
						unplanned		
						reintubation		
						without prior		
						ventilator		
						dependence,		
						pneumonia		
						without pre-		
						operative		
						pneumonia,		
						pulmonary		
						embolism,		
						progressive		
						renal		
						insufficiency or		
						acute renal		
						failure without		
						pre-operative		
						renal failure or		
						dialysis, urinary		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						tract infection,		
						or return to the		
						operating room,		
						according to		
						ACS NSQIP		
						definitions. Of		
						the 83,832		
						patients, 13,960		
						(16.7%)		
						experienced		
						death or a		
						serious		
						morbidity event.		
						CPT Group was		
						originally		
						considered a		
						categorical		
						variable but,		
						because of		
						frequent empty		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						cells, which		
						precluded		
						logistic model		
						convergence		
						(quasi-complete		
						separation),		
						CPT Group was		
						converted to		
						continuous risk		
						variable. This		
						was		
						accomplished		
						by making the		
						categorical		
						Group variable		
						a single		
						predictor for		
						mortality/morbi		
						dity and		
						invoking the		
						Firth penalized		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						likelihood		
						method in the		
						logistic		
						modeling		
						software (SAS		
						PROC		
						LOGISTIC).		
						For one CPT		
						Group,		
						composed of		
						only two		
						subjects, both of		
						whom		
						experience an		
						event, the		
						estimated log		
						odds was		
						unacceptably		
						large and was		
						replaced by the		
						next largest		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						value. The		
						patient-based		
						predicted log		
						odds from this		
						model was then		
						used as a		
						continuous		
						predictor in		
						subsequent		
						logistic models,		
						which also		
						included the		
						standard		
						predictors.		
						predictors.		
						Step-wise		
						logistic		
						regression (P <		
						0.05 for		
						inclusion),		
						which selected		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						from a total of		
						26 NSQIP		
						predictors,		
						identified 21		
						predictors for		
						inclusion in the		
						model. In order		
						of inclusion		
						these variables		
						were: Log		
						Odds CPT		
						Group, pre-		
						operative		
						Functional		
						Status, ASA		
						Class,		
						Emergent,		
						history of		
						COPD, Wound		
						Class,		
						Ventilator		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			, , , , , , , , , , , , , , , , , , ,			Dependent,		3
						Weight Loss,		
						Dyspnea,		
						Steroid Use,		
						Disseminated		
						Cancer, Age		
						Group, Ascites,		
						Smoking,		
						Bleeding		
						Disorder, Radio		
						Therapy, BMI		
						Class, Previous		
						Vascular		
						Event/Disease,		
						Alcohol Use,		
						Previous		
						Neurological		
						Event/Disease,		
						and Diabetes.		
						The c-statistic		
						was 0.774 and		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						the Hosmer-		
						Lemeshow was		
						0.002. Because		
						of the very large		
						sample sizes		
						studied here, a		
						statistically		
						significant		
						Hosmer-		
						Lemeshow		
						statistic is not		
						considered		
						informative		
						with respect to		
						calibration.		
						Using only the		
						first three		
						selected		
						variables (Log		
						Odds CPT		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Tuilibei	Title	Bicwaru	Description			Group,		Anarysis
						Functional		
						Status, and ASA		
						Class), the c-		
						statistic was		
						0.764 and the		
						Hosmer-		
						Lemeshow was		
						0.002. The use		
						of these three		
						predictors for		
						modeling was		
						further		
						evaluated.		
						Using a 95%		
						confidence		
						interval for the		
						ratio of		
						observed to		
						expected events		
						(O/E), this		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						three-variable		
						logistic model		
						identified 30		
						statistical		
						outliers (16 low		
						outliers and 14		
						high outliers).		
						When the same		
						three variables		
						were used in a		
						random		
						intercept, fixed		
						slope,		
						hierarchical		
						model (SAS		
						PROC		
						GLIMMIX)		
						using only the		
						fixed portion of		
						the prediction		
						equation		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						(NOBLUP		
						option), 28		
						outliers were		
						detected (14		
						low outliers and		
						14 high		
						outliers). Thus,		
						using a 95%		
						confidence		
						interval, logistic		
						and hierarchical		
						models		
						identified 7% of		
						hospitals as		
						high outliers.		
						When the		
						logistic model		
						parameters were		
						applied to an		
						independent		
						validation data		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						set (the 2007		
						data file		
						composed of		
						65,056 patients)		
						after coding		
						CPT Groups		
						with log odds		
						derived from		
						the original one-		
						variable model		
						on 2008 data,		
						the c-statistic		
						was essentially		
						unchanged (c-		
						statistic =		
						0.762).		
						A GEE		
						(generalized		
						estimating		
						equations)		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						approach (SAS PROC		
						GENMOD)		
						with compound		
						symmetry was		
						used to estimate		
						the intraclass		
						correlation		
						(ICC), which is		
						reported in		
						GENMOD as		
						the		
						exchangeable		
						working		
						correlation. The		
						ICC was		
						0.00377. The		
						relationship		
						between sample		
						size, the ICC,		
						and reliability is		

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defined as: N = R /[ICC(1 - R)] - R / (1 - R), where N is the required number patients per hospital and R is reliability. Based on the estimated ICC, patients per hospital to achieve reliability levels of 0.3, 0.4, 0.5, 0.6, and 0.7 are 114, 177, 265, 397, and 617,	Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
respectively.	Number	Title	Steward	Description			defined as: N = R /[ICC(1 - R)] - R / (1 - R), where N is the required number patients per hospital and R is reliability. Based on the estimated ICC, patients per hospital to achieve reliability levels of 0.3, 0.4, 0.5, 0.6, and 0.7 are 114, 177, 265,		Analysis

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						For the table		
						detailing risk		
						factors, odds		
						ratios, and		
						parameters for		
						the logistic		
						model, please		
						see attachment		
						(Parsimonious		
						Model for		
						Elderly.doc).		
						For initial		
						year(s) of		
						measure use,		
						ACS NSQIP		
						data-derived		
						model		
						parameters will		
						-		
						be used to		
						construct risk-		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						adjusted O/E		
						ratios for		
						participating		
						hospitals. Once		
						data from		
						measure-		
						participating		
						hospitals is		
						substantial,		
						models will be		
						derived from		
						that data.		
						*References		
						utilizing CPT		
						groups		
						Exclusions:		
						Major		
						multisystem		
						trauma and		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
114111001	11010	See war a	2 escription			transplant		111111111111111111111111111111111111111
						surgeries are		
						excluded as are		
						surgeries not on		
						the ACS NSQIP		
						CPT list as		
						eligible for		
						selection.		
						Patients who are		
						ASA 6 (brain-		
						death organ		
						donor) are not		
						eligible surgical		
						cases. Surgeries		
						following		
						within 30		
						d of an index		
						procedure are		
						an outcome		
						(return to OR)		
						and are not		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
OT1 020	0 1	N		D. C.	M 1 21	eligible to be new index cases.		01
OT1-029- 09	Comprehen sive diabetes care	Committee for Quality Assurance	The percentage of individuals 18-75 years of age with diabetes (type 1 and type 2) who had each of the following: • Hemoglobin A1c (HbA1c) testing • HbA1c poor control (>9.0%) • HbA1c control (<8.0%) • HbA1c control (<7.0%)* • Eye exam	members 18-75 years of age with diabetes (type 1 and 2) who had each of the following: 1) HbA1c Testing—An HbA1c test performed during the measurement year as identified by claim/encounter or automated lab data.	Members with diabetes (type 1 and 2) as of December 31 of the measurement year	Optional Exclusions: • Members with a diagnosis of polycystic ovaries who did not have any face-to- face encounters with a diagnosis of diabetes, in any setting, during the measuremen	Medical Record,	Clinicians: Group, Clinicians: Individual, Clinicians: Other

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			(retinal)			t year or the		
			performed	2) HbA1c Poor		year prior to		
			• LDL-C	Control >9%—		the		
			screening	Use automated		measuremen		
			• LDL-C control	lab data to		t year.		
			(<100 mg/dL)	identify the most		 Members 		
			• Medical	recent HbA1c test		with		
			attention for	during the		gestational		
			nephropathy	measurement		diabetes or		
			• BP control	year. The		steroid-		
			(<130/80 mm Hg)	member is		induced		
			• BP control	numerator		diabetes		
			(<140/90 mm Hg)	compliant if the		who did not		
				most recent		have any		
				automated HbA1c		face-to-face		
				level is >9.0% or		encounters		
				is missing a result		with a		
				or if an HbA1c		diagnosis of		
				test was not done		diabetes, in		
				during the		any setting,		
				measurement				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				year. The		during the		
				member is not		measuremen		
				numerator		t year or the		
				compliant if the		year prior to		
				automated result		the		
				for the most		measuremen		
				recent HbA1c test		t year.		
				during the				
				measurement year				
				is $\leq 9.0\%$.				
				An organization				
				that uses CPT				
				Category II codes				
				to identify				
				numerator				
				compliance for				
				this indicator				
				must search for				
				all codes and use				
				the most recent				
				code during the				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				measurement year				
				to evaluate				
				whether the				
				member is				
				numerator				
				compliant.				
				Note: For this				
				indicator, a lower				
				rate indicates				
				better				
				performance (i.e.,				
				low rates of poor				
				control indicate				
				better care).				
				3) HbA1c Control				
				<8%—Use				
				automated				
				laboratory data to				
				identify the most				
				recent HbA1c test				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				during the				
				measurement				
				year. The member				
				is numerator				
				compliant if the				
				most recent				
				automated HbA1c				
				level is <8.0%.				
				The member is				
				not numerator				
				compliant if the				
				automated result				
				for the most				
				recent HbA1c test				
				is $\geq 8.0\%$ or is				
				missing a result,				
				or if an HbA1c				
				test was not done				
				during the				
				measurement				
				year. An				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
				organization that				
				uses CPT				
				Category II codes				
				to identify				
				numerator				
				compliance for				
				this indicator				
				must search for				
				all codes and use				
				the most recent				
				code during the				
				measurement year				
				to evaluate				
				whether the				
				member is				
				numerator				
				compliant.				
				Tomphan.				
				4) HbA1c Control				
				<7%—Use				
				automated				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
				laboratory data to				
				identify the most				
				recent HbA1c test				
				during the				
				measurement				
				year. The member				
				is numerator				
				compliant if the				
				most recent				
				automated HbA1c				
				level is <7.0%.				
				The member is				
				not numerator				
				compliant if the				
				automated result				
				for the most				
				recent HbA1c test				
				is $\geq 7.0\%$ or is				
				missing a result,				
				or if an HbA1c				
				test was not done				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				during the				
				measurement				
				year.				
				An organization				
				that uses CPT				
				Category II codes				
				to identify				
				numerator				
				compliance for				
				this indicator				
				must search for				
				all codes and use				
				the most recent				
				code during the				
				measurement year				
				to evaluate				
				whether the				
				member is				
				numerator				
				compliant.				
				Note: This				

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Measure	Measure	Measure	Measure Description	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description	indicator uses the eligible population with additional eligible population criteria (e.g., removing members with required exclusions). 5) Eye Exam—An eye screening for diabetic retinal disease as identified by administrative data. This includes diabetics who had one of the following:		Adjustments		Analysis

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
				• A retinal or				
				dilated eye exam				
				by an eye care				
				professional				
				(optometrist or				
				ophthalmologist)				
				in the				
				measurement				
				year, or				
				• A negative				
				retinal exam (no				
				evidence of				
				retinopathy) by an				
				eye care				
				professional in the				
				year prior to the				
				measurement				
				year.				
				y cui.				
				Refer to codes to				
				identify eye				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				exams. For exams				
				performed in the				
				year prior to the				
				measurement				
				year, a result must				
				be available.				
				6) LDL-C				
				Screening—An				
				LDL-C test				
				performed during				
				the measurement				
				year, as identified				
				by claim/				
				encounter or				
				automated				
				laboratory data.				
				The organization				
				may use a				
				calculated or				
				direct LDL for				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
				LDL-C screening				
				and control				
				indicators.				
				7) LDL-C Control				
				<100 mg/dL—				
				Use automated				
				laboratory data to				
				identify the most				
				recent LDL-C test				
				during the				
				measurement				
				year. The member				
				~				
				is numerator				
				compliant if the				
				most recent				
				automated LDL-C				
				level is <100				
				mg/dL. If the				
				automated result				
				for the most				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
				recent LDL-C test				
				during the				
				measurement year				
				is \geq 100 mg/dL or				
				is missing, or if				
				an LDL-C test				
				was not done				
				during the				
				measurement				
				year, the member				
				is not numerator				
				compliant.				
				An organization				
				that uses CPT				
				Category II codes				
				to identify				
				numerator				
				compliance for				
				this indicator				
				must search for				
				all codes and use				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				the most recent code during the measurement year to evaluate whether the member is numerator compliant. 8) Medical Attention for Nephropathy—A nephropathy screening test or evidence of nephropathy, as documented through administrative data.				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
110111001	11010	See war a	2 escription					111111111111111111111111111111111111111
				9) BP Control				
				<130/80 mmHg—				
				Use automated				
				data to identify				
				the most recent				
				BP reading during				
				the measurement				
				year.				
				The member is				
				numerator				
				compliant if the				
				BP is <130/80				
				mmHg. The				
				member is not				
				compliant if the				
				BP is $\ge 130/80$				
				mmHg or if there				
				is no automated				
				BP reading during				
				the measurement				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
				year. If there are				
				multiple BPs on				
				the same date of				
				service, use the				
				lowest systolic				
				and lowest				
				diastolic BP on				
				that date as the				
				representative BP.				
				An organization				
				that uses CPT				
				Category II codes				
				to identify				
				numerator				
				compliance for				
				this indicator				
				must search for				
				all codes and use				
				the most recent				
				codes during the				
				_				
				measurement year				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				to evaluate				
				whether the				
				member is				
				numerator				
				compliant for				
				both systolic and				
				diastolic levels.				
				10) BP Control				
				<140/90 mmHg—				
				Use automated				
				data to identify				
				the most recent				
				BP reading during				
				the measurement				
				year. Refer to				
				Table CDC-N and				
				use the most				
				recent code to				
				evaluate whether				
				the member is				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
				numerator				
				compliant.				
				The member is				
				numerator				
				compliant if the				
				BP is <140/90				
				mmHg. The				
				member is not				
				compliant if the				
				BP is $\ge 140/90$				
				mmHg or if there				
				is no automated				
				BP reading during				
				the measurement				
				year. If there are				
				The state of the s				
				multiple BPs on the same date of service, use the lowest systolic and lowest diastolic BP on				

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
				that date as the				
				representative BP.				
				An organization				
				that uses CPT				
				Category II codes				
				to identify				
				numerator				
				compliance for				
				this indicator				
				must search for				
				all codes and use				
				the most recent				
				codes during the				
				measurement year				
				to evaluate				
				whether the				
				member is				
				numerator				
				compliant for				
				both systolic and				
				diastolic levels.				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
OT1-030-	Proportion	Bridges To	Percent of adult	Outcome:	Adult patients	Denominator	Electronic	Clinicians:
09	of patients	Excellence	population aged	Potentially	aged 18-65 years	exclusions	adminstrative	group,
	hospitalize		18-65 years who	avoidable	who had a	include	data/claims,	health plan,
	d with AMI		were admitted to	complications	relevant	exclusions of	Pharmacy	Population:
	that have a		a hospital with	(PACs) in patients	hospitalization for	either "patients"	data	national,
	potentially		acute myocardial	hospitalized for	AMI (with no	or "claims"		Population:
	avoidable		infarction (AMI),	AMI occurring	exclusions) and	based on the	A two-year,	regional/net
	complicatio		were followed for	during the index	were followed for	following	national	work.
	n (during		one month after	stay or in the 30-	one month after	criteria:	commercially	Population:
	the index		discharge, and	day post-	discharge.		insured	states,
	stay or in		had one or more	discharge period.		1) "Patients"	population	Population:
	the 30-day		potentially		The time window	excluded are	(CIP) claims	counties or
	post-		avoidable	The time window	starts with a	those that have	database was	cities
	discharge		complications	starts with a	hospitalization for	any form of	used as our	
	period)		(PACs). PACs	hospitalization for	AMI and	cancer, ESRD	development	
			may occur during	AMI and	continues for one	(end-stage renal	al database.	
			the index stay or	continues for one	month after	disease),	The database	
			during the 30-day	month after	discharge.	transplants such	had 4.7	
			post-discharge	discharge.		as lung or heart-	million	
			period. We			lung transplant	covered lives	
			define PACs			or	and \$95	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			during each time			complications	billion in	
			period as one of			related to	"allowed	
			three types:			transplants,	amounts" for	
						pregnancy and	claims costs.	
			A) PACs During			delivery, HIV,	The database	
			the Index Stay			or suicide.	was an	
			(Hospitalization):			2) "Claims" are	administrativ	
			1) PACs related			excluded from	e claims	
			to the index			the AMI	database with	
			condition: The			measure if they	medical as	
			index stay is			are considered	well as	
			regarded as			not relevant to	pharmacy	
			having a PAC if			AMI care or are	claims. The	
			during the index			for major	methodology	
			hospitalization the			surgical services	can be used	
			patient develops			that suggest that	on any	
			one or more			AMI may be a	claims	
			complications			comorbidity	database with	
			such as cardiac			associated with	at least two	
			arrest, ventricular			the procedure,	years of	
			fibrillation,			e.g., CABG	data and a	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			cardiogenic			procedure.	minimum of	
			shock, stroke,			Patients where	150 patients	
			coma, acute post-			the index	with the	
			hemorrhagic			hospitalization	index	
			anemia, etc. that			claim is	condition or	
			may result			excluded are	hospitalizatio	
			directly due to			automatically	n. Having	
			AMI or its			excluded from	pharmacy	
			management.			both the	data adds to	
			2) PACs due to			numerator and	the richness	
			comorbidities:			the	of the	
			The index stay is			denominator.	risk-	
			also regarded as				adjustment	
			having a PAC if			Risk-	models. A	
			one or more of the			Adjustment	standardized	
			patient's			Conceptual	SAS-based	
			controlled			Model:	program has	
			comorbid			Variations in	been	
			conditions is			outcomes across	developed	
			exacerbated			populations may	that users	
			during the			be due to	could	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			hospitalization			patient-related	download	
			(i.e., it was not			factors or due to	from the	
			present on			provider-	website to	
			admission).			controlled	calculate	
			Examples of these			factors. When	PAC rates	
			PACs are diabetic			we	using their	
			emergency with			adjust for	own data.	
			hypo- or			patient-related	The	
			hyperglycemia,			factors, the	methodology	
			tracheostomy,			remaining	has been	
			mechanical			variance in	tested on	
			ventilation,			PACs is due to	databases of	
			pneumonia, lung			factors that	several	
			complications			could be	health plans	
			gastritis, ulcer, GI			controlled by all	as well as on	
			hemorrhage, etc.			providers that	a few	
			3) PACs			are	employer	
			suggesting patient			managing or co-	databases.	
			safety failures:			managing the		
			The index stay is			patient, both		
			regarded as			during and after		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			having a PAC if			hospitalization.		
			there are one or			We have		
			more			developed a		
			complications			"severity index"		
			related to patient			based on		
			safety issues.			patient-related		
			Examples of these			factors such as		
			PACs are			patient		
			septicemia,			demographics		
			meningitis, other			and		
			infections,			comorbidities.		
			phlebitis, deep			The severity-		
			vein thrombosis,			adjusted		
			pulmonary			PAC rates give		
			embolism, or any			a fair		
			of the CMS-			comparison of		
			defined hospital			PAC rates from		
			acquired			population to		
			conditions			population and		
			(HACs).			help providers		
						determine the		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			B) PACs During			degree of		
			the 30-Day Post-			PACs that are		
			Discharge Period:			not related to		
			1) PACs related			patient-level		
			to the index			factors but due		
			condition:			to factors that		
			Readmissions and			they could		
			emergency room			control and thus		
			visits during the			result in fewer		
			30-day post-			PACs being		
			discharge period			incurred by		
			after an AMI are			patients and		
			considered as			paid for by		
			PACs if they are			payers.		
			for angina, chest					
			pain, another			Methodology		
			AMI, stroke,			Overview:		
			coma, heart			A severity index		
			failure, etc.			is calculated for		
			2) PACs due to			each patient		
			comorbidities:			based on the		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			Readmissions and			risk-adjustment		
			emergency room			model for		
			visits during the			professional and		
			30-day post-			other services		
			discharge period			that determines		
			are also			the cost drivers		
			considered PACs			for typical care		
			if they are due to			for a given		
			an exacerbation of	•		condition.		
			one or more of the			Demographic		
			patient's			variables,		
			comorbid			comorbid		
			conditions, such			conditions,		
			as a diabetic			various types of		
			emergency with			services as well		
			hypo- or			as different		
			hyperglycemia,			patient-level		
			pneumonia, lung			pharmacy		
			complications,			indicators are		
			tracheostomy,			fed into the		
			mechanical			model.		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			ventilation, etc.			Conditions and		
			3) PACs			services that		
			suggesting patient			lead to higher		
			safety failures:			costs and		
			Readmissions or			increased		
			emergency room			resource		
			visits during the			consumption are		
			30-day post-			weighted more		
			discharge period			heavily in our		
			are considered			model. For		
			PACs if they are			example, use of		
			due to sepsis,			intracoronary		
			infections,			thrombolytics or		
			phlebitis, deep			stents in the		
			vein thrombosis,			setting of AMI,		
			or for any of the			are associated		
			CMS-defined			with higher		
			hospital acquired			coefficients in		
			conditions			the model. The		
			(HACs).			model		
						determines the		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			The information			patient-level		
			is based on a two-			factors that are		
			year, national,			drivers		
			commercially			for increased		
			insured			financial risk.		
			population (CIP)			For each patient		
			claims database.			the "predicted"		
			The database had			log coefficients		
			4.7 million			from the		
			covered lives and			severity		
			\$95 billion in			adjustment		
			"allowed			model are		
			amounts" for			summed to give		
			claims costs. The			the patient-level		
			database was an			severity-index.		
			administrative			Adjusting the		
			claims database			overall PAC		
			with medical as			rates by the		
			well as pharmacy			severity index		
			claims			for the		
						population helps		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
rumber	Titte	Stewaru	Description			adjust for variations in outcomes related to severity.		Zinarysis
OT1-031- 09	Proportion of patients hospitalize d with stroke that have a potentially avoidable complication (during the index stay or in the 30-day post-discharge	Bridges To Excellence	Percent of adult population aged 18-65 years who were admitted to a hospital with stroke, were followed for one month after discharge, and had one or more potentially avoidable complications (PACs). PACs may occur during	Outcome: Potentially avoidable complications (PACs) in patients hospitalized for stroke occurring during the index stay or in the 30- day post- discharge period. The time window starts with a hospitalization for stroke and	one month after discharge. The time window starts with a	or "claims" based on the following criteria: 1) "Patients" excluded are those that have	Electronic adminstrative data/claims, Pharmacy data A two-year, national, commercially insured population (CIP) claims database was used as our development	Clinicians: Group, Health Plan, Population: national, Population: regional/net work, Facility/Ag ency

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
	period)		the index stay or	continues for one	continues for one	(end-stage renal	al database.	
			during the 30-day	month after	month after	disease),	The database	
			post-discharge	discharge.	discharge.	transplants such	had 4.7	
			period). We			as lung or heart-	million	
			define PACs			lung transplant	covered lives	
			during each time			or	and \$95	
			period as one of			complications	billion in	
			three types:			related to	"allowed	
						transplants,	amounts" for	
			A) PACs During			intracranial	claims costs.	
			the Index Stay			trauma,	The database	
			(Hospitalization):			pregnancy and	was an	
			1) PACs related			delivery, HIV,	administrativ	
			to the index			or suicide.	e claims	
			condition: The			2) "Claims" are	database with	
			index stay is			excluded from	medical as	
			regarded as			the stroke	well as	
			having a PAC if			measure if they	pharmacy	
			during the index			are considered	claims. The	
			hospitalization for			not relevant to	methodology	
			stroke the patient			stroke care or	can be used	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			develops one or			are for major	on any	
			more			surgical services	claims	
			complications			that suggest that	database with	
			such as			stroke may be a	at least two	
			hypertensive			comorbidity or	years of	
			encephalopathy,			complication	data and a	
			malignant			associated with	minimum of	
			hypertension,			the procedure,	150 patients	
			coma, anoxic			e.g., CABG	with the	
			brain damage, or			procedure.	index	
			respiratory			Patients where	condition or	
			failure, etc. that			the index	hospitalizatio	
			may result			hospitalization	n. Having	
			directly from			claim is	pharmacy	
			stroke or its			excluded are	data adds to	
			management.			automatically	the richness	
			2) PACs due to			excluded from	of the	
			comorbidities:			both the	risk-	
			The index stay is			numerator and	adjustment	
			also regarded as			the	models. A	
			having a PAC if			denominator.	standardized	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			one or more of the				SAS-based	
			patient's			Risk-	program has	
			controlled			Adjustment:	been	
			comorbid			Risk-adjustment	developed	
			conditions is			devised	that users	
			exacerbated			specifically for	could	
			during the			this measure/	download	
			hospitalization			condition	from the	
			(i.e., it was not				website to	
			present on			Conceptual	calculate	
			admission).			Model:	PAC rates	
			Examples of these			Variations in	using their	
			PACs are diabetic			outcomes across	own data.	
			emergency with			populations may	The	
			hypo- or			be due to	methodology	
			hyperglycemia,			patient-related	has been	
			pneumonia, lung			factors or due to	tested on	
			complications,			provider-	databases of	
			acute myocardial			controlled	several	
			infarction,			factors. When	health plans	
			gastritis, ulcer, GI			we	as well as on	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			hemorrhage, etc.			adjust for	a few	
			3) PACs			patient-related	employer	
			suggesting patient			factors, the	databases.	
			safety failures:			remaining		
			The index stay is			variance in		
			regarded as			PACs is due to		
			having a PAC if			factors that		
			there are one or			could be		
			more			controlled by all		
			complications			providers that		
			related to patient			are managing or		
			safety issues.			co-managing		
			Examples of these			the patient, both		
			PACs are			during and after		
			septicemia,			the		
			meningitis, other			hospitalization.		
			infections,			We have		
			phlebitis, deep			developed a		
			vein thrombosis,			"severity index"		
			pulmonary			based on		
			embolism, or any			patient-related		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			of the CMS-			factors such as		
			defined hospital			patient		
			acquired			demographics		
			conditions			and		
			(HACs).			comorbidities.		
						The severity-		
			B) PACs During			adjusted PAC		
			the 30-Day Post-			counts give a		
			Discharge Period:			fair comparison		
			1) PACs related			of PACs and		
			to the index			PAC rates from		
			condition:			population to		
			Readmissions and			population and		
			emergency room			help providers		
			visits during the			determine the		
			30-day post-			degree of PACs		
			discharge period			that are not		
			after a stroke are			related to		
			considered as			patient-level		
			PACs if they are			factors but due		
			for hypertensive			to factors that		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			encephalopathy,			they could		
			malignant			control and thus		
			hypertension,			result in fewer		
			respiratory			PACs being		
			failure, coma,			incurred by		
			anoxic brain			patients and		
			damage, etc.			paid for by		
			2) PACs due to			payers.		
			comorbidities:					
			Readmissions and			Methodology		
			emergency room			Overview:		
			visits during the			A severity index		
			30-day post-			is calculated for		
			discharge period			each patient		
			are also			based on the		
			considered PACs			risk-adjustment		
			if they are due to			model for		
			an exacerbation of			professional and		
			one or more of the			other services		
			patient's			that determines		
			comorbid			the cost drivers		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			conditions, such			for typical care		
			as a diabetic			for a given		
			emergency with			condition.		
			hypo- or			Demographic		
			hyperglycemia,			variables,		
			pneumonia, lung			comorbid		
			complications,			conditions,		
			acute myocardial			various types of		
			infarction, acute			services as well		
			renal failure, etc.			as		
			3) PACs			different		
			suggesting patient			patient-level		
			safety failures:			pharmacy		
			Readmissions or			indicators are		
			emergency room			fed into the		
			visits during the			model.		
			30-day post-			Conditions and		
			discharge period			services that		
			are considered			lead to higher		
			PACs if they are			costs and		
			due to sepsis,			increased		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			infections, deep			resource		
			vein thrombosis,			consumption are		
			pulmonary			weighted more		
			embolism, or for			heavily in our		
			any of the CMS-			model. For		
			defined hospital			example, DME		
			acquired			use is associated		
			conditions			with a higher		
			(HACs).			coefficient in		
						the model. The		
			The information			model		
			is based on a two-			determines the		
			year, national,			patient-level		
			commercially			factors that are		
			insured			drivers for		
			population (CIP)			increased		
			claims database.			financial risk.		
			The database had			For each patient		
			4.7 million			the "predicted"		
			covered lives and			log coefficients		
			\$95 billion in			from the		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			"allowed			severity-		
			amounts" for			adjustment		
			claims costs. The			model are		
			database was an			summed to give		
			administrative			the patient-level		
			claims database			severity index.		
			with medical as			Summing the		
			well as pharmacy			patient-level		
			claims. The two			severity index		
			tabs demonstrate			helps derive the		
			the most common			population-level		
			PACs that			severity index.		
			occurred in			Adjusting the		
			patients			overall PAC		
			hospitalized with			rates by the		
			stroke.			severity-index		
						for the		
						population helps		
						adjust for		
						variations in		
						outcomes		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						related to		
						severity.		
OT2-002-	Risk	American	This is a hospital-	The outcome of	Patients	Adjustments:	Electronic	Facility/
09	adjusted	College of	based, risk-	interest is	undergoing any	From 271,368	Health/	Agency
	colorectal	surgeons	adjusted, case	hospital-specific,	ACS NSQIP	patient records	Medical	
	surgery		mix-adjusted,	risk-adjusted	listed (primary	in the 2008	Records,	
	outcome		morbidity and	mortality, a return	CPT) colorectal	ACS NSQIP	Electronic	
	measure		mortality	to the operating	surgical	data file, 21,694	clinical data,	
			composite	room, or any of	procedure.	acceptable	paper	
			outcome measure	the following		records from	medical	
			of adults 18+	morbidities as	(44140, 44141,	211 hospitals	record/	
			years undergoing	defined by	44143, 44144,	(mean/hospital	flowsheet.	
			colorectal	American College	44145, 44146,	= 103) were		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			surgery.	of Surgeons	44147, 44150,	analyzed.		
				National Surgical	44151, 44155,	Records were		
				Quality	44156, 44157,	excluded either		
				Improvement	44158, 44160,	because of		
				Program (ACS	44204, 44205,	missing values		
				NSQIP): Cardiac	44206, 44207,	for critical		
				arrest requiring	44208, 44210,	variables or		
				CPR, myocardial	44211, 44212,	because the		
				infarction, DVT	45110, 45111,	primary CPT		
				requiring therapy,	45112, 45113,	code could not		
				sepsis, septic	45114, 45116,	be categorized		
				shock, deep	45119, 45120,	into 1 of the 136		
				incisional SSI,	45121, 45123,	pre-established		
				organ/space SSI,	45126, 45130,	CPT "Groups."		
				wound disruption,	45135, 45160,	These		
				unplanned	45395, 45397,	categorizations		
				reintubation	45402, 45550)	have been		
				without prior		defined and		
				ventilator	Notes: following	implemented for		
				dependence,	codes are not	risk-adjustment		
				pneumonia	included in this	in previously		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
				without pre-	denominator list:	published		
				operative	44152 (not	research.*		
				pneumonia,	found), 44153			
				pulmonary	(not found),	An outcome		
				embolism,	44239 (not	was defined as		
				progressive renal	found), 45540	30-day		
				insufficiency or	(proctopexy	mortality or any		
				acute renal failure	T 1	serious		
				without pre-	resection), 45499	morbidity		
				operative renal	(unlisted	including:		
				failure or dialysis,	laparoscopy,	cardiac arrest		
				or UTI within 30	rectum).	requiring CPR,		
				days of any ACS	,	myocardial		
				NSQIP listed		infarction, DVT		
				(CPT) surgical		requiring		
				procedure.		therapy, sepsis,		
				Targeted events		septic shock,		
				within 30 days of		organ space		
				the operation are		SSI, deep		
				included.		incisional SSI,		
						wound		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						disruption,		
						unplanned		
						reintubation		
						without prior		
						ventilator		
						dependence,		
						pneumonia		
						without pre-		
						operative		
						pneumonia,		
						pulmonary		
						embolism,		
						progressive		
						renal		
						insufficiency or		
						acute renal		
						failure without		
						pre-operative		
						renal failure or		
						dialysis, urinary		
						tract infection,		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						or return to the		
						operating room,		
						according to		
						ACS NSQIP		
						definitions. Of		
						the 21,694		
						patients, 4,862		
						(22.4%)		
						experienced		
						death or a		
						serious		
						morbidity event.		
						CPT Group was		
						originally		
						considered a		
						categorical		
						variable but, to		
						maintain		
						methodological		
						consistency		
						with other		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						proposed		
						measures, CPT		
						Group was		
						converted to		
						continuous risk		
						variable. This		
						was		
						accomplished		
						by making the		
						categorical		
						Group variable		
						a single		
						predictor for		
						mortality/morbi		
						dity and		
						invoking the		
						Firth penalized		
						likelihood		
						method in the		
						logistic		
						modeling		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
			1			software (SAS		V
						PROC		
						LOGISTIC).		
						The patient-		
						based predicted		
						log odds from		
						this model was		
						then used as a		
						continuous		
						predictor in		
						subsequent		
						logistic models,		
						which also		
						included the		
						standard		
						predictors.		
						Step-wise		
						logistic		
						regression (P <		
						0.05 for		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						inclusion),		
						which selected		
						from a total of		
						26 NSQIP		
						predictors,		
						identified 20		
						predictors for		
						inclusion in the		
						model. In order		
						of inclusion		
						these variables		
						were: ASA		
						Class, pre-		
						operative		
						Functional		
						Status,		
						Indication, Log		
						Odds CPT		
						Group,		
						Emergent,		
						Wound Class,		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						Dyspnea,		
						Weight Loss,		
						Steroid Use,		
						Smoking,		
						Disseminated		
						Cancer, History		
						of COPD,		
						Ascites,		
						Hypertension,		
						Ventilator		
						Dependent, Age		
						Group, Radio		
						Therapy,		
						Alcohol Use,		
						Bleeding		
						Disorder, and		
						Previous		
						Vascular		
						Event/Disease.		
						The c-statistic		
						was 0.738 and		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						the Hosmer-		
						Lemeshow was		
						0.043. Because		
						of the very large		
						sample sizes		
						studied here, a		
						statistically		
						significant		
						Hosmer-		
						Lemeshow		
						statistic is not		
						considered		
						informative		
						with respect to		
						calibration.		
						Using only the		
						first six selected		
						variables (ASA		
						Class, pre-		
						operative		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
Tullibel	Title	biewaru	Description			Functional		7 Kilaly Sis
						Status,		
						Indication, Log		
						Odds CPT		
						Group,		
						Emergent, and		
						Wound Class),		
						the c-statistic		
						was 0.727 and		
						the Hosmer-		
						Lemeshow was		
						0.177). The use		
						of these six		
						predictors for		
						modeling was		
						further		
						evaluated.		
						Using a 95%		
						confidence		
						interval for the		
						ratio of		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						observed to		
						expected events		
						(O/E), this six-		
						variable logistic		
						model identified		
						16 statistical		
						outliers (10 low		
						outliers and 6		
						high outliers).		
						When the same		
						six variables		
						were used in a		
						random		
						intercept, fixed		
						slope,		
						hierarchical		
						model (SAS		
						PROC		
						GLIMMIX)		
						using only the		
						fixed portion of		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						the prediction		
						equation		
						(NOBLUP		
						option), 17		
						outliers were		
						detected (11		
						low outliers and		
						6 high outliers).		
						Thus, using a		
						95% confidence		
						interval, logistic		
						and hierarchical		
						models		
						identified 3% of		
						hospitals as		
						high outliers.		
						When the		
						logistic model		
						parameters were		
						applied to an		
						independent		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						validation data		
						set (the 2007		
						data file		
						composed of		
						18,098 patients)		
						after coding		
						CPT Groups		
						with log odds		
						derived from		
						the original one-		
						variable model		
						on 2008 data,		
						the c-statistic		
						was essentially		
						unchanged (c-		
						statistic =		
						0.721).		
						0.721).		
						A GEE		
						(generalized		
						estimating		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
						equations)		
						approach (SAS		
						PROC		
						GENMOD)		
						with compound		
						symmetry was		
						used to estimate		
						the intraclass		
						correlation		
						(ICC), which is		
						reported in		
						GENMOD as		
						the		
						exchangeable		
						working		
						correlation. The		
						ICC was		
						0.010562. The		
						relationship		
						between sample		
						size, the ICC,		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
rumber		Stewart	Description			and reliability is defined as: N = R /[ICC(1 - R)] - R / (1 R), where N is the required number of patients per hospital and R is reliability. Based on the estimated ICC, patients per hospital to achieve reliability levels of 0.3, 0.4, 0.5, 0.6, and 0.7 are 41, 63, 94, 141, and 219, respectively.		Analysis

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
						For the table		
						detailing risk		
						factors, odds		
						ratios, and		
						parameters for		
						the logistic		
						model, please		
						see attachment		
						(Parsimonious		
						Model for		
						Colorectal.doc).		
						,		
						For initial		
						year(s) of		
						measure use,		
						ACS NSQIP		
						data-derived		
						model		
						parameters will		
						be used to		
						construct risk-		

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Measure Number	Measure Title	Measure Steward	Measure Description	Numerator	Denominator	Exclusions / Adjustments	Data Source	Level of Analysis
1 (02112001	11010	Stewaru -	2 escription			adjusted O/E		Time y Sis
						ratios for		
						participating		
						hospitals. Once		
						data from		
						measure-		
						participating		
						hospitals are		
						substantial,		
						models will be		
						derived from		
						that data.		
						*References		
						utilizing CPT		
						groups		
						8		
						Exclusions:		
						Trauma and		
						transplant		
						surgeries are		

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Measure	Measure	Measure	Measure	Numerator	Denominator		Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						excluded as are		
						surgeries not on		
						the ACS NSQIP		
						CPT list as		
						eligible for		
						selection.		
						Patients who are		
						ASA 6 (brain-		
						death organ		
						donor) are not		
						eligible surgical		
						cases.		
OT2-005-	30-day	Brandeis	This measure	The numerator is	The composite	N/A	Electronic	Population:
09	post-	University/	scores a hospital	the weighted sum	measure is the		adminstrative	national
	hospital	CMS	on the incidence	of the three	weighted of three		data/claims	
	PNA		among its patients	deviations from	individual			
	(Pneumoni		during the month	their expected	measures. Thus,			
	a)		following	values for the	the denominator			
	discharge		discharge from an	individual	is one.			
	care		inpatient stay	measures				
	transition		having a primary	comprising the				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
	composite		diagnosis of PNA	component				
	measure		for three types of	measure. The				
			events:	question of				
			readmissions, ED	appropriate				
			visits, and	weights on the				
			evaluation and	deviations is				
			management	difficult and				
			(E&M) services.	would probably				
				lead to a wide				
			These events are	variation in				
			relatively	opinion. The				
			common,	weights of -4 , -2 ,				
			measurable using	and 1 are selected				
			readily available	to represent order				
			administrative	of magnitude				
			data, and	differences in				
			associated with	seriousness of the				
			effective	three outcomes,				
			coordination of	which most would				
			care after	agree to (that is to				
			discharge. The	say: readmission				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	
Number	Title	Steward	Description			Adjustments		Analysis
			input for this	is more important				
			score is the result	than ED, which is				
			of measures for	more important in				
			each of these	a negative way				
			three events that	than E & M				
			are being	service is in a				
			_	positive way).				
			concurrently	The idea on not				
			under the Patient	using weights was				
			Outcomes	also considered,				
				but this was noted				
				to be itself a de				
			Measures. Each	facto weight				
			of these	scheme (with all				
			individual	weights the				
			measures is a	same), and as				
			risk-adjusted,	such, a weight				
			standardized rate	scheme that was				
			together with a	less appropriate				
			percentile	than the one				
			ranking. This	chosen.				

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			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 a					
			percentile ranking					
			to help with its					
			interpretation.					
OT2-013-	Proportion	Bridges To	Percent of adult	Outcome:	Adult patients	Denominator	Electronic	Clinicians:
09	of patients	Excellence	population aged	Potentially	aged 18-65 years	exclusions	adminstrative	Group,

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
	hospitalize		18-65 years who	avoidable	who had a	include	data/claims,	Health
	d with		were admitted to	complications	relevant	exclusions of	Pharmacy	Plan,
	pneumonia		a hospital with	(PACs) in patients	hospitalization for	either "patients"	data	Population:
	that have a		pneumonia, were	hospitalized for	pneumonia (with	or "claims"		national,
	potentially		followed for one	pneumonia	no exclusions)	based on the	A two-year,	Population:
	avoidable		month after	occurring during	and were	following	national,	regional/net
	complicatio		discharge, and	the index stay or	followed for one	criteria:	commercially	work,
	n (during		had one or more	in the 30-day	month after		insured	Population:
	the index		potentially	post-discharge	discharge.	1) "Patients"	population	states,
	stay or in		avoidable	period.		excluded are	(CIP) claims	Population:
	the		complications		The time window	those that have	database was	counties or
	30-day		(PACs). PACs	The time window	starts with a	any form of	used as our	cities
	post-		may occur during	starts with a	hospitalization for	cancer	development	
	discharge		the index stay or	hospitalization for	pneumonia and	(especially	al database.	
	period)		during the 30-day	pneumonia and	continues for one	cancer of lung	The database	
			post-discharge	continues for one	month after	and bronchus),	had 4.7	
			period.	month after	discharge.	thalassemia,	million	
				discharge.		sickle-cell	covered lives	
			We define PACs			disease, ESRD	and \$95	
			during each time			(end-stage renal	billion in	
			period as one of			disease),	"allowed	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			three types:			transplants such	amounts" for	
						as lung or heart-	claims costs.	
			A) PACs During			lung transplant	The database	
			the Index Stay			or	was an	
			(Hospitalization):			complications	administrativ	
			1) PACs related			related to	e claims	
			to the index			transplants,	database with	
			condition: The			pregnancy and	medical as	
			index stay is			delivery, HIV,	well as	
			regarded as			or	pharmacy	
			having a PAC if			suicide.	claims. The	
			during the index			2) "Claims" are	methodology	
			hospitalization the			excluded from	can be used	
			patient			the pneumonia	on any	
			develops one or			measure if they	claims	
			more of the			are considered	database with	
			avoidable			not relevant to	at least two	
			complications that			pneumonia care	years of	
			can result from			or are for	data and a	
			pneumonia, such			major surgical	minimum of	
			as respiratory			services that	150 patients	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			failure,			suggest that	with the	
			respiratory			pneumonia may	index	
			insufficiency,			be a	condition or	
			pneumothorax,			comorbidity	hospitalizatio	
			pulmonary			associated with	n. Having	
			collapse, or			the procedure,	pharmacy	
			requires			e.g., CABG	data adds to	
			respiratory			procedure.	the richness	
			intubation and			Patients where	of the	
			mechanical			the index	risk-	
			ventilation,			hospitalization	adjustment	
			incision of pleura,			claim is	models. A	
			thoracocentesis,			excluded are	standardized	
			chest drainage,			automatically	SAS-based	
			tracheostomy, etc.			excluded from	program has	
			2) PACs due to			both the	been	
			comorbidities:			numerator and	developed	
			The index stay is			the	that users	
			also regarded as			denominator.	could	
			having a PAC if				download	
			one or more of the			Risk-	from the	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			patient's			Adjustment	website to	
			controlled			Conceptual	calculate	
			comorbid			Model:	PAC rates	
			conditions is			Variations in	using their	
			exacerbated			outcomes across	own data.	
			during the			populations may	The	
			hospitalization			be due to	methodology	
			(i.e., it was not			patient-related	has been	
			present on			factors or due to	tested on	
			admission).			provider-	databases of	
			Examples of these			controlled	several	
			PACs are diabetic			factors. When	health plans	
			emergency with			we adjust for	as well as on	
			hypo- or			patient-related	a few	
			hyperglycemia,			factors, the	employer	
			stroke, coma,			remaining	databases.	
			gastritis, ulcer, GI			variance in		
			hemorrhage, acute			PACs is due to		
			renal failure, etc.			factors that		
			3) PACs			could be		
			suggesting patient			controlled by all		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			safety failures:			providers that		
			The index stay is			are		
			regarded as			managing or co-		
			having a PAC if			managing the		
			there is one or			patient, both		
			more			during and after		
			complication			the		
			related to patient			hospitalization		
			safety issues.					
			Examples of these			We have		
			PACs are			developed a		
			infections, sepsis,			"severity index"		
			phlebitis, deep			based on		
			vein thrombosis,			patient-related		
			pulmonary			factors such as		
			embolism, or any			patient		
			of the CMS-			demographics		
			defined hospital			and		
			acquired			comorbidities.		
			conditions			The severity-		
			(HACs).			adjusted PAC		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						counts give a		
			B) PACs During			fair comparison		
			the 30-Day Post-			of PACs and		
			Discharge Period:			PAC rates from		
						population to		
			1) PACs related			population and		
			to the index			help providers		
			condition:			determine the		
			Readmissions and			degree of PACs		
			emergency room			that are not		
			visits during the			related to		
			30-day post-			patient-level		
			discharge period			factors but are		
			are			due to factors		
			considered PACs			that they can		
			if they are for			control and thus		
			potentially			result in fewer		
			avoidable			PACs being		
			complications of			incurred by		
			pneumonia such			patients and		
			as respiratory			paid for by		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			failure,			payers.		
			respiratory					
			insufficiency,			Methodology		
			pneumonia,			Overview:		
			respiratory			A severity index		
			intubation,			is calculated for		
			mechanical			each patient		
			ventilation, etc.			based on the		
			2) PACs due to			risk-adjustment		
			comorbidities:			model for		
			Readmissions and			professional and		
			emergency room			other services		
			visits during the			that determines		
			30-day post-			the cost drivers		
			discharge period			for typical care		
			are also			for a given		
			considered PACs			condition.		
			if they are due to			Demographic		
			an exacerbation of			variables,		
			one or more of the			comorbid		
			patient's			conditions,		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			comorbid			various types of		
			conditions, such			services as well		
			as a diabetic			as		
			emergency with			different		
			hypo- or			patient-level		
			hyperglycemia,			pharmacy		
			stroke, coma,			indicators are		
			gastritis, ulcer, GI			fed into the		
			hemorrhage, acute			model.		
			renal failure, etc.			Conditions and		
			3) PACs			services that		
			suggesting patient			lead to higher		
			safety failures:			costs and		
			Readmissions or			increased		
			emergency room			resource		
			visits during the			consumption are		
			30-day post-			weighted more		
			discharge period			heavily in our		
			are			model. For		
			considered PACs			example, DME		
			if they are due to			use is associated		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			sepsis, infections,			with a higher		
			phlebitis, deep			coefficient in		
			vein thrombosis,			the model. The		
			or for any of the			model		
			CMS-defined			determines the		
			hospital acquired			patient-level		
			conditions			factors that are		
			(HACs).			drivers for		
						increased		
			The information			financial risk.		
			is based on a two-			For each patient		
			year, national,			the "predicted"		
			commercially			log coefficients		
			insured			from the		
			population (CIP)			severity-		
			claims database.			adjustment		
			The database had			model are		
			4.7 million			summed to give		
			covered lives and			the patient-level		
			\$95 billion in			severity index.		
			"allowed					

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			amounts" for					
			claims costs. The					
			database was an					
			administrative					
			claims database					
			with medical as					
			well as pharmacy					
			claims.					
OT2-022-	Proportion	Bridges To	Percent of adult	Outcome:	Adult patients	Denominator	Electronic	Health
09	of patients	Excellence	population aged	Potentially	aged 18-65 years	exclusions	administrativ	Plan,
	with a		18-65 years who	avoidable	who had a trigger	include	e data /	Clinicians:
	chronic		were identified as	complications	code for one of	exclusions of	claims,	group,
	condition		having at least	(PACs) in patients	the six chronic	either "patients"	Pharmacy	Population:
	that have a		one of the	having one of six	conditions:	or "claims"	data	national,
	potentially		following six	chronic	Diabetes Mellitus	based on the		Population:
	avoidable		chronic	conditions:	(DM), Congestive	following	A two-year,	regional /
	complicati-		conditions:	Diabetes Mellitus	Heart Failure	criteria:	national,	network
	on during a		Diabetes Mellitus	(DM), Congestive	(CHF), Coronary		commercially	
	calendar		(DM), Congestive	Heart Failure	Artery Disease	1) "Patients"	insured	
	year.		Heart Failure	(CHF), Coronary	(CAD),	excluded are	population	
			(CHF), Coronary	Artery Disease	Hypertension	those who have	(CIP) claims	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			Artery Disease	(CAD),	(HTN), Chronic	any form of	database was	
			(CAD),	Hypertension	Obstructive	cancer, ESRD	used as our	
			Hypertension	(HTN), Chronic	Pulmonary	(end-stage renal	development	
			(HTN), Chronic	Obstructive	Disease (COPD)	disease),	al database.	
			Obstructive	Pulmonary	or Asthma (with	transplants such	The database	
			Pulmonary	Disease (COPD)	no exclusions),	as lung or heart-	had 4.7	
			Disease (COPD)	or Asthma, during	and were	lung transplant	million	
			or Asthma, were	the episode time	followed for one	or	covered lives	
			followed for one	window of one	year from the	complications	and \$95	
			year, and had one	calendar year (or	trigger code.	related to	billion in	
			or more	12 consecutive		transplants,	"allowed	
			potentially	months).	The time window	pregnancy and	amounts" for	
			avoidable		starts with a	delivery, HIV,	claims costs.	
			complications	The time window	professional claim	or suicide.	The database	
			(PACs). A	starts with a	that carries a	2) "Patients" are	was an	
			potentially	professional claim	trigger code for	also excluded if	administrativ	
			avoidable	that carries a	one of the six	they have case-	e claims	
			complication is	trigger code for	chronic care	breaker	database with	
			any event that	one of the six	conditions:	situations such	medical as	
			negatively	chronic care	Diabetes Mellitus	as cardiac	well as	
			impacts the	conditions:	(DM), Congestive	arrest, shock,	pharmacy	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			patient and is	Diabetes Mellitus	Heart Failure	coma or brain	claims. The	
			potentially	(DM), Congestive	(CHF), Coronary	damage.	methodology	
			controllable by	Heart Failure	Artery Disease	3)"Claims" are	can be used	
			the physicians and	(CHF), Coronary	(CAD),	excluded from	on any	
			hospitals that	Artery Disease	Hypertension	the chronic care	claims	
			manage and co-	(CAD),	(HTN), Chronic	measure if they	database with	
			manage the	Hypertension	Obstructive	are not	at least two	
			patient.	(HTN), Chronic	Pulmonary	considered	years of	
			Generally, any	Obstructive	Disease (COPD)	relevant to the	data and a	
			hospitalization	Pulmonary	or Asthma, and	care for the	minimum of	
			related to the	Disease (COPD)	continues for a	chronic	150 patients	
			patient's core	or Asthma, and	period of one year	condition,	with the	
			chronic condition	continues for a	from the trigger	such as trauma-	index	
			or any	period of one year	code.	related claims;	condition.	
			comorbidity is	(12 months) from		or are for major	Having	
			considered a	the trigger code.		surgical services	pharmacy	
			potentially			that suggest that	data adds to	
			avoidable			the chronic	the richness	
			complication,			condition	of the	
			unless that			should be a	risk-	
			hospitalization is			comorbidity	adjustment	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			considered to be a			associated with	models. A	
			typical service for			the procedure,	standardized	
			a patient with that			e.g., CABG	SAS-based	
			condition.			procedure or hip	program has	
			Additional PACs			replacement	been	
			that can occur			surgery, etc.	developed	
			during the			4) Additionally,	that users	
			calendar year			the episode does	could	
			include those			not start until	download	
			related to			there is a stable	from our	
			emergency room			trigger claim.	website	
			visits, as well as			For patients	(www.prome	
			other professional			where the initial	theuspaymen	
			or ancillary			trigger code is	t.org) to	
			services tied to a			on a hospital	calculate	
			potentially			,	PAC rates	
			avoidable			initial trigger	using their	
			complication.			claim has a	own data.	
						trigger	The	
			We define PAC			exclusion code	methodology	
			hospitalizations			(suggesting that	has been	

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			and PAC			the patient is	tested on	
			professional and			unstable at the	databases of	
			other services as			time of	several	
			one of three			trigger), the	health plans	
			types:			episode is	as well as on	
						triggered only	a few	
			A) PAC-Related			when a stable	employer	
			Hospitalizations:			trigger claim is	databases.	
			1)			identified.		
			Hospitalizations			Claims relevant		
			related to the			to the chronic		
			index condition:			condition but		
			Hospitalizations			prior to		
			due to acute			the trigger claim		
			exacerbations of			are therefore		
			the index			excluded from		
			condition are			the measure.		
			considered PACs.			This gives the		
			For example, a			physicians the		
			hospitalization for			benefit of being		
			a diabetic			measured on		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			emergency in a			patients who		
			diabetic patient,			are stable at the		
			or a			time the episode		
			hospitalization for			period (12		
			an acute			months) is		
			pulmonary edema			triggered.		
			in a CHF patient.					
			Note that for			Risk-		
			patients with			Adjustment		
			CAD, many			Conceptual		
			hospitalizations			Model:		
			are part of typical			Variations in		
			care and are not			outcomes across		
			considered PACs.			populations may		
			2)			be due to		
			Hospitalizations			patient-related		
			due to			factors or due to		
			comorbidities:			provider-		
			Hospitalizations			controlled		
			due to any of the			factors. When		
			patient's			we adjust for		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			comorbid			patient-related		
			conditions are			factors, the		
			considered PACs.			remaining		
			For example, a			variance in PAC		
			diabetic			rates is due to		
			emergency or			factors that		
			pneumonia			could be		
			hospitalization for			controlled by all		
			a patient with			providers that		
			heart failure. Note			are managing or		
			that			co-managing		
			hospitalizations			the patient,		
			for a major			during the entire		
			surgical			episode time		
			procedure (such			window.		
			as joint					
			replacement,			We have		
			CABG, etc.) are			developed a		
			not counted as			severity index		
			PACs.			based on		
			3)			patient-related		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			Hospitalizations			factors, such as		
			suggesting patient			patient		
			safety failures:			demographics		
			Hospitalizations			and		
			for major			comorbidities.		
			infections, deep			The severity-		
			vein thrombosis,			adjusted PAC		
			adverse drug			counts give a		
			events, and other			fair comparison		
			patient safety-			of PAC rates		
			related events are			from population		
			considered PACs.			to population		
						and help		
			B) Other PACs			providers		
			During the			determine the		
			Calendar Year			degree of PACs		
			Studied:			that are not		
			1) PACs related			related to		
			to the index			patient-level		
			condition:			factors but due		
			Emergency room			to factors that		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			visits,			they could		
			professional and			control.		
			ancillary services					
			related to the			Methodology		
			index condition			Overview		
			are considered			A severity index		
			PACs if they are			is calculated for		
			due to an acute			each patient		
			exacerbation of			based on the		
			the index			risk-adjustment		
			condition such as			model for		
			acute			professional and		
			exacerbation of			other services		
			COPD in patients			that determines		
			with lung disease,			the cost drivers		
			or acute heart			for typical care		
			failure in patients			for a given		
			with CHF.			condition.		
			2) PACs due to			Demographic		
			comorbidities:			variables,		
			Emergency room			comorbid		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			visits,			conditions,		
			professional and			various types of		
			ancillary services			services as well		
			are considered			as patient-level		
			PACs if they are			pharmacy		
			due to an			indicators are		
			exacerbation of			fed into the		
			one or more of the			model.		
			patient's			Conditions and		
			comorbid			services that		
			conditions, such			lead to higher		
			as an acute			costs and		
			exacerbation of			increased		
			COPD or acute			resource		
			heart failure in			consumption are		
			patients with			weighted more		
			diabetes.			heavily in our		
			3) PACs			model. The		
			suggesting patient			model		
			safety failures:			determines the		
			Emergency room			patient-level		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			visits,			factors that are		
			professional and			drivers for		
			ancillary services			increased		
			for major			financial risk.		
			infections, deep			For example,		
			vein thrombosis,			DME use is		
			adverse drug			associated with		
			events, and other			a high		
			patient safety-			coefficient in		
			related events are			the diabetes		
			considered PACs.			model. For		
						each patient the		
			The information			"predicted" log		
			is based on a two-			coefficients		
			year, national,			from the		
			commercially			severity		
			insured			adjustment		
			population (CIP),			model are		
			claims database.			summed to give		
			The database had			the patient-level		
			4.7 million			severity index.		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			covered lives and			Summing the		-
			\$95 billion in			patient-level		
			"allowed			severity indices		
			amounts" for			helps derive the		
			claims costs. The			population-level		
			database was an			severity index.		
			administrative			Adjusting the		
			claims database			overall PAC		
			with medical as			rates by the		
			well as pharmacy			severity index		
			claims. It is			for the		
			important to note			population helps		
			that while the			adjust for		
			overall frequency			variations in		
			of PAC			outcomes		
			hospitalizations is			related to		
			low (for all			severity.		
			chronic care					
			conditions			There were six		
			summed together,			separate risk-		
			PAC frequency			adjustment		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
			was 6.32% of all			models created		
			PAC			for the six		
			occurrences), they			chronic		
			amount to more			conditions		
			than 58% of the			under study,		
			PAC medical			namely:		
			costs.			Diabetes		
						Mellitus (DM),		
						Congestive		
						Heart Failure		
						(CHF),		
						Coronary Artery		
						Disease (CAD),		
						Hypertension		
						(HTN), Chronic		
						Obstructive		
						Pulmonary		
						Disease		
						(COPD) or		
						Asthma (with		
						no exclusions).		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						The risk-		
						adjustment		
						variables that		
						were included		
						were patient		
						demographic		
						factors such as		
						age and gender,		
						medical		
						comorbidities,		
						procedures		
						performed, as		
						well as		
						pharmacy		
						variables. Some		
						of the risk factor		
						variables were		
						condition		
						specific, e.g.,		
						for diabetes, the		
						type of diabetes		

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Measure	Measure	Measure	Measure	Numerator	Denominator	Exclusions /	Data Source	Level of
Number	Title	Steward	Description			Adjustments		Analysis
						and whether or		
						not it was		
						controlled were		
						separate risk		
						factors that		
						were fed into		
						the model.		

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

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National Breast Cancer Coalition, Sioux Falls, SD

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

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NATIONAL VOLUNTARY CONSENSUS STANDARDS FOR PATIENT OUTCOMES, SECOND 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