



HEALTHGRADES[®]
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HealthGrades Hospital Quality and Clinical Excellence Study

January 2011

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Each year HealthGrades independently assesses the quality of care at the nation's 5,000 hospitals and publishes the results of its annual research on the Web to help consumers in choosing a hospital. In this study, HealthGrades objectively identifies hospitals among the best in the nation based on overall clinical outcomes. Using these 238 elite hospitals, HealthGrades also identifies the top 50 cities for hospital care. For a list of best-performing hospitals and for individual hospital quality results, see www.HealthGrades.com.

Executive Summary

In a recent consumer survey of 14,705 visitors to HealthGrades.com regarding their perceptions of hospital quality, 83% of individuals indicated that they were very or somewhat concerned about hospital quality in their community and 42% indicated that they believed their chances of experiencing an unexpected death or complication was higher at certain hospitals in their community compared to others.

Since 1998, HealthGrades has been independently providing consumers valuable quality information about the nation's nearly 5,000 nonfederal hospitals. HealthGrades provides consumers with independent ratings for 26 distinct procedures and diagnoses at www.HealthGrades.com to assist them in choosing the right hospital for their very specific health needs. In this ninth annual study of overall clinical performance, HealthGrades objectively identifies the hospitals with the best clinical performance for all 26 diagnoses and procedures combined. These 268 top-performing hospitals represent only 5% of the nation's hospitals and each is designated as a HealthGrades Distinguished Hospital for Clinical Excellence™ (DH-CE).

Using these top-performing hospitals as a benchmark in this study, HealthGrades quantifies the impact of differences in hospital quality in terms of lives lost and unexpected complications. Unlike other hospital quality studies, HealthGrades evaluates hospitals solely on clinical outcomes: risk-adjusted mortality and in-hospital complications. HealthGrades' analysis is based on approximately 40 million Medicare discharges for the years 2007, 2008 and 2009.

Responding to consumers concerns about the quality of hospital care in their communities, HealthGrades has identified the best-performing states for overall hospital care and the Top 50 Cities for Hospital Care based on the percentage of these Distinguished Hospitals in those communities.

Summary of Findings

Of the nation's approximately 5,000 short-term, nonfederal, non-children's, acute care hospitals, only 268 hospitals (5%) had risk-adjusted mortality and complication rates low enough to be designated as a HealthGrades Distinguished Hospital for Clinical Excellence.

During 2007 through 2009, HealthGrades Distinguished Hospitals for Clinical Excellence had:

- Overall **29.82% lower risk-adjusted mortality** across 17 procedures and diagnoses where in-hospital mortality was the end point of study.
Risk-adjusted mortality was lower at Distinguished Hospitals for Clinical Excellence for all 17 procedures and diagnoses. In fact, risk-adjusted mortality at Distinguished Hospitals for Clinical Excellence was 18.94% to 41.08% lower than all other hospitals (*Appendix B*).
- Overall **1.91% lower risk-adjusted complications** across nine procedures where in-hospital complications were the end point of study.
Risk-adjusted complications were lower at Distinguished Hospitals for Clinical Excellence for six complication-based procedures studied. For these six complication-based procedures, risk-adjusted complications at Distinguished Hospitals for Clinical Excellence were 1.31% to 7.71% lower than all other hospitals (*Appendix C*).

From 2007 through 2009, if all hospitals performed at the level of Distinguished Hospitals for Clinical Excellence:

- 158,684 Medicare deaths may have been prevented.
- 3,511 Medicare in-hospital complications may have been avoided.

Thirty-six states have one or more Distinguished Hospitals for Clinical Excellence.

- Delaware has the highest percentage of Distinguished Hospitals for Clinical Excellence at 75.00% of eligible hospitals, followed by Minnesota (55.56%), Arizona (51.85%), Maryland (36.67%), and Connecticut (35.00%) (*Table 4*).

Top-performing cities for hospital quality, as ranked by Designated Market Area (DMA), are found in 27 states (*Appendix D*).

- The top 10 cities for hospital quality can be found in Florida, Texas, Ohio, Minnesota, Arizona, Kentucky, North Carolina, South Carolina, Georgia, Tennessee, and Virginia.

Patients have on average a 29.82% lower chance of dying at the nation's Distinguished Hospitals compared to all other hospitals across 17 procedures and conditions.

If all hospitals performed at the level of Distinguished Hospitals, 158,684 Medicare lives could potentially have been saved and 3,511 Medicare in-hospital complications may have been avoided.

Introduction

Patients are increasingly using the internet to access health care quality information. According to the Pew Internet and American Life Project, internet users seeking information about a particular hospital or doctor increased 33% from 2002 to 2004 from 21% to 28% of users.¹ HealthGrades, the nation's leading independent health care ratings organization, has been studying the quality of care at the nation's hospitals since 1998 and making that information available to consumers at www.HealthGrades.com. Since the release of the first ratings, HealthGrades' Web traffic has grown to nine million unique visitors per month.

After 13 years of publishing comparative hospital quality information and educating consumers about the importance of researching hospital quality prior to being admitted, HealthGrades recently conducted its own survey to learn more about consumers' perceptions of hospital quality, quality ratings, and the impact of that information on their own behavior. Almost 15,000 people responded to our survey and shared their opinions about hospital quality.

Specifically, 83.4% of individuals reported being very or somewhat concerned about the hospital quality in their community. Given the choice, 93.8% indicated that they would drive further or reschedule an existing appointment to go to a more highly rated hospital, and 64.9% indicated they would pay more out of pocket at a top-rated hospital. Over half (57%) believe online hospital quality ratings are a trustworthy source of information. In short, consumers know there are differences in quality and they want the information to make an informed decision.

In October of 2010, HealthGrades released its *Thirteenth Annual HealthGrades Hospital Quality in America Study*. That study evaluated hospital quality in 26 of the most common Medicare diagnoses and procedures and provides consumers comparative quality information for each of the 26. This current study, *HealthGrades Hospital Quality and Clinical Excellence Study*, builds upon those results by evaluating hospitals on their performance across all 26 diagnoses and procedures and provides consumers a list of the best-performing hospitals nationwide overall. These hospitals have been designated as Distinguished Hospitals for Clinical Excellence and are ranked in the top 5% nationally. A total of 268 hospitals fall in the top 5%. These hospitals as a group have the lowest risk-adjusted mortality and fewest in-hospital complications out of the approximately 5,000 hospitals studied. These Distinguished Hospitals for Clinical Excellence for 2011 are listed in *Appendix A* and online at www.HealthGrades.com.

Since the consumers we surveyed reported that they were concerned about the quality of care in their communities, we also report the Top States and Top 50 Cities for Hospital Care as measured by those Designated Metropolitan Areas (DMAs) with the highest percentage of these Distinguished Hospitals. State information can be found in *Table 4* and the Top 50 Cities are listed in *Table 5, Appendix D* and online at www.HealthGrades.com.

83.4% of individuals are very or somewhat concerned about the quality of hospital care in their community.

Methodology

In order to evaluate overall hospital performance and to identify the best-performing hospitals in clinical excellence across the U.S., HealthGrades uses a four-step methodology:

1. Assign star ratings for 26 procedures and diagnoses using the *HealthGrades Hospital Report Cards™ Mortality and Complication Outcomes Methodology*.² These star ratings are published in October of each year.
2. Identify the overall best-performing hospitals, top 5% in the nation, through additional analysis using the *Distinguished Hospital Award for Clinical Excellence™ Methodology*.³ A hospital had to have star ratings in 19 of the 26 procedures and diagnoses studied.
3. Compare Distinguished Hospitals for Clinical Excellence to all other hospitals to identify differences in performance.
4. Identify top 50 cities for highest quality hospital care. The Top 50 Cities for Hospital Care is based on the percent of hospitals that are eligible for a HealthGrades Distinguished Hospital for Clinical Excellence award. A city or specifically a Designated Market Area (DMA) must have at least four eligible hospitals to be considered for the list. Cities are ranked by percent of eligible hospitals and ties were broken by the lowest risk-adjusted mortality and complications rates of all eligible and award recipient hospitals in that DMA.

The 26 procedures and diagnoses in this study are as follows.

Mortality Cohorts	
Bowel Obstruction	Pancreatitis
Chronic Obstructive Pulmonary Disease (COPD)	Pneumonia
Coronary Interventional Procedures	Pulmonary Embolism
Diabetic Acidosis and Coma	Resection/Replacement Abdominal Aorta
Gastrointestinal Bleed	Respiratory Failure
Gastrointestinal Surgeries and Procedures	Sepsis
Heart Attack	Stroke
Heart Bypass Surgery	Valve Replacement Surgery
Heart Failure	

Inhospital Complication Cohorts	
Back and Neck Surgery (with Spinal Fusion)	Peripheral Vascular Bypass
Back and Neck Surgery (without Spinal Fusion)	Prostatectomy
Carotid Surgery	Total Hip Replacement
Cholecystectomy (Gallbladder Surgery)	Total Knee Replacement
Hip Fracture Repair	

Results

Of the nation's 4,873 short-term, nonfederal, non-children's, acute care hospitals, 268 hospitals ranked in the top 5% for risk-adjusted mortality and complication rates. These 268 hospitals will receive national recognition as Distinguished Hospitals for Clinical Excellence.

Overall, Distinguished Hospitals for Clinical Excellence consistently outperformed all other hospitals during the years 2007, 2008 and 2009. Distinguished Hospitals had:

- Lower risk-adjusted in-hospital mortality across all 17 mortality-based procedures and diagnoses in almost every year studied.
- Lower risk-adjusted in-hospital complications across six of nine complication-based procedures studied.

On Average, Distinguished Hospitals had 29.82% Lower Risk-Adjusted In-hospital Mortality

Overall, when compared to all other hospitals, Distinguished Hospitals for Clinical Excellence had lower risk-adjusted in-hospital mortality across all 17 procedures and diagnoses studied. The differences ranged from 18.94% in resection/replacement of abdominal aorta to 41.08% in the treatment of chronic obstructive pulmonary disease (*Appendix B*).

Table 1 lists the Top 5 procedures and diagnoses with the greatest differences in risk-adjusted mortality between Distinguished Hospitals and all others.

Table 1. Relative Reduction in Risk-Adjusted Mortality Associated with Distinguished Hospitals Compared to All Other Hospitals

Procedure / Diagnosis	Relative Reduction in Risk-Adjusted Mortality Associated with Distinguished Hospitals Compared to All Other Hospitals
Chronic Obstructive Pulmonary Disease	41.08%
Pneumonia	40.17%
Diabetic Acidosis and Coma	37.78%
Bowel Obstruction	36.24%
Gastrointestinal Bleed	35.90%

Distinguished Hospitals for Clinical Excellence Save Lives

If all hospitals performed at the level of Distinguished Hospitals for Clinical Excellence, 158,684 Medicare lives could have been saved between 2007 and 2009 (*Appendix B*). Approximately 65.70% (104,248) potentially preventable deaths were associated with just four diagnoses (*Table 2*).

Table 2. Top Procedures/Diagnosis with Greatest Potentially Preventable Deaths

Procedure / Diagnosis	Number of Lives That Could Have Been Saved if All Patients were Treated at DH-CE Hospitals (2007-2009)
Sepsis	40,747
Pneumonia	24,897
Heart Failure	19,547
Respiratory Failure	19,057

Distinguished Hospitals have 29.82% lower risk-adjusted mortality and 1.91% lower risk-adjusted complications compared to all other hospitals.

Distinguished Hospitals have lower risk-adjusted in-hospital complications in six complication-based procedures studied.

On Average, Distinguished Hospitals had 1.91% Fewer In-hospital Complications

Distinguished Hospitals for Clinical Excellence demonstrated lower overall risk-adjusted in-hospital complications across six common Medicare procedures studied. During the three years studied, Distinguished Hospitals for Clinical Excellence performed, on average, 1.91% better than all other hospitals for avoiding in-hospital complications associated with hip and knee surgery, prostate surgery, cholecystectomy, and peripheral vascular bypass. The differences ranged from 1.31% in peripheral vascular bypass to 7.71% in prostatectomy (*Table 3* and *Appendix C*).

Distinguished Hospitals for Clinical Excellence had slightly higher risk-adjusted in-hospital complications for back surgeries and carotid surgery.

Closing the performance gap for just three procedures and diagnoses could potentially prevent the greatest number of complications: cholecystectomy (1,061), hip fracture repair (981), and total hip replacement (730).

Table 3. Relative Reduction in Risk-Adjusted Complications Associated with Distinguished Hospitals Compared to All Other Hospitals

Procedure / Diagnosis	Relative Reduction in Risk-Adjusted Complications Associated with Distinguished Hospitals Compared to All Other Hospitals
Prostatectomy	7.71%
Total Hip Replacement	4.25%
Cholecystectomy	3.52%
Hip Fracture Repair	1.84%
Total Knee Replacement	1.51%

Prevalence of Distinguished Hospitals Across States

Thirty-six states have at least one hospital designated as a Distinguished Hospital for Clinical Excellence. This year, Idaho, Massachusetts and Oklahoma joined the states that have at least one Distinguished Hospital for Clinical Excellence, while Alabama, South Dakota and West Virginia no longer have at least one hospital designated as a Distinguished Hospital for Clinical Excellence.

Delaware has the highest percentage of Distinguished Hospitals for Clinical Excellence with 75.00% of eligible hospitals qualifying for the distinction, followed by Minnesota (55.56%), Arizona (51.85%), Maryland (36.67%), and Connecticut (35.00%) (*Table 4*).

Thirty-six states have at least one Distinguished Hospital for Clinical Excellence.

Table 4. Percentage of Distinguished Hospitals for Clinical Excellence by State

State	State Rank	Number of DH-CE Award Hospitals	Number of Eligible Hospitals	Percent of Eligible that are Award Hospitals
Alabama	47	0	26	.00%
Alaska	42	0	2	.00%
Arizona	3	14	27	51.85%
Arkansas	49	0	18	.00%
California	19	23	134	17.16%
Colorado	14	5	23	21.74%
Connecticut	5	7	20	35.00%
Delaware	1	3	4	75.00%
Dist. of Columbia	37	0	5	.00%
Florida	10	27	102	26.47%
Georgia	13	8	35	22.86%
Hawaii	40	0	4	.00%
Idaho	25	1	8	12.50%
Illinois	9	21	74	28.38%
Indiana	23	5	39	12.82%
Iowa	11	5	20	25.00%
Kansas	12	3	13	23.08%
Kentucky	28	2	18	11.11%
Louisiana	35	2	26	7.69%
Maine	38	0	5	.00%
Maryland	4	11	30	36.67%
Massachusetts	33	3	36	8.33%
Michigan	8	14	47	29.79%
Minnesota	2	10	18	55.56%
Mississippi	50	0	19	.00%
Missouri	15	7	36	19.44%
Montana	7	2	6	33.33%
Nebraska	32	1	11	9.09%
Nevada	46	0	12	.00%
New Hampshire	43	0	9	.00%
New Jersey	27	5	42	11.90%
New Mexico	41	0	7	.00%
New York	29	7	66	10.61%
North Carolina	26	4	33	12.12%
North Dakota	20	1	6	16.67%
Ohio	6	23	66	34.85%
Oklahoma	36	1	19	5.26%
Oregon	30	2	19	10.53%
Pennsylvania	17	15	83	18.07%
Rhode Island	44	0	5	.00%
South Carolina	34	2	24	8.33%
South Dakota	39	0	4	.00%
Tennessee	18	5	28	17.86%
Texas	22	13	100	13.00%
Utah	24	1	8	12.50%
Vermont	51	0	2	.00%
Virginia	21	6	37	16.22%
Washington	31	3	29	10.34%
West Virginia	45	0	11	.00%
Wisconsin	16	6	33	18.18%
Wyoming	48	0	2	.00%

Hospital ranking is determined by percent award recipients, with ties broken by overall observed-to-expected mortality and complications ratios across all patient groups.

Top 50 Cities for Hospital Care

In our consumer survey, more than 80% of consumers surveyed are very or somewhat concerned about hospital quality in their community. Almost all patients (93.8%) reported being willing to go out of their way (drive further, reschedule appointments) to seek care at a more highly rated hospital. The majority (64.9%) also stated that they would be willing to pay more out of pocket to seek care at a top-rated hospital.

To help consumers find the best hospital care, HealthGrades identified the Top 50 Cities for Hospital Care.

The Top 50 Cities for Hospital Care list is based on the percent of hospitals that are eligible for a HealthGrades Distinguished Hospital for Clinical Excellence award. A city or specifically a Designated Market Area (DMA) must have at least four eligible hospitals to be considered for the list. Cities are ranked by percent of eligible hospitals and ties were broken by the lowest risk-adjusted mortality and complications rates of all eligible and award recipient hospitals.

Table 5. Top 50 Cities for Hospital Care

Rank	City by Designated Market Area*	DH-CE Award Hospitals	Eligible Hospitals	Percent of Eligible
1	W. Palm Beach, FL	9	12	75.0%
2	Brownsville, TX	5	7	71.4%
3	Dayton, OH	5	7	71.4%
4	Minneapolis-St. Paul, MN	9	14	64.3%
5	Tucson(Sierra Vista), AZ	3	5	60.0%
6	Cincinnati, OH	6	11	54.5%
7	Phoenix, AZ	11	21	52.4%
8	Greenville, SC-NC	4	8	50.0%
9	Chattanooga, TN	2	4	50.0%
10	Richmond-Petersburg, VA	3	7	42.9%
11	Cedar Rapids, IA	3	7	42.9%
12	Hartford & New Haven, CT	6	14	42.9%
13	Cleveland, OH	10	24	41.7%
14	Grand Rapids, MI	3	8	37.5%
15	Baltimore, MD	7	19	36.8%
16	Chicago, IL	21	60	35.0%
17	San Diego, CA	4	12	33.3%
18	Detroit, MI	8	25	32.0%
19	Miami-Ft. Lauderdale, FL	6	19	31.6%
20	St. Louis, MO	5	17	29.4%
21	Orlando, FL	5	17	29.4%
22	Houston, TX	6	22	27.3%
23	Wilkes Barre, PA	3	11	27.3%
24	La Crosse-Eau Claire, WI	1	4	25.0%
25	Milwaukee, WI	3	12	25.0%

Top 50 continued....

Top 50 Cities for Hospital Care (continued)

Rank	City by Designated Market Area*	DH-CE Award Hospitals	Eligible Hospitals	Percent of Eligible
26	Evansville, IN	1	4	25.0%
27	Atlanta, GA	5	20	25.0%
28	Colorado Springs, CO	1	4	25.0%
29	Jacksonville, FL	2	8	25.0%
30	Columbia, MO	1	4	25.0%
31	Tri-Cities, TN-VA	1	4	25.0%
32	Johnstown-Altoona, PA	1	4	25.0%
33	Savannah, GA	1	4	25.0%
34	Lincoln, NE	1	4	25.0%
35	Denver, CO	4	17	23.5%
36	Los Angeles, CA	12	57	21.1%
37	Eugene, OR	1	5	20.0%
38	Des Moines-Ames, IA	1	5	20.0%
39	Youngstown, OH	1	5	20.0%
40	Wichita, KS	1	5	20.0%
41	Davenport, IA-IL	1	5	20.0%
42	Champaign, IL	1	5	20.0%
43	Columbus, OH	2	10	20.0%
44	Springfield, MO	1	5	20.0%
45	Memphis, TN	1	5	20.0%
46	Syracuse, NY	1	5	20.0%
47	Pittsburgh, PA	4	22	18.2%
48	San Francisco, CA	5	29	17.2%
49	Louisville, KY	1	6	16.7%
50	New York, NY	11	76	14.5%

* Designated Market Areas are geographic areas defined by The [Nielsen Company](#) as a group of counties that make up a particular television market.

Interpretation of Results

In this ninth annual study, HealthGrades objectively identified hospitals with overall clinical outcomes in the top 5% of the nation and further designated each of these hospitals as a HealthGrades Distinguished Hospital for Clinical Excellence™ (DH-CE).

Distinguished Hospitals for Clinical Excellence outperformed all other hospitals across all of the 17 mortality cohorts and six of nine complication cohorts studied from 2007 through 2009. Specifically, Distinguished Hospitals for Clinical Excellence had a 29.82% lower risk-adjusted mortality rate and a 1.91% lower risk-adjusted in-hospital complication rate among Medicare beneficiaries compared to all other hospitals. In fact, if all hospitals performed at this level, **158,684 Medicare lives could potentially have been saved and 3,511 Medicare in-hospital complications could potentially have been avoided.**

Information regarding the variation in outcomes-based performance among hospitals is essential to improving the quality of care in America. For patients, choosing a high quality hospital could mean surviving their hospitalization and avoiding a complication during their stay. Next to affordability (48.5%), quality was reported as being the most important health issue impacting consumers today (33.3%).

Quality and transparency is such a concern to consumers that:

- 57.0% said that they believed online quality ratings were a reliable source of information
- 66.8% want access to more quality information
- 60.7% of our respondents feel the federal government should pay more for highly performing hospitals

Healthcare consumers want choice and they want the information to make informed decisions about where to receive their care. For this reason, HealthGrades hospital ratings and the information in this study will help them exercise their choice when selecting the hospital that is right for them.

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Health Grades Inc. is the leading independent health care ratings organization, providing quality ratings, profiles and cost information on the nation's hospitals, physicians, nursing homes and prescription drugs.

References

- 1 Pew Internet and American Life Project. Health Information Online. May 2005. Available at http://www.pewinternet.org/-/media/Files/Reports/2005/PIP_Healthtopics_May05.pdf
- 2 HeathGrades, Inc. *HealthGrades Hospital Report Cards™ Mortality and Complication Outcomes Methodology 2011*. October 2010. Available at <http://www.healthgrades.com/business/img/HospitalReportCardsMortalityComplications2011.pdf>.
- 3 HeathGrades, Inc. *Distinguished Hospital Award for Clinical Excellence™ Methodology 2011*. January 2011. Available at <http://www.healthgrades.com/business/img/DHAClinicalExcellenceMethodology.pdf>

Appendix A: Distinguished Hospitals for Clinical Excellence™ 2011 List

Distinguished Hospitals for Clinical Excellence™ 2011*	City
Alabama	
<i>There are no recipients of this award in this state.</i>	
Alaska	
<i>There are no recipients of this award in this state.</i>	
Arizona	
Banner Boswell Medical Center	Sun City
Banner Del E. Webb Medical Center	Sun City West
Banner Desert Medical Center	Mesa
Banner Estrella Medical Center	Phoenix
Banner Good Samaritan Medical Center	Phoenix
Banner Thunderbird Medical Center	Glendale
Carondelet Saint Mary's Hospital	Tucson
Chandler Regional Medical Center	Chandler
Mayo Clinic Hospital	Phoenix
Scottsdale Healthcare - Osborn Medical Center	Scottsdale
Scottsdale Healthcare - Shea Medical Center	Scottsdale
Tucson Medical Center	Tucson
University Medical Center	Tucson
West Valley Hospital	Goodyear
Arkansas	
<i>There are no recipients of this award in this state.</i>	
California	
Cedars - Sinai Medical Center	Los Angeles
Centinela Hospital Medical Center	Inglewood
Eden Medical Center	Castro Valley
Garfield Medical Center	Monterey Park
Glendale Memorial Hospital and Health Center	Glendale
Hoag Memorial Hospital Presbyterian	Newport Beach
Huntington Memorial Hospital	Pasadena
John Muir Medical Center - Concord	Concord
John Muir Medical Center - Walnut Creek	Walnut Creek
Kaiser Permanente Woodland Hills Medical Center	Woodland Hills
Mills - Peninsula Health Services	Burlingame
<i>including: Mills Health Center</i>	San Mateo
Presbyterian Intercommunity Hospital	Whittier
Saddleback Memorial Laguna Hills	Laguna Hills
<i>including: Saddleback Memorial Medical Center San Clemente</i>	San Clemente

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Distinguished Hospitals for Clinical Excellence™ 2011*	City
California continued	
Saint John's Health Center	Santa Monica
Saint Vincent Medical Center	Los Angeles
Scripps Green Hospital	La Jolla
Scripps Memorial Hospital Encinitas	Encinitas
Scripps Mercy Hospital	San Diego
<i>including: Scripps Mercy Hospital - Chula Vista</i>	Chula Vista
Sequoia Hospital	Redwood City
Sharp Chula Vista Medical Center	Chula Vista
Sutter General Hospital	Sacramento
<i>including: Sutter Memorial Hospital</i>	Sacramento
Sutter Roseville Medical Center	Roseville
West Hills Hospital and Medical Center	West Hills
Colorado	
Centura Health - Penrose St. Francis Health Services	Colorado Springs
Exempla Saint Joseph Hospital	Denver
McKee Medical Center	Loveland
North Colorado Medical Center	Greeley
Poudre Valley Hospital	Fort Collins
Connecticut	
Griffin Hospital	Derby
Hartford Hospital	Hartford
Hospital of Saint Raphael	New Haven
Manchester Memorial Hospital	Manchester
Middlesex Hospital	Middletown
Norwalk Hospital	Norwalk
Yale - New Haven Hospital	New Haven
Delaware	
Bayhealth Medical Center - Kent General Hospital	Dover
<i>including: Bayhealth Medical Center Milford Memorial</i>	Milford
Beebe Medical Center	Lewes
Christiana Care Health System - Christiana Hospital	Newark
<i>including: Wilmington Hospital</i>	Wilmington
District of Columbia	
<i>There are no recipients of this award in this state.</i>	

* Distinction cannot be used without a Licensing Agreement from Health Grades, Inc.

Distinguished Hospitals for Clinical Excellence™ 2011*	City
Florida	
Baptist Medical Center	Jacksonville
<i>including: Baptist Medical Center – South</i>	Jacksonville
Bay Medical Center	Panama City
Bethesda Memorial Hospital	Boynton Beach
Boca Raton Regional Hospital	Boca Raton
Brandon Regional Hospital	Brandon
Central Florida Regional Hospital	Sanford
Cleveland Clinic Hospital	Weston
Delray Medical Center	Delray Beach
Flagler Hospital	Saint Augustine
Florida Hospital Fish Memorial	Orange City
JFK Medical Center	Atlantis
Jupiter Medical Center	Jupiter
Kendall Regional Medical Center	Miami
Lawwood Regional Medical Center and Heart Institute	Fort Pierce
Lee Memorial Hospital	Fort Myers
Martin Memorial Medical Center	Stuart
Memorial Hospital Pembroke	Pembroke Pines
Memorial Hospital West	Pembroke Pines
Mercy Hospital	Miami
Mount Sinai Medical Center	Miami Beach
<i>including: Mount Sinai Medical Center and Miami Heart Institute</i>	Miami Beach
Munroe Regional Medical Center	Ocala
Ocala Regional Medical Center/West Marion Hospital	Ocala
Palm Beach Gardens Medical Center	Palm Beach Gardens
Parrish Medical Center	Titusville
Sacred Heart Hospital	Pensacola
Sarasota Memorial Hospital	Sarasota
Sebastian River Medical Center	Sebastian
Georgia	
Gwinnett Medical Center	Lawrenceville
<i>including: Gwinnett Medical Center - Duluth</i>	Duluth
Hamilton Medical Center	Dalton
Houston Medical Center	Warner Robins
Memorial University Medical Center	Savannah
Northeast Georgia Medical Center	Gainesville
<i>including: Northeast Georgia Medical Center - Lanier Park</i>	Gainesville
Piedmont Fayette Hospital	Fayetteville
Piedmont Hospital	Atlanta
Wellstar Kennestone Hospital	Marietta

Distinguished Hospitals for Clinical Excellence™ 2011*	City
Hawaii	
<i>There are no recipients of this award in this state.</i>	
Idaho	
Saint Alphonsus Regional Medical Center	Boise
Illinois	
Advocate Christ Hospital and Medical Center	Oak Lawn
Advocate Good Samaritan Hospital	Downers Grove
Advocate Good Shepherd Hospital	Barrington
Advocate South Suburban Hospital	Hazel Crest
Advocate Trinity Hospital	Chicago
Alexian Brothers Medical Center	Elk Grove Village
Carle Foundation Hospital	Urbana
Central Dupage Hospital	Winfield
Edward Hospital	Naperville
Evanston Hospital	Evanston
<i>including:</i> Glenbrook Hospital Highland Park Hospital	Glenview Highland Park
Ingalls Memorial Hospital	Harvey
Lake Forest Hospital	Lake Forest
Metrosouth Medical Center	Blue Island
Northwestern Memorial Hospital	Chicago
Palos Community Hospital	Palos Heights
Provena Saint Joseph Medical Center	Joliet
Resurrection Medical Center	Chicago
Saint Alexius Medical Center	Hoffman Estates
Saints Mary and Elizabeth Medical Center - Division	Chicago
<i>including:</i> Saints Mary and Elizabeth Medical Center - Claremont	Chicago
Skokie Hospital	Skokie
Swedish Covenant Hospital	Chicago
Indiana	
Clarian Methodist Hospital	Indianapolis
<i>including:</i> Indiana University Medical Center	Indianapolis
Community Hospital	Munster
Floyd Memorial Hospital and Health Services	New Albany
Parkview Hospital	Fort Wayne
<i>including:</i> Parkview North Hospital	Fort Wayne
St. Vincent Indianapolis Hospital	Indianapolis

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Distinguished Hospitals for Clinical Excellence™ 2011*	City
Iowa	
Allen Memorial Hospital	Waterloo
Great River Medical Center	West Burlington
Mercy Medical Center - Cedar Rapids	Cedar Rapids
Mercy Medical Center - Des Moines	Des Moines
Saint Lukes Hospital	Cedar Rapids
Kansas	
Saint Francis Health Center	Topeka
University of Kansas Hospital	Kansas City
Via Christi Regional Medical Center	Wichita
Kentucky	
Owensboro Medical Health System	Owensboro
St. Elizabeth Edgewood	Edgewood
Louisiana	
CHRISTUS Saint Frances Cabrini Hospital	Alexandria
Ochsner Clinic Foundation	New Orleans
<i>including: Ochsner Medical Center - West Bank Campus</i>	Gretna
Maine	
<i>There are no recipients of this award in this state.</i>	
Maryland	
Franklin Square Hospital Center	Baltimore
Frederick Memorial Hospital	Frederick
Good Samaritan Hospital	Baltimore
Greater Baltimore Medical Center	Baltimore
Harbor Hospital	Baltimore
Howard County General Hospital	Columbia
Peninsula Regional Medical Center	Salisbury
Saint Joseph Medical Center	Towson
Sinai Hospital of Baltimore	Baltimore
Suburban Hospital	Bethesda
Washington Adventist Hospital	Takoma Park
Massachusetts	
Baystate Medical Center	Springfield
Beth Israel Deaconess Medical Center	Boston
Caritas Saint Elizabeth's Medical Center	Boston

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Distinguished Hospitals for Clinical Excellence™ 2011*	City
Michigan	
Allegiance Health	Jackson
Beaumont Hospital - Grosse Pointe	Grosse Pointe
Beaumont Hospital - Royal Oak	Royal Oak
Beaumont Hospital - Troy	Troy
Bronson Methodist Hospital	Kalamazoo
Genesys Regional Medical Center	Grand Blanc
Henry Ford Hospital	Detroit
Holland Hospital	Holland
Huron Valley - Sinai Hospital	Commerce Township
Munson Medical Center	Traverse City
Providence Hospital	Southfield
Saint Mary Mercy Hospital	Livonia
Spectrum Health Butterworth Hospital	Grand Rapids
<i>including: Spectrum Health Blodgett Hospital</i>	Grand Rapids
St. Joseph Mercy Oakland	Pontiac
Minnesota	
Abbott Northwestern Hospital	Minneapolis
Fairview Ridges Hospital	Burnsville
Fairview Southdale Hospital	Edina
Mercy Hospital	Coon Rapids
North Memorial	Robbinsdale
Park Nicollet Methodist Hospital	Minneapolis
Regions Hospital	Saint Paul
Saint Cloud Hospital	Saint Cloud
Saint Lukes Hospital	Duluth
United Hospitals	Saint Paul
Mississippi	
<i>There are no recipients of this award in this state.</i>	
Missouri	
Barnes - Jewish Saint Peters Hospital	Saint Peters
Boone Hospital Center	Columbia
Christian Hospital	Saint Louis
Missouri Baptist Medical Center	Saint Louis
Skaggs Regional Medical Center	Branson
SSM Saint Mary's Health Center	Richmond Heights
St. Luke's Hospital	Chesterfield

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Distinguished Hospitals for Clinical Excellence™ 2011*	City
Montana	
Benefis Health System	Great Falls
Kalispell Regional Medical Center	Kalispell
Nebraska	
BryanLGH Medical Center East	Lincoln
<i>including: BryanLGH Medical Center West</i>	Lincoln
Nevada	
<i>There are no recipients of this award in this state.</i>	
New Hampshire	
<i>There are no recipients of this award in this state.</i>	
New Jersey	
Community Medical Center	Toms River
Hackensack University Medical Center	Hackensack
Jersey Shore University Medical Center	Neptune
Morristown Memorial Hospital	Morristown
Ocean Medical Center	Brick
New Mexico	
<i>There are no recipients of this award in this state.</i>	
New York	
Albany Medical Center Hospital	Albany
Maimonides Medical Center	Brooklyn
New York-Presbyterian/Weill Cornell	New York
<i>including: New York Presbyterian - Columbia</i>	New York
Saint Joseph's Hospital Health Center	Syracuse
Stony Brook University Medical Center	Stony Brook
Vassar Brothers Medical Center	Poughkeepsie
Winthrop - University Hospital	Mineola
North Carolina	
Gaston Memorial Hospital	Gastonia
Haywood Regional Medical Center	Clyde
Mission Hospitals	Asheville
Rex Hospital	Raleigh
North Dakota	
Altru Hospital	Grand Forks

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Distinguished Hospitals for Clinical Excellence™ 2011*	City
Ohio	
Akron General Medical Center	Akron
Aultman Hospital	Canton
Bethesda North Hospital	Cincinnati
Christ Hospital	Cincinnati
Community Health Partners of Ohio - West	Lorain
EMH Regional Medical Center	Elyria
Fairview Hospital	Cleveland
Good Samaritan Hospital	Dayton
<i>including: Dayton Heart and Vascular Hospital</i>	Dayton
Good Samaritan Hospital	Cincinnati
Grandview Medical Center	Dayton
Hillcrest Hospital	Mayfield Heights
Kettering Medical Center	Kettering
Kettering Medical Center - Sycamore	Miamisburg
Marymount Hospital	Garfield Heights
Mercy Franciscan Hospital - Mount Airy	Cincinnati
Mercy Hospital - Western Hills	Cincinnati
Mercy Medical Center	Canton
Miami Valley Hospital	Dayton
Mount Carmel Health	Columbus
Ohio State University Hospitals	Columbus
<i>including: The Ohio State University Hospital East</i>	Columbus
Saint Elizabeth Health Center	Youngstown
South Pointe Hospital	Warrensville Heights
Summa Akron City and St. Thomas Hospitals	Akron
Oklahoma	
Saint Francis Hospital	Tulsa
Oregon	
Mercy Medical Center	Roseburg
Saint Charles Medical Center - Bend	Bend
Pennsylvania	
Albert Einstein Medical Center	Philadelphia
Alle Kiski Medical Center	Natrona Heights
Evangelical Community Hospital	Lewisburg
Hamot Medical Center	Erie
Lancaster General Hospital	Lancaster
Lehigh Valley Hospital	Allentown
Lehigh Valley Hospital - Muhlenberg	Bethlehem

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Distinguished Hospitals for Clinical Excellence™ 2011*	City
Pennsylvania continued	
Memorial Medical Center	Johnstown
<i>including:</i> Memorial Medical Center - Lee	Johnstown
Mercy Hospital Scranton	Scranton
Pocono Medical Center	East Stroudsburg
Saint Clair Hospital	Pittsburgh
Saint Vincent Health Center	Erie
St. Luke's Hospital - Bethlehem Campus	Bethlehem
<i>including:</i> St. Luke's Hospital - Allentown Campus	Allentown
The Western Pennsylvania Hospital - Forbes Regional Campus	Monroeville
UPMC McKeesport	McKeesport
Rhode Island	
<i>There are no recipients of this award in this state.</i>	
South Carolina	
Anmed Health	Anderson
Spartanburg Regional Medical Center	Spartanburg
South Dakota	
<i>There are no recipients of this award in this state.</i>	
Tennessee	
Baptist Memorial Hospital	Memphis
<i>including:</i> Baptist Memorial Hospital – Collierville	Collierville
Baptist Memorial Hospital for Women	Memphis
Indian Path Medical Center	Kingsport
Memorial Healthcare System	Chattanooga
Methodist Medical Center of Oak Ridge	Oak Ridge
Saint Thomas Hospital	Nashville
Texas	
Doctors Hospital at Renaissance	Edinburg
Harlingen Medical Center	Harlingen
Memorial Hermann Healthcare System	Houston
<i>including:</i> Memorial Hermann Northwest Hospital	Houston
Memorial Hermann Southeast Hospital	Houston
Memorial Hermann Southwest Hospital	Houston
Memorial Hermann The Woodlands Hospital	The Woodlands
Memorial Hermann Memorial City Hospital	Houston
Mission Regional Medical Center	Mission
Mother Frances Hospital - Tyler	Tyler
Park Plaza Hospital and Medical Center	Houston
Saint Luke's Episcopal Hospital	Houston
San Jacinto Methodist Hospital	Baytown

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Distinguished Hospitals for Clinical Excellence™ 2011*	City
Texas continued	
South Texas Health - Edinburg Regional Medical Center	Edinburg
<i>including:</i> South Texas Health - McAllen Medical Center / Heart Hospital	McAllen
Texas Health Harris Methodist Hospital Fort Worth	Fort Worth
The Methodist Hospital	Houston
<i>including:</i> Diagnostic Center Hospital	Houston
Valley Baptist Medical Center	Harlingen
Utah	
Intermountain Medical Center	Murray
Vermont	
<i>There are no recipients of this award in this state.</i>	
Virginia	
Augusta Health	Fishersville
Bon Secours Memorial Regional Medical Center	Mechanicsville
Bon Secours Saint Marys Hospital	Richmond
Henrico Doctors' Hospital - Forest	Richmond
<i>including:</i> Henrico Doctors' Hospital – Parham Retreat Doctors' Hospital	Richmond Richmond
Lewis - Gale Medical Center	Salem
Martha Jefferson Hospital	Charlottesville
Washington	
Evergreen Hospital Medical Center	Kirkland
Swedish/Edmonds	Edmonds
Virginia Mason Medical Center	Seattle
West Virginia	
<i>There are no recipients of this award in this state.</i>	
Wisconsin	
Aspirus Wausau Hospital	Wausau
Aurora St. Luke's Medical Center	Milwaukee
<i>including:</i> St. Luke's Medical Center Aurora Sinai Medical Center	Cudahy Milwaukee
Bellin Memorial Hospital	Green Bay
Gundersen Lutheran Medical Center	La Crosse
West Allis Memorial Hospital	West Allis
Wheaton Franciscan - Saint Joseph	Milwaukee
<i>including:</i> Wheaton Franciscan Healthcare - the Wisconsin Heart Hospital	Milwaukee
Wyoming	
<i>There are no recipients of this award in this state.</i>	

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Appendix B: Inhospital Mortality Performance: Distinguished Hospitals for Clinical Excellence (DH-CE) Compared to All Other U.S. Hospitals

(3-Year Aggregate Relative Risk-Adjusted Inhospital Mortality Performance: 2007-2009)

Procedure or Diagnosis	Total Number of U.S. Medicare Hospitalizations	DH-CE Hospitals Average Observed-to-Expected Inhospital Mortality Ratio	All Other U.S. Hospitals Average Observed-to-Expected Inhospital Mortality Ratio	Relative Risk Reduction Associated with DH-CE Hospitals Compared to All Other U.S. Hospitals ¹	Number of Lives That Could Have Been Saved If All Patients were Treated at DH-CE Hospitals (2007-2009) ²	P-Value (DH-CE Hospital Mortality Compared to National Mortality Average)
Bowel Obstruction	489,053	.68	1.07	36.24%	4,628	<.001
Chronic Obstructive Pulmonary Disease	1,138,626	.63	1.07	41.08%	7,253	<.001
Coronary Bypass Surgery	254,744	.79	1.07	26.27%	1,317	<.001
Coronary Interventional Procedures (Angioplasty/Stent)	853,195	.83	1.06	22.02%	2,544	<.001
Diabetic Acidosis and Coma	176,110	.66	1.07	37.78%	860	<.001
Gastrointestinal Bleed	795,458	.69	1.07	35.90%	4,709	<.001
Gastrointestinal Surgeries and Procedures	245,512	.79	1.05	24.40%	5,157	<.001
Heart Attack (Acute Myocardial Infarction)	751,365	.84	1.04	18.95%	10,875	<.001
Heart Failure	1,756,644	.69	1.07	35.54%	19,547	<.001
Pancreatitis	151,887	.72	1.07	32.41%	1,073	<.001
Pneumonia	1,432,436	.64	1.07	40.17%	24,897	<.001
Pulmonary Embolism	166,485	.71	1.08	34.54%	2,123	<.001
Resection/Replacement of Abdominal Aorta	70,298	.84	1.04	18.94%	459	<.001
Respiratory Failure	449,595	.78	1.05	25.55%	19,057	<.001
Sepsis	958,124	.79	1.05	24.66%	40,747	<.001
Stroke	673,527	.73	1.06	31.20%	12,121	<.001
Valve Replacement Surgery	128,243	.83	1.06	21.33%	1,317	<.001
3-Year Performance Average		0.74	1.06	29.82%		
Totals	10,491,302				158,684	

¹ Relative Risk Reduction determines the difference in performance between DH-CE and All Other hospitals. Calculated as follows: (Non-DH-CE O/E – DH-CE O/E) / Non-DH-CE O/E.

² Lives saved were calculated: All Other hospitals' 3-year actual number of mortalities – (All Other hospitals' 3-year expected number of mortalities x DH-CE O/E ratio).

**Appendix C: Inhospital Complications Performance:
Distinguished Hospitals for Clinical Excellence (DH-CE) Compared to All Other U.S. Hospitals
(3-Year Aggregate Relative Risk-Adjusted Inhospital Complications Performance: 2007-2009)**

Procedure or Diagnosis	Total Number of U.S. Medicare Hospitalizations	DH-CE Hospitals Average Observed-to-Expected Inhospital Complications Ratio	All Other U.S. Hospitals Average Observed-to-Expected Inhospital Complications Ratio	Relative Risk Reduction Associated with DH-CE Hospitals Compared to All Other U.S. Hospitals ¹	Number of Patients That Could Have Avoided Developing One or More Post-Op Complications If All Patients were Treated at DH-CE Hospitals (2007-2009) ²	P-Value (DH-CE Hospital Complications Compared to National Complication Average)
Back and Neck Surgery (except Spinal Fusion)	175,403	1.01	1.01	-.35%	-54	.772
Back and Neck Surgery (Spinal Fusion)	190,219	1.03	1.01	-1.38%	-344	.991
Carotid Surgery	213,399	1.01	.99	-1.23%	-170	.657
Cholecystectomy	214,167	.98	1.02	3.52%	1,061	.075
Hip Fracture Repair	421,570	.99	1.01	1.84%	981	.168
Peripheral Vascular Bypass	57,117	1.00	1.01	1.31%	65	.460
Prostatectomy	174,123	.93	1.01	7.71%	670	<.001
Total Hip Replacement	252,202	.97	1.02	4.25%	730	.020
Total Knee Replacement	613,745	1.00	1.01	1.51%	572	.462
3-Year Performance Average		.99	1.01	1.91%		
Total					3,511	

¹ Relative Risk Reduction determines the difference in performance between DH-CE and All Other hospitals. Calculated as follows: (Non-DH-CE O/E – DH-CE O/E) / Non-DH-CE O/E.
² Complications avoided were calculated: All Other hospitals' 3-year actual number of complications – (All Other hospitals' 3-year expected number of complications x DH-CE O/E ratio).

Appendix D. Distinguished Hospitals for Clinical Excellence in the Top 50 Cities for Hospital Care

Rank	Distinguished Hospital for Clinical Excellence 2011 by Designated Market Area*	City	State
1	W. Palm Beach, FL		
	JFK Medical Center	Atlantis	FL
	Boca Raton Regional Hospital	Boca Raton	FL
	Bethesda Memorial Hospital	Boynton Beach	FL
	Delray Medical Center	Delray Beach	FL
	Lawnwood Regional Medical Center and Heart Institute	Fort Pierce	FL
	Jupiter Medical Center	Jupiter	FL
	Palm Beach Gardens Medical Center	Palm Beach Gardens	FL
	Sebastian River Medical Center	Sebastian	FL
Martin Memorial Medical Center	Stuart	FL	
2	Brownsville, TX		
	South Texas Health - Edinburg Regional Medical Center	Edinburg	TX
	<i>including:</i> South Texas Health - McAllen Medical Center/Heart Hospital	McAllen	TX
	Doctors Hospital at Renaissance	Edinburg	TX
	Valley Baptist Medical Center	Harlingen	TX
	Harlingen Medical Center	Harlingen	TX
Mission Regional Medical Center	Mission	TX	
3	Dayton, OH		
	Miami Valley Hospital	Dayton	OH
	Good Samaritan Hospital	Dayton	OH
	<i>including:</i> Dayton Heart and Vascular Hospital	Dayton	OH
	Grandview Medical Center	Dayton	OH
Kettering Medical Center	Kettering	OH	
Kettering Medical Center - Sycamore	Miamisburg	OH	
4	Minneapolis-St. Paul, MN		
	Fairview Ridges Hospital	Burnsville	MN
	Mercy Hospital	Coon Rapids	MN
	Fairview Southdale Hospital	Edina	MN
	Park Nicollet Methodist Hospital	Minneapolis	MN
	Abbott Northwestern Hospital	Minneapolis	MN
	North Memorial	Robbinsdale	MN
	Saint Cloud Hospital	Saint Cloud	MN
	United Hospitals	Saint Paul	MN
Regions Hospital	Saint Paul	MN	

Rank	Distinguished Hospital for Clinical Excellence 2011 by Designated Market Area*	City	State
5	Tucson (Sierra Vista), AZ		
	Tucson Medical Center	Tucson	AZ
	Carondelet Saint Mary's Hospital	Tucson	AZ
	University Medical Center	Tucson	AZ
6	Cincinnati, OH		
	St. Elizabeth Edgewood	Edgewood	KY
	Mercy Hospital - Western Hills	Cincinnati	OH
	Good Samaritan Hospital	Cincinnati	OH
	Christ Hospital	Cincinnati	OH
	Bethesda North Hospital	Cincinnati	OH
Mercy Franciscan Hospital - Mount Airy	Cincinnati	OH	
7	Phoenix, AZ		
	Chandler Regional Medical Center	Chandler	AZ
	Banner Thunderbird Medical Center	Glendale	AZ
	West Valley Hospital	Goodyear	AZ
	Banner Desert Medical Center	Mesa	AZ
	Banner Good Samaritan Medical Center	Phoenix	AZ
	Mayo Clinic Hospital	Phoenix	AZ
	Banner Estrella Medical Center	Phoenix	AZ
	Scottsdale Healthcare - Osborn Medical Center	Scottsdale	AZ
	Scottsdale Healthcare - Shea Medical Center	Scottsdale	AZ
	Banner Boswell Medical Center	Sun City	AZ
	Banner Del E. Webb Medical Center	Sun City West	AZ
8	Greenville, SC-NC		
	Mission Hospitals	Asheville	NC
	Haywood Regional Medical Center	Clyde	NC
	Anmed Health	Anderson	SC
Spartanburg Regional Medical Center	Spartanburg	SC	
9	Chattanooga, TN		
	Hamilton Medical Center	Dalton	GA
	Memorial Healthcare System	Chattanooga	TN
10	Richmond-Petersburg, VA		
	Bon Secours Memorial Regional Medical Center	Mechanicsville	VA
	Bon Secours Saint Marys Hospital	Richmond	VA
	Henrico Doctors' Hospital - Forest	Richmond	VA
	<i>including:</i> Henrico Doctors' Hospital – Parham Retreat Doctors' Hospital	Richmond Richmond	VA VA
11	Cedar Rapids, IA		
	Saint Lukes Hospital	Cedar Rapids	IA
	Mercy Medical Center - Cedar Rapids	Cedar Rapids	IA
	Allen Memorial Hospital	Waterloo	IA

Rank	Distinguished Hospital for Clinical Excellence 2011 by Designated Market Area*	City	State
12	Hartford & New Haven, CT		
	Griffin Hospital	Derby	CT
	Hartford Hospital	Hartford	CT
	Manchester Memorial Hospital	Manchester	CT
	Middlesex Hospital	Middletown	CT
	Hospital of Saint Raphael	New Haven	CT
	Yale - New Haven Hospital	New Haven	CT
13	Cleveland, OH		
	Summa Akron City and St. Thomas Hospitals	Akron	OH
	Akron General Medical Center	Akron	OH
	Mercy Medical Center	Canton	OH
	Aultman Hospital	Canton	OH
	Fairview Hospital	Cleveland	OH
	EMH Regional Medical Center	Elyria	OH
	Marymount Hospital	Garfield Heights	OH
	Community Health Partners of Oh - West	Lorain	OH
	Hillcrest Hospital	Mayfield Heights	OH
	South Pointe Hospital	Warrensville Heights	OH
14	Grand Rapids, MI		
	Spectrum Health Butterworth Hospital	Grand Rapids	MI
	<i>including:</i> Spectrum Health Blodgett Hospital	Grand Rapids	MI
	Holland Hospital	Holland	MI
	Bronson Methodist Hospital	Kalamazoo	MI
15	Baltimore, MD		
	Sinai Hospital of Baltimore	Baltimore	MD
	Franklin Square Hospital Center	Baltimore	MD
	Harbor Hospital	Baltimore	MD
	Greater Baltimore Medical Center	Baltimore	MD
	Good Samaritan Hospital	Baltimore	MD
	Howard County General Hospital	Columbia	MD
	Saint Joseph Medical Center	Towson	MD

Rank	Distinguished Hospital for Clinical Excellence 2011 by Designated Market Area*	City	State
16	Chicago, IL		
	Saints Mary and Elizabeth Medical Center - Division <i>including: Saints Mary and Elizabeth Medical Center - Claremont</i>	Chicago Chicago	IL IL
	Northwestern Memorial Hospital	Chicago	IL
	Advocate Good Samaritan Hospital	Downers Grove	IL
	Alexian Brothers Medical Center	Elk Grove Village	IL
	Evanston Hospital <i>including: Glenbrook Hospital Highland Park Hospital</i>	Evanston Glenview Highland Park	IL IL IL
	Ingalls Memorial Hospital	Harvey	IL
	Advocate South Suburban Hospital	Hazel Crest	IL
	Saint Alexius Medical Center	Hoffman Estates	IL
	Provena Saint Joseph Medical Center	Joliet	IL
	Lake Forest Hospital	Lake Forest	IL
	Edward Hospital	Naperville	IL
	Advocate Christ Hospital and Medical Center	Oak Lawn	IL
	Palos Community Hospital	Palos Heights	IL
	Skokie Hospital	Skokie	IL
	Central Dupage Hospital	Winfield	IL
Community Hospital	Munster	IN	
17	San Diego, CA		
	Sharp Chula Vista Medical Center	Chula Vista	CA
	Scripps Memorial Hospital Encinitas	Encinitas	CA
	Scripps Green Hospital	La Jolla	CA
	Scripps Mercy Hospital <i>including: Scripps Mercy Hospital Chula Vista</i>	San Diego Chula Vista	CA CA
18	Detroit, MI		
	Huron Valley - Sinai Hospital	Commerce Township	MI
	Henry Ford Hospital	Detroit	MI
	Beaumont Hospital - Grosse Pointe	Grosse Pointe	MI
	Saint Mary Mercy Hospital	Livonia	MI
	St. Joseph Mercy Oakland	Pontiac	MI
	Beaumont Hospital - Royal Oak	Royal Oak	MI
	Providence Hospital	Southfield	MI
Beaumont Hospital - Troy	Troy	MI	

Rank	Distinguished Hospital for Clinical Excellence 2011 by Designated Market Area*	City	State	
19	Miami-Ft. Lauderdale, FL			
	Mercy Hospital	Miami	FL	
	Kendall Regional Medical Center	Miami	FL	
	Mount Sinai Medical Center <i>including: Mount Sinai Medical Center and Miami Heart Institute</i>	Miami Beach Miami Beach	FL FL	
	Memorial Hospital Pembroke	Pembroke Pines	FL	
	Memorial Hospital West	Pembroke Pines	FL	
	Cleveland Clinic Hospital	Weston	FL	
20	St. Louis, MO			
	St. Luke's Hospital	Chesterfield	MO	
	SSM Saint Marys Health Center	Richmond Heights	MO	
	Missouri Baptist Medical Center	Saint Louis	MO	
	Christian Hospital	Saint Louis	MO	
	Barnes - Jewish Saint Peters Hospital	Saint Peters	MO	
21	Orlando, FL			
	Munroe Regional Medical Center	Ocala	FL	
	Ocala Regional Medical Center/West Marion Hospital	Ocala	FL	
	Florida Hospital Fish Memorial	Orange City	FL	
	Central Florida Regional Hospital	Sanford	FL	
	Parrish Medical Center	Titusville	FL	
22	Houston, TX			
	San Jacinto Methodist Hospital	Baytown	TX	
	Memorial Hermann Healthcare System <i>including: Memorial Hermann Northwest Hospital Memorial Hermann Southeast Hospital Memorial Hermann Southwest Hospital Memorial Hermann The Woodlands Hospital</i>	Houston Houston Houston Houston The Woodlands	TX TX TX TX TX	
	Saint Luke's Episcopal Hospital	Houston	TX	
	The Methodist Hospital <i>including: Diagnostic Center Hospital</i>	Houston Houston	TX TX	
	Memorial Hermann Memorial City Medical Center	Houston	TX	
	Park Plaza Hospital and Medical Center	Houston	TX	
	23	Wilkes Barre, PA		
		Pocono Medical Center	East Stroudsburg	PA
		Evangelical Community Hospital	Lewisburg	PA
Mercy Hospital Scranton		Scranton	PA	
24	La Crosse-Eau Claire, WI			
	Gundersen Lutheran Medical Center	La Crosse	WI	

Rank	Distinguished Hospital for Clinical Excellence 2011 by Designated Market Area*	City	State
25	Milwaukee, WI		
	Wheaton Franciscan - Saint Joseph <i>including:</i> Wheaton Franciscan Healthcare - the Wisconsin Heart Hospital	Milwaukee Milwaukee	WI WI
	Aurora St. Lukes Medical Center <i>including:</i> St. Lukes Medical Center Aurora Sinai Medical Center	Milwaukee Cudahy Milwaukee	WI WI WI
	West Allis Memorial Hospital	West Allis	WI
26	Evansville, IN		
	Owensboro Medical Health System	Owensboro	KY
27	Atlanta, GA		
	Piedmont Hospital	Atlanta	GA
	Piedmont Fayette Hospital	Fayetteville	GA
	Northeast Georgia Medical Center <i>including:</i> Northeast Georgia Medical Center - Lanier Park	Gainesville Gainesville	GA GA
	Gwinnett Medical Center <i>including:</i> Gwinnett Medical Center - Duluth	Lawrenceville Duluth	GA GA
	Wellstar Kennestone Hospital	Marietta	GA
28	Colorado Springs, CO		
	Centura Health - Penrose St. Francis Health Services	Colorado Springs	CO
29	Jacksonville, FL		
	Baptist Medical Center <i>including:</i> Baptist Medical Center – South	Jacksonville Jacksonville	FL FL
	Flagler Hospital	Saint Augustine	FL
30	Columbia, MO		
	Boone Hospital Center	Columbia	MO
31	Tri-Cities, TN-VA		
	Indian Path Medical Center	Kingsport	TN
32	Johnstown-Altoona, PA		
	Memorial Medical Center <i>including:</i> Memorial Medical Center - Lee	Johnstown Johnstown	PA PA
33	Savannah, GA		
	Memorial University Medical Center	Savannah	GA
34	Lincoln, NE		
	BryanLGH Medical Center East <i>including:</i> BryanLGH Medical Center West	Lincoln Lincoln	NE NE
35	Denver, CO		
	Exempla Saint Joseph Hospital	Denver	CO
	Poudre Valley Hospital	Fort Collins	CO
	North Colorado Medical Center McKee Medical Center	Greeley Loveland	CO CO

Rank	Distinguished Hospital for Clinical Excellence 2011 by Designated Market Area*	City	State
36	Los Angeles, CA		
	Glendale Memorial Hospital and Health Center	Glendale	CA
	Centinela Hospital Medical Center	Inglewood	CA
	Saddleback Memorial Laguna Hills <i>including: Saddleback Memorial Medical Center San Clemente</i>	Laguna Hills San Clemente	CA CA
	Saint Vincent Medical Center	Los Angeles	CA
	Cedars - Sinai Medical Center	Los Angeles	CA
	Garfield Medical Center	Monterey Park	CA
	Hoag Memorial Hospital Presbyterian	Newport Beach	CA
	Huntington Memorial Hospital	Pasadena	CA
	Saint John's Health Center	Santa Monica	CA
	West Hills Hospital and Medical Center	West Hills	CA
	Presbyterian Intercommunity Hospital	Whittier	CA
Kaiser Permanente Woodland Hills Medical Center	Woodland Hills	CA	
37	Eugene, OR		
Mercy Medical Center	Roseburg	OR	
38	Des Moines-Ames, IA		
Mercy Medical Center - Des Moines	Des Moines	IA	
39	Youngstown, OH		
Saint Elizabeth Health Center	Youngstown	OH	
40	Wichita, KS		
Via Christi Regional Medical Center	Wichita	KS	
41	Davenport, IA-IL		
Great River Medical Center	West Burlington	IA	
42	Champaign, IL		
Carle Foundation Hospital	Urbana	IL	
43	Columbus, OH		
Mount Carmel Health	Columbus	OH	
Ohio State University Hospitals <i>including: The Ohio State University Hospital East</i>	Columbus Columbus	OH OH	
44	Springfield, MO		
Skaggs Regional Medical Center	Branson	MO	
45	Memphis, TN		
Baptist Memorial Hospital <i>including: Baptist Memorial Hospital – Collierville Baptist Memorial Hospital for Women</i>	Memphis Collierville Memphis	TN TN TN	
46	Syracuse, NY		
Saint Joseph's Hospital Health Center	Syracuse	NY	

Rank	Distinguished Hospital for Clinical Excellence 2011 by Designated Market Area*	City	State
47	Pittsburgh, PA		
	UPMC McKeesport	McKeesport	PA
	The Western Pennsylvania Hospital - Forbes Regional Campus	Monroeville	PA
	Alle Kiski Medical Center	Natrona Heights	PA
	Saint Clair Hospital	Pittsburgh	PA
48	San Francisco, CA		
	Mills - Peninsula Health Services	Burlingame	CA
	<i>including:</i> Mills Health Center	San Mateo	CA
	Eden Medical Center	Castro Valley	CA
	John Muir Medical Center - Concord	Concord	CA
	Sequoia Hospital	Redwood City	CA
	John Muir Medical Center - Walnut Creek	Walnut Creek	CA
49	Louisville, KY		
Floyd Memorial Hospital and Health Services	New Albany	IN	
50	New York, NY		
	Norwalk Hospital	Norwalk	CT
	Ocean Medical Center	Brick	NJ
	Hackensack University Medical Center	Hackensack	NJ
	Morristown Memorial Hospital	Morristown	NJ
	Jersey Shore University Medical Center	Neptune	NJ
	Community Medical Center	Toms River	NJ
	Maimonides Medical Center	Brooklyn	NY
	Winthrop - University Hospital	Mineola	NY
	New York - Presbyterian/Weill Cornell	New York	NY
	<i>including:</i> New York Presbyterian - Columbia	New York	NY
Vassar Brothers Medical Center	Poughkeepsie	NY	
Stony Brook University Medical Center	Stony Brook	NY	

*Designated Market Areas are geographic areas defined by The Nielsen Company as a group of counties that make up a particular television market.

Appendix E: Distinguished Hospital Award Clinical Excellence 2011 Methodology

To help consumers evaluate and compare hospital performance, HealthGrades analyzed patient outcome data for virtually every hospital in the country. In order to evaluate overall hospital performance and to identify the best-performing hospitals in clinical excellence across the U.S., HealthGrades uses a two-step methodology:

1. Assign star ratings for 26 procedures and diagnoses using *HealthGrades Hospital Report Card™ Mortality and Complication Outcomes Methodology (Appendix F)*.
2. Identify the overall best-performing hospitals using this *Distinguished Hospital Award Clinical Excellence™ Methodology*.

Using a logistic-regression based risk-adjusted model to compare performance among hospitals, hospitals are assigned one of three star ratings: 1-star (poor), 3-star (as expected), or 5-star (best) for each of 26 procedures and diagnoses. To be eligible to receive a star rating, a hospital must have a minimum of 30 cases over the three years of study and at least five cases in the most recent year of analysis (2009).

HealthGrades' risk-adjustment methodology considers important differences in patient demographic (e.g., age, gender) and clinical characteristics (e.g., underlying medical conditions) that could increase the patient's risk of mortality or complications. Risk adjustment of the data is needed to make accurate and valid comparisons of clinical outcomes at different hospitals. For more information regarding the risk-adjustment methodology, read the complete methodology, *HealthGrades Hospital Report Card™ Mortality and Complication Outcomes Methodology*, at www.HealthGrades.com.

Designating Distinguished Hospitals for Clinical Excellence

The Distinguished Hospital Award for Clinical Excellence recognizes the best 5% of hospitals in the country for clinical excellence. These hospitals had lower risk-adjusted mortality and lower risk-adjusted in-hospital complications than all other hospitals.

To be considered for HealthGrades' Distinguished Hospital Award for Clinical Excellence, a hospital had to have star ratings in at least 19 of the 26 HealthGrades procedures and diagnoses using MedPAR data. After creating a list of hospitals that met these criteria, HealthGrades took the following steps to determine the Distinguished Hospital Award for Clinical Excellence recipients:

1. Calculated the average star rating and average z-score for each hospital by averaging all of their MedPAR-based star ratings and the corresponding z-scores (30-day and 180-day mortality ratings are included in the averages).
2. Ranked hospitals in descending order by their average star rating, with ties broken by average z-score.
3. Selected the top 268 hospitals on the list (which represents the top 5% of all hospitals).
4. Designated these hospitals as 2011 Distinguished Hospital Award for Clinical Excellence recipients.

Comparing Distinguished Hospital for Clinical Excellence to All Other Hospitals

For this study, to identify differences in performance between Distinguished Hospitals for Clinical Excellence hospitals and all other hospitals, HealthGrades calculated the actual (observed) and predicted (expected) mortality rates for each of the 17 mortality-based procedures and diagnoses and the actual (observed) and predicted (expected) complication rates for the nine complication-based procedures for each hospital. Hospitals are divided into two groups, Distinguished Hospitals for Clinical Excellence and all other hospitals (non-DH-CE), and then overall observed and expected rates are calculated for both groups in each of the 26 procedures and diagnoses.

The purpose of comparing the predicted to actual is to make a fair comparison between hospitals with different populations. Sicker patients have higher associated observed mortality/complications, so using the observed (O) to expected (E) ratio takes into consideration how sick the patient population is at a given hospital. Observed-to-expected ratios were calculated by procedure or diagnosis by year, for both groups of hospitals. The ratios were then evaluated for differences.

- An O/E ratio of less than 1 means that the procedure or diagnosis measured had fewer deaths/inhospital complications than expected given the patient population.
- An O/E ratio of greater than 1 means that the procedure or diagnosis measured had more deaths/inhospital complications than expected given the patient population.

Appendix F: Hospital Report Cards™ Mortality and Complication Outcomes 2011 Methodology

Visit www.HealthGrades.com to read the complete methodology white paper *Hospital Report Cards™ Mortality and Complication Outcomes 2011 Methodology*.

Introduction

To help consumers evaluate and compare hospital performance, HealthGrades analyzed patient outcome data for virtually every hospital in the country. HealthGrades uses the following data source:

- Medicare inpatient data from the MedPAR database (purchased from the Centers for Medicare and Medicaid Services) for fiscal years 2007 through 2009.

Ratings were based upon HealthGrades' risk-adjustment methodology described below. The purpose of risk adjustment is to obtain fair statistical comparisons among disparate populations or groups. Significant differences in demographic and clinical risk factors are found among patients treated in different hospitals. Risk adjustment of the data is needed to make accurate and valid comparisons of clinical outcomes at different hospitals.

Data Acquisition

The MedPAR data was selected for several reasons:

- Included in the database is virtually every hospital in the country, with the exception of military and Veterans Administration hospitals.
- Accuracy is regulated; hospitals are required by law to submit complete and accurate information with substantial penalties for those that report inaccurate or incomplete data.
- The Medicare population represents a majority of the patients for virtually all of the clinical categories studied. For example, Medicare patients account for approximately 55 – 60% of all cardiac patients.

For Multivariate Logistic Regression-Based Ratings (see below), HealthGrades conducted a series of data quality checks to preserve the integrity of the ratings. Based on the results of these checks, we excluded a limited number of cases because they were inappropriate for inclusion in the database or miscoded.

Examples of excluded patient records were:

- Patients under the age of 65
- Patients who left the hospital against medical advice or who were transferred to another acute care hospital
- Patients discharged alive with a length of stay that is inconsistent with the reason for admission. (For example, a patient discharged alive with a one-day length of stay for valve replacement surgery would be excluded because this procedure requires several days for recovery.)
- Patients who were still in the hospital when the Medicare claim was filed
- Patients with an invalid gender (for example, a prostatectomy related to a female patient)

Methodology for Ratings

HealthGrades' Multivariate Logistic Regression-Based Ratings methodology takes into account patient characteristics such as age, gender, and underlying medical conditions that could increase the patient's risk of mortality or complication.

Multivariate Logistic Regression-Based Ratings

The inpatient data for 26 procedures and diagnoses on the HealthGrades Web site represent three years of patient discharges from Medicare fiscal year 2007 through 2009.

In the initial analysis of the data, a separate data set was created for each group of patients having a specific procedure or diagnosis based on ICD-9-CM coding (e.g., coronary bypass surgery, total hip replacement). Each group of patients was defined by using the information on diagnoses and procedures coded in the patient records. See *Appendix A* in the complete *Hospital Report Cards™ Mortality and Complication Outcomes Methodology* for a list of the diagnosis and procedure codes that define each patient cohort. The quality measure for some cohorts was mortality, whereas for other cohorts the quality measure was major complications.

For each patient cohort, HealthGrades developed a list of specific procedures and diagnosis that define the cohort, a list of risk factors (see *Appendix C* in the complete *Hospital Report Cards™ Mortality and Complication Outcomes Methodology*), and a list of post-surgical complications. These latter two lists were developed in the following manner:

1. Potential risk factors were identified as all clinically relevant diagnoses occurring in more than 0.5% of the patient population, demographic characteristics, and clinically relevant procedures.
2. Post-surgical complications were identified using a panel of clinical and coding experts.

Outcomes were binary, with documented major complications either present or not, and patients recorded as either alive or expired. In cohorts where the quality measure is major complications, mortality is considered a complication. See *Appendix B* in the complete *Hospital Report Cards™ Mortality and Complication Outcomes Methodology* for a list of complications included in the quality measure "Major Complications."

Risk-Adjustment Methodology

Fair and valid comparisons between hospital providers can be made only to the extent that the risk-adjustment methodology considers important differences in patient demographic and clinical characteristics. The risk-adjustment methodology used by HealthGrades defines risk factors as those clinical and demographic variables that influence patient outcomes in significant and systematic ways.

Risk factors may include age, gender, specific procedure performed, and co-morbid conditions such as hypertension, chronic renal failure, heart failure, and diabetes. The methodology is disease-specific and outcome specific. This means that individual risk models are constructed and tailored for each clinical condition or procedure, and also for each outcome. (For most mortality cohorts, outcomes studied included in-hospital, 30 day, and 180 day mortality.)

Developing the HealthGrades ratings involved four steps for each disease state or procedure specific cohort (e.g., coronary bypass surgery) and quality measure (e.g., in-hospital mortality or complications).

1. First, the predicted value (predicted number of deaths or complications at each hospital) was obtained using logistic regression models discussed in the next section *Statistical Models*.
2. Second, the predicted value was compared with the actual or observed, value (actual number of deaths or complications at each hospital). Only hospitals with at least 30 cases across three years of data and at least five cases in the most current year were included.
3. Third, a test was conducted to determine whether the difference between the predicted and actual values was statistically significant. This test was performed to make sure that differences were unlikely to be caused by chance alone.
4. Fourth, a star rating was assigned based upon the outcome of the test for statistical significance.

Statistical Models

Unique statistical models were developed for each patient cohort and each outcome using logistic regression.

Co-morbid diagnoses (e.g., hypertension, chronic renal failure, anemia, diabetes), demographic characteristics (e.g., age and gender), and specific procedures (e.g., percutaneous coronary intervention among coronary bypass surgery patients) were classified as potential risk factors. We used logistic regression to determine which of these were actually risk factors and to what extent they correlated with the quality measure (e.g., mortality). All risk factors that remained in the final model had to be **statistically significant** ($p < 0.05$) in predicting the outcome (mortality, in-hospital complications). In addition, risk factors are required to have an **odds ratio greater than 1.0**. There were occasional exceptions to this rule; for example, risk factors that have been documented in the medical literature to be protective and risk factors that are part of the cohort definition remain in the model even if the odds ratio was less than one (e.g., Streptococcal pneumoniae pneumonia is one type of pneumonia that makes up the Pneumonia cohort).

Complications were *not* counted as risk factors as they were considered a result of care received during the admission. The top five risk factors are procedures/diagnoses that are most likely to lead to the outcome (e.g., highest odds ratio). They are not necessarily those with the highest volume. See *Appendix C* in the complete *Hospital Report Cards™ Mortality and Complication Outcomes Methodology* for a list of the top five risk factors for each procedure or diagnosis.

The statistical models were checked for validity and finalized. All of the models were highly significant, with c-statistics ranging from ~ 0.6 to ~ 0.9. These cohort and outcome-specific models were then used to estimate the probability of the outcome for each patient in the cohort. Patients were then aggregated for each hospital to obtain the predicted outcome for each hospital.

Statistical significance tests were performed for each patient cohort to identify, by hospital, whether the actual and predicted rates were significantly different. We used a standardized score (z-score) to establish an approximate 90% confidence interval.

Assignment of Star Ratings

The following rating system was applied to the data for all procedures and diagnoses:

- ★★★★★ Actual performance was better than predicted and the difference was statistically significant.
- ★★★ Actual performance was not significantly different from what was predicted.
- ★ Actual performance was worse than predicted and the difference was statistically significant.

In general, 70% to 80% of hospitals in each procedure/diagnosis are classified as three stars, with actual results statistically the same as predicted results. Approximately 10% to 15% were 1-star hospitals and 10% to 15% were 5-star hospitals.

Limitations of the Data Models

It must be understood that while these models may be valuable in identifying hospitals that perform better than others, one should not use this information alone to determine the quality of care provided at each hospital. The models are limited by the following factors:

- Cases may have been coded incorrectly or incompletely by the hospital.
- The models can only account for risk factors that are coded into the billing data – if a particular risk factor was not coded into the billing data, such as a patient's socioeconomic status and health behavior, then it was not accounted for with these models.
- Although Health Grades, Inc. has taken steps to carefully compile these data using its methodology, no techniques are infallible, and therefore some information may be missing, outdated or incorrect.

Please note that a high ranking for a particular hospital is not a recommendation or endorsement by Health Grades, Inc. of a particular hospital; it means that the data associated with a particular hospital has met the foregoing qualifications. Only individual patients can decide whether a particular hospital is suited for their unique needs.

Also note that if more than one hospital reported to CMS under a single provider ID, HealthGrades analyzed patient outcome data for those hospitals as a single unit. Throughout this document, therefore, "hospital" refers to one hospital or a group of hospitals reporting under a single provider ID.

Patient Cohort Definitions

Excluded from each cohort were patients who have had any organ transplant.

Cardiac Service Line

Cohort	Inclusions	Exclusions
Coronary Bypass Surgery (CABG) (Isolated) Principal Procedure	<ul style="list-style-type: none"> Coronary bypass for cardiac revascularization with: internal mammary artery or vein One or more vessels Without valve replacement or repair Can have a PCI in this stay 	<ul style="list-style-type: none"> Valve repair & replacement Aortic aneurysm repair Carotid endarterectomy Patients discharged alive with a length of stay < 1 day
Coronary Interventional Procedures (PCI) Principal Procedure of PCI or Principal Procedure Intra-aortic balloon pump with PCI secondary	<ul style="list-style-type: none"> Removal of coronary artery obstruction Single or multi-vessel Atherectomy or balloon angioplasty with or without thrombolytic agent Stent can be bare metal or drug eluting Can be multi-vessel 	<ul style="list-style-type: none"> Open chest Case associated with CABG or Valve in this stay
Heart Attack Principal Diagnosis	<ul style="list-style-type: none"> Anterior, inferior, posterior, lateral, RV infarcts <ul style="list-style-type: none"> ST elevation Non ST elevation Not otherwise specified Includes patients who receive thrombolytics, PCI, CABG, or medical management only 	<ul style="list-style-type: none"> Metastatic cancers Palliative care patients (V66.7) Respirator dependent status (V46.11) Left ventricular assist device (V43.21) Discharge to hospice
Heart Failure Principal Diagnosis	<ul style="list-style-type: none"> Systolic or diastolic, combined, left, valvular, acute or chronic, decompensated or compensated 	<ul style="list-style-type: none"> Dialysis in this stay (39.95) Metastatic cancers Palliative care patients (V66.7) Respirator dependent status (V46.11) Left ventricular assist device (V43.21) Discharge to hospice
Valve Replacement Surgery Principal or Secondary Procedure	<ul style="list-style-type: none"> Replacement with repair Aortic, mitral, pulmonary, or tricuspid With or without CABG 	<ul style="list-style-type: none"> Repair without replacement Thoracic and aortic dissections Patients discharged alive with a length of stay < 1 day

Critical Care Service Line

Excluded from each cohort were patients who have had any organ transplant.

Cohort	Inclusions	Exclusions
Diabetic Acidosis and Coma Principal Diagnosis	<ul style="list-style-type: none"> • With coma • Hypoglycemic shock 	<ul style="list-style-type: none"> • Metastatic cancers • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Respirator dependent status (V46.11) • Patients discharged alive with a length of stay < 1 day
Sepsis Principal Diagnosis	<ul style="list-style-type: none"> • Salmonella septicemia • Listeriosis • Meningococemia • Streptococcal septicemia • Staphylococcal septicemia • Staphylococcus aureus • Pneumococcal septicemia • Septicemia due to anaerobes • Gram-negative organisms • Hemophilus influenzae • Escherichia coli • Pseudomonas • Serratia • Unspecified organism • Herpetic septicemia • Septic shock • SIRS 	<ul style="list-style-type: none"> • Metastatic cancers • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Patients discharged alive with a length of stay < 1 day • Discharge to hospice
Pulmonary Embolism Principal Diagnosis	<ul style="list-style-type: none"> • Pulmonary embolism & infarction • Iatrogenic 	<ul style="list-style-type: none"> • Metastatic cancers • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Patients discharged alive with a length of stay < 1 day • Discharge to hospice
Respiratory Failure Principal Diagnosis	<ul style="list-style-type: none"> • Acute respiratory failure • Acute on chronic respiratory failure 	<ul style="list-style-type: none"> • Metastatic cancers • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Discharge to hospice

Gastrointestinal Service Line

Excluded from each cohort were patients who have had any organ transplant.

Cohort	Inclusions	Exclusions
Bowel Obstruction Principal Diagnosis	<ul style="list-style-type: none"> • Duodenal ulcer with obstruction • Gastrojejunal ulcer with obstruction • Pyloric stenosis • Other obstruction of duodenum • Hernia with obstruction • Intestinal obstruction without hernia • Gallstone ileus • Intussusception 	<ul style="list-style-type: none"> • Metastatic cancers • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Discharge to hospice • Patients deceased with a length of stay < 1 day
Cholecystectomy Principal Procedure	<ul style="list-style-type: none"> • Open or laparoscopic • Partial • Revision of prior 	<ul style="list-style-type: none"> • Palliative care patients (V66.7) • Discharge to hospice
Gastrointestinal Bleed Principal Diagnosis	<ul style="list-style-type: none"> • Bleeding/hemorrhage in any of the following areas: <ul style="list-style-type: none"> • Esophageal varices • Ulcer of esophagus • Gastric ulcer • Duodenal ulcer • Peptic ulcer • Gastrojejunal • Gastritis or duodenitis • Angiodysplasia of stomach & duodenum • Diverticulosis • Rectum or anus • Dieulafoy lesion of intestine • Hematemesis • Melena • Hemorrhage of GI tract, unspecified 	<ul style="list-style-type: none"> • Metastatic cancers • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Respirator dependent status (V46.11) • Discharge to hospice • Patients deceased with a length of stay < 1 day
Gastrointestinal Surgery & Procedures Principal Procedure	<ul style="list-style-type: none"> • Gastrectomies • Vagotomies • Gastric repairs • Small and large intestine resections • Small and large intestine anastomoses 	<ul style="list-style-type: none"> • Primary & metastatic cancers
Pancreatitis Principal Diagnosis	<ul style="list-style-type: none"> • Acute • Chronic 	<ul style="list-style-type: none"> • Metastatic cancers • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Respirator dependent status (V46.11) • Discharge to hospice

Orthopedic Service Line

Excluded from each cohort were patients who have had any organ transplant.

Cohort	Inclusions	Exclusions
Back & Neck Surgery (except Spinal Fusion) Principal Procedure	<ul style="list-style-type: none"> • Cervical, Thoracic, and/or Lumbar spine laminectomy, laminoplasty, foraminectomy, • Repair of vertebral fracture • Elevation of spinal bone fragments • Reduction of vertebral fracture • Removal on bony spicules • Excision or destruction of inter-vertebral disc • Removal of herniated nucleus pulpsus • Insertion of posterior spinal motion preservation devices 	<ul style="list-style-type: none"> • Post laminectomy syndrome: cervical, thoracic, or lumbar • Reopening of laminectomy site • Repair of joint structure • Kyphoplasty • Vertebroplasty • Patients with secondary bone cancer
Back & Neck Surgery (Spinal Fusion) Principal Procedure	<ul style="list-style-type: none"> • Fusion at any level: spinal, cervical, dorsal, dorsolumbar, lumbar, lumbosacral • Single incision approach • Any number of vertebrae 	<ul style="list-style-type: none"> • Post laminectomy syndrome • Reopening • Refusion • Kyphoplast • Vertebroplasty • Patients with secondary bone cancer
Hip Fracture Repair Principal Procedure	<ul style="list-style-type: none"> • Closed reduction with internal fixation • Open reduction with and without internal fixation • Partial hip replacement 	<ul style="list-style-type: none"> • Hip replacement/Knee replacement during same hospital stay • Open skull fractures with lacerations • Open transcervical fractures • Open femur neck and trochanter fractures • Femur shaft fractures • Patients discharged alive with a length of stay < 1 day • Palliative care patients (V66.7) • Discharge to hospice
Total Knee Replacement Principal Procedure	<ul style="list-style-type: none"> • Primary total knee replacement (bicompartamental, tricompartmental, unicompartamental (hemijoint)) • Bilaterals 	<ul style="list-style-type: none"> • Revision • Accidental injury • Removal of hardware • Hip replacement (total or partial); hip resurfacing
Total Hip Replacement Principal Procedure	<ul style="list-style-type: none"> • Primary total hip replacement • Bilaterals • Partial and total hip resurfacing 	<ul style="list-style-type: none"> • Knee replacement • Revision • Accidental injury • Removal of hardware • Femur neck fractures

Prostatectomy

Excluded from each cohort were patients who have had any organ transplant.

Cohort	Inclusions	Exclusions
Prostatectomy Principal Procedure	<ul style="list-style-type: none"> • Transurethral • Suprapubic • Retropubic • Radical • Perineal • Local excision of lesion of prostate 	

Pulmonary Service Line

Excluded from each cohort were patients who have had any organ transplant.

Cohort	Inclusions	Exclusions
Chronic Obstructive Pulmonary Disease Principal Diagnosis	<ul style="list-style-type: none"> • Chronic bronchitis • Simple & obstructive bronchitis with and without exacerbation • Other emphysema • Chronic obstructive asthma • Bronchiectasis • Chronic airway obstruction, not elsewhere classified 	<ul style="list-style-type: none"> • Metastatic cancers • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Respirator dependent status (V46.11) • Discharge to hospice
Pneumonia Principal Diagnosis	<ul style="list-style-type: none"> • Streptococcal – Group A & Group B • Staph pneumonia • Gram negative • Hemophilus influenzae • Mycoplasma • Chlamydia • Bronchopneumonia • Influenza w/ pneumonia • Legionnaire's • Organism not specified 	<ul style="list-style-type: none"> • SARS-related • Metastatic cancers • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Discharge to hospice

Stroke Service Line

Excluded from each cohort were patients who have had any organ transplant.

Cohort	Inclusions	Exclusions
Stroke Principal Diagnosis	<ul style="list-style-type: none"> • Subarachnoid hemorrhage • Intracerebral hemorrhage • Unspecified intracranial hemorrhage • Occlusion and stenosis of basilar, carotid, and vertebral artery • Cerebral thrombosis, embolism, or occlusion • Acute but ill-defined cerebrovascular disease 	<ul style="list-style-type: none"> • Metastatic cancers • Hospitals transferring more than 10% of their population • Subdural bleeds • Extradural bleeds • Palliative care patients (V66.7) • Left ventricular assist device (V43.21) • Respirator dependent status (V46.11) • Patients deceased with a length of stay < 1 day • Patients discharged alive with a length of stay < 1 day • Discharge to hospice

Vascular Service Line

Excluded from each cohort were patients who have had any organ transplant.

Cohort	Inclusions	Exclusions
Carotid Surgery Principal Procedure	<ul style="list-style-type: none"> • Carotid endarterectomy • Endovascular graft • Percutaneous insertion of carotid stent • Percutaneous angioplasty of precerebral vessels 	<ul style="list-style-type: none"> • Patients with coronary bypass surgery • Resection of other peripheral vessel with anastomosis • Subarachnoid, intracerebral and subdural hemorrhage
Peripheral Vascular Bypass Principal Procedure	<ul style="list-style-type: none"> • Peripheral vascular shunt or bypass: • Axillary-brachial • Axillary-femoral • Brachial • Femoral-femoral • Femoroperoneal • Femoropopliteal • Femorotibial • Popliteal • Vascular bypass not otherwise specified 	<ul style="list-style-type: none"> • Resection of upper extremities vascular procedures • Revisions
Resection /Replacement Abdominal Aorta Rupture & Elective Principal Procedure	<ul style="list-style-type: none"> • Excision of aneurysm and resection with anastomosis with and without replacement of the aorta • Endovascular implantation of a graft in the abdominal aorta 	<ul style="list-style-type: none"> • Aortic dissection • Patients with CABG & Valves • Incision of vessel for embolectomy or thrombectomy • Aorto-renal bypass • Aorto-iliac-femoral bypass • Angioplasty of non-coronary vessel • Resection of thoracic vessel • Patients that have a combination of stenting/anastomosis procedures