



## HealthGrades Emergency Medicine in American Hospitals Study

April 2011

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HEALTHGRADES®

The Second Annual

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*In this report, HealthGrades identifies patient outcomes for emergency medicine. The emergency medicine analysis uses three years of Medicare data (2007-2009) for 12 diagnoses for patients admitted to the hospital through the emergency department. The analysis identifies top-performing hospitals in emergency medicine to establish a best-practice benchmark against which other hospitals can be evaluated. See [www.HealthGrades.com](http://www.HealthGrades.com) for a list of best-performing hospitals and the specific results for individual hospitals.*

### Introduction

Hospital emergency departments are typically the entry point for patients that receive life saving care during the most critical time of their lives. These emergency departments play a vital role in diagnosing, treating and directing critically ill patients to the appropriate department to receive the specialty care they need. The vast majority of these cases require time-sensitive treatments to maximize the chances for the best-case outcomes. A large number of Americans visit an emergency department each year with many of those visits resulting in hospitalization. In fact, a 2006 study found that 44% of 39.5 million hospitalizations began in the emergency department.<sup>1</sup> Yet this vital component of the health care system, according to the Institute of Medicine, is overburdened, underfunded, and highly fragmented.<sup>2</sup>

Recent studies of emergency department use indicated that privately insured patients accounted for 40% of the total emergency department visits from 1996 to 2004.<sup>3</sup> Emergency departments also saw an increase in visits by 26% while the number of emergency departments has decreased by 9%.<sup>4</sup> With the recently passed Patient Protection and Affordable Care Act, most individuals will be required to have insurance by 2014. By 2019, the Congressional Budget Office estimates that there will be 32 million additional insured patients in the health care marketplace.<sup>5</sup> This increase in insured patients is likely to increase the number of patients using the emergency department. Because of the current and anticipated increase in emergency department use, HealthGrades recognized the need to analyze emergency medicine outcomes in America's hospitals.

For many industry professionals as well as health care consumers, the potential increase in patients is cause for concern. How will already overburdened and fragmented hospital emergency departments cope with the additional increase in patients and how will the quality of care be impacted? The cause for concern is quite valid. A 2003 study found that emergency department diversions (when an ambulance is redirected from one emergency department to another) occurred more than half a million times, translating into an average of one per minute.<sup>6</sup> This creates delays at emergency departments throughout the city and can create a ripple effect that would be health care's equivalent to a rolling electrical blackout. Everyone's access to care is affected – the insured and

uninsured alike.<sup>7</sup> Research has shown that critically ill patients who experienced delays in being admitted to the hospital from the emergency department had significantly higher inhospital mortality rates than patients without delays.<sup>8</sup>

Even with all the struggles emergency departments face, a recent study from Press Ganey has found that overall patient satisfaction has increased from 81.7% in 2007 to 84.3% in 2009.<sup>9</sup> The study finds that lower wait times produced higher patient satisfaction scores. While the majority of hospitals struggle with emergency department overcrowding and quality of care issues, there are many hospitals across the country that have been redesigning patient care processes by streamlining patient triage and admission systems to address wait time issues. The study also noted that if a hospital was unable to improve wait times, communication was another key component to overall patient satisfaction. This could be the reason why hospitals are beginning to communicate emergency wait times via billboards, websites, Twitter® and even text messages.<sup>10</sup>

In addition to wait times, there are several other ways to grade the quality of a hospital's emergency care including patient satisfaction, adherence to best practices, and outcomes.

This study, however, focuses on mortality based outcomes for Medicare patients that are admitted to the hospital. The starting point for this study begins when the patient is admitted through the emergency department and measures the continuum of care until the patient is discharged. Patients should use multiple tools to make decisions, but at the end of the day, the most important aspect is that the patient survived.

This study, *The Second Annual HealthGrades Emergency Medicine in American Hospitals Study*, aims to identify the best-performing hospitals in emergency medicine, and quantify the clinical impacts of the variation between these best-performing hospitals and all others. HealthGrades analyzed more than seven million Medicare records of patients admitted through the emergency department at 4,873 hospitals from 2007 through 2009. To identify the best-performing hospitals in emergency medicine, HealthGrades evaluated and compared hospitals on the risk-adjusted mortality outcomes for patients admitted through the emergency department for 12 of the most common life-threatening diagnoses in the Medicare population.

The best-performing hospitals are those hospitals that have combined rates of mortality low enough to place them among the top 5% of hospitals in the nation for emergency medicine. From this analysis, HealthGrades identified 268 hospitals with the lowest risk-adjusted mortality and designated these hospitals as recipients of the Emergency Medicine Excellence Award™. This Emergency Medicine Excellence Award is intended as a proxy for the effectiveness of a hospital's multi-disciplinary teamwork and its ability to diagnose, triage and provide timely care to their patients admitted through the emergency department.

More information on the emergency medicine methodology can be found in the *Emergency Medicine Methodology Brief* section, or in the *HealthGrades Emergency Medicine Excellence Award Methodology 2011* white paper at [www.HealthGrades.com](http://www.HealthGrades.com).

HealthGrades illustrates that there are clear differences in outcomes between the best-performing hospitals and all other hospitals with regard to emergency medicine. These differences could mean the difference between life and death for patients requiring emergency treatment. Therefore, consumers and health care providers alike should use the available quality information and understand the quality of care in their marketplace. Health care providers should look to and learn best practices from these best-performing hospitals. In addition, consumers should use this information to have a preferred hospital in mind should a medical emergency occur that permits the time to choose.

## Summary of Findings

HealthGrades analyzed Medicare data of more than seven million patient records for emergency department admissions from 2007 through 2009 for 12 diagnoses, and found the following trends.

### Emergency Medicine Excellence™ Hospitals

- For the group of patients studied, Emergency Medicine Excellence hospitals had, on average, **39.80% lower risk-adjusted mortality** than all other hospitals across the 12 diagnoses studied (*Appendix B*).
- If all hospitals performed at the level of the Emergency Medicine Excellence hospitals from 2007 through 2009, an additional **160,668 people could have potentially survived their emergency hospitalization**.
- The conditions with the largest variation in risk-adjusted mortality between Emergency Medicine Excellence hospitals and all others were diabetic acidosis and coma, chronic obstructive pulmonary disease, pneumonia, and heart failure (*Appendix B*).

### Emergency Department Admissions among Medicare Recipients

- The most common causes for admission through the emergency department by Medicare patients were heart failure, pneumonia, and chronic obstructive pulmonary disease (*Appendix C*).
- On average, for the 12 conditions studied, the percentage of cases admitted through the emergency department increased 2.64% from 2007 to 2009 (*Appendix C*).
- The highest in-hospital mortality rates were among patients with a primary diagnosis of sepsis (20.40%), respiratory failure (19.47%), or heart attack (10.03%) (*Table 1*).

### Emergency Department Trends by Designated Market Area

- Ninety-two Designated Market Areas (DMAs) have one or more Emergency Medicine Excellence hospitals (*Table 2*).
- Roughly 37% (98 out of 268) of the Emergency Medicine Excellence hospitals are located in eight designated market areas: Los Angeles, CA (18); Chicago, IL (17); Cleveland, OH (13); Baltimore, MD (12); Detroit, MI (12); Houston, TX (9); Phoenix, AZ (9); and Cincinnati, OH (8) (*Table 2*).
- Providence, RI; Las Vegas, NV; Miami-Ft. Lauderdale, FL; and New York City had the **highest percentage of admissions through the emergency department** (93.05%, 91.65%, 91.12% and 90.78%, respectively); whereas, Lincoln, NE; Sioux Falls, SD; Wichita, KS; and Omaha, NE had the lowest percentage of admissions through the emergency department (48.06%, 53.72%, 54.84% and 62.32%, respectively) for the 12 conditions studied (*Appendix D*, DMAs with a population of at least 500,000).
- The Top 10 cities in America for emergency admissions, based on the lowest risk-adjusted mortality were: Cincinnati, OH; Phoenix, AZ; Milwaukee, WI; Dayton, OH; Cleveland, OH; West Palm Beach, FL; Tucson, AZ; Baltimore, MD; Houston, TX; and Detroit, MI. (see *Table 3* and *Appendix D*).

If all hospitals studied performed at the level of best-performing hospitals, an additional 160,668 people could have potentially survived their emergency hospitalization (2007 – 2009).

The most common causes for emergency department admissions by Medicare patients were heart failure, pneumonia, and chronic obstructive pulmonary disease.

Ninety-two DMAs have one or more Emergency Medicine Excellence hospitals.

Cincinnati, OH; Phoenix, AZ; Milwaukee, WI; and Dayton, OH had the lowest risk-adjusted mortality for Medicare patients admitted through the emergency department.

## Emergency Medicine Methodology Brief

To identify the top-performing hospitals in the area of emergency medicine, HealthGrades analyzed mortality data from the Centers for Medicare and Medicaid Services for virtually every hospital in the country. HealthGrades analyzed patients admitted to the hospital through the emergency department for the following 12 diagnoses (cohorts):

- Bowel Obstruction
- Chronic Obstructive Pulmonary Disease
- Diabetic Acidosis and Coma
- Gastrointestinal Bleed
- Heart Attack
- Heart Failure
- Pancreatitis
- Pneumonia
- Pulmonary Embolism
- Respiratory Failure
- Sepsis
- Stroke

To receive a rating (z-score) in a cohort, a hospital must have a minimum of 30 patients admitted through the emergency department over the three years of study and at least five cases in the most recent year of analysis (2009). To be eligible for the Emergency Medicine Excellence Award, a hospital must have a rating in a minimum of nine of the 12 cohorts.

Award recipients were determined using the following process:

1. For each hospital and cohort, the observed and predicted numbers of in-hospital deaths were summed for patients admitted through the emergency department, and a z-score was calculated.
2. For each eligible hospital, the straight average of their cohort z-scores was calculated.
3. The eligible hospitals were then rank ordered by their average z-score, and 268 had risk-adjusted mortality rates low enough to qualify them as recipients of the HealthGrades Emergency Medicine Excellence Award.

Of a total of 4,873 short-term, acute-care hospitals considered, 2,181 hospitals were eligible for an award, and 268 had risk-adjusted mortality rates low enough to qualify them as recipients of the HealthGrades Emergency Medicine Excellence Award. For more detail, see *HealthGrades Emergency Medicine Excellence Award Methodology 2011* available at [www.HealthGrades.com](http://www.HealthGrades.com).



## Emergency Medicine Findings

HealthGrades second annual analysis of hospital emergency medicine programs found that the best-performing hospitals consistently outperformed all other hospitals for all 12 cohorts studied.

Nationwide, 268 hospitals had risk-adjusted mortality rates low enough to be recipients of the HealthGrades 2011 Emergency Medicine Excellence Award. These 268 recipients represent the top 5% of the nation's 4,873 short-term, acute-care hospitals. (See *Appendix A* for a complete list of award recipients; visit [www.HealthGrades.com](http://www.HealthGrades.com) to view recipients by state). These 268 hospitals, as a group, comprise the Emergency Medicine Excellence hospitals whose outcomes were compared to all other hospitals.

### Emergency Medicine Excellence Hospitals have Consistently Lower Risk-Adjusted Mortality

From 2007 to 2009, across 12 common diagnoses in the Medicare population, Emergency Medicine Excellence hospitals had consistently lower risk-adjusted mortality than all other hospitals. On average, Emergency Medicine Excellence hospitals had risk-adjusted mortality that was 39.80% lower than all other hospitals (*Appendix B*). The most variation in risk-adjusted mortality between Emergency Medicine Excellence hospitals and all others was seen in the treatment of diabetic acidosis and coma, chronic obstructive pulmonary disease, pneumonia, and heart failure, where Emergency Medicine Excellence hospitals had on average 50.46%, 48.51%, 46.53% and 43.29%, respectively, lower risk-adjusted mortality than all other hospitals (*Appendix B*).

While these conditions showed the most variation in outcomes between the Emergency Medicine Excellence hospitals and all others, the conditions that showed the greatest opportunity to save lives by closing the performance gap were sepsis, pneumonia, and respiratory failure. If all hospitals performed at the level of the Emergency Medicine Excellence hospitals in these three cohorts, a total of 94,767 lives could have potentially been saved between 2007 and 2009 (*Appendix B*).

In total, if all hospitals performed at the level of the Emergency Medicine Excellence hospitals from 2007 through 2009, in just the 12 diagnoses studied, an additional 160,668 Medicare patients could have potentially survived their emergency hospital admission (*Appendix B*).

### Emergency Department Use is Common and Increasing among Medicare Recipients

Overall, there was a 2.64% increase in the percentage of Medicare patients being admitted through the emergency department for the 12 conditions studied (*Appendix C*). An increase in admissions was observed for all conditions examined (*Appendix C*).

The most common causes for admission through the emergency department by Medicare patients were heart failure, pneumonia, and chronic obstructive pulmonary disease. These three conditions alone comprised about 3.5 million emergency department admissions, almost half of all the emergency admissions studied. Sepsis, stroke, and respiratory failure had the highest percentage of patients admitted through the emergency department as compared to all patients with those respective conditions (89.40%, 87.68% and 86.49%, respectively) (*Appendix C*).

In this study, the relationship between the percentage of admissions and risk-adjusted mortality was evaluated. No correlation was found between risk-adjusted mortality and the percentage of emergency department admissions. In other words, lower emergency department admission rates did not correlate to lower risk-adjusted mortality, nor did higher rates of emergency department admissions correlate to lower risk-adjusted mortality (data not shown). As a group, Emergency Medicine Excellence hospitals had about the same percentage of patients admitted through the emergency department as all other hospitals.

The highest volume diagnoses presented the greatest opportunity to save lives by closing the performance gap. If all hospitals performed at the level of excellence hospitals in sepsis, pneumonia, and respiratory failure, 94,767 lives could have potentially been saved between 2007 and 2009.

The most common causes for admissions through the emergency department by Medicare patients were heart failure, pneumonia, and chronic obstructive pulmonary disease.

Medicare recipients experienced the highest in-hospital mortality rate when they were admitted through the emergency department with a primary diagnosis of sepsis, respiratory failure, or heart attack. The lowest mortality rates were for patients admitted for gastrointestinal bleed, chronic obstructive pulmonary disease, and diabetic acidosis and coma (*Table 1*).

**Table 1. Emergency Department Admissions and Mortality Rates per Diagnosis**

| Diagnosis                                    | Emergency Department Admissions* | Average Unadjusted Mortality Rate |
|--|----------------------------------|-----------------------------------|
| Sepsis                                       | 859,858                          | 20.40%                            |
| Respiratory Failure                          | 390,209                          | 19.47%                            |
| Heart Attack                                 | 540,891                          | 10.03%                            |
| Stroke                                       | 591,996                          | 6.63%                             |
| Pneumonia                                    | 1,187,180                        | 4.98%                             |
| Pulmonary Embolism                           | 135,561                          | 4.43%                             |
| Heart Failure                                | 1,394,240                        | 3.74%                             |
| Bowel Obstruction                            | 404,011                          | 3.07%                             |
| Pancreatitis                                 | 129,633                          | 2.48%                             |
| Gastrointestinal Bleed                       | 660,679                          | 1.98%                             |
| Chronic Obstructive Pulmonary Disease (COPD) | 929,523                          | 1.82%                             |
| Diabetic Acidosis and Coma                   | 144,337                          | 1.55%                             |

\* Medicare patients for 2007 through 2009.

### Emergency Excellence Hospitals in Designated Market Areas (DMAs)

Of the 4,873 hospitals nationwide that had emergency department admissions, 2,181 met the criteria to be considered for the Emergency Medicine Excellence Award. Of these hospitals, 268 had risk-adjusted mortality low enough to qualify them as recipients of the HealthGrades 2011 Emergency Medicine Excellence Award™. These 268 recipients represent the top 5% of the nation's 4,873 short-term acute-care hospitals. (See *Appendix A* for a list of award recipients.)

Since most consumers receive health care within the city that they live, HealthGrades evaluated cities, as defined by the Nielsen Designated Market Areas (DMA), on their emergency department mortality rates. While 118 designated market areas do not have an Emergency Excellence hospital, 92 DMAs have one or more Emergency Medicine Excellence hospitals (*Table 2*).

The cities with the most Emergency Medicine Excellence Award Recipients were::

- Los Angeles, CA; Cleveland, OH; Chicago, IL; Baltimore, MD; Detroit, MI; Houston, TX; Phoenix, AZ; Cincinnati, OH; Miami-Ft. Lauderdale, FL; St. Louis, MO; and W. Palm Beach, FL. (Miami, St. Louis, and W. Palm Beach were tied with six recipient hospitals each).
- Baltimore, MD; Cincinnati, OH; Dayton, OH; Detroit, MI; and Grand Rapids, MI had the highest percentage of recipients with at least 10 eligible hospitals (52.17% or 12 out of 23, 47.06% or 8 out of 17, 40.00% or 4 out of 10, 37.50% or 12 out 32 and 36.36% or 4 out of 11) see *Table 2*.



Table 2. Emergency Medicine Excellence Hospitals Distribution by All DMAs

| City by Designated Market Area* | Population | Eligible Hospitals | Emergency Medicine Excellence Hospitals | Percent of Eligible | Percent of Recipients |
|---------------------------------|------------|--------------------|---|---------------------|-----------------------|
| Abilene-Sweetwater, TX          | 297,829    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Albany, NY                      | 1,322,351  | 14                 | 1                                       | 7.14%               | 0.37%                 |
| Albany, GA                      | 360,527    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Albuquerque-Santa Fe, NM        | 1,401,281  | 9                  | 0                                       | 0.00%               | 0.00%                 |
| Alexandria, LA                  | 250,202    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Alpena, MI                      | 40,750     | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Amarillo, TX                    | 473,802    | 3                  | 1                                       | 33.33%              | 0.37%                 |
| Anchorage, AK                   | 306,823    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Atlanta, GA                     | 3,788,941  | 35                 | 2                                       | 5.71%               | 0.75%                 |
| Augusta, GA                     | 568,143    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Austin, TX                      | 940,083    | 7                  | 0                                       | 0.00%               | 0.00%                 |
| Bakersfield, CA                 | 473,081    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Baltimore, MD                   | 2,528,945  | 23                 | 12                                      | 52.17%              | 4.48%                 |
| Bangor, ME                      | 330,295    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Baton Rouge, LA                 | 727,698    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Beaumont-Port Arthur, TX        | 422,543    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Bend, OR                        | 74,958     | 1                  | 1                                       | 100.00%             | 0.37%                 |
| Billings, MT                    | 227,172    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Biloxi-Gulfport, MS             | 291,358    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Binghamton, NY                  | 363,528    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Birmingham, AL                  | 1,625,013  | 16                 | 0                                       | 0.00%               | 0.00%                 |
| Bluefield, WV                   | 361,237    | 5                  | 1                                       | 20.00%              | 0.37%                 |
| Boise, ID                       | 401,913    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Boston, MA-NH                   | 5,664,882  | 52                 | 0                                       | 0.00%               | 0.00%                 |
| Bowling Green, KY               | 156,129    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Buffalo, NY                     | 1,674,098  | 12                 | 0                                       | 0.00%               | 0.00%                 |
| Burlington, VT-NY               | 768,507    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Butte-Bozeman, MT               | 123,682    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Casper-Riverton, WY             | 119,213    | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Cedar Rapids, IA                | 775,972    | 8                  | 2                                       | 25.00%              | 0.75%                 |
| Champaign, IL                   | 937,658    | 10                 | 1                                       | 10.00%              | 0.37%                 |
| Charleston, WV                  | 1,236,645  | 13                 | 3                                       | 23.08%              | 1.12%                 |
| Charleston, SC                  | 624,369    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Charlotte, NC                   | 1,951,191  | 22                 | 2                                       | 9.09%               | 0.75%                 |
| Charlottesville, VA             | 143,056    | 2                  | 1                                       | 50.00%              | 0.37%                 |
| Chattanooga, TN                 | 737,091    | 6                  | 1                                       | 16.67%              | 0.37%                 |
| Cheyenne, WY-NE                 | 121,540    | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Chicago, IL                     | 8,364,125  | 73                 | 17                                      | 23.29%              | 6.34%                 |
| Chico-Redding, CA               | 426,320    | 6                  | 1                                       | 16.67%              | 0.37%                 |
| Cincinnati, OH                  | 2,008,586  | 17                 | 8                                       | 47.06%              | 2.99%                 |

Continued

| City by Designated Market Area* | Population | Eligible Hospitals | Emergency Medicine Excellence Hospitals | Percent of Eligible | Percent of Recipients |
|---------------------------------|------------|--------------------|---|---------------------|-----------------------|
| Clarksburg-Weston, WV           | 268,709    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Cleveland, OH                   | 3,778,784  | 36                 | 13                                      | 36.11%              | 4.85%                 |
| Colorado Springs, CO            | 621,929    | 5                  | 1                                       | 20.00%              | 0.37%                 |
| Columbia, MO                    | 370,325    | 6                  | 1                                       | 16.67%              | 0.37%                 |
| Columbia, SC                    | 815,834    | 7                  | 0                                       | 0.00%               | 0.00%                 |
| Columbus, MS                    | 450,725    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Columbus, GA                    | 477,742    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Columbus, OH                    | 1,874,020  | 12                 | 2                                       | 16.67%              | 0.75%                 |
| Corpus Christi, TX              | 505,097    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Dallas-Ft. Worth, TX            | 4,496,697  | 43                 | 1                                       | 2.33%               | 0.37%                 |
| Davenport, IA-IL                | 770,650    | 7                  | 1                                       | 14.29%              | 0.37%                 |
| Dayton, OH                      | 1,207,681  | 10                 | 4                                       | 40.00%              | 1.49%                 |
| Denver, CO                      | 2,658,798  | 19                 | 3                                       | 15.79%              | 1.12%                 |
| Des Moines-Ames, IA             | 942,911    | 6                  | 1                                       | 16.67%              | 0.37%                 |
| Detroit, MI                     | 4,705,164  | 32                 | 12                                      | 37.50%              | 4.48%                 |
| Dothan, AL                      | 222,079    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Duluth-Superior, MN-WI          | 409,376    | 3                  | 1                                       | 33.33%              | 0.37%                 |
| El Paso, TX-NM                  | 733,442    | 7                  | 0                                       | 0.00%               | 0.00%                 |
| Elmira, NY                      | 254,071    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Erie, PA                        | 406,841    | 4                  | 1                                       | 25.00%              | 0.37%                 |
| Eugene, OR                      | 508,645    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Eureka, CA                      | 142,578    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Evansville, IN                  | 686,681    | 6                  | 1                                       | 16.67%              | 0.37%                 |
| Fairbanks, AK                   | 87,755     | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Fargo-Valley City, ND           | 570,970    | 3                  | 1                                       | 33.33%              | 0.37%                 |
| Flint-Saginaw, MI               | 1,169,321  | 12                 | 2                                       | 16.67%              | 0.75%                 |
| Fresno-Visalia, CA              | 1,361,675  | 10                 | 0                                       | 0.00%               | 0.00%                 |
| Ft. Myers-Naples, FL            | 655,442    | 9                  | 1                                       | 11.11%              | 0.37%                 |
| Ft. Smith, AR                   | 505,597    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Ft. Wayne, IN                   | 629,137    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Gainesville, FL                 | 227,771    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Glendive, MT                    | 10,888     | 0                  | 0                                       | 0.00%               | 0.00%                 |
| Grand Junction, CO              | 117,568    | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Grand Rapids, MI                | 1,688,555  | 11                 | 4                                       | 36.36%              | 1.49%                 |
| Great Falls, MT                 | 169,724    | 1                  | 1                                       | 100.00%             | 0.37%                 |
| Green Bay-Appleton, WI          | 945,668    | 10                 | 1                                       | 10.00%              | 0.37%                 |
| Greensboro, NC                  | 1,328,564  | 12                 | 2                                       | 16.67%              | 0.75%                 |
| Greenville, NC                  | 636,383    | 6                  | 0                                       | 0.00%               | 0.00%                 |
| Greenville, SC-NC               | 1,677,663  | 19                 | 1                                       | 5.26%               | 0.37%                 |
| Greenwood-Greenville, MS        | 227,929    | 3                  | 0                                       | 0.00%               | 0.00%                 |

Continued

| City by Designated Market Area* | Population | Eligible Hospitals | Emergency Medicine Excellence Hospitals | Percent of Eligible | Percent of Recipients |
|---------------------------------|------------|--------------------|---|---------------------|-----------------------|
| Harlingen, TX                   | 701,888    | 9                  | 3                                       | 33.33%              | 1.12%                 |
| Harrisburg, PA                  | 1,616,559  | 15                 | 0                                       | 0.00%               | 0.00%                 |
| Harrisonburg, VA                | 193,930    | 2                  | 2                                       | 100.00%             | 0.75%                 |
| Hartford & New Haven, CT        | 2,459,471  | 21                 | 5                                       | 23.81%              | 1.87%                 |
| Hattiesburg-Laurel, MS          | 250,336    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Helena, MT                      | 50,813     | 0                  | 0                                       | 0.00%               | 0.00%                 |
| Honolulu, HI                    | 1,108,229  | 10                 | 0                                       | 0.00%               | 0.00%                 |
| Houston, TX                     | 4,013,896  | 31                 | 9                                       | 29.03%              | 3.36%                 |
| Huntsville, AL                  | 785,180    | 9                  | 0                                       | 0.00%               | 0.00%                 |
| Idaho Falls, ID                 | 270,342    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Indianapolis, IN                | 2,378,108  | 25                 | 2                                       | 8.00%               | 0.75%                 |
| Jackson, MS                     | 808,760    | 7                  | 0                                       | 0.00%               | 0.00%                 |
| Jackson, TN                     | 209,107    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Jacksonville, FL                | 1,226,698  | 13                 | 2                                       | 15.38%              | 0.75%                 |
| Johnstown-Altoona, PA           | 752,630    | 9                  | 0                                       | 0.00%               | 0.00%                 |
| Jonesboro, AR                   | 166,991    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Joplin-Pittsburg, MO-KS         | 354,441    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Juneau, AK                      | 71,553     | 0                  | 0                                       | 0.00%               | 0.00%                 |
| Kansas City, MO-KS              | 1,971,428  | 18                 | 1                                       | 5.56%               | 0.37%                 |
| Knoxville, TN                   | 1,030,161  | 15                 | 1                                       | 6.67%               | 0.37%                 |
| La Crosse-Eau Claire, WI        | 489,230    | 4                  | 1                                       | 25.00%              | 0.37%                 |
| Lafayette, IN                   | 140,039    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Lafayette, LA                   | 527,301    | 7                  | 0                                       | 0.00%               | 0.00%                 |
| Lake Charles, LA                | 228,703    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Lansing, MI                     | 625,861    | 4                  | 1                                       | 25.00%              | 0.37%                 |
| Laredo, TX                      | 142,518    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Las Vegas, NV                   | 763,015    | 12                 | 0                                       | 0.00%               | 0.00%                 |
| Lexington, KY                   | 1,015,370  | 10                 | 1                                       | 10.00%              | 0.37%                 |
| Lima, OH                        | 188,159    | 3                  | 1                                       | 33.33%              | 0.37%                 |
| Lincoln, NE                     | 651,883    | 4                  | 1                                       | 25.00%              | 0.37%                 |
| Little Rock, AR                 | 1,218,031  | 11                 | 0                                       | 0.00%               | 0.00%                 |
| Los Angeles, CA                 | 14,391,003 | 95                 | 18                                      | 18.95%              | 6.72%                 |
| Louisville, KY                  | 1,417,865  | 10                 | 0                                       | 0.00%               | 0.00%                 |
| Lubbock, TX                     | 392,109    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Macon, GA                       | 538,815    | 5                  | 2                                       | 40.00%              | 0.75%                 |
| Madison, WI                     | 765,979    | 5                  | 1                                       | 20.00%              | 0.37%                 |
| Mankato, MN                     | 127,644    | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Marquette, MI                   | 224,492    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Medford, OR                     | 336,784    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Memphis, TN                     | 1,539,292  | 9                  | 1                                       | 11.11%              | 0.37%                 |

Continued

| City by Designated Market Area* | Population | Eligible Hospitals | Emergency Medicine Excellence Hospitals | Percent of Eligible | Percent of Recipients |
|---------------------------------|------------|--------------------|---|---------------------|-----------------------|
| Meridian, MS                    | 180,507    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Miami-Ft. Lauderdale, FL        | 3,270,606  | 32                 | 6                                       | 18.75%              | 2.24%                 |
| Milwaukee, WI                   | 2,058,583  | 17                 | 4                                       | 23.53%              | 1.49%                 |
| Minneapolis-St. Paul, MN        | 3,589,097  | 20                 | 5                                       | 25.00%              | 1.87%                 |
| Minot, ND                       | 349,094    | 4                  | 1                                       | 25.00%              | 0.37%                 |
| Missoula, MT                    | 198,488    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Mobile, AL-FL                   | 1,109,472  | 12                 | 1                                       | 8.33%               | 0.37%                 |
| Monroe-El Dorado, LA-AR         | 479,325    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Monterey-Salinas, CA            | 622,085    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Montgomery-Selma, AL            | 577,112    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Myrtle Beach, SC                | 551,555    | 11                 | 0                                       | 0.00%               | 0.00%                 |
| Nashville, TN                   | 1,845,450  | 22                 | 1                                       | 4.55%               | 0.37%                 |
| New Orleans, LA                 | 1,667,480  | 14                 | 1                                       | 7.14%               | 0.37%                 |
| New York, NY                    | 18,567,049 | 133                | 5                                       | 3.76%               | 1.87%                 |
| Norfolk, VA                     | 1,635,194  | 16                 | 0                                       | 0.00%               | 0.00%                 |
| North Platte, NE                | 33,932     | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Odessa-Midland, TX              | 368,640    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Oklahoma City, OK               | 1,495,356  | 14                 | 1                                       | 7.14%               | 0.37%                 |
| Omaha, NE                       | 899,171    | 9                  | 0                                       | 0.00%               | 0.00%                 |
| Orlando, FL                     | 2,249,653  | 23                 | 4                                       | 17.39%              | 1.49%                 |
| Ottumwa, IA-MO                  | 128,370    | 1                  | 1                                       | 100.00%             | 0.37%                 |
| Paducah, KY-MO-IL               | 948,044    | 14                 | 0                                       | 0.00%               | 0.00%                 |
| Palm Springs, CA                | 230,547    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Panama City, FL                 | 265,877    | 4                  | 1                                       | 25.00%              | 0.37%                 |
| Parkersburg, WV                 | 156,715    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Peoria-Bloomington, IL          | 587,112    | 6                  | 0                                       | 0.00%               | 0.00%                 |
| Philadelphia, PA                | 7,133,153  | 63                 | 5                                       | 7.94%               | 1.87%                 |
| Phoenix, AZ                     | 2,714,182  | 30                 | 9                                       | 30.00%              | 3.36%                 |
| Pittsburgh, PA                  | 2,932,557  | 31                 | 4                                       | 12.90%              | 1.49%                 |
| Portland-Auburn, ME             | 880,935    | 10                 | 0                                       | 0.00%               | 0.00%                 |
| Portland, OR                    | 2,221,671  | 15                 | 0                                       | 0.00%               | 0.00%                 |
| Presque Isle, ME                | 86,936     | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Providence, RI-MA               | 1,509,789  | 12                 | 0                                       | 0.00%               | 0.00%                 |
| Quincy, IL-MO-IA                | 272,415    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Raleigh, NC                     | 1,902,798  | 20                 | 0                                       | 0.00%               | 0.00%                 |
| Rapid City, SD                  | 215,535    | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Reno, NV                        | 461,451    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Richmond-Petersburg, VA         | 1,103,458  | 10                 | 2                                       | 20.00%              | 0.75%                 |
| Roanoke-Lynchburg, VA           | 1,024,180  | 12                 | 0                                       | 0.00%               | 0.00%                 |
| Rochester, MN-IA                | 330,702    | 3                  | 1                                       | 33.33%              | 0.37%                 |

Continued

| City by Designated Market Area* | Population | Eligible Hospitals | Emergency Medicine Excellence Hospitals | Percent of Eligible | Percent of Recipients |
|---------------------------------|------------|--------------------|---|---------------------|-----------------------|
| Rochester, NY                   | 983,374    | 7                  | 0                                       | 0.00%               | 0.00%                 |
| Rockford, IL                    | 412,120    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Sacramento, CA                  | 2,857,309  | 23                 | 5                                       | 21.74%              | 1.87%                 |
| Salisbury, MD                   | 276,272    | 4                  | 1                                       | 25.00%              | 0.37%                 |
| Salt Lake City, UT              | 1,860,995  | 11                 | 0                                       | 0.00%               | 0.00%                 |
| San Angelo, TX                  | 134,348    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| San Antonio, TX                 | 1,665,593  | 9                  | 1                                       | 11.11%              | 0.37%                 |
| San Diego, CA                   | 2,498,016  | 13                 | 3                                       | 23.08%              | 1.12%                 |
| San Francisco, CA               | 5,950,829  | 45                 | 4                                       | 8.89%               | 1.49%                 |
| Santa Barbara, CA               | 586,770    | 6                  | 0                                       | 0.00%               | 0.00%                 |
| Savannah, GA                    | 627,829    | 7                  | 0                                       | 0.00%               | 0.00%                 |
| Seattle-Tacoma, WA              | 3,523,519  | 27                 | 2                                       | 7.41%               | 0.75%                 |
| Sherman-Ada, TX-OK              | 278,023    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Shreveport, LA                  | 934,201    | 7                  | 0                                       | 0.00%               | 0.00%                 |
| Sioux City, IA                  | 402,294    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Sioux Falls, SD                 | 592,405    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| South Bend-Elkhart, IN          | 805,292    | 7                  | 0                                       | 0.00%               | 0.00%                 |
| Spokane, WA                     | 821,933    | 6                  | 1                                       | 16.67%              | 0.37%                 |
| Springfield-Holyoke, MA         | 672,947    | 6                  | 0                                       | 0.00%               | 0.00%                 |
| Springfield, MO                 | 775,164    | 9                  | 1                                       | 11.11%              | 0.37%                 |
| St. Joseph, MO                  | 115,816    | 1                  | 0                                       | 0.00%               | 0.00%                 |
| St. Louis, MO                   | 2,920,128  | 26                 | 6                                       | 23.08%              | 2.24%                 |
| Syracuse, NY                    | 1,017,004  | 9                  | 0                                       | 0.00%               | 0.00%                 |
| Tallahassee, FL-GA              | 541,534    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Tampa, FL                       | 3,144,270  | 40                 | 2                                       | 5.00%               | 0.75%                 |
| Terre Haute, IN                 | 368,695    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Toledo, OH                      | 1,060,533  | 9                  | 2                                       | 22.22%              | 0.75%                 |
| Topeka, KS                      | 433,844    | 4                  | 1                                       | 25.00%              | 0.37%                 |
| Traverse City, MI               | 500,441    | 7                  | 3                                       | 42.86%              | 1.12%                 |
| Tri-Cities, TN-VA               | 724,614    | 9                  | 2                                       | 22.22%              | 0.75%                 |
| Tucson (Sierra Vista), AZ       | 794,180    | 7                  | 1                                       | 14.29%              | 0.37%                 |
| Tulsa, OK                       | 1,137,021  | 10                 | 1                                       | 10.00%              | 0.37%                 |
| Twin Falls, ID                  | 136,104    | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Tyler-Longview, TX              | 583,094    | 8                  | 2                                       | 25.00%              | 0.75%                 |
| Utica, NY                       | 279,028    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Victoria, TX                    | 74,361     | 2                  | 0                                       | 0.00%               | 0.00%                 |
| W. Palm Beach, FL               | 1,234,398  | 17                 | 6                                       | 35.29%              | 2.24%                 |
| Waco-Temple-Bryan, TX           | 722,903    | 6                  | 0                                       | 0.00%               | 0.00%                 |
| Washington, DC-MD               | 4,729,542  | 37                 | 4                                       | 10.81%              | 1.49%                 |
| Watertown, NY                   | 249,713    | 3                  | 0                                       | 0.00%               | 0.00%                 |

Continued



| City by Designated Market Area* | Population | Eligible Hospitals | Emergency Medicine Excellence Hospitals | Percent of Eligible | Percent of Recipients |
|---------------------------------|------------|--------------------|---|---------------------|-----------------------|
| Wausau-Rhineland, WI            | 405,253    | 2                  | 0                                       | 0.00%               | 0.00%                 |
| Wheeling, WV-OH                 | 362,460    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Wichita, KS                     | 1,086,628  | 7                  | 1                                       | 14.29%              | 0.37%                 |
| Wichita Falls, TX-OK            | 409,306    | 4                  | 0                                       | 0.00%               | 0.00%                 |
| Wilkes Barre, PA                | 1,434,206  | 19                 | 3                                       | 15.79%              | 1.12%                 |
| Wilmington, NC                  | 278,374    | 1                  | 0                                       | 0.00%               | 0.00%                 |
| Yakima, WA                      | 473,269    | 5                  | 0                                       | 0.00%               | 0.00%                 |
| Youngstown, OH                  | 721,927    | 9                  | 3                                       | 33.33%              | 1.12%                 |
| Yuma-El Centro, AZ-CA           | 216,198    | 3                  | 0                                       | 0.00%               | 0.00%                 |
| Zanesville, OH                  | 82,068     | 1                  | 0                                       | 0.00%               | 0.00%                 |

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

### Emergency Medicine Use and Outcomes Vary by City

Overall emergency department admission rates did vary by designated market area (*Appendix D*, for designated market areas with a population of at least 500,000):

- Providence, RI-MA; Las Vegas, NV; and Miami-Ft. Lauderdale, FL (93.05%, 91.65% and 91.12%, respectively) had the highest percentage of admissions through the emergency department for the 12 conditions studied (*Appendix D*).
- Lincoln, NE; Sioux Falls, SD; and Wichita, KS (48.06%, 53.72% and 54.84%, respectively) had the lowest percentage of admission through the emergency department for the 12 conditions studied (*Appendix D*).

HealthGrades identified the Top 10 cities for emergency medicine care, based on the lowest risk adjusted mortality rates. In addition, these cities had to have a population of at least 500,000:

- Cincinnati, OH; Phoenix, AZ; Milwaukee, WI; Dayton, OH; and Cleveland, OH represent the five lowest risk-adjusted mortality rates for emergency department admissions of all designated market area cities for their patients admitted through the emergency department (*Table 3* and *Appendix D*).

Cincinnati, OH;  
Phoenix, AZ;  
Milwaukee, WI;  
Dayton, OH; and  
Cleveland, OH  
had the lowest  
risk-adjusted  
mortality of all  
cities for  
Medicare  
patients  
admitted through  
the emergency  
department.

Table 3. Best-Performing Cities for Emergency Medicine

| Cities                    | Observed-to-Expected Ratio |
|---------------------------|----------------------------|
| Cincinnati, OH            | 0.74                       |
| Phoenix, AZ               | 0.75                       |
| Milwaukee, WI             | 0.76                       |
| Dayton, OH                | 0.76                       |
| Cleveland, OH             | 0.77                       |
| W. Palm Beach, FL         | 0.78                       |
| Tucson (Sierra Vista), AZ | 0.80                       |
| Baltimore, MD             | 0.81                       |
| Houston, TX               | 0.81                       |
| Detroit, MI               | 0.81                       |

An observed-to-expected ratio <1.0 indicates better than expected performance.

## Interpretation of Results

Research has shown that the quality and timeliness of care received in the emergency department has a direct impact on the likelihood of surviving the hospitalization.

Emergency departments are integral to diagnosing and treating critically ill patients. No one plans for a health care emergency, but knowing who your community's top performers in emergency medicine are could potentially save a co-worker, family member, a friend and even your life.

This study evaluates U.S. hospitals based on mortality in the treatment of their most critically-ill patients. For the more than seven million hospitalizations evaluated, the emergency department was the point of entry. While the patients that were evaluated were admitted as inpatients, and the emergency department was just one aspect of the overall care, research has shown that the quality and timeliness of care received in the emergency department has a direct impact on the likelihood of surviving the hospitalization.<sup>8</sup>

As U.S. hospitals anticipate an increase in insured patients and as they prepare for value-based purchasing and increased care coordination requirements, they first must benchmark their performance against top-performing hospitals. This study provides an objective evaluation of outcomes across all short-term acute-care hospitals for their most critically ill patients. From this evaluation, 268 hospitals can boast the lowest risk-adjusted mortality for 12 conditions in the Medicare population (*Appendix A*).

As discussed earlier, there are a number of quality measures available to both hospitals and consumers to assess a hospital's interventions and treatments. This study uses mortality outcomes to evaluate hospital performance. Some consumers may question the usefulness of this type of information in an emergent situation. Due to the large quality variations between hospitals, it is important for consumers to understand which hospital in their immediate area provides them with the best opportunity for survival and be prepared if an emergent situation should arise.

In summary, this study found that a typical Medicare patient is nearly 40% less likely to die during an emergency hospitalization at a top-performing hospital than all other hospitals. Sepsis and pneumonia combined represent the areas of care where the most lives (72,160) could potentially be saved by closing the quality gap. Diabetic acidosis, COPD, and pneumonia had the highest variance of observed-to-expected mortality when we compared Emergency Medicine Excellence hospitals to non-recipients (50.46%, 48.51% and 46.53%, respectively). Heart attack care had the least variance between award recipients and non-recipients (23.34%) (*Appendix B*).

There is also large variation among the quality of care provided from city to city. A typical Medicare patient has the best chance of surviving an emergency hospitalization in Cincinnati, OH; Phoenix, AZ; Milwaukee, WI; Dayton, OH; and Cleveland, OH (*Table 3* and *Appendix D*). This should be comforting for the residents of these top-performing cities.

Our study suggests that there is still much work to be done in closing the performance gaps between the nation's best-performing and worst-performing hospitals. We have identified 268 examples in 92 designated market areas of hospitals that have managed to tackle the obstacles that emergency departments face and achieve the lowest risk-adjusted mortality among their peers. **In just 12 diagnoses among Medicare patients only, if all hospitals performed at the level of the best 268 hospitals, 160,668 inpatient deaths could have potentially been avoided from 2007 through 2009 (*Appendix B*).**

A typical Medicare patient is nearly 40% less likely to die during an emergency hospitalization at a top-performing hospital than at all other hospitals.

## Limitations of the Emergency Medicine Performance Assessment and the Risk-Adjustment Models for Emergency Medicine Performance

It must be understood that while these models may be valuable in identifying hospital groups that perform better than others, one should recognize that these 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 HealthGrades has taken steps to carefully compile these data, some information may be missing, outdated, or incorrect.

## Acknowledgements

Health Grades, Inc., 999 18<sup>th</sup> Street, Suite 600, Denver, Colorado 80202. Health Grades Inc. is the leading independent health care ratings organization, providing quality ratings, profiles and cost information on the nation's hospitals, physicians, and nursing homes.

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## Appendix A. HealthGrades 2011 Emergency Medicine Excellence Award™ Recipients

The following hospitals are recipients of the HealthGrades 2011 Emergency Medicine Excellence Award™ listed by designated market area (DMA) and state for multi-state DMAs.

| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area* | City           | State |
|--|----------------|-------|
| <b>Mobile, AL-FL</b>   |                |       |
| Sacred Heart Hospital  | Pensacola      | FL    |
| <b>Phoenix, AZ</b>   |                |       |
| Banner Boswell Medical Center  | Sun City       | AZ    |
| Banner Del E. Webb Medical Center  | Sun City West  | AZ    |
| Banner Desert Medical Center   | Mesa           | AZ    |
| Banner Estrella Medical Center   | Phoenix        | AZ    |
| Banner Thunderbird Medical Center  | Glendale       | AZ    |
| Mayo Clinic Hospital   | Phoenix        | AZ    |
| Scottsdale Healthcare - Osborn Medical Center                              | Scottsdale     | AZ    |
| Scottsdale Healthcare - Shea Medical Center                                | Scottsdale     | AZ    |
| West Valley Hospital   | Goodyear       | AZ    |
| <b>Tucson (Sierra Vista), AZ</b>   |                |       |
| Tucson Medical Center  | Tucson         | AZ    |
| <b>Chico-Redding, CA</b>   |                |       |
| Mercy Medical Center Redding   | Redding        | CA    |
| <b>Los Angeles, CA</b>   |                |       |
| Alhambra Hospital Medical Center   | Alhambra       | CA    |
| Centinela Hospital Medical Center  | Inglewood      | CA    |
| Chino Valley Medical Center  | Chino          | CA    |
| Desert Valley Hospital   | Victorville    | CA    |
| Garden Grove Hospital and Medical Center                                   | Garden Grove   | CA    |
| Garfield Medical Center  | Monterey Park  | CA    |
| Kaiser Permanente Woodland Hills Medical Center                            | Woodland Hills | CA    |
| La Palma Intercommunity Hospital   | La Palma       | CA    |
| Pomona Valley Hospital Medical Center                                      | Pomona         | CA    |
| Presbyterian Intercommunity Hospital                                       | Whittier       | CA    |
| Providence Holy Cross Medical Center                                       | Mission Hills  | CA    |
| Saddleback Memorial Laguna Hills   | Laguna Hills   | CA    |
| <i>including</i> Saddleback Memorial Medical Center San Clemente           | San Clemente   | CA    |
| San Antonio Community Hospital   | Upland         | CA    |
| San Gabriel Valley Medical Center  | San Gabriel    | CA    |
| Sherman Oaks Hospital  | Sherman Oaks   | CA    |
| West Anaheim Medical Center  | Anaheim        | CA    |
| White Memorial Medical Center  | Los Angeles    | CA    |
| Whittier Hospital Medical Center   | Whittier       | CA    |

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

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 Appendix A. HealthGrades 2011 Emergency Medicine Excellence Award™ Recipients

| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area* | City             | State |
|--|------------------|-------|
| <b>Sacramento, CA</b>  |                  |       |
| Mercy San Juan Medical Center  | Carmichael       | CA    |
| Sierra Nevada Memorial Hospital  | Grass Valley     | CA    |
| Sutter Auburn Faith Hospital   | Auburn           | CA    |
| Sutter General Hospital  | Sacramento       | CA    |
| <i>including</i> Sutter Memorial Hospital                                  | Sacramento       | CA    |
| Sutter Roseville Medical Center  | Roseville        | CA    |
| <b>San Diego, CA</b>   |                  |       |
| Paradise Valley Hospital   | National City    | CA    |
| Scripps Memorial Hospital Encinitas  | Encinitas        | CA    |
| Scripps Mercy Hospital   | San Diego        | CA    |
| <i>including</i> Scripps Mercy Hospital Chula Vista                        | Chula Vista      | CA    |
| <b>San Francisco, CA</b>   |                  |       |
| Eden Medical Center  | Castro Valley    | CA    |
| John Muir Medical Center - Walnut Creek                                    | Walnut Creek     | CA    |
| Petaluma Valley Hospital   | Petaluma         | CA    |
| Sutter Delta Medical Center  | Antioch          | CA    |
| <b>Colorado Springs, CO</b>  |                  |       |
| Centura Health - Penrose St. Francis Health Services                       | Colorado Springs | CO    |
| <b>Denver, CO</b>  |                  |       |
| Exempla Saint Joseph Hospital  | Denver           | CO    |
| McKee Medical Center   | Loveland         | CO    |
| North Colorado Medical Center  | Greeley          | CO    |
| <b>Hartford &amp; New Haven, CT</b>  |                  |       |
| Griffin Hospital   | Derby            | CT    |
| Hartford Hospital  | Hartford         | CT    |
| Manchester Memorial Hospital   | Manchester       | CT    |
| Middlesex Hospital   | Middletown       | CT    |
| Rockville General Hospital   | Vernon Rockville | CT    |
| <b>Washington DC-MD</b>  |                  |       |
| Doctors Community Hospital   | Lanham           | MD    |
| Frederick Memorial Hospital  | Frederick        | MD    |
| Suburban Hospital  | Bethesda         | MD    |
| Washington Adventist Hospital  | Takoma Park      | MD    |
| <b>Ft. Myers-Naples, FL</b>  |                  |       |
| Lee Memorial Hospital  | Fort Myers       | FL    |
| <b>Jacksonville, FL</b>  |                  |       |
| Baptist Medical Center   | Jacksonville     | FL    |
| <i>including</i> Baptist Medical Center – South (Jacksonville, FL)         | Jacksonville     | FL    |
| Flagler Hospital   | Saint Augustine  | FL    |

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

Continued

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 Appendix A. HealthGrades 2011 Emergency Medicine Excellence Award™ Recipients

| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area* | City            | State |
|--|-----------------|-------|
| <b>Miami-Ft. Lauderdale, FL</b>  |                 |       |
| Cleveland Clinic Hospital  | Weston          | FL    |
| Doctors' Hospital  | Coral Gables    | FL    |
| Kendall Regional Medical Center  | Miami           | FL    |
| Memorial Hospital Pembroke   | Pembroke Pines  | FL    |
| Memorial Hospital West   | Pembroke Pines  | FL    |
| Mercy Hospital   | Miami           | FL    |
| <b>Orlando, FL</b>   |                 |       |
| Florida Hospital Deland  | Deland          | FL    |
| Florida Hospital Fish Memorial   | Orange City     | FL    |
| Munroe Regional Medical Center   | Ocala           | FL    |
| Wuesthoff Medical Center Rockledge   | Rockledge       | FL    |
| <b>Panama City, FL</b>   |                 |       |
| Bay Medical Center   | Panama City     | FL    |
| <b>Tampa, FL</b>   |                 |       |
| Brandon Regional Hospital  | Brandon         | FL    |
| Sarasota Memorial Hospital   | Sarasota        | FL    |
| <b>W. Palm Beach, FL</b>   |                 |       |
| Bethesda Memorial Hospital   | Boynton Beach   | FL    |
| Boca Raton Regional Hospital   | Boca Raton      | FL    |
| Delray Medical Center  | Delray Beach    | FL    |
| JFK Medical Center   | Atlantis        | FL    |
| Jupiter Medical Center   | Jupiter         | FL    |
| Martin Memorial Medical Center   | Stuart          | FL    |
| <b>Atlanta, GA</b>   |                 |       |
| Northeast Georgia Medical Center   | Gainesville     | GA    |
| <i>including</i> Northeast Georgia Medical Center - Lanier Park            | Gainesville     | GA    |
| Piedmont Fayette Hospital  | Fayetteville    | GA    |
| <b>Macon, GA</b>   |                 |       |
| Houston Medical Center   | Warner Robins   | GA    |
| Oconee Regional Medical Center   | Milledgeville   | GA    |
| <b>Cedar Rapids, IA</b>  |                 |       |
| Mercy Medical Center - Cedar Rapids  | Cedar Rapids    | IA    |
| Saint Luke's Hospital  | Cedar Rapids    | IA    |
| <b>Des Moines-Ames, IA</b>   |                 |       |
| Mercy Medical Center - Des Moines  | Des Moines      | IA    |
| <b>Davenport, IA-IL</b>  |                 |       |
| Great River Medical Center   | West Burlington | IA    |
| <b>Ottumwa, IA-MO</b>  |                 |       |
| Ottumwa Regional Health Center   | Ottumwa         | IA    |

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 Appendix A. HealthGrades 2011 Emergency Medicine Excellence Award™ Recipients

| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area* | City              | State |
|--|-------------------|-------|
| <b>Champaign, IL</b>   |                   |       |
| Carle Foundation Hospital  | Urbana            | IL    |
| <b>Chicago, IL</b>   |                   |       |
| Advocate Christ Hospital and Medical Center                                | Oak Lawn          | IL    |
| Advocate Good Samaritan Hospital   | Downers Grove     | IL    |
| Advocate South Suburban Hospital   | Hazel Crest       | IL    |
| Advocate Trinity Hospital  | Chicago           | IL    |
| Alexian Brothers Medical Center  | Elk Grove Village | IL    |
| Central DuPage Hospital  | Winfield          | IL    |
| Edward Hospital  | Naperville        | IL    |
| Evanston Hospital  | Evanston          | IL    |
| <i>including</i> Glenbrook Hospital  | Glenview          | IL    |
| Highland Park Hospital   | Highland Park     | IL    |
| Ingalls Memorial Hospital  | Harvey            | IL    |
| Metrosouth Medical Center  | Blue Island       | IL    |
| Our Lady of the Resurrection Medical Center                                | Chicago           | IL    |
| Provena Saint Joseph Medical Center  | Joliet            | IL    |
| Resurrection Medical Center  | Chicago           | IL    |
| Rush University Medical Center   | Chicago           | IL    |
| Saint Alexius Medical Center   | Hoffman Estates   | IL    |
| Saint Bernard Hospital   | Chicago           | IL    |
| Community Hospital   | Munster           | IN    |
| <b>Evansville, IN – Kentucky Hospitals</b>                                 |                   |       |
| Owensboro Medical Health System  | Owensboro         | KY    |
| <b>Indianapolis, IN</b>  |                   |       |
| Clarian Methodist Hospital   | Indianapolis      | IN    |
| <i>including</i> Indiana University Medical Center                         | Indianapolis      | IN    |
| St. Vincent Indianapolis Hospital  | Indianapolis      | IN    |
| <b>Topeka, KS</b>  |                   |       |
| Saint Francis Health Center  | Topeka            | KS    |
| <b>Wichita, KS</b>   |                   |       |
| Via Christi Regional Medical Center  | Wichita           | KS    |
| <b>Lexington, KY</b>   |                   |       |
| Saint Joseph - London  | London            | KY    |
| <b>New Orleans, LA</b>   |                   |       |
| Ochsner Clinic Foundation  | New Orleans       | LA    |
| <i>including</i> Ochsner Medical Center - West Bank Campus                 | Gretna            | LA    |

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| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area* | City              | State |
|--|-------------------|-------|
| <b>Baltimore, MD</b>   |                   |       |
| Carroll Hospital Center  | Westminster       | MD    |
| Franklin Square Hospital Center  | Baltimore         | MD    |
| Good Samaritan Hospital  | Baltimore         | MD    |
| Greater Baltimore Medical Center   | Baltimore         | MD    |
| Harbor Hospital  | Baltimore         | MD    |
| Howard County General Hospital   | Columbia          | MD    |
| Maryland General Hospital  | Baltimore         | MD    |
| Northwest Hospital Center  | Randallstown      | MD    |
| Saint Joseph Medical Center  | Towson            | MD    |
| Sinai Hospital of Baltimore  | Baltimore         | MD    |
| Union Hospital   | Elkton            | MD    |
| Union Memorial Hospital  | Baltimore         | MD    |
| <b>Salisbury, MD</b>   |                   |       |
| Peninsula Regional Medical Center  | Salisbury         | MD    |
| <b>Detroit, MI</b>   |                   |       |
| Beaumont Hospital - Royal Oak  | Royal Oak         | MI    |
| Beaumont Hospital - Troy   | Troy              | MI    |
| Henry Ford Hospital  | Detroit           | MI    |
| Henry Ford Macomb Hospital   | Clinton Township  | MI    |
| Henry Ford Wyandotte Hospital  | Wyandotte         | MI    |
| Huron Valley - Sinai Hospital  | Commerce Township | MI    |
| Lapeer Regional Medical Center   | Lapeer            | MI    |
| Mount Clemens Regional Medical Center                                      | Mount Clemens     | MI    |
| Providence Hospital  | Southfield        | MI    |
| Saint John Macomb - Oakland Hospital - Macomb Center                       | Warren            | MI    |
| <i>including</i> Saint John Macomb - Oakland Hospital - Oakland Center     | Madison Heights   | MI    |
| Saint Mary Mercy Hospital  | Livonia           | MI    |
| Sinai - Grace Hospital   | Detroit           | MI    |
| <b>Flint-Saginaw, MI</b>   |                   |       |
| Genesys Regional Medical Center  | Grand Blanc       | MI    |
| McLaren Regional Medical Center  | Flint             | MI    |
| <b>Grand Rapids, MI</b>  |                   |       |
| Bronson Methodist Hospital   | Kalamazoo         | MI    |
| Holland Hospital   | Holland           | MI    |
| Mercy Health Partners Hackley Campus                                       | Muskegon          | MI    |
| Saint Mary's Health Care   | Grand Rapids      | MI    |
| <b>Lansing, MI</b>   |                   |       |
| Allegiance Health  | Jackson           | MI    |

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| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area* | City             | State |
|--|------------------|-------|
| <b>Traverse City, MI</b>   |                  |       |
| Mercy Hospital - Cadillac  | Cadillac         | MI    |
| Mercy Hospital - Grayling  | Grayling         | MI    |
| Munson Medical Center  | Traverse City    | MI    |
| <b>Minneapolis-St. Paul, MN</b>  |                  |       |
| Fairview Ridges Hospital   | Burnsville       | MN    |
| Fairview Southdale Hospital  | Edina            | MN    |
| North Memorial   | Robbinsdale      | MN    |
| Park Nicollet Methodist Hospital   | Minneapolis      | MN    |
| Regions Hospital   | Saint Paul       | MN    |
| <b>Rochester, MN-IA</b>  |                  |       |
| Mercy Medical Center - North Iowa  | Mason City       | IA    |
| <b>Duluth-Superior, MN-WI</b>  |                  |       |
| Saint Luke's Hospital  | Duluth           | MN    |
| <b>Columbia, MO</b>  |                  |       |
| Boone Hospital Center  | Columbia         | MO    |
| <b>Springfield, MO</b>   |                  |       |
| Skaggs Regional Medical Center   | Branson          | MO    |
| <b>St. Louis, MO – Illinois Hospitals</b>                                  |                  |       |
| Memorial Hospital  | Belleville       | IL    |
| <b>St. Louis, MO – Missouri Hospitals</b>                                  |                  |       |
| Barnes - Jewish Saint Peters Hospital                                      | Saint Peters     | MO    |
| Christian Hospital   | Saint Louis      | MO    |
| SSM Saint Joseph Hospital West   | Lake Saint Louis | MO    |
| SSM Saint Mary's Health Center   | Richmond Heights | MO    |
| St. Luke's Hospital  | Chesterfield     | MO    |
| <b>Kansas City, MO-KS</b>  |                  |       |
| University of Kansas Hospital  | Kansas City      | KS    |
| <b>Great Falls, MT</b>   |                  |       |
| Benefis Health System  | Great Falls      | MT    |
| <b>Charlotte, NC</b>   |                  |       |
| Gaston Memorial Hospital   | Gastonia         | NC    |
| Stanly Regional Medical Center   | Albemarle        | NC    |
| <b>Greensboro, NC</b>  |                  |       |
| Northern Hospital of Surry County  | Mount Airy       | NC    |
| Randolph Hospital  | Asheboro         | NC    |
| <b>Fargo-Valley City, ND</b>   |                  |       |
| Altru Hospital   | Grand Forks      | ND    |
| <b>Minot, ND</b>   |                  |       |
| Medcenter One  | Bismarck         | ND    |

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| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area* | City                 | State |
|--|----------------------|-------|
| <b>Lincoln, NE</b>   |                      |       |
| BryanLGH Medical Center East   | Lincoln              | NE    |
| <i>including</i> BryanLGH Medical Center West                              | Lincoln              | NE    |
| <b>Albany, NY</b>  |                      |       |
| Albany Medical Center Hospital   | Albany               | NY    |
| <b>New York, NY – New Jersey Hospitals</b>                                 |                      |       |
| Clara Maass Medical Center   | Belleville           | NJ    |
| Community Medical Center   | Toms River           | NJ    |
| Hackensack University Medical Center                                       | Hackensack           | NJ    |
| Monmouth Medical Center  | Long Branch          | NJ    |
| <b>New York, NY – New York Hospitals</b>                                   |                      |       |
| Vassar Brothers Medical Center   | Poughkeepsie         | NY    |
| <b>Cincinnati, OH – Kentucky Hospitals</b>                                 |                      |       |
| St. Elizabeth Edgewood   | Edgewood             | KY    |
| <b>Cincinnati, OH – Ohio Hospitals</b>                                     |                      |       |
| Bethesda North Hospital  | Cincinnati           | OH    |
| Christ Hospital  | Cincinnati           | OH    |
| Fort Hamilton Hughes Memorial Hospital                                     | Hamilton             | OH    |
| Good Samaritan Hospital  | Cincinnati           | OH    |
| Mercy Franciscan Hospital - Mount Airy                                     | Cincinnati           | OH    |
| The Jewish Hospital  | Cincinnati           | OH    |
| University Hospital  | Cincinnati           | OH    |
| <b>Cleveland, OH</b>   |                      |       |
| Akron General Medical Center   | Akron                | OH    |
| Ashtabula County Medical Center  | Ashtabula            | OH    |
| Aultman Hospital   | Canton               | OH    |
| EMH Regional Medical Center  | Elyria               | OH    |
| Euclid Hospital  | Euclid               | OH    |
| Hillcrest Hospital   | Mayfield Heights     | OH    |
| Huron Hospital   | East Cleveland       | OH    |
| Marymount Hospital   | Garfield Heights     | OH    |
| Mercy Medical Center   | Canton               | OH    |
| South Pointe Hospital  | Warrensville Heights | OH    |
| Southwest General Health Center  | Middleburg Heights   | OH    |
| Union Hospital   | Dover                | OH    |
| Wooster Community Hospital   | Wooster              | OH    |
| <b>Columbus, OH</b>  |                      |       |
| Mount Carmel Health  | Columbus             | OH    |
| The Ohio State University Medical Center                                   | Columbus             | OH    |
| <i>including</i> The Ohio State University Hospital East                   | Columbus             | OH    |

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| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area* | City             | State |
|--|------------------|-------|
| <b>Dayton, OH</b>  |                  |       |
| Good Samaritan Hospital  | Dayton           | OH    |
| <i>including</i> Dayton Heart and Vascular Hospital at Good Samaritan      | Dayton           | OH    |
| Grandview Medical Center   | Dayton           | OH    |
| Kettering Medical Center   | Kettering        | OH    |
| Miami Valley Hospital  | Dayton           | OH    |
| <b>Lima, OH</b>  |                  |       |
| Joint Township District Memorial Hospital                                  | Saint Mary's     | OH    |
| <b>Toledo, OH</b>  |                  |       |
| Mercy Saint Anne Hospital  | Toledo           | OH    |
| The Toledo Hospital  | Toledo           | OH    |
| <b>Youngstown, OH</b>  |                  |       |
| Northside Medical Center   | Youngstown       | OH    |
| Saint Elizabeth Boardman Health Center                                     | Boardman         | OH    |
| Saint Elizabeth Health Center  | Youngstown       | OH    |
| <b>Oklahoma City, OK</b>   |                  |       |
| Integris Southwest Medical Center  | Oklahoma City    | OK    |
| <b>Tulsa, OK</b>   |                  |       |
| Saint Francis Hospital   | Tulsa            | OK    |
| <b>Bend, OR</b>  |                  |       |
| Saint Charles Medical Center - Bend  | Bend             | OR    |
| <b>Erie, PA</b>  |                  |       |
| Hamot Medical Center   | Erie             | PA    |
| <b>Philadelphia, PA</b>  |                  |       |
| Bayhealth Medical Center - Kent General Hospital                           | Dover            | DE    |
| <i>including</i> Bayhealth Medical Center Milford Memorial                 | Milford          | DE    |
| Robert Wood Johnson University Hospital Hamilton                           | Hamilton         | NJ    |
| Lehigh Valley Hospital   | Allentown        | PA    |
| Lehigh Valley Hospital - Muhlenberg  | Bethlehem        | PA    |
| St. Luke's Hospital - Bethlehem Campus                                     | Bethlehem        | PA    |
| <i>including</i> St. Luke's Hospital - Allentown Campus                    | Allentown        | PA    |
| <b>Pittsburgh, PA</b>  |                  |       |
| Alle Kiski Medical Center  | Natrona Heights  | PA    |
| Jameson Memorial Hospital  | New Castle       | PA    |
| The Western Pennsylvania Hospital - Forbes Regional Campus                 | Monroeville      | PA    |
| UPMC McKeesport  | McKeesport       | PA    |
| <b>Wilkes Barre, PA</b>  |                  |       |
| Evangelical Community Hospital   | Lewisburg        | PA    |
| Mercy Hospital Scranton  | Scranton         | PA    |
| Pocono Medical Center  | East Stroudsburg | PA    |

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| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area*  | City          | State |
|---|---------------|-------|
| <b>Greenville, SC-NC</b>  |               |       |
| AnMed Health  | Anderson      | SC    |
| <b>Chattanooga, TN</b>  |               |       |
| Hamilton Medical Center   | Dalton        | GA    |
| <b>Knoxville, TN</b>  |               |       |
| Methodist Medical Center of Oak Ridge                                       | Oak Ridge     | TN    |
| <b>Memphis, TN</b>  |               |       |
| Baptist Memorial Hospital   | Memphis       | TN    |
| <i>including</i> Baptist Memorial Hospital – Collierville                   | Collierville  | TN    |
| Baptist Memorial Hospital for Women   | Memphis       | TN    |
| <b>Nashville, TN</b>  |               |       |
| Vanderbilt University Hospital  | Nashville     | TN    |
| <b>Tri-Cities, TN-VA – Tennessee Hospitals</b>                              |               |       |
| Indian Path Medical Center  | Kingsport     | TN    |
| <b>Tri-Cities, TN-VA – Virginia Hospitals</b>                               |               |       |
| Wellmont Lonesome Pine Hospital   | Big Stone Gap | VA    |
| <b>Amarillo, TX</b>   |               |       |
| Baptist Saint Anthony's Health System                                       | Amarillo      | TX    |
| <b>Dallas-Ft. Worth, TX</b>   |               |       |
| Texas Health Harris Methodist Hospital Fort Worth                           | Fort Worth    | TX    |
| <b>Harlingen, TX</b>  |               |       |
| Doctors Hospital at Renaissance   | Edinburg      | TX    |
| Harlingen Medical Center  | Harlingen     | TX    |
| South Texas Health - Edinburg Regional Medical Center                       | Edinburg      | TX    |
| <i>including</i> South Texas Health - McAllen Medical Center/Heart Hospital | McAllen       | TX    |
| <b>Houston, TX</b>  |               |       |
| Cypress Fairbanks Medical Center  | Houston       | TX    |
| Doctors Hospital Tidwell  | Houston       | TX    |
| Memorial Hermann Healthcare System - Southwest                              | Houston       | TX    |
| <i>including</i> Memorial Hermann Northwest Hospital                        | Houston       | TX    |
| Memorial Hermann Southeast Hospital   | Houston       | TX    |
| Memorial Hermann The Woodlands Hospital                                     | The Woodlands | TX    |
| Memorial Hermann Memorial City Medical Center                               | Houston       | TX    |
| Methodist Sugar Land Hospital   | Sugar Land    | TX    |
| Saint Luke's Episcopal Hospital   | Houston       | TX    |
| San Jacinto Methodist Hospital  | Baytown       | TX    |
| The Methodist Hospital  | Houston       | TX    |
| <i>including</i> Diagnostic Center Hospital                                 | Houston       | TX    |
| Tomball Regional Medical Center   | Tomball       | TX    |
| <b>San Antonio, TX</b>  |               |       |
| Baptist Medical Center  | San Antonio   | TX    |
| <i>including</i> Saint Luke's Lutheran Hospital                             | San Antonio   | TX    |

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Appendix A. HealthGrades 2011 Emergency Medicine Excellence Award™ Recipients

| Emergency Medicine Excellence Hospitals 2011<br>by Designated Market Area* | City            | State |
|--|-----------------|-------|
| <b>Tyler-Longview, TX</b>  |                 |       |
| East Texas Medical Center  | Tyler           | TX    |
| Mother Frances Hospital - Tyler  | Tyler           | TX    |
| <b>Charlottesville, VA</b>   |                 |       |
| Martha Jefferson Hospital  | Charlottesville | VA    |
| <b>Harrisonburg, VA</b>  |                 |       |
| Augusta Health   | Fishersville    | VA    |
| Rockingham Memorial Hospital   | Harrisonburg    | VA    |
| <b>Richmond-Petersburg, VA</b>   |                 |       |
| Bon Secours Memorial Regional Medical Center                               | Mechanicsville  | VA    |
| Bon Secours St. Mary's Hospital  | Richmond        | VA    |
| <b>Seattle-Tacoma, WA</b>  |                 |       |
| Providence Regional Medical Center Everett                                 | Everett         | WA    |
| Virginia Mason Medical Center  | Seattle         | WA    |
| <b>Spokane, WA</b>   |                 |       |
| Holy Family Hospital   | Spokane         | WA    |
| <b>Green Bay-Appleton, WI</b>  |                 |       |
| Bay Area Medical Center  | Marinette       | WI    |
| <b>La Crosse-Eau Claire, WI</b>  |                 |       |
| Gundersen Lutheran Medical Center  | La Crosse       | WI    |
| <b>Madison, WI</b>   |                 |       |
| Mercy Hospital Janesville  | Janesville      | WI    |
| <b>Milwaukee, WI</b>   |                 |       |
| Aurora Saint Luke's Medical Center   | Milwaukee       | WI    |
| <i>including</i> Aurora Sinai Medical Center                               | Milwaukee       | WI    |
| Saint Luke's Medical Center  | Cudahy          | WI    |
| West Allis Memorial Hospital   | West Allis      | WI    |
| Wheaton Franciscan Healthcare - Saint Francis                              | Milwaukee       | WI    |
| Wheaton Franciscan Healthcare All Saints - Spring St                       | Racine          | WI    |
| <i>including</i> Wheaton Franciscan Healthcare All Saints - Wisc St        | Racine          | WI    |
| <b>Bluefield, WV</b>   |                 |       |
| Greenbrier Valley Medical Center   | Ronceverte      | WV    |
| <b>Charleston, WV – Kentucky Hospitals</b>                                 |                 |       |
| Bon Secours Our Lady of Bellefonte Hospital                                | Ashland         | KY    |
| King's Daughters Medical Center  | Ashland         | KY    |
| <b>Charleston, WV – Ohio Hospitals</b>                                     |                 |       |
| Southern Ohio Medical Center   | Portsmouth      | OH    |

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

Some of the Emergency Medicine Excellence Award recipients have multiple locations. In these cases, results for all locations were used in the analysis and each of the facilities is designated as a recipient of the award.

## Appendix B. Inhospital Mortality Performance Emergency Medicine Excellence Hospitals and All Other U.S. Hospitals

| Procedure or Diagnosis                     | Total Number of Medicare Hospitalizations Admitted Through Emergency Department | Emergency Medicine Excellence Hospitals Observed-to-Expected Inhospital Mortality Ratio | All Other U.S. Hospitals Observed-to-Expected Inhospital Mortality Ratio | Relative Risk Reduction Associated with Emergency Medicine Excellence Hospitals Compared to All Other U.S. Hospitals <sup>1</sup> | Number of Lives that could have been Saved if All Patients were Treated at Emergency Medicine Excellence Hospitals (2007-2009) <sup>2</sup> | P-Value (Emergency Medicine Excellence Hospital Mortality Compared to National Mortality Average) |
|--|---|---|--|---|---|---|
| Bowel Obstruction                          | 404,011   | 0.66  | 1.06   | 37.60%  | 4,138   | <.001   |
| Chronic Obstructive Pulmonary Disease      | 929,523   | 0.56  | 1.09   | 48.51%  | 7,487   | <.001   |
| Diabetic Acidosis and Coma                 | 144,337   | 0.55  | 1.10   | 50.46%  | 1,033   | <.001   |
| Gastrointestinal Bleed                     | 660,679   | 0.64  | 1.08   | 41.00%  | 4,760   | <.001   |
| Heart Attack (Acute Myocardial Infarction) | 540,891   | 0.80  | 1.04   | 23.34%  | 10,962  | <.001   |
| Heart Failure                              | 1,394,240   | 0.61  | 1.08   | 43.29%  | 20,236  | <.001   |
| Pancreatitis                               | 129,633   | 0.65  | 1.07   | 39.68%  | 1,140   | <.001   |
| Pneumonia                                  | 1,187,180   | 0.57  | 1.07   | 46.53%  | 25,212  | <.001   |
| Pulmonary Embolism                         | 135,561   | 0.63  | 1.09   | 41.92%  | 2,209   | <.001   |
| Respiratory Failure                        | 390,209   | 0.70  | 1.07   | 34.41%  | 22,607  | <.001   |
| Sepsis                                     | 859,858   | 0.73  | 1.06   | 31.28%  | 46,948  | <.001   |
| Stroke                                     | 591,996   | 0.65  | 1.08   | 39.53%  | 13,936  | <.001   |
| <b>3-Year Performance Average</b>          |   | <b>0.65</b>   | <b>1.08</b>  | <b>39.80%</b>   |   |   |
| <b>Totals</b>                              | <b>7,368,118</b>  |   |  |   | <b>160,668</b>  |   |

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

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

EM = Emergency Medicine Excellence Award recipient hospitals.

## Appendix C. Emergency Room Admissions by Cohort by Year

| Diagnosis                             | Year      | Cases Admitted through Emergency Department | All Hospital Admissions | Percent of Admissions through Emergency Department | Percent Increase 2007 to 2009 |
|---------------------------------------|-----------|---|-------------------------|--|-------------------------------|
| Bowel Obstruction                     | 2007      | 120,092                                     | 147,654                 | 81.33%   |                               |
|                                       | 2008      | 139,579                                     | 169,093                 | 82.55%   |                               |
|                                       | 2009      | 144,340                                     | 173,754                 | 83.07%   | 2.14%                         |
|                                       | 2007-2009 | 404,011                                     | 490,501                 | 82.37%   |                               |
| Chronic Obstructive Pulmonary Disease | 2007      | 249,754                                     | 315,324                 | 79.21%   |                               |
|                                       | 2008      | 333,668                                     | 408,332                 | 81.71%   |                               |
|                                       | 2009      | 346,101                                     | 418,856                 | 82.63%   | 4.32%                         |
|                                       | 2007-2009 | 929,523                                     | 1,142,512               | 81.36%   |                               |
| Diabetic Acidosis and Coma            | 2007      | 42,968                                      | 53,380                  | 80.49%   |                               |
|                                       | 2008      | 50,412                                      | 61,764                  | 81.62%   |                               |
|                                       | 2009      | 50,957                                      | 62,046                  | 82.13%   | 2.03%                         |
|                                       | 2007-2009 | 144,337                                     | 177,190                 | 81.46%   |                               |
| Gastrointestinal Bleed                | 2007      | 205,549                                     | 252,866                 | 81.29%   |                               |
|                                       | 2008      | 227,172                                     | 273,915                 | 82.94%   |                               |
|                                       | 2009      | 227,958                                     | 271,215                 | 84.05%   | 3.40%                         |
|                                       | 2007-2009 | 660,679                                     | 797,996                 | 82.79%   |                               |
| Heart Attack                          | 2007      | 165,232                                     | 233,310                 | 70.82%   |                               |
|                                       | 2008      | 189,516                                     | 262,798                 | 72.11%   |                               |
|                                       | 2009      | 186,143                                     | 256,902                 | 72.46%   | 2.31%                         |
|                                       | 2007-2009 | 540,891                                     | 753,010                 | 71.83%   |                               |
| Heart Failure                         | 2007      | 441,508                                     | 569,502                 | 77.53%   |                               |
|                                       | 2008      | 471,210                                     | 594,345                 | 79.28%   |                               |
|                                       | 2009      | 481,522                                     | 598,950                 | 80.39%   | 3.70%                         |
|                                       | 2007-2009 | 1,394,240                                   | 1,762,797               | 79.09%   |                               |
| Pancreatitis                          | 2007      | 40,811                                      | 48,260                  | 84.56%   |                               |
|                                       | 2008      | 43,841                                      | 51,415                  | 85.27%   |                               |
|                                       | 2009      | 44,981                                      | 52,662                  | 85.41%   | 1.00%                         |
|                                       | 2007-2009 | 129,633                                     | 152,337                 | 85.10%   |                               |
| Pneumonia                             | 2007      | 395,416                                     | 483,719                 | 81.74%   |                               |
|                                       | 2008      | 406,316                                     | 492,039                 | 82.58%   |                               |
|                                       | 2009      | 385,448                                     | 461,243                 | 83.57%   | 2.23%                         |
|                                       | 2007-2009 | 1,187,180                                   | 1,437,001               | 82.62%   |                               |
| Pulmonary Embolism                    | 2007      | 41,632                                      | 52,325                  | 79.56%   |                               |
|                                       | 2008      | 46,665                                      | 57,051                  | 81.80%   |                               |
|                                       | 2009      | 47,264                                      | 57,476                  | 82.23%   | 3.35%                         |
|                                       | 2007-2009 | 135,561                                     | 166,852                 | 81.25%   |                               |
| Respiratory Failure                   | 2007      | 123,034                                     | 142,785                 | 86.17%   |                               |
|                                       | 2008      | 148,816                                     | 171,355                 | 86.85%   |                               |
|                                       | 2009      | 118,359                                     | 137,022                 | 86.38%   | 0.25%                         |
|                                       | 2007-2009 | 390,209                                     | 451,162                 | 86.49%   |                               |
| Sepsis                                | 2007      | 238,831                                     | 268,608                 | 88.91%   |                               |
|                                       | 2008      | 301,255                                     | 336,898                 | 89.42%   |                               |
|                                       | 2009      | 319,772                                     | 356,332                 | 89.74%   | 0.93%                         |
|                                       | 2007-2009 | 859,858                                     | 961,838                 | 89.40%   |                               |
| Stroke                                | 2007      | 182,222                                     | 208,779                 | 87.28%   |                               |
|                                       | 2008      | 203,770                                     | 232,298                 | 87.72%   |                               |
|                                       | 2009      | 206,004                                     | 234,074                 | 88.01%   | 0.83%                         |
|                                       | 2007-2009 | 591,996                                     | 675,151                 | 87.68%   |                               |
| Overall                               | 2007      | 2,247,049                                   | 2,776,512               | 80.93%   |                               |
|                                       | 2009      | 2,558,849                                   | 3,080,532               | 83.07%   | 2.64%                         |



## Appendix D. Emergency Medicine Admissions and Mortality Observed-to-Expected by Designated Market Area with Population of at least 500,000

| Designated Market Area*  | Population | All Hospital Admissions in Cohorts Studied | Emergency Admissions Actual Mortality | Emergency Admissions Predicted Mortality | Cases Admitted through Emergency Department | Percent of Admissions through Emergency Department | Observed-to-Expected Ratio Emergency Admissions | DMA Rank by Percentage of Emergency Department Admissions |
|--------------------------|------------|--|---------------------------------------|--|---|--|---|---|
| Lincoln, NE              | 651,883    | 26,527                                     | 792                                   | 682                                      | 12,750                                      | 48.06%   | 1.16  | 1   |
| Sioux Falls, SD          | 592,405    | 24,431                                     | 752                                   | 669                                      | 13,125                                      | 53.72%   | 1.12  | 2   |
| Wichita, KS              | 1,086,628  | 44,011                                     | 1,414                                 | 1,493                                    | 24,137                                      | 54.84%   | 0.95  | 3   |
| Omaha, NE                | 899,171    | 30,725                                     | 1,241                                 | 1,136                                    | 19,148                                      | 62.32%   | 1.09  | 4   |
| Fargo-Valley City, ND    | 570,970    | 18,027                                     | 679                                   | 791                                      | 11,661                                      | 64.69%   | 0.86  | 5   |
| Des Moines-Ames, IA      | 942,911    | 34,989                                     | 1,333                                 | 1,452                                    | 22,943                                      | 65.57%   | 0.92  | 6   |
| Lexington, KY            | 1,015,370  | 49,554                                     | 2,201                                 | 2,101                                    | 33,231                                      | 67.06%   | 1.05  | 7   |
| Ft. Wayne, IN            | 629,137    | 20,295                                     | 807                                   | 824                                      | 13,976                                      | 68.86%   | 0.98  | 8   |
| Nashville, TN            | 1,845,450  | 89,777                                     | 4,448                                 | 3,769                                    | 61,946                                      | 69.00%   | 1.18  | 9   |
| Spokane, WA              | 821,933    | 27,778                                     | 1,350                                 | 1,347                                    | 19,231                                      | 69.23%   | 1.00  | 10  |
| Little Rock, AR          | 1,218,031  | 59,868                                     | 3,150                                 | 2,576                                    | 41,682                                      | 69.62%   | 1.22  | 11  |
| Champaign, IL            | 937,658    | 44,760                                     | 1,911                                 | 1,830                                    | 31,842                                      | 71.14%   | 1.04  | 12  |
| Paducah, KY-MO-IL        | 948,044    | 52,006                                     | 2,543                                 | 2,079                                    | 37,082                                      | 71.30%   | 1.22  | 13  |
| Madison, WI              | 765,979    | 24,602                                     | 1,017                                 | 944                                      | 17,584                                      | 71.47%   | 1.08  | 14  |
| Cedar Rapids, IA         | 775,972    | 29,704                                     | 1,180                                 | 1,429                                    | 21,248                                      | 71.53%   | 0.83  | 15  |
| Huntsville, AL           | 785,180    | 38,686                                     | 2,349                                 | 1,630                                    | 27,826                                      | 71.93%   | 1.44  | 16  |
| Jackson, MS              | 808,760    | 33,500                                     | 1,864                                 | 1,385                                    | 24,151                                      | 72.09%   | 1.35  | 17  |
| Evansville, IN           | 686,681    | 32,948                                     | 1,499                                 | 1,493                                    | 23,927                                      | 72.62%   | 1.00  | 18  |
| Tallahassee, FL-GA       | 541,534    | 18,036                                     | 1,046                                 | 802                                      | 13,199                                      | 73.18%   | 1.30  | 19  |
| Macon, GA                | 538,815    | 23,230                                     | 1,295                                 | 1,269                                    | 17,145                                      | 73.81%   | 1.02  | 20  |
| Savannah, GA             | 627,829    | 24,939                                     | 1,237                                 | 1,143                                    | 18,469                                      | 74.06%   | 1.08  | 21  |
| Birmingham, AL           | 1,625,013  | 67,979                                     | 4,411                                 | 3,598                                    | 50,629                                      | 74.48%   | 1.23  | 22  |
| Charleston, SC           | 624,369    | 20,272                                     | 1,303                                 | 988                                      | 15,236                                      | 75.16%   | 1.32  | 23  |
| Montgomery-Selma, AL     | 577,112    | 22,603                                     | 1,363                                 | 1,014                                    | 16,998                                      | 75.20%   | 1.34  | 24  |
| Tulsa, OK                | 1,137,021  | 46,847                                     | 2,359                                 | 2,111                                    | 35,238                                      | 75.22%   | 1.12  | 25  |
| Oklahoma City, OK        | 1,495,356  | 59,966                                     | 3,107                                 | 2,661                                    | 45,137                                      | 75.27%   | 1.17  | 26  |
| San Antonio, TX          | 1,665,593  | 56,465                                     | 3,141                                 | 3,408                                    | 42,665                                      | 75.56%   | 0.92  | 27  |
| Columbia, SC             | 815,834    | 26,436                                     | 1,750                                 | 1,297                                    | 19,990                                      | 75.62%   | 1.35  | 28  |
| Davenport, IA-IL         | 770,650    | 31,040                                     | 1,312                                 | 1,257                                    | 23,485                                      | 75.66%   | 1.04  | 29  |
| Shreveport, LA           | 934,201    | 43,612                                     | 2,350                                 | 2,279                                    | 33,124                                      | 75.95%   | 1.03  | 30  |
| Augusta, GA              | 568,143    | 19,441                                     | 1,239                                 | 978                                      | 14,775                                      | 76.00%   | 1.27  | 31  |
| Kansas City, MO-KS       | 1,971,428  | 71,387                                     | 3,518                                 | 3,231                                    | 54,601                                      | 76.49%   | 1.09  | 32  |
| Green Bay-Appleton, WI   | 945,668    | 27,321                                     | 1,210                                 | 1,235                                    | 20,911                                      | 76.54%   | 0.98  | 33  |
| Minneapolis-St. Paul, MN | 3,589,097  | 94,145                                     | 4,070                                 | 4,614                                    | 72,126                                      | 76.61%   | 0.88  | 34  |
| Louisville, KY           | 1,417,865  | 65,912                                     | 3,633                                 | 3,764                                    | 50,586                                      | 76.75%   | 0.97  | 35  |
| Ft. Smith, AR            | 505,597    | 23,998                                     | 1,129                                 | 1,076                                    | 18,436                                      | 76.82%   | 1.05  | 36  |
| Tri-Cities, TN-VA        | 724,614    | 41,993                                     | 2,125                                 | 2,070                                    | 32,275                                      | 76.86%   | 1.03  | 37  |
| Mobile, AL-FL            | 1,109,472  | 47,260                                     | 2,490                                 | 2,172                                    | 36,391                                      | 77.00%   | 1.15  | 38  |
| Indianapolis, IN         | 2,378,108  | 96,522                                     | 4,324                                 | 4,824                                    | 74,360                                      | 77.04%   | 0.90  | 39  |
| Peoria-Bloomington, IL   | 587,112    | 21,791                                     | 1,223                                 | 1,001                                    | 16,833                                      | 77.25%   | 1.22  | 40  |

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Appendix D: Emergency Medicine Mortality Observed-to-Expected by DMA

| Designated Market Area*  | Population | All Hospital Admissions in Cohorts Studied | Emergency Admissions Actual Mortality | Emergency Admissions Predicted Mortality | Cases Admitted through Emergency Department | Percent of Admissions through Emergency Department | Observed-to-Expected Ratio Emergency Admissions | DMA Rank by Percentage of Emergency Department Admissions |
|--------------------------|------------|--|---------------------------------------|--|---|--|---|---|
| Greenville, NC           | 636,383    | 26,984                                     | 1,749                                 | 1,285                                    | 20,930                                      | 77.56%   | 1.36  | 41  |
| Lafayette, LA            | 527,301    | 23,658                                     | 1,326                                 | 1,036                                    | 18,381                                      | 77.69%   | 1.28  | 42  |
| Albuquerque-Santa Fe, NM | 1,401,281  | 34,519                                     | 1,728                                 | 1,641                                    | 26,873                                      | 77.85%   | 1.05  | 43  |
| Burlington, VT-NY        | 768,507    | 25,704                                     | 1,240                                 | 974                                      | 20,133                                      | 78.33%   | 1.27  | 44  |
| St. Louis, MO            | 2,920,128  | 117,930                                    | 6,240                                 | 6,861                                    | 92,745                                      | 78.64%   | 0.91  | 45  |
| Tyler-Longview, TX       | 583,094    | 39,475                                     | 2,017                                 | 2,177                                    | 31,077                                      | 78.73%   | 0.93  | 46  |
| Charleston, WV           | 1,236,645  | 66,266                                     | 3,217                                 | 3,152                                    | 52,307                                      | 78.93%   | 1.02  | 47  |
| Salt Lake City, UT       | 1,860,995  | 38,182                                     | 1,771                                 | 1,996                                    | 30,182                                      | 79.05%   | 0.89  | 48  |
| Toledo, OH               | 1,060,533  | 38,942                                     | 1,660                                 | 1,778                                    | 30,842                                      | 79.20%   | 0.93  | 49  |
| Waco-Temple-Bryan, TX    | 722,903    | 27,476                                     | 1,430                                 | 1,460                                    | 21,811                                      | 79.38%   | 0.98  | 50  |
| Harlingen, TX            | 701,888    | 35,186                                     | 2,359                                 | 2,776                                    | 28,069                                      | 79.77%   | 0.85  | 51  |
| Eugene, OR               | 508,645    | 17,002                                     | 910                                   | 1,003                                    | 13,643                                      | 80.24%   | 0.91  | 52  |
| Knoxville, TN            | 1,030,161  | 60,442                                     | 3,318                                 | 3,406                                    | 48,651                                      | 80.49%   | 0.97  | 53  |
| Denver, CO               | 2,658,798  | 57,744                                     | 2,561                                 | 2,946                                    | 46,513                                      | 80.55%   | 0.87  | 54  |
| Springfield, MO          | 775,164    | 37,810                                     | 2,182                                 | 2,038                                    | 30,460                                      | 80.56%   | 1.07  | 55  |
| Chattanooga, TN          | 737,091    | 32,882                                     | 1,836                                 | 1,759                                    | 26,546                                      | 80.73%   | 1.04  | 56  |
| South Bend-Elkhart, IN   | 805,292    | 25,909                                     | 1,290                                 | 1,326                                    | 20,917                                      | 80.73%   | 0.97  | 57  |
| Greenville, SC-NC        | 1,677,663  | 72,564                                     | 4,307                                 | 4,264                                    | 58,656                                      | 80.83%   | 1.01  | 58  |
| Memphis, TN              | 1,539,292  | 43,733                                     | 2,857                                 | 2,302                                    | 35,395                                      | 80.93%   | 1.24  | 59  |
| Roanoke-Lynchburg, VA    | 1,024,180  | 47,258                                     | 2,749                                 | 2,387                                    | 38,296                                      | 81.04%   | 1.15  | 60  |
| Cleveland, OH            | 3,778,784  | 161,448                                    | 7,043                                 | 9,149                                    | 130,852                                     | 81.05%   | 0.77  | 61  |
| Baton Rouge, LA          | 727,698    | 19,521                                     | 1,294                                 | 1,114                                    | 15,866                                      | 81.28%   | 1.16  | 62  |
| Atlanta, GA              | 3,788,941  | 130,562                                    | 7,560                                 | 7,751                                    | 106,383                                     | 81.48%   | 0.98  | 63  |
| Houston, TX              | 4,013,896  | 121,095                                    | 6,252                                 | 7,753                                    | 98,832                                      | 81.62%   | 0.81  | 64  |
| Portland-Auburn, ME      | 880,935    | 34,654                                     | 1,753                                 | 1,742                                    | 28,315                                      | 81.71%   | 1.01  | 65  |
| Myrtle Beach, SC         | 551,555    | 33,948                                     | 2,123                                 | 1,807                                    | 27,843                                      | 82.02%   | 1.17  | 66  |
| Charlotte, NC            | 1,951,191  | 84,533                                     | 4,849                                 | 4,805                                    | 69,484                                      | 82.20%   | 1.01  | 67  |
| Greensboro, NC           | 1,328,564  | 54,119                                     | 3,561                                 | 3,201                                    | 44,688                                      | 82.57%   | 1.11  | 68  |
| Pittsburgh, PA           | 2,932,557  | 128,919                                    | 6,675                                 | 7,174                                    | 106,482                                     | 82.60%   | 0.93  | 69  |
| Raleigh, NC              | 1,902,798  | 80,880                                     | 5,042                                 | 4,527                                    | 66,835                                      | 82.63%   | 1.11  | 70  |
| Milwaukee, WI            | 2,058,583  | 64,114                                     | 2,649                                 | 3,490                                    | 53,099                                      | 82.82%   | 0.76  | 71  |
| Portland, OR             | 2,221,671  | 54,718                                     | 3,036                                 | 2,896                                    | 45,410                                      | 82.99%   | 1.05  | 72  |
| Austin, TX               | 940,083    | 31,200                                     | 1,472                                 | 1,549                                    | 25,941                                      | 83.14%   | 0.95  | 73  |
| Johnstown-Altoona, PA    | 752,630    | 32,006                                     | 1,735                                 | 1,628                                    | 26,626                                      | 83.19%   | 1.07  | 74  |
| Wilkes Barre, PA         | 1,434,206  | 72,692                                     | 3,748                                 | 3,888                                    | 60,627                                      | 83.40%   | 0.96  | 75  |
| Lansing, MI              | 625,861    | 19,945                                     | 860                                   | 955                                      | 16,685                                      | 83.66%   | 0.90  | 76  |
| Corpus Christi, TX       | 505,097    | 18,424                                     | 1,003                                 | 1,075                                    | 15,413                                      | 83.66%   | 0.93  | 77  |
| Jacksonville, FL         | 1,226,698  | 54,752                                     | 3,033                                 | 3,068                                    | 45,826                                      | 83.70%   | 0.99  | 78  |
| San Diego, CA            | 2,498,016  | 52,242                                     | 3,278                                 | 3,294                                    | 43,769                                      | 83.78%   | 1.00  | 79  |
| New Orleans, LA          | 1,667,480  | 48,061                                     | 2,694                                 | 2,407                                    | 40,386                                      | 84.03%   | 1.12  | 80  |
| Columbus, OH             | 1,874,020  | 64,185                                     | 3,065                                 | 3,267                                    | 54,091                                      | 84.27%   | 0.94  | 81  |
| Cincinnati, OH           | 2,008,586  | 72,805                                     | 3,214                                 | 4,342                                    | 61,492                                      | 84.46%   | 0.74  | 82  |
| Flint-Saginaw, MI        | 1,169,321  | 54,928                                     | 3,058                                 | 3,313                                    | 46,442                                      | 84.55%   | 0.92  | 83  |
| Phoenix, AZ              | 2,714,182  | 96,267                                     | 3,893                                 | 5,175                                    | 81,413                                      | 84.57%   | 0.75  | 84  |
| El Paso, TX-NM           | 733,442    | 20,537                                     | 1,528                                 | 1,377                                    | 17,399                                      | 84.72%   | 1.11  | 85  |

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Appendix D: Emergency Medicine Mortality Observed-to-Expected by DMA

| Designated Market Area*  | Population | All Hospital Admissions in Cohorts Studied | Emergency Admissions Actual Mortality | Emergency Admissions Predicted Mortality | Cases Admitted through Emergency Department | Percent of Admissions through Emergency Department | Observed-to-Expected Ratio Emergency Admissions | DMA Rank by Percentage of Emergency Department Admissions |
|--------------------------|------------|--|---------------------------------------|--|---|--|---|---|
| Colorado Springs, CO     | 621,929    | 17,967                                     | 876                                   | 918                                      | 15,244                                      | 84.84%   | 0.95  | 86  |
| W. Palm Beach, FL        | 1,234,398  | 69,524                                     | 3,010                                 | 3,873                                    | 59,010                                      | 84.88%   | 0.78  | 87  |
| Santa Barbara, CA        | 586,770    | 14,033                                     | 862                                   | 800                                      | 11,927                                      | 84.99%   | 1.08  | 88  |
| Los Angeles, CA          | 14,391,003 | 304,745                                    | 21,289                                | 24,221                                   | 259,032                                     | 85.00%   | 0.88  | 89  |
| Seattle-Tacoma, WA       | 3,523,519  | 90,928                                     | 5,828                                 | 6,073                                    | 77,333                                      | 85.05%   | 0.96  | 90  |
| Tampa, FL                | 3,144,270  | 161,271                                    | 9,218                                 | 9,408                                    | 137,506                                     | 85.26%   | 0.98  | 91  |
| Grand Rapids, MI         | 1,688,555  | 54,917                                     | 2,618                                 | 2,963                                    | 46,888                                      | 85.38%   | 0.88  | 92  |
| Dallas-Ft. Worth, TX     | 4,496,697  | 142,828                                    | 8,316                                 | 8,077                                    | 122,443                                     | 85.73%   | 1.03  | 93  |
| Chicago, IL              | 8,364,125  | 298,870                                    | 15,844                                | 18,724                                   | 256,373                                     | 85.78%   | 0.85  | 94  |
| Traverse City, MI        | 500,441    | 21,854                                     | 833                                   | 1,019                                    | 18,777                                      | 85.92%   | 0.82  | 95  |
| Tucson(Sierra Vista), AZ | 794,180    | 24,145                                     | 1,180                                 | 1,470                                    | 20,769                                      | 86.02%   | 0.80  | 96  |
| Syracuse, NY             | 1,017,004  | 31,482                                     | 2,259                                 | 1,697                                    | 27,098                                      | 86.07%   | 1.33  | 97  |
| Youngstown, OH           | 721,927    | 34,413                                     | 1,803                                 | 2,137                                    | 29,636                                      | 86.12%   | 0.84  | 98  |
| Honolulu, HI             | 1,108,229  | 21,918                                     | 1,844                                 | 1,464                                    | 18,937                                      | 86.40%   | 1.26  | 99  |
| Springfield-Holyoke, MA  | 672,947    | 22,619                                     | 1,211                                 | 1,285                                    | 19,588                                      | 86.60%   | 0.94  | 100   |
| Harrisburg, PA           | 1,616,559  | 64,117                                     | 3,783                                 | 3,639                                    | 55,714                                      | 86.89%   | 1.04  | 101   |
| Ft. Myers-Naples, FL     | 655,442    | 45,356                                     | 2,310                                 | 2,526                                    | 39,415                                      | 86.90%   | 0.91  | 102   |
| Monterey-Salinas, CA     | 622,085    | 12,484                                     | 772                                   | 689                                      | 10,887                                      | 87.21%   | 1.12  | 103   |
| Richmond-Petersburg, VA  | 1,103,458  | 39,816                                     | 2,382                                 | 2,796                                    | 34,740                                      | 87.25%   | 0.85  | 104   |
| Sacramento, CA           | 2,857,309  | 74,763                                     | 4,769                                 | 4,741                                    | 65,272                                      | 87.31%   | 1.01  | 105   |
| Washington, DC-MD        | 4,729,542  | 140,748                                    | 9,744                                 | 10,285                                   | 123,141                                     | 87.49%   | 0.95  | 106   |
| San Francisco, CA        | 5,950,829  | 118,352                                    | 8,019                                 | 8,018                                    | 103,741                                     | 87.65%   | 1.00  | 107   |
| Orlando, FL              | 2,249,653  | 122,462                                    | 6,601                                 | 7,500                                    | 107,932                                     | 88.14%   | 0.88  | 108   |
| Dayton, OH               | 1,207,681  | 45,316                                     | 2,298                                 | 3,025                                    | 40,186                                      | 88.68%   | 0.76  | 109   |
| Norfolk, VA              | 1,635,194  | 54,234                                     | 4,317                                 | 3,701                                    | 48,108                                      | 88.70%   | 1.17  | 110   |
| Boston, MA-NH            | 5,664,882  | 205,881                                    | 11,695                                | 10,966                                   | 183,207                                     | 88.99%   | 1.07  | 111   |
| Baltimore, MD            | 2,528,945  | 102,700                                    | 6,310                                 | 7,836                                    | 91,401                                      | 89.00%   | 0.81  | 112   |
| Philadelphia, PA         | 7,133,153  | 268,615                                    | 15,691                                | 15,542                                   | 240,531                                     | 89.54%   | 1.01  | 113   |
| Fresno-Visalia, CA       | 1,361,675  | 35,162                                     | 3,040                                 | 2,417                                    | 31,499                                      | 89.58%   | 1.26  | 114   |
| Rochester, NY            | 983,374    | 29,992                                     | 1,843                                 | 1,757                                    | 26,961                                      | 89.89%   | 1.05  | 115   |
| Albany, NY               | 1,322,351  | 45,934                                     | 2,731                                 | 2,741                                    | 41,306                                      | 89.92%   | 1.00  | 116   |
| Detroit, MI              | 4,705,164  | 192,790                                    | 9,945                                 | 12,255                                   | 174,231                                     | 90.37%   | 0.81  | 117   |
| Hartford & New Haven, CT | 2,459,471  | 93,789                                     | 5,768                                 | 6,289                                    | 84,893                                      | 90.51%   | 0.92  | 118   |
| Buffalo, NY              | 1,674,098  | 55,721                                     | 4,027                                 | 3,315                                    | 50,473                                      | 90.58%   | 1.21  | 119   |
| New York, NY             | 18,567,049 | 633,439                                    | 52,456                                | 46,131                                   | 575,047                                     | 90.78%   | 1.14  | 120   |
| Miami-Ft. Lauderdale, FL | 3,270,606  | 116,929                                    | 7,259                                 | 8,109                                    | 106,542                                     | 91.12%   | 0.90  | 121   |
| Las Vegas, NV            | 763,015    | 36,790                                     | 2,994                                 | 2,839                                    | 33,717                                      | 91.65%   | 1.05  | 122   |
| Providence, RI-MA        | 1,509,789  | 41,058                                     | 2,621                                 | 2,239                                    | 38,206                                      | 93.05%   | 1.17  | 123   |

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