



Charges vary dramatically among Colorado hospitals, even within the same city

ISSUE BRIEF

First in a series

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The Colorado Center on Law and Policy is a nonprofit, nonpartisan research and advocacy organization seeking justice and economic security for all Coloradans.

Colorado hospitals vary dramatically in what they charge and officials at the Centers for Medicare and Medicaid Services (CMS) have said there is simply no business reason for such a wide variation¹. In May, CMS published the first ever national data detailing what hospitals charge for their services. This data lists the average amounts Colorado hospitals charged Medicare for the 100 most common procedures in 2011. While initial evidence has previously suggested that hospital charges differ widely, this data, for the first time, allows the public to rigorously analyze hospital charges across Colorado and begin to understand the extent to which hospital charges are related to factors that influence cost.

This paper is the first in a series using that information to analyze what Colorado hospitals charge. Many hospitals in Colorado consistently charge more for the same care. Even among hospitals in the same city, prices can differ significantly. Subsequent briefs will analyze the relationship between charges and Medicare payments and whether charges are related to factors that influence a hospital's costs.

Many hospitals consistently charge more

When comparing each hospital's charges for common procedures to a state average, CMS data show hospital charges in Colorado vary dramatically. Many hospitals consistently charge more for the same services.

Figure 1

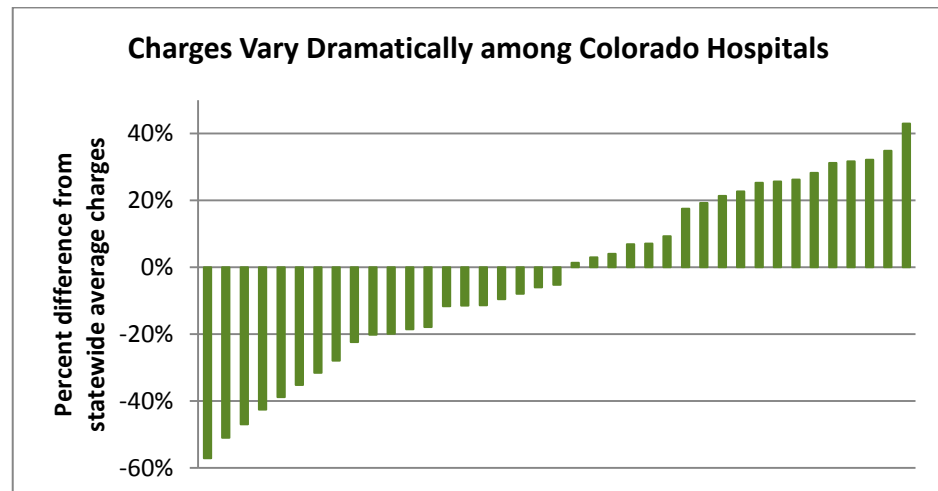


Figure 1 illustrates the extreme variation in hospital pricing across the state. Charges can range from 43 percent greater than statewide averages to 57 percent less than statewide averages. For example, charges at HealthONE Swedish Medical Center in Englewood exceed statewide averages by 35 percent and Centura Health-Littleton Adventist’s charges are 43 percent more than state averages. In contrast, hospitals in Montrose and La Junta charge more than 50 percent less than state averages. Appendix 1 lists hospital charges compared to state averages at 39 Colorado hospitals.

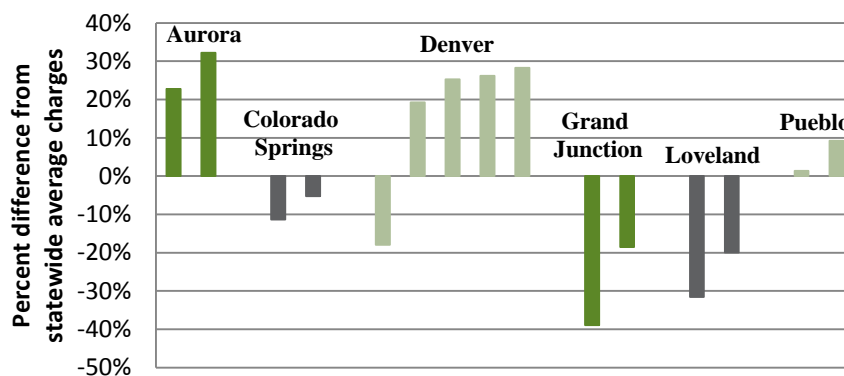
Same illness, different prices

Charges to treat the same condition can routinely differ by tens of thousands of dollars. For example, a patient with an infectious or parasitic disease may be charged \$116,000 more if they are treated at the HealthONE Medical Center of Aurora compared to HealthONE Presbyterian/St Luke’s Medical Center. Similarly, Centura Health Littleton Adventist charges \$79,737 to treat a respiratory infection with other complications while Arkansas Valley Medical Center charges only \$14,788 to treat the same illness, a difference of nearly \$65,000.

Same city, different prices

In general, Colorado’s urban and suburban hospitals charge more than hospitals in more rural areas. Hospitals in the Denver metro area routinely charge 25 percent more than state averages, with an exception being Denver Health. In contrast, hospitals in Delta, Alamosa, and Sterling all charge more than 25 percent less than state averages. But hospitals in the same city often have different prices. The chart below shows the prices at hospitals in six different cities across Colorado. In each city, prices at two or more hospitals are significantly different. (See Appendix 2 for statistical tests and methods.)

Figure 2



In Grand Junction, Saint Mary’s Hospital and Regional Medical Center has consistently higher prices than Community Hospital, differing by 20 percent compared with prices statewide. Even though these hospitals are separated by a less than 20 minute walk, a patient suffering from a severe infection in their blood stream (septicemia) could be charged \$46,269 at Saint Mary’s but only \$20,910 at Community Hospital.

Further, hospital prices can be more similar in distant cities than within the same town. For example, Denver Health Medical Center (Denver) and St Mary’s Hospital and Medical Center in Grand Junction have statistically indistinguishable pricing structures but both differ from neighboring hospitals. Additionally, the prices at Memorial Hospital Central in Colorado Springs are more similar to those at Platt Valley Medical Center nearly 100 miles north in Brighton than to those at Centura Health-Penrose St Francis only 3 miles away. (See Appendix 2.)

Appendix 1: Many hospitals consistently charge more

Table 1 compares Medicare charges at 39 hospitals across the state. Differences represent the average percentage that each hospital's prices deviate from state median charges. A hospital must discharge more than 10 patients under one of the 100 most frequently charged Medicare diagnosis related groups (DRGs) in order to be listed in the data set (See the full data set and explanation at <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Inpatient.html>). Hospitals in Colorado reported charges for 99 of the 100 nationally most common Medicare DRGs. Because of these reporting requirements, no hospital has charges listed for every DRG and only four DRGs were common to the 39 hospitals included in this analysis.

In order to compare charges for different diagnosis related groups at different hospitals, CCLP calculated the statewide median charge for each diagnosis related group in the Inpatient Medicare Provider Charge Data on the Centers for Medicare and Medicaid Services website. CCLP divided each hospital charge reported in this data by the appropriate statewide median to generate normalized charges. For each hospital, CCLP averaged these normalized charges to generate the average difference from statewide median charges reported in Table 1 below. Table 1 groups hospitals by city or metro area, where possible. Geographical groupings list hospitals alphabetically by city and then by hospital name. Geographical groupings appear in Table 1 alphabetically by the first city in each grouping. Rural hospitals, as identified by the [Colorado Hospital Association](#), that are not associated with one of the other major geographical groupings are listed alphabetically at the top of the chart. The six Colorado hospitals in the CMS dataset with the fewest number of DRG's reported were excluded from this analysis. With the exception of Centura Health-Avista Adventist (9 charges), Valley View Hospital (10 charges) and Colorado Plains Medical Center (11 charges), all hospitals included in our analysis had at least 16 charges listed in the CMS dataset.

CCLP verified this analysis by comparing the charges for a common set of DRG reported by a subset of hospitals. CCLP identified 21 hospitals in Colorado that reported charges for the 15 most-reported DRGs. For each of these 21 hospitals, CCLP calculated the average charge across these 15 DRGs. CCLP did not calculate an average charge for hospitals where Medicare did not report data for all 15 charges. The average charge for these DRGs was highly correlated with the percent price difference from the statewide median charges, indicating that hospitals that charge more for a shared set of commonly billed charges also have higher differences from statewide median charges. (See Figure 3, Pearson's Product Moment Correlation: $r = 0.98$; P -value = 5.33×10^{-15} .) Relative rankings of hospitals from most expensive to least expensive using both the common set of 15 charges and the differences from statewide median charges were also highly correlated, indicating that hospitals maintain their relative expensiveness in relation to other hospitals using both methods (Spearman's Rank Correlation: $\rho = 0.97$, P -value = 5.02×10^{-6}).

Table 1
Charges at Colorado Hospitals.

Hospital	City	Difference from Statewide Median Charges
Rural		
San Luis Valley Regional Medical Center	Alamosa	-43%
Centura Health-St Thomas More Hospital	Canon City	-20%
Delta County Memorial Hospital	Delta	-47%
Mercy Regional Medical Center	Durango	-28%
Colorado Plains Medical Center	Fort Morgan	-6%
Valley View Hospital Association	Glenwood Springs	-8%
Arkansas Valley Regional Medical Center	La Junta	-57%
Montrose Memorial Hospital	Montrose	-51%
Sterling Regional Medical Center	Sterling	-35%
Denver Metropolitan Area		
Medical Center of Aurora	Aurora	32%
University Of Colorado Hospital Anschutz Inpatient	Aurora	23%
Platte Valley Medical Center	Brighton	-12%
Centura Health-Porter Adventist Hospital	Denver	18%
Denver Health Medical Center	Denver	-18%
Exempla Saint Joseph Hospital	Denver	25%
Presbyterian/St Luke's Medical Center	Denver	26%
Rose Medical Center	Denver	28%
Swedish Medical Center	Englewood	35%
Centura Health-St Anthony Hospital	Lakewood	17%
Centura Health-Littleton Adventist Hospital	Littleton	43%
Sky Ridge Medical Center	Lone Tree	33%
Parker Adventist Hospital	Parker	26%
North Suburban Medical Center	Thornton	32%
Centura Health-St Anthony North Hospital	Westminster	4%
Exempla Lutheran Medical Center	Wheat Ridge	7%
Boulder County		
Boulder Community Hospital	Boulder	7%
Exempla Good Samaritan Medical Center	Lafayette	21%
Longmont United Hospital	Longmont	3%
Centura Health-Avista Adventist Hospital	Louisville	-10%
Colorado Springs		
Centura Health-Penrose St Francis Health Services	Colorado Springs	-5%
Memorial Hospital Central	Colorado Springs	-11%
Fort Collins		
Poudre Valley Hospital	Fort Collins	-22%

Grand Junction		
Community Hospital	Grand Junction	-39%
St. Mary's Hospital And Medical Center	Grand Junction	-19%
Greeley		
North Colorado Medical Center	Greeley	-12%
Loveland		
McKee Medical Center	Loveland	-32%
Medical Center of the Rockies	Loveland	-20%
Pueblo		
Centura Health-St Mary Corwin Medical Center	Pueblo	9%
Parkview Medical Center	Pueblo	1%

Figure 3
Percent difference from statewide median charges is highly correlated with the average charge across 15 commonly billed diagnosis related groups (DRGs).

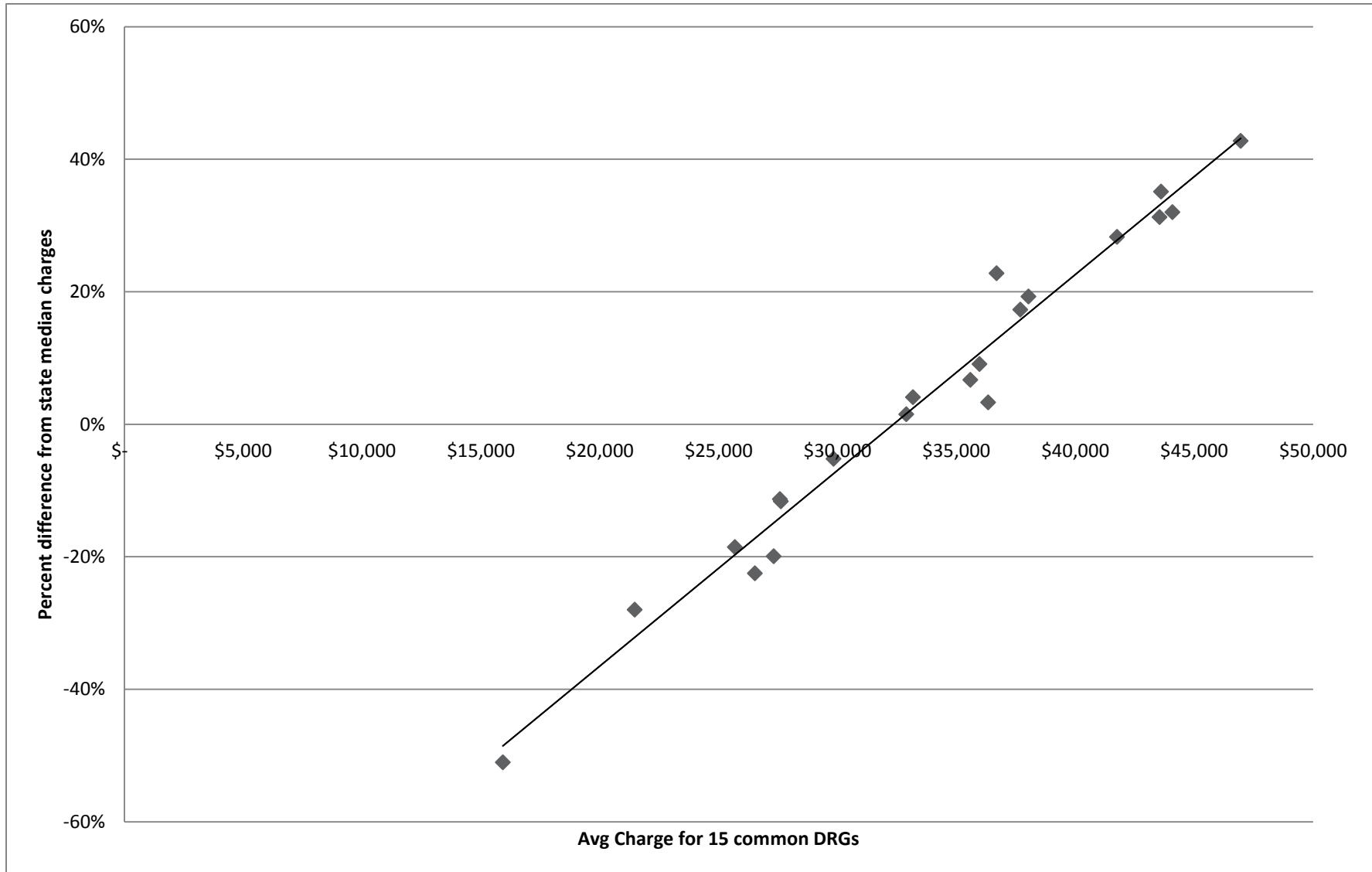
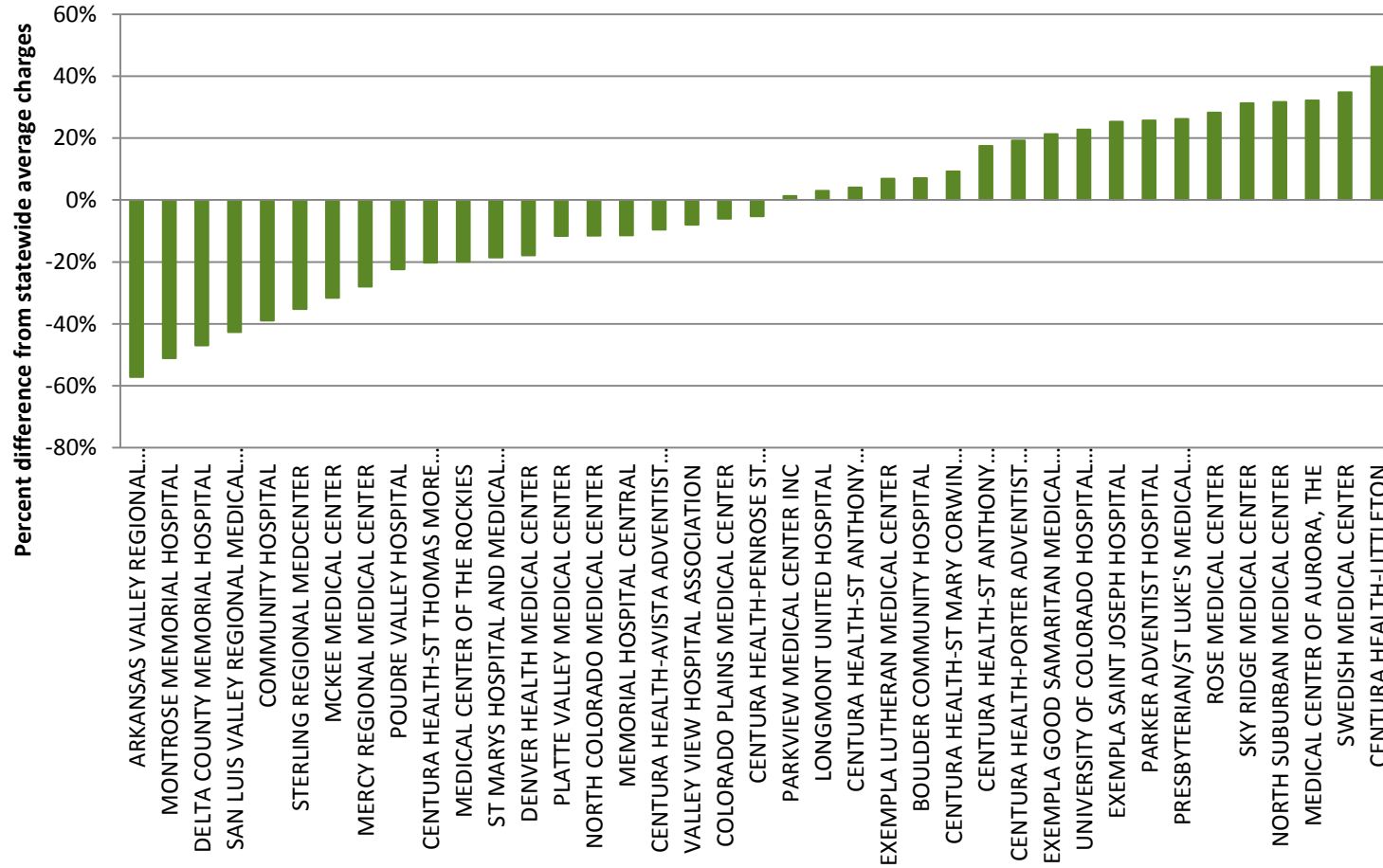


Figure 4

Charges at Colorado hospitals including hospital names.

Charges Vary Dramatically among Colorado Hospitals



Appendix 2: Same city, different prices

CCLP compared the normalized charges (see Appendix 1 above) for hospitals in the same city using pairwise Wilcoxon Rank-Sum tests. Similar to a *t*-test, the Wilcoxon Rank-Sum test asks whether observed differences between two samples might have occurred due to chance alone. Charges at hospitals within Aurora, Colorado Springs, Loveland, Pueblo, and Grand Junction significantly differ from the charges at another hospital within their same city. Additionally, Denver Health's charges are significantly lower than any other Denver hospital and Rose Medical Center's prices are significantly higher than those at the Porter Adventist. (See Table 2 below). In contrast, hospitals in distant cities, such as Denver and Grand Junction or Brighton and Colorado Springs, have similar prices. (See Table 3 below).

Table 2

P-values from pairwise Wilcoxon Rank-Sum tests comparing charges from hospitals in the same city. Statistically significant tests ($P < 0.05$) are shaded.

Denver Hospitals	Saint Joseph	Presbyterian/St Luke's	Rose Medical	Denver Health
Presbyterian/St Luke's	0.8389	x		
Rose Medical	0.4725	0.5543	x	
Denver Health	2.54E-07	1.74E-09	5.40E-12	X
Porter Adventist	0.5306	0.2994	0.03402	1.80E-10

Aurora hospitals	University of Colorado Hospital
Medical Center of Aurora	0.01008

Loveland	Medical Center of the Rockies
McKee Medical Center	0.0001097

Grand Junction	St Mary's Hospital and Regional Medical Center
Community Hospital	3.15E-06

Colorado Springs	Penrose St Francis
Memorial Hospital	0.03056

Pueblo	Parkview
St Mary Corwin	0.01967

Table 3

P-values from pairwise Wilcoxon Rank-Sum tests comparing charges from hospitals in the distant cities. Neither test is statistically significant ($P > 0.05$).

	St Mary's Hospital and Regional Medical Center (Grand Junction)
Denver Health	0.8128

	Platte Valley Medical Center
Memorial Hospital Central	0.8551

Appendix 3: Corrections and Updates

- An earlier version of this report mislabeled the y-axis in Figure 1. The axis is now labeled in percentages, instead of decimals.
- The report now includes Figure 4, a version of which was published on the Denver Post’s blog [Daily Dose](#).
- Appendix 1 now describes the methodology in more detail and includes more specific information about the number of charges listed in the dataset for each hospital.
- An earlier version switched the differences from statewide median charges listed for the two pueblo hospitals listed in Table 1. The differences listed in Table 1 for Centura Health-St Mary Corwin Medical Center (9%) and Parkview Medical Center (1%) are now accurate. Figures 3 and 4 have been updated to reflect this correction.

¹ National Public Radio. “Government Data Reveals Wide Disparity in Health Care Costs.” May 8, 2013. <http://m.npr.org/news/Health/182337915> . Accessed on June 12, 2013.