



Analysis of Hospital Cost Shift in Arizona

Final Report

Prepared for:

The Arizona Chamber Foundation

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EXECUTIVE SUMMARY

The Lewin Group was commissioned by Arizona Chamber Foundation to study payments to Arizona hospitals for patients covered by Medicare, Arizona Health Care Cost Containment program (AHCCCS), other government programs and private insurers and how payments compare to the cost of treating those patients. Our study shows that Medicare and AHCCCS underpay hospitals relative to their costs and these underpayments as well as the cost of providing uncompensated care are passed along to employers and other private insurance consumers through the “cost shift”.

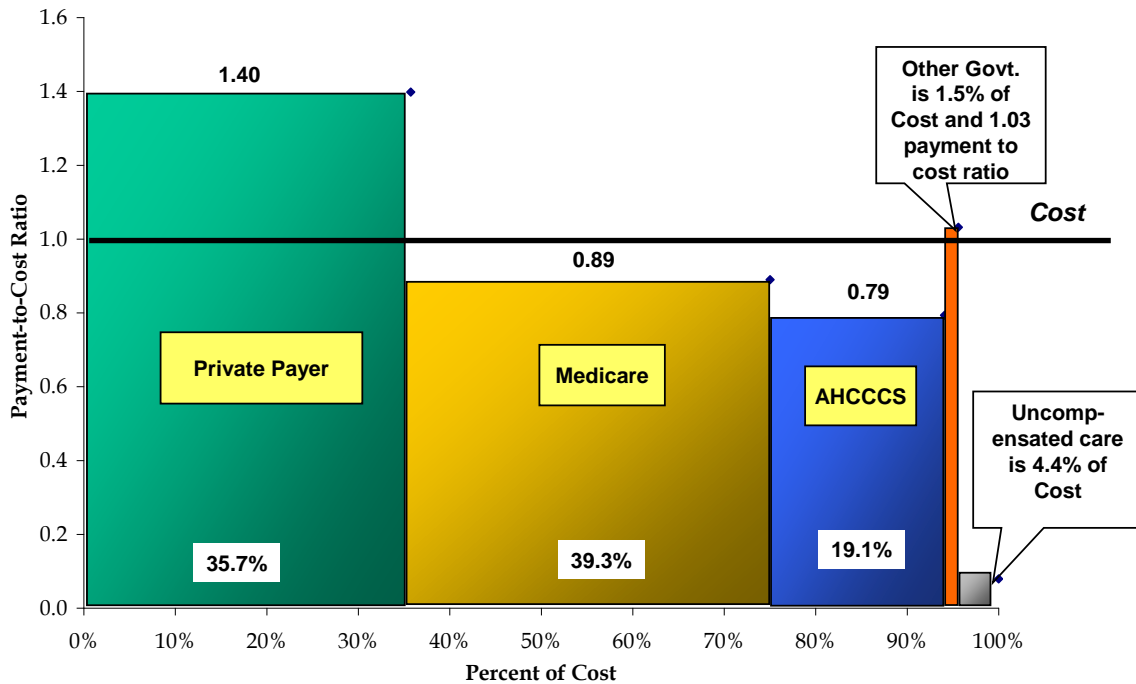
The hospital “cost shift” phenomenon is primarily driven by public insurance programs (i.e., Medicare and Medicaid) reimbursing hospitals below the cost of treating their patients and to cover these losses, hospitals are forced to shift the burden to private health insurers by charging higher rates.¹ In addition to public payer shortfalls, cost shift to private health insurance is also driven by uncompensated care. The higher rates charged by hospitals to private insurers are passed on to consumers of private health insurance in the form of higher premiums, co-pays, and co-insurance. The hospital cost shift has been well documented in national studies and these same dynamics appear to also exist in Arizona.

The key findings of the study are as follows:

- *Figure ES-1* shows the “cost shift payment hydraulic” analysis for Arizona community hospitals in 2007, which is an illustration of hospital payment policy dynamics. Each bar in the figure represents a payer group. The height of each bar indicates the payment level relative to the cost of treating its patients. The width of each bar shows the percentage of hospital costs associated with each payer, which indicates the importance of the payer to total hospital patient volume.
- The hydraulic analysis indicates that private insurers in Arizona pay 40 percent above the costs of treating their patients in order to cover losses incurred from Medicare (which paid 89 percent of the costs for their patients), AHCCCS (which paid 79 percent of the cost for their patients) and for the provision of uncompensated care.
- We estimated that private insurer payments exceed costs by \$1.3 billion for hospital care in 2007 in order to cover underpayments from Medicare (\$481 million), AHCCCS (\$407 million) and uncompensated care (\$390 million).
- Underpayments by Medicare and AHCCCS as well as the cost of providing uncompensated care increased private health insurance premiums in Arizona by 8.8 percent or \$361 per privately insured person in 2007. A typical annual family policy of \$11,617 cost an additional \$1,017 due to the cost shift, and an average annual single premium cost an additional \$396.

¹ Guinsburg. Can Hospitals and Physicians Shift the Effects of Cuts in Medicare Reimbursement to Private Payers? *Health Affairs*, 2003, Web Exclusive W3-472 – W3-479.

Figure ES-1
 Cost Shift Payment Hydraulic for Arizona Community Hospitals in 2007



Note: Private payers include commercial managed care plan, other third party payers, Self-pay, and other non-government insurers.

Source: Lewin Group analysis American Hospital Association data for Arizona hospitals.

- Employers and their workers are the largest group of private health insurance purchasers and are thus the most effected by the cost shift. People who purchase individual market health insurance are also affected by the cost shift. The cost shift due to Medicare and AHCCCS underpayment and the cost of providing uncompensated care required employees to pay an additional \$292.8 million for their private health insurance, employers paid an additional \$941.7 million and purchasers of individual health insurance paid an additional \$41.4 million in 2007.
- Recent data on hospital financial margins show that the total margins for Arizona hospitals are below the national and regional average. This suggests that Arizona hospital profits on private insurers are not going to increase hospital margins but to help offset losses incurred by public payers and uncompensated care.
- A comparative analysis of Arizona hospital adjusted costs per discharge suggests that hospital costs in Arizona are low relative to their counterparts in neighboring states and the nation. Thus, the public program underpayments relative to costs are not due to Arizona hospitals being inefficient and to high cost providers of care.
- Recent proposals by the state to reduce the cost of the AHCCCS program due to the current budget situation in Arizona could lead to increased hospital cost shifting to

Arizonans with private health insurance. Provisions that would affect hospitals include payment rate reductions, reduced supplemental hospital payments for Disproportionate Share Hospital (DSH) and Graduate Medical Education (GME) and reduce special funding for rural hospitals (SAVE program).

- Based on the state's calculation of the cost savings to AHCCCS from these provisions for all providers, we estimated a reduction in AHCCCS hospital payments of \$345.4 million over the 2009 and 2010 period under these provisions. The total state's savings under all the provisions would be \$95.0 million and lost federal funding would be \$250.4 million over the two years.

Future cost reduction proposals for the AHCCCS program could lead to lower hospital payment levels and subsequent worsening of AHCCCS hospital payment-to-cost ratios. In order to maintain the current levels of profitability, Arizona hospitals will need to recoup the AHCCCS payment shortfalls through higher payments from private payers, which could increase the cost shift for each privately insured person by 16 percent from \$398 to \$462 in 2010.

I. INTRODUCTION

The Lewin Group was commissioned by Arizona Chamber Foundation to study payments to Arizona hospitals for patients covered by Medicare, Arizona Health Care Cost Containment program (AHCCCS), other government programs and private insurers and how payments compare to the cost of treating those patients. Our study shows that Medicare and AHCCCS underpay hospitals relative to their costs and these underpayments as well as the cost of providing uncompensated care are passed along to employers and other private insurance consumers through the “cost shift”.

The study will also examine the extent to which proposed future reductions in AHCCCS funding due to the current budget situation in Arizona could lead to higher costs for those with private health insurance.

This report is organized into four primary sections. First, we discuss the phenomenon of cost shifting in U.S. hospitals and evidence of cost shifting in Arizona hospitals. Second, we measure the amount of the cost shift to private payers due to public program payment shortfalls and uncompensated care. Third, we examine the margins and cost efficiency of Arizona hospitals. Finally, we simulate the cost shift impact of future reductions in AHCCCS payments to hospitals.

II. EVIDENCE OF COST SHIFTING

The hospital “cost shift” is due to public insurance programs (i.e., Medicare and Medicaid) reimbursing hospitals below the cost of treating their patients as well as the hospitals’ cost of providing uncompensated care. To cover these losses, hospitals are forced to shift the burden to private health insurers by charging higher rates.² The cost shift is most evident when analyzing the difference between hospital payment-to-cost ratios for public programs compared to private insurance (*Figure 1*).³ National trends since the 1980’s has revealed an increase in private insurer payment levels during the same periods as payment reductions from public programs.

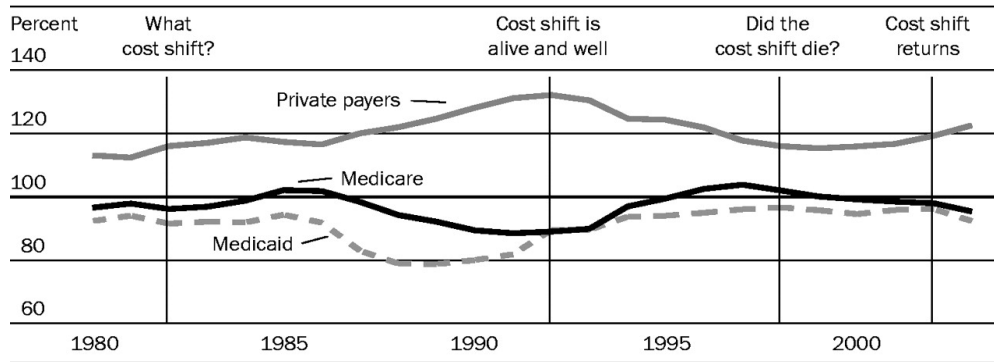
² Guinsburg. Can Hospitals and Physicians Shift the Effects of Cuts in Medicare Reimbursement to Private Payers? *Health Affairs*, 2003, Web Exclusive W3-472 – W3-479.

³ Allen Dobson, Joan DaVanzo and Namrata Sen, “The Cost shift Payment ‘Hydraulic’: Foundation, History and Implications,” *Health Affairs*, January/February 2006

Figure 1
National Hospital Payment-to-Cost Ratios Over Time

EXHIBIT 3

Aggregate Hospital Payment-To-Cost Ratios, By Payer, 1980-2003



SOURCE: Lewin Group analysis of data presented in Lewin Group, *Trendwatch Chartbook 2005: Trends Affecting Hospitals and Health Systems* (Washington: American Hospital Association, May 2005).

NOTE: Medicaid includes disproportionate-share hospital (DSH) payments.

Some of the public payer shortfall and uncompensated care costs may be absorbed by hospitals in the form of reduced costs, decreased willingness to fund social programs, decreased capacity to provide services, and/or a change in the nature of services provided. However, these data suggest that the bulk of the shortfall is covered through increased payments from private insurers. Historically, low reimbursement levels by public payers, particularly Medicaid, and uncompensated care have been the most common causes of hospital cost shifting. The financial losses incurred providing care to these populations have historically been cross subsidized by revenue surpluses generated by the privately insured.

In light of the volatility in public program and private insurer payment levels, hospitals have consistently produced financial margins of between three and six percent in order to cover costs, refurbish plant and equipment and replenish reserve funds.⁴ Thus, hospitals have been able to offset underpayments from public programs with increased payments from private insurers in order to cover costs and maintain consistent financial margins.

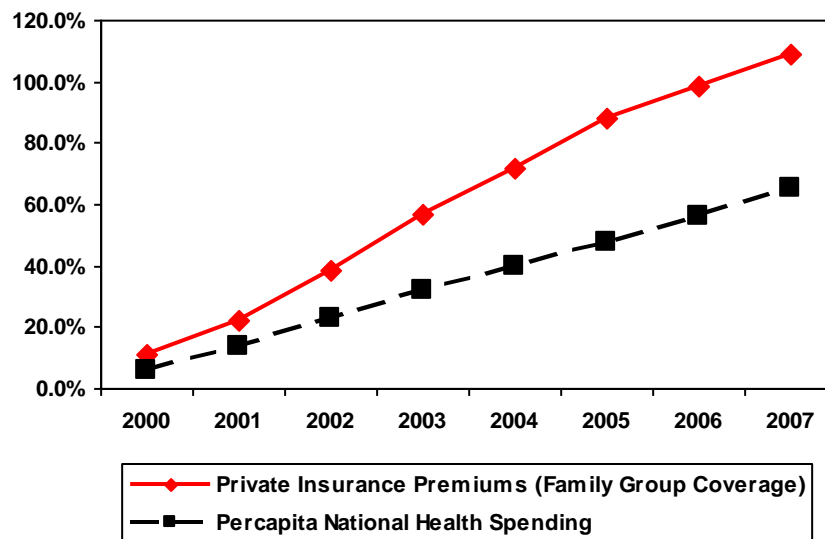
Hospital's cross-subsidization from private payers to cover public program shortfalls in reimbursement rates leads private insurers to pass on the increased costs to their consumers in the form of higher premiums. That is, hospitals tax the private payers through increased rates to cover losses and that tax is passed down to insurance subscribers in the form of higher premiums, co-pays, and co-insurance.

Employers and their workers are the largest group of private health insurance purchasers and are thus the most effected by the cost shift. Employers not only bear the cost of healthcare insurance for their employees but also bear a portion of public payer shortfalls and

⁴ MedPAC, "A Databook: Health Care Spending and the Medicaid Program". June 2008.

uncompensated care. This is a major reason private employer premium costs are rising faster than underlying healthcare costs (*Figure 2*).

Figure 2
Cumulative Increase in Private Employer Health Insurance Premiums
Compared to Per Capita National Health Spending 2000-2007



Source: Lewin Group analysis of National Health Accounts data from CMS and Kaiser Family Foundation’s “Employer Health Benefits Survey: 2008”

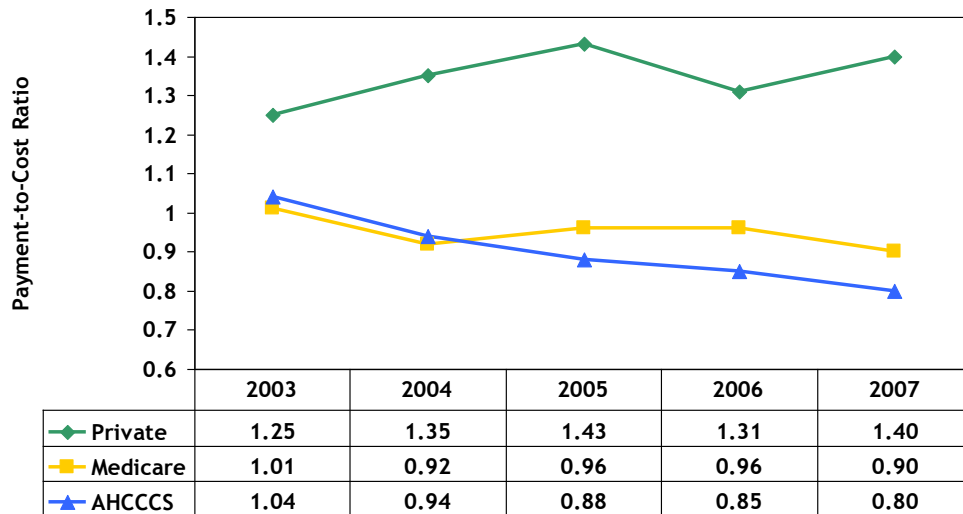
III. HOSPITAL COST SHIFTING IN ARIZONA

For this analysis, we used the American Hospital Association (AHA) Annual Survey data for Arizona community hospitals (see *Appendix A*)⁵. These data have been used by numerous researchers, such as the Medicare Payment Advisory Commission (MedPAC), to measure hospital financial performance and compare payment levels across payers.

Using the AHA data, we found trends in payer specific payment-to-cost ratios for hospitals in Arizona to be similar to national trends. *Figure 3* shows that payment-to-cost ratios for Medicare and AHCCCS declined between 2003 and 2007. Conversely, private payer payment-to-cost ratios increased during that same period. This indicates that Arizona hospitals were able to cost shift through negotiating higher payment levels from private payers during a period where public payment levels were declining relative to costs.

⁵ Community hospitals are defined by the American Hospital Association as “non-federal, short-term general and specialty hospitals whose services and facilities are available to the public”, which excludes psychiatric and long-term care hospitals.

Figure 3
Arizona Hospital Payment-to-Cost Ratios By Payer 2003-2007



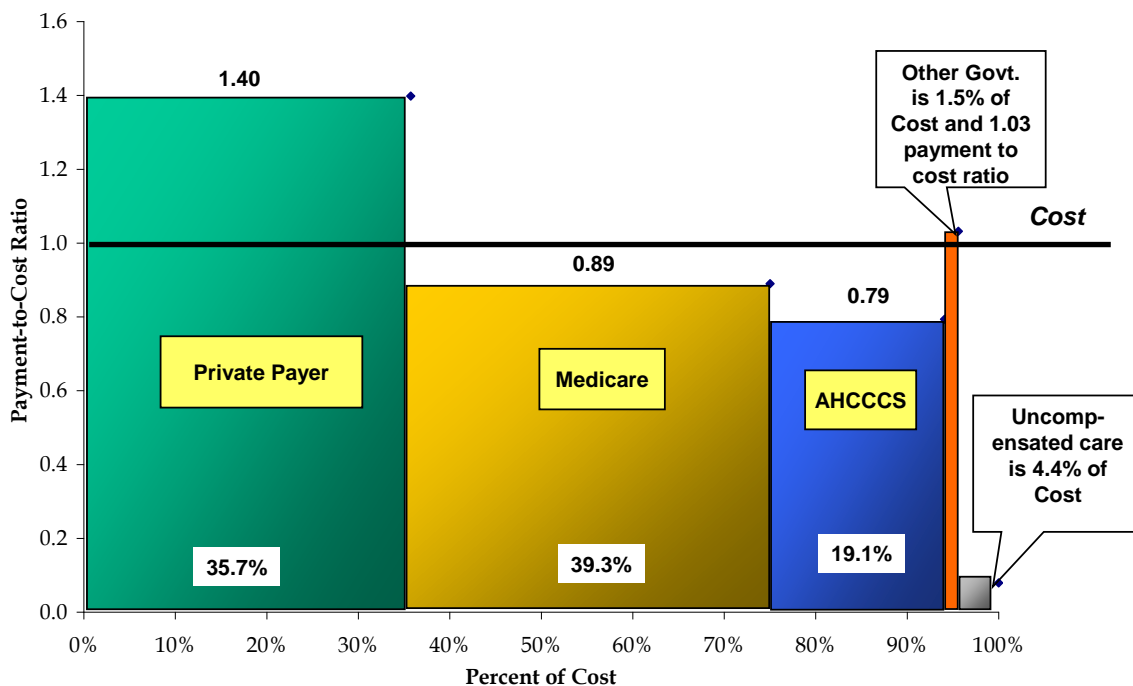
Note: Private payers include commercial managed care plan, other third party payers, Self-pay, and other non-government insurers. Includes a consistent panel of hospitals over the five year period.

Source: Lewin Group analysis American Hospital Association data for Arizona hospitals.

Additional losses to hospitals providing uncompensated care to uninsured and underinsured individuals compound the extent of the cost shift. According to the Bureau of the Census, there are about 1.2 million uninsured people in Arizona, including about 380,000 children. The percentage of Arizonans without coverage actually declined from about 25 percent in the late 1990's to about 16 percent in 2000 with the passage of Proposition 204, which expanded eligibility under AHCCCS to 100 percent of the Federal poverty level (about 20,000 for a family of four). Despite this, the number and percent of Arizonans without insurance has increased steadily since. The Arizona Hospital and Healthcare Association reports that hospital uncompensated care has increased an average of about 9 percent per year since 2000 reaching \$364 million in 2007.

Figure 4 shows the “cost shift payment hydraulic” for Arizona community hospitals in 2007, which is an illustration of hospital payment policy dynamics. Each bar in the figure represents a payer group. The height of each bar indicates the payment-to-cost ratio, which is the payment level relative to the cost of treating its patients. We calculated a payment-to-cost ratio of 1.40 for private payers in Arizona, which indicates that for each dollar of cost, hospitals receive \$1.40 in payments from private payers. The width of each bar shows the percentage of hospital costs associated with each payer, which indicates the importance of the payer to total hospital patient volume. For instance, private payer patients accounted for approximately 35.7 percent of costs in Arizona hospitals in 2007.

Figure 4
Cost Shift Payment Hydraulic for Arizona Community Hospitals in 2007



Note: Private payers include commercial managed care plan, other third party payers, Self-pay, and other non-government insurers.

Source: Lewin Group analysis American Hospital Association data for Arizona hospitals.

Higher payments from private payers help cover payment shortfalls by public programs and uncompensated care. Medicare beneficiaries account for 39.3 percent of costs in Arizona hospitals in 2007 but Medicare payments covered only 89 percent of the costs required to treat Medicare patients. Similarly, AHCCCS beneficiaries account for 19.1 percent of hospital costs but payments covered only 79 percent of their costs.

Uncompensated care, which consists of bad debt and charity care, accounted for 4.4 percent of total hospital costs in 2007. We counted public tax appropriation funds received by certain hospitals in the state as revenue for uncompensated care. However, these revenues covered only eight percent of uncompensated care costs in all Arizona community hospitals.

Finally, other government programs, primarily CHAMPUS and TRICARE, accounted for 1.5 percent of hospital costs in 2007 and payments covered 103 percent of costs for those patients.

IV. AMOUNT OF THE HOSPITAL COST SHIFT IN ARIZONA

To quantify the amount of the hospital cost shift in Arizona, we used the revenues, costs and payment-to-cost ratios for each payer group, including uncompensated care, from the hydraulic analysis. The average payment-to-cost ratio across all payers was 102 percent, which includes only revenues and costs from patient care and excludes other operating and non-operating

revenues and costs (*Figure 5*). The 2 percent of revenues above costs for Arizona hospitals should be viewed as a return on investment of providing patient care.

Figure 5
Cost Shift Calculation for Arizona Community Hospitals in 2007

Payer Group	(A)	(B)	(C) = A / B	(D) = B * E	(E)	(F) = A - D
	Total Revenue (millions)	Total Expense (millions)	Payment-to-Cost Ratio	Revenue Assuming Average Payment-to-Cost Ratio (millions)	Average Payment-to-Cost Ratio	Cost shift: Over / (Under) Payment (millions)
Medicare	\$3,292.1	\$3,700.7	89%	\$3,773.1	102%	(\$481.1)
AHCCCS	\$1,426.3	\$1,797.7	79%	\$1,832.9	102%	(\$406.7)
Private	\$4,710.4	\$3,368.6	140%	\$3,434.5	102%	\$1,275.9
Other Government	\$147.1	\$142.6	103%	\$145.4	102%	\$1.7
Uncompensated Care	\$32.8	\$414.6	8%	\$422.7	102%	(\$389.9)
Total	\$9,608.7	\$9,424.1	102%	\$9,608.7	102%	\$0

Note: Private payers include commercial managed care plan, other third party payers, Self-pay, and other non-government insurers.

Source: Lewin Group analysis American Hospital Association data for Arizona hospitals.

We calculated the amount of the cost shift (*Column F*) assuming all payers in Arizona reimbursed hospitals at the average payment-to-cost ratio (*Column D*), which covers costs plus a return on investment for patient care, minus actual revenues (*Column A*). Using this methodology, we estimated that private payers paid an additional \$1.3 billion for hospital care in 2007 in order to cover underpayments from Medicare (\$481 million), AHCCCS (\$407 million) and uncompensated care (\$390 million). The underpayments from Medicare, AHCCCS and uncompensated care also lead to other government payers to pay an additional \$1.7 million for hospital care provided to their enrollees.

The hospital payment level required for private insurers to cover the cost shift is passed on to private health insurance consumers in the form of higher premiums. To put the amount of the cost shift into perspective, we estimate that underpayments by Medicare and AHCCCS as well as the cost of providing uncompensated care increased private health insurance premiums in Arizona by 8.8 percent or \$361 per privately insured person in 2007 (*Figure 6*). A typical family policy of \$11,617 cost an additional \$1,017 due to the cost shift, and an average single premium cost an additional \$396.

Figure 6
Impact of Medicare and AHCCCS Hospital Cost shift
on Private Insurance Premiums in 2007

	Medicare	AHCCCS	Uncompensated care	Cost shift to Private Insurers ^{d/}
Total Private Insurance Cost Shift Due to Public Insurance Shortfalls (millions)	\$481.1	\$406.7	\$389.9	\$1,275.9
Cost Shift per Privately Insured Person				
Number privately insured in Arizona (1,000s) ^{a/}	3,535	3,535	3,535	3,535
Cost shift per privately insured person	\$136	\$115	\$110	\$361
Cost Shift as a Percent of Total Premiums				
Total Private Insurance Premiums in Arizona (millions) ^{b/}	\$14,574.1	\$14,574.1	\$14,574.1	\$14,574.1
Cost shift as a Percent of Total Private Insurance Premiums	3.3%	2.8%	2.7%	8.8%
Annual Family Premium Impact				
Average Annual Private Insurance Premiums ^{c/}	\$11,617	\$11,617	\$11,617	\$11,617
Dollar Cost shift Impact	\$383	\$324	\$311	\$1,017
Annual Single Premium Impact				
Average Annual Private Insurance Premiums ^{c/}	\$4,519	\$4,519	\$4,519	\$4,519
Dollar Cost shift Impact	\$149	\$126	\$121	\$396

a/ Private coverage estimates from the Arizona subsample of the 2008 Current Population Survey and excludes Medi-Gap plans and military coverage.

b/ Estimated using premium information from 2006 MEPS-IC survey for Arizona employers and America's Health Insurance Plans "Individual Health Insurance 2006-2007: A Comprehensive Survey of Premiums, Availability, and Benefits."

c/ Calculated as a weighted average of employer and individual market premiums.

d/ Includes amount cost shifted to private insurers and excludes amount cost shifted to other government payers (\$1.7 million).

Source: Lewin Group analysis.

V. IMPACT OF THE COST SHIFT ON EMPLOYERS, EMPLOYEES AND OTHER PRIVATE HEALTH INSURANCE PURCHASERS

Employers and their workers are the largest group of private health insurance purchasers in Arizona and are thus the most effected by the cost shift (*Figure 7*). Typically, employers and employees share in the cost of the worker's health insurance plan. The average private employer in Arizona pays 81 percent of a single policy and 75 percent of a family policy for workers enrolled in the employer's plan.⁶ People who purchase health insurance through the individual market are also affected by the cost shift.

⁶ Medical Expenditure Panel Survey, Insurance Component: employee premium contributions for Arizona employers offering health insurance.

**Figure 7
Impact of Cost Shifting by Stakeholder in 2007**

	Single Coverage	Family Coverage	Total
Number of Policyholders (1,000s)			
Employer Plans ^{a/}	832.6	848.9	1,681.5
Non-Group Plans	61.8	68.0	129.8
Average Annual Private Insurance Premiums in 2007 ^{b/}			
Employee Share	\$863	\$3,093	n/a
Employer Share	\$3,656	\$9,086	n/a
Individual Policies	\$2,591	\$4,598	n/a
AHCCCS Cost shift Impact (millions) ^{c/}			
Employees	\$20.1	\$73.3	\$93.3
Employers ^{a/}	\$84.9	\$215.2	\$300.2
Individuals	\$4.5	\$8.7	\$13.2
Total	\$109.5	\$297.2	\$406.7
Medicare Cost shift Impact (millions) ^{c/}			
Employees	\$23.7	\$86.7	\$110.4
Employers ^{a/}	\$100.5	\$254.6	\$355.1
Individuals	\$5.3	\$10.3	\$15.6
Total	\$129.5	\$351.6	\$481.1
Uncompensated Care Cost shift Impact (millions) ^{c/}			
Employees	\$19.2	\$70.2	\$89.5
Employers ^{a/}	\$81.4	\$206.3	\$287.8
Individuals	\$4.3	\$8.4	\$12.6
Total	\$104.9	\$284.9	\$389.9
Total Cost shift Impact to Private Insurers (millions) ^{d/}			
Employees	\$62.9	\$229.9	\$292.8
Employers ^{a/}	\$266.5	\$675.3	\$941.7
Individuals	\$14.0	\$27.4	\$41.4
Total	\$343.4	\$932.5	\$1,275.9

a/ Includes private, state, municipal and federal employers.

b/ Arizona employer premiums estimates based on the MEPS Insurance Component Survey, Individual market premium estimates from the America's Health Insurance Plans.

c/ Computed as number of policyholders x average annual premium x cost shift as a percent of private insurance premium (Figure 6).

d/ Includes amount cost shifted to private insurers and excludes amount cost shifted to other government payers (\$1.7 million).

Source: Lewin Group estimates.

As described above, we estimate that the impact on private insurance premiums from the hospital cost shift due to Medicare and AHCCCS underpayments and the cost of providing uncompensated care was \$1,275.9 million in 2007. This cost shift required employees to pay an additional \$292.8 million for their private health insurance, employers paid an additional \$941.7 million and purchasers of individual health insurance paid an additional \$41.4 million in 2007.⁷

To put the cost shift amounts into perspective, an employer with 500 covered workers spent an additional \$280,000 on health insurance due to the cost shift in 2007.

VI. ANALYSIS OF HOSPITAL MARGINS IN ARIZONA

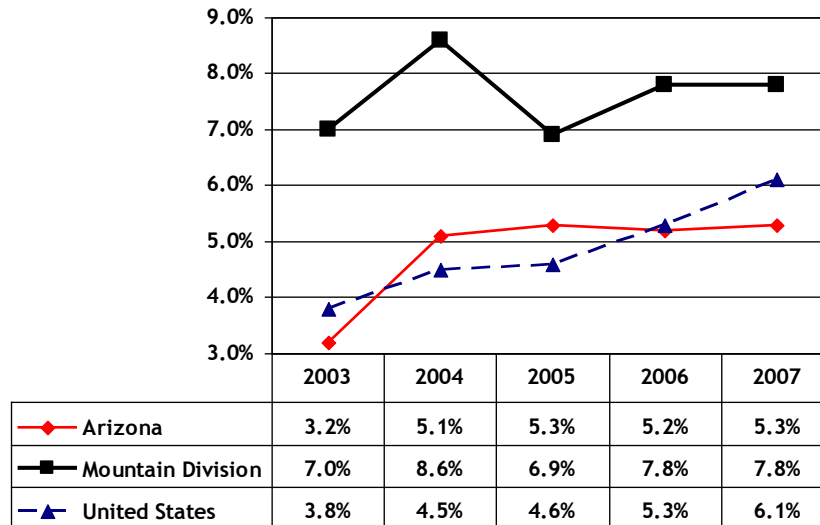
Our analysis of cost shifting assumes that hospital profits on private payers are going to offset losses incurred by public payers and uncompensated care and not to increase hospital financial margins. Therefore, to test whether hospital financial margins for Arizona hospitals are excessive, we compared them to U.S. and regional averages.

Total margins for Arizona community hospitals were calculated over the time period 2003-2007 and compared to hospitals nationwide and the region to assess the financial performance of Arizona hospitals and to determine what impact cost shifting might have on margins and how vital non-operating income, as demonstrated by total margins, is to financial performance. Total margins, which include revenue and expense not associated with hospital operations (investment income, lease payments, etc.) reflect an organization's overall ability to cover expenses and potentially generate excess revenue and a positive total margin.

Figure 8 depicts trends in total margins for Arizona hospitals compared to the national experience and other community hospitals in the Mountain census division. During the period we analyzed, total margins for Arizona hospitals were consistently below total margins for other hospitals in the region. Since 2006, the total margins for the hospitals in Arizona were below the national average.

⁷ Assumes the cost shift impacts private insurance premiums for covered workers, businesses and individuals proportionally.

Figure 8
Trends in Total Margins for Arizona Hospitals,
Hospitals in the Mountain Census Division and All U.S. Hospitals



Note: Includes community hospitals. Mountain Census Division includes: Montana, Idaho, Wyoming, Colorado, New Mexico and Nevada.
 Source: The Lewin Group analysis of Medicare Cost Reports.

Figure 9 shows the average total margins for community hospitals in each state. States are ranked from lowest to highest based on hospital total margins. This analysis shows that Arizona hospitals are 18th lowest in terms of total hospital margins across all states.

These analyses suggest that Arizona hospital profits on private payers are not going to increase hospital margins but to help offset losses incurred by public payers and uncompensated care.

Figure 9
Trends in Total Margins for Arizona Hospitals, Hospitals in the Mountain Census Division
and All U.S. Hospitals ^{a/}

Rank	State	Margin	Rank	State	Margin
1	Rhode Island	1.1%	27	Kentucky	6.3%
2	New Jersey	1.3%	28	Georgia	6.3%
3	Hawaii	1.9%	29	New Hampshire	6.4%
4	Connecticut	2.1%	30	Illinois	6.4%
5	North Dakota	2.7%	31	Washington	6.5%
6	New York	2.9%	32	Iowa	7.0%
7	Arkansas	2.9%	33	Kansas	7.1%
8	New Mexico	3.4%	34	Delaware	7.1%
9	Alabama	3.4%	35	Indiana	7.2%
10	Minnesota	3.9%	36	Montana	7.2%
11	Nevada	4.2%	37	South Carolina	7.3%
12	District of Columbia	4.6%	38	Pennsylvania	7.4%
13	West Virginia	4.6%	39	Oregon	7.5%
14	Vermont	4.7%	40	Alaska	7.7%
15	Tennessee	4.8%	41	Wisconsin	8.1%
16	Maryland	5.3%	42	Virginia	8.3%
17	Massachusetts	5.3%	43	Texas	8.6%
18	Arizona	5.3%	44	Colorado	8.9%
19	Mississippi	5.4%	45	Idaho	9.9%
20	Florida	5.4%	46	North Carolina	10.1%
21	Louisiana	5.5%	47	Wyoming	10.3%
22	California	5.7%	48	Oklahoma	10.6%
23	Missouri	5.9%	49	Nebraska	10.9%
24	Maine	6.0%	50	Utah	11.3%
25	Ohio	6.0%	51	South Dakota	14.9%
26	Michigan	6.1%			

a/ Includes community hospitals.

Source: The Lewin Group analysis of Medicare Cost Reports.

VII. ANALYSIS OF HOSPITAL COSTS IN ARIZONA

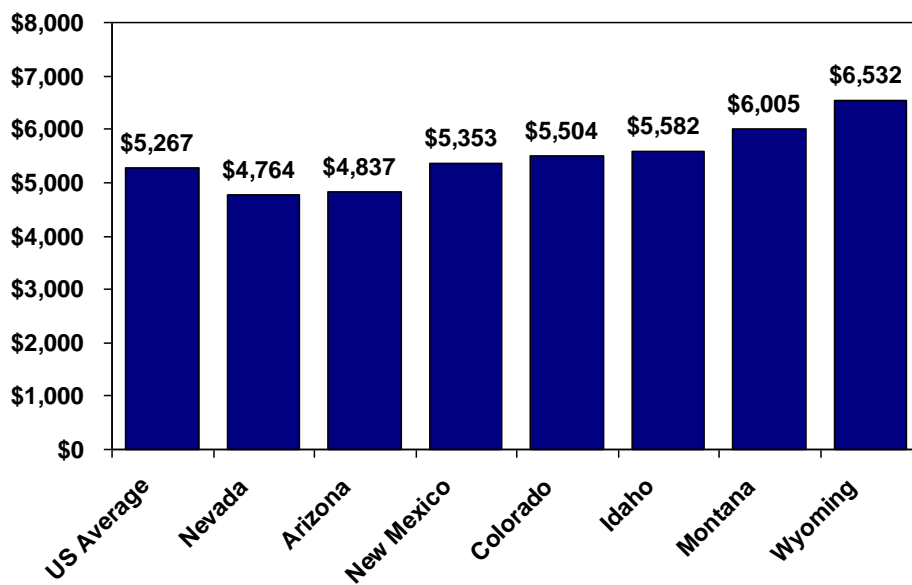
The financial performance of hospitals depends entirely on the relationship between hospital costs and payments. In order to assess the adequacy of payments through a metric, such as payment-to-cost ratio, it is critical to examine hospital costs. For example, AHCCCS payment shortfalls would be expected if costs for Arizona hospitals are higher than average. To better understand the level of cost efficiency in Arizona hospitals, Lewin conducted two comparative cost analyses:

- A comparison of adjusted costs per discharge standardized for differences in inpatient acuity (using Medicare case mix index as a proxy), area wage indices and indirect costs of medical education (as reflected by the Medicare indirect medical education adjustment (IME)); and

- A comparison of actual to expected costs per adjusted discharge based upon individual hospital and local market characteristics.

Figure 10 shows the 2007 adjusted costs per discharge for hospitals in the Mountain census division states and the US average. Costs are standardized for differences across hospitals in hospital inpatient acuity (measured using Medicare case mix), indirect cost of medical education, and the area wage levels. After controlling for these variables, costs per adjusted discharge among Arizona hospitals ranked the second lowest in the region (\$4,837) and well below the national average (\$5,267).

Figure 10
Summary of Adjusted Costs per Discharge
FY 2007: (Includes Acute Care Hospitals Only)



a/ Costs were adjusted for case mix, Indirect medical education, and area wage levels.
 Source: Lewin Analysis of FY 2007 Medicare Hospital Cost Reports, and FY 2009 CMS IPPS Impact File.

A. The Lewin Group Hospital Efficiency Model

To further investigate the level of cost efficiency for Arizona hospitals, we used the Lewin Group Hospital Efficiency Model. The model estimates expected costs per adjusted discharge for each hospital in the United States using cost data from the FY 2007 Medicare Hospital Cost Reports.

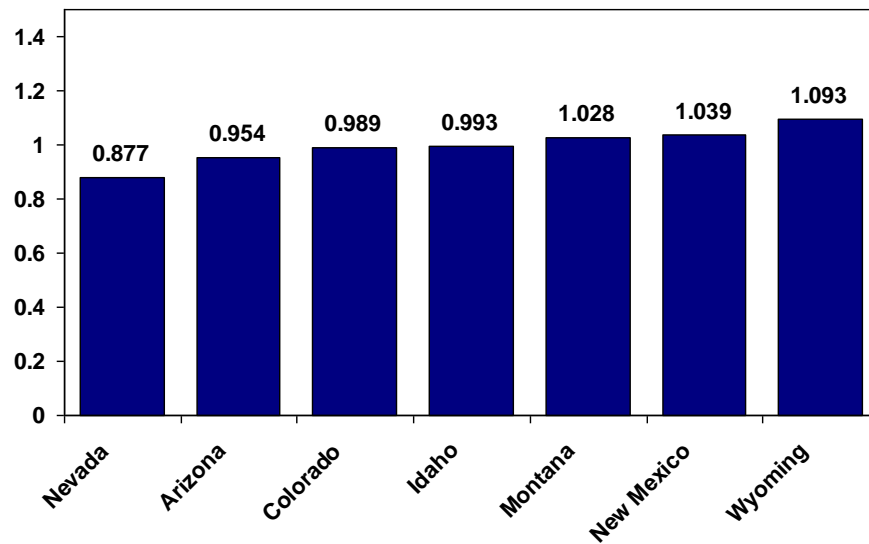
Each hospital's expected cost per case is modeled based on its characteristics such as urban/rural status, patient case mix (Medicare case mix), area wage index, teaching intensity and bed size. The model also controls for the characteristics of the population in the communities that the hospital services, including area poverty rates, income levels, and the age distribution of the community. The community data is measured at the county level and comes

from the Area Resource File maintained by the federal Health Resources and Services Administration (HRSA).⁸ Controlling for differences in hospital characteristics, as well as the demographic characteristics of the community explains approximately 71 percent of the variation in the costs across hospitals.⁹

An efficiency ratio is computed as each hospital’s actual cost per adjusted discharge divided by the models predicted cost per adjusted discharge for that hospital. An efficiency ratio less than 1.0 indicates that the hospital’s actual costs are below its expected costs, which suggests that the hospital is cost efficient. Conversely, an efficiency ratio greater than 1.0 indicates that the hospital’s actual costs exceed its expected costs.

The efficiency ratios are summed across all hospitals in each state (weighted by the number of adjusted discharges) in order to determine the aggregate level of efficiency for all hospitals in the state. *Figure 11* displays the statewide hospital efficiency ratios for hospitals in the Mountain census division by state based on its estimated level of cost efficiency. Arizona hospitals rank as the 2nd most efficient in the region when their actual costs are compared to predicted costs.

Figure 11
All-Payer Cost Efficiency Ranking by State in FY 2007
(Includes Acute Care Hospitals Only)



Source: Lewin Group Hospital Efficiency Model.

Based upon the findings of these comparative analyses of Arizona hospital adjusted cost per discharge suggests that hospital costs in Arizona are low relative to their counterparts in neighboring states and the nation. Thus, the public program underpayments relative to costs are not due to Arizona hospitals being inefficient and high cost providers of care.

⁸ Hospitals are associated with the community data from the county that the hospital is located in. Therefore, hospitals in the same county would have the same data.

⁹ The Hospital Efficiency Model’s R-squared statistic of .71 measures goodness of prediction.

VIII. ESTIMATE OF THE COST SHIFT UNDER FUTURE AHCCCS PROPOSALS

Recent proposals by the state to reduce the cost of the AHCCCS program due to the current budget situation in Arizona could lead to increased hospital cost shifting to Arizonans with private health insurance. Provisions that would affect hospitals include payment rate reductions, reduced supplemental hospital payments for Disproportionate Share Hospital (DSH) and Graduate Medical Education (GME) and reduce special funding for rural hospitals (SAVE program).

Based on the state's calculation of the cost savings to AHCCCS from these provisions for all providers, we estimated the effects that these provisions would have on hospital revenues and in turn the additional cost shift that would be generated by private insurers. For this analysis, we used the 2007 AHA Annual Survey data described above to simulate the cost shift impact of four potential cost reduction measures proposed by the state (*Figure 12*).

Figure 12
AHCCCS Cost Reduction Scenarios for FY 2009 and 2010

	FY2009	FY2010
1. AHCCCS Payment Freeze Assumes updates prior to freeze would be based on Global Insight, Inc. Market Basket increase projections of 3.6% in FY2009 and 2.9% in FY2010	Freezes payment rates at FY 2008 levels	Freezes payment rates at FY 2008 levels
2. AHCCCS Payment Reduction in FY2010	Freezes payment rates at FY 2008 levels	5% payment reduction in payment rates
3. Reduce Graduate Medical Education Payments (State's estimate)	Reduces total funding by \$20.4 million (\$15.3 million federal)	Reduces total funding by \$20.4 million (\$15.3 million federal)
4. Eliminates Disproportionate Share Hospital Payments (State's estimate)	Reduces total funding by \$30.2 million (\$17.1 million federal)	Reduces total funding by \$30.2 million (\$17.1 million federal)
5. Reduce funding for rural hospitals	Reduces SAVE Program funding	Reduces SAVE Program funding

The first scenario assumes that provider payment rates for both FY 2009 and 2010 are frozen at FY 2008 levels. The second scenario assumes that provider payment rates for FY 2009 are frozen at FY 2008 levels and payment rates for FY 2010 are based on FY 2008 payment rates reduced by five percent. The third scenario would include all the provisions in scenario 2 plus a rollback of recent Graduate Medical Education payment increases to teaching hospitals. The fourth scenario would also eliminate disproportionate share hospital payments, which are paid to hospitals that serve a disproportionate share of low-income patients.

The fifth scenario would include all the provisions in scenario 4 plus reduce funding to the Safe, Accessible, Viable and Efficient (SAVE) rural hospital program, which provides special funding to rural hospitals in Arizona.

A. Impact of Proposals on AHCCCS Hospital Payments

In order to estimate the impact of the provisions on AHCCCS hospital payment, we first produced a “baseline” scenario assuming that revenues and expenses for all payers for community hospitals in Arizona increased at the same rate of growth (Global Insight, hospital market basket increases) from 2007 to 2010. Thus, payment-to-cost ratios and hospital margins are unchanged from 2007.

From the baseline, we estimated the impact of the provisions on AHCCCS hospital payment-to-cost ratios and total hospital payments in 2009 and 2010. *Figure 13* shows that the payment freeze (*Scenario 1*) would reduce the AHCCCS payment-to-cost ratio from 79.3 percent to 76.6 percent in 2009 and 74.4 percent in 2010, because this provision has a cumulative effect. This would reduce total AHCCCS payments to community hospitals in Arizona by \$150.3 million over the two year period (*Figure 14*).

Figure 13
AHCCCS Payment-to-Cost Ratios Under Various
Cost Reduction Scenarios for FY 2009 and 2010

Scenario	FY2009	FY2010
Baseline	79.3%	79.3%
1. Payment Freeze in FY 2009 and 2010	76.6%	74.4%
2. 5% Payment Reduction in FY2010	76.6%	70.7%
3. Reduce GME funding	75.4%	69.5%
4. Eliminate DSH payments	74.1%	68.3%
5. Reduce funding for rural hospitals	73.4%	67.6%

Source: Lewin Group estimates using the AHA Annual Survey data.

However, only a small portion of these payment reductions would be savings to the state. We estimate that the federal matching percentage (FMAP) for Arizona would be 75.22 percent in 2009 and 2010 due to increased federal funding under the American Recovery and Reinvestment Act (ARRA). The state’s savings from this provision would be \$37.3 million. However, federal funding to the state would be reduced by \$113.1 million.

Figure 14
AHCCCS Hospital Payment Reductions and Lost Federal Funds Under
Various Cost Reduction Scenarios for FY 2009 and 2010

Scenario	FY2009	FY2010	2-year Total
AHCCCS Hospital Payments Reduction from Baseline (millions)			
1. Payment Freeze in FY 2009 and 2010	\$53.0	\$97.3	\$150.3
2. 5% Payment Reduction in FY2010	\$53.0	\$171.0	\$224.0
3. Reduce GME funding	\$76.3	\$194.2	\$270.5
4. Eliminate DSH payments	\$101.5	\$219.5	\$321.0
5. Reduce funding for rural hospitals	\$113.7	\$231.7	\$345.4
State Savings (millions)			
1. Payment Freeze in FY 2009 and 2010	\$13.1	\$24.1	\$37.3
2. 5% Payment Reduction in FY2010	\$13.1	\$42.4	\$55.5
3. Reduce GME funding	\$18.9	\$48.1	\$67.0
4. Eliminate DSH payments	\$29.8	\$59.1	\$88.9
5. Reduce funding for rural hospitals	\$32.9	\$62.1	\$95.0
Federal Funding Lost (millions)			
1. Payment Freeze in FY 2009 and 2010	\$39.9	\$73.2	\$113.1
2. 5% Payment Reduction in FY2010	\$39.9	\$128.6	\$168.5
3. Reduce GME funding	\$57.4	\$146.1	\$203.5
4. Eliminate DSH payments	\$71.7	\$160.4	\$232.1
5. Reduce funding for rural hospitals	\$80.9	\$169.6	\$250.4

a/ Assumes FMAP of 65.77% for DSH payments.

Source: Lewin Group estimates using the AHA Annual Survey data.

A payment rate freeze in 2009 and a five percent payment reduction in 2010 (*Scenario 2*) would reduce the AHCCCS payment-to-cost ratio to 70.7 percent by 2010. The result of these provisions would reduce total AHCCCS payments to Arizona community hospitals by \$224.0 million over the two year period. The state's share of the payment reduction would be \$55.5 million and lost federal funding would be \$168.5 million.

The reduction in special hospital payments for GME, DSH and SAVE, in combination with the payment rate reduction, (*Scenarios 3, 4 and 5*) would reduce total AHCCCS hospital payments by approximately \$113.7 million and \$231.7 million in 2009 and 2010 respectively. We estimate that the Medicaid payment-to-cost ratio will decrease by nearly 6 percentage points from 79.3 percent to 73.4 percent due to AHCCCS payment freeze and reduction in GME, DSH and SAVE payments in 2009. The cumulative effect of the payment freeze in 2009, the payment reduction in 2010 and reduction in GME, DSH and SAVE payments for two consecutive years will eventually reduce the Medicaid payment-to-cost ratio to 67.6 percent. The state's savings from these provisions would be \$95.0 million and the lost federal funding would be \$250.4 million over two years.

B. Impact of Proposals on Hospital Private Insurance “Cost shift”

The proposed reductions in AHCCCS payments are likely to lead to increased hospital cost shifting to Arizonans with private health insurance. In order to cover the shortfalls due to AHCCCS payment reductions and maintain their current margins, Arizona hospitals will need to negotiate higher payments from private payers.

Figure 15 shows private insurer payment-to-cost ratios that would be required to offset the hospital losses due to the AHCCCS cost reduction provisions. In 2009 Arizona hospitals would need to increase payment-to-cost ratios from private payers by 2 percentage points from 139.8 percent to 143.0 percent in order to cover the additional AHCCCS payment shortfalls and sustain the current patient margins. By 2010, private payer payment-to-cost ratio will need to increase by more than 6 percentage points to 146.1 percent.

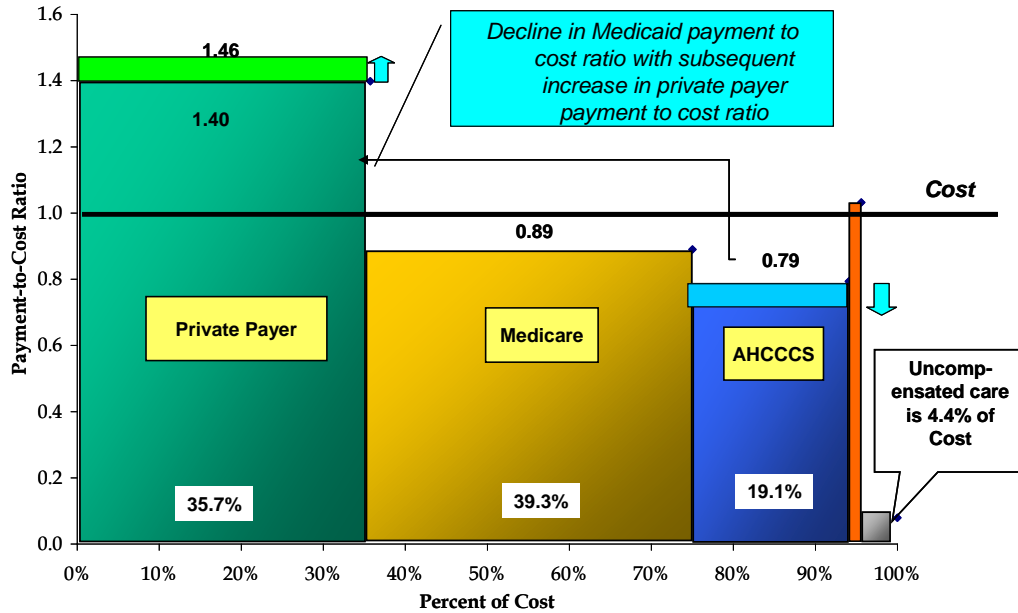
Figure 16 shows the change in the Medicaid payment-to-cost ratio and the consequent change in private payer payment-to-cost ratio in the form of a cost shift hydraulic.

Figure 15
Private Payer Payment-to-Cost Ratios as Cost shift for Various
Cost Reduction Scenarios for FY 2009 and 2010

Scenario	Private Payer Payment-to-Cost Ratio	
	FY2009	FY2010
Baseline	139.8%	139.8%
1. Payment Freeze in FY 2009 and 2010	141.3%	142.5%
2. 5% Payment Reduction in FY2010	141.3%	144.4%
3. Reduce GME funding	142.0%	145.1%
4. Eliminate DSH payments	142.7%	145.8%
5. Reduce funding for rural hospitals	143.0%	146.1%

Source: Lewin Group estimates using the AHA Annual Survey data.

Figure 16
Cost Shift Payment Hydraulic for Arizona Community Hospitals in 2010 Based on Future Payment Proposals



Source: Lewin Group estimates using the AHA Annual Survey data.

C. Impact of Proposals on Consumers of Private Insurance

We estimate that the impact on private insurance premiums from the hospital cost shift due to AHCCCS and Medicare underpayments and the cost of uncompensated care will be \$1.37 billion in 2009 and \$1.41 billion in 2010 assuming there is no change in payment policy (*Figure 17*). If all AHCCCS cost reduction provisions described above are implemented, we estimate that the cost shift would increase to \$1.48 billion in 2009 and \$1.63 billion in 2010.

Figure 17 shows the distribution of the hospital cost shift under the various AHCCCS cost reduction proposals on employers, workers and people who purchase health insurance through the individual market in 2009 and 2010.

Figure 17
Impact of Cost Shift Under Various AHCCCS Cost Reduction Provisions by Stakeholder in 2009 and 2010

	Total Cost shift due to Medicare and AHCCCS Payment Shortfalls and Uncompensated Care (in millions)				Cost shift per Privately Insured Person
	Employees	Employers ^{a/}	Individuals	Totals	
FY2009					
Baseline	\$313.7	\$1,009.2	\$44.4	\$1,367.3	\$387
1. Payment Freeze in FY 2009 and 2010	\$325.8	\$1,048.3	\$46.2	\$1,420.3	\$402
2. 5% Payment Reduction in FY2010	\$325.8	\$1,048.3	\$46.2	\$1,420.3	\$402
3. Reduce GME funding	\$331.2	\$1,065.5	\$46.9	\$1,443.6	\$408
4. Eliminate DSH payments	\$336.9	\$1,084.1	\$47.7	\$1,468.8	\$415
5. Reduce funding for rural hospitals	\$339.7	\$1,093.1	\$48.1	\$1,481.0	\$419
FY2010					
Baseline	\$323.1	\$1,039.4	\$45.8	\$1,408.2	\$398
1. Payment Freeze in FY 2009 and 2010	\$344.2	\$1,107.3	\$48.8	\$1,500.3	\$424
2. 5% Payment Reduction in FY2010	\$361.1	\$1,161.7	\$51.2	\$1,573.9	\$445
3. Reduce GME funding	\$366.4	\$1,178.9	\$51.9	\$1,597.2	\$452
4. Eliminate DSH payments	\$372.2	\$1,197.5	\$52.7	\$1,622.4	\$459
5. Reduce funding for rural hospitals	\$375.0	\$1,206.5	\$53.1	\$1,634.6	\$462

a/ Includes private, state, municipal and federal employees.
Source: Lewin Group estimates.

IX. CONCLUSION

The purpose of this study was to examine payments to Arizona hospitals for patients covered by Medicare, AHCCCS, other government programs and private insurers and how payments compare to the cost of treating those patients. Our study found that Arizona hospitals have historically responded to reduction in public payer payments though cost shifting to private payers. The financial health of Arizona hospitals is strained with total margins below national averages. Arizona hospitals are cost efficient providers when compared with hospitals across the nation.

Future payment proposals for AHCCCS program could lead to lower payment levels and subsequent worsening of AHCCCS payment-to-cost ratio. Given the low margins and the level of cost efficiency, Arizona hospitals will need to recoup the AHCCCS payment shortfalls through higher payments from private payers in order to maintain the current levels of profitability, which could increase the cost shift for each privately insured person by 16 percent from \$398 to \$462 by 2010.

APPENDIX A: DATA AND METHODS

The primary data source used for this analysis was the 2007 American Hospital Association (AHA) Annual Survey for Arizona community hospitals. The AHA data includes information on payer specific charges and revenues, total operating expenses, other operating revenue, bad debt expenses and charity care. The payer categories include Medicare fee-for-service, Medicare managed care, AHCCCS fee-for-service and AHCCCS managed care, other government payers, self pay, commercial managed care, other third party payers and other non-government payers.

The AHA defines community hospitals as non-federal, short-term general or other special hospital, which includes acute care, children's and rehabilitation hospitals. Psychiatric, long-term care and Indian Health Service hospitals were excluded from the analysis. These data were provided through the Arizona Hospital and Healthcare Association (AzHHA).

About 64 percent of Arizona's 66 community hospitals reported their financial data in the AHA Annual Survey (*Figure A-1*). Most of the hospitals that did not report were small hospitals with less than 100 beds. Nearly all the large hospitals (over 300 beds) reported financial information to the AHA.

Figure A-1
Number and Percent of Hospitals Reporting Financial Data to AHA Survey

Bed Size	Number of Reporting Hospitals ^{a/}	Number of Hospitals not Reporting	All Hospitals	Percent Reporting
Under 100	16	15	31	52%
100-199	6	4	10	60%
200-299	8	4	12	67%
300-399	7	0	7	100%
400 or more	5	1 ^{b/}	6	83%
Total	42	24	66	64%

a/ Hospitals reporting all or most of financial data in the 2007 AHA Annual Survey.

b/ This hospital did not report in 2007 but did report in 2006.

Source: Lewin Group analysis of AHA Annual Survey Data.

For hospitals that did not report their financial information, the AHA estimated all financial variables for each hospital. The AHA estimation process used the hospitals' prior year's data and estimated the percent change to the current year using a regression model based on hospitals that actually reported information and used state median, metropolitan statistical area size, and bed size as predictive variables. Thus, the estimated value for each financial variable was based on the hospital's prior year value multiplied by a percent change derived from regression model. We adjusted the AHA estimated values for each non-reporting hospital in order to match net patient revenues, total expenses and total gross charges reported by the hospitals in 2007 and provided by the AzHHA.

To following calculations were used to perform the cost shift analyses presented in this study:

Ratio of Costs to Charges

$$\text{RCC} = \frac{\text{Total Operating Expenses} - \text{Bad Debt Expense}}{\text{Gross Charges} + \text{Other Operating Revenue}}$$

Costs by Payer

Private = (Total Private Gross Charges – Bad Debt Expense - Charity Care) * RCC.
(Total private includes commercial managed care, other third party, self pay, and other non-government payers)

Medicare = Medicare (fee-for-service + managed care) Gross Charges * RCC

Medicaid = Medicaid (fee-for-service + managed care) Gross Charges * RCC

Other Gov. = Other Gov. Gross Charges * RCC

Uncompensated Care = (Bad Debt + Charity Care) * RCC

Other Operating = Other Operating Revenue * RCC

Revenues by Payer (Gross Charges – Contractual Allowances)

Private = Total Private Net Patient Revenues – Bad Debts

Medicare = Medicare Net Patient Revenues

Medicaid = Medicaid Net Patient Revenues

Uncompensated Care = Tax Appropriation Revenue
(Tax appropriation revenue can not exceed total bad debt and charity care costs for a given hospital).

Other Operating= Other Operating Revenue

Payment-to-Cost Ratios

Payment-to-Cost Ratios = Revenues per Payer / Costs per Payer

Percentage of Hospital Costs

$$\text{Percentage of Hospital Costs} = \frac{\text{Costs per Payer}}{(\text{Total Operating Expenses} - \text{Bad Debt Expense})}$$

