

WORKING P A P E R

Payments For Burn Patients Under California's Official Medical Fee Schedule For Injured Workers

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PREFACE

This study updates analyses from a 2003 RAND report¹ examining Official Medical Fee Schedule (OMFS) payments for workers' compensation burn discharges from acute care hospitals. Until January 1, 2004, burn cases were exempt from the OMFS maximum allowable fees for inpatient hospital care. These fees are based on 120 percent of the amount that would be payable under the Medicare prospective payment system for inpatient services. The 2003 RAND report concluded that the fees should be adequate using a Medicare-based fee schedule. SB 228 (Alarcón 2003) ended the exemption for burns cases. The California Hospital Association has raised concerns regarding losses being incurred by hospitals for workers' compensation burn cases. Pending legislation² would re-institute the OMFS exemption for inpatient stays involving extensive burns.

The work presented here was performed for the Commission on Health and Safety and Workers' Compensation and the Division of Workers' Compensation, California Department of Industrial Relations under Task 4 of Contract Number 40336045. It is part of a broader study that examines the cost and quality issues affecting medical care provided to injured workers in California, and assesses strategies to improve the quality and efficiency of that care. The findings for the other study tasks will be reported in separate documents.

¹ Barbara O. Wynn, *Adopting Medicare Fee Schedules: Considerations for the California Workers' Compensation Program*, Santa Monica, CA: RAND, MR-1776-ICJ, 2003.

² AB 935 (Koretz).

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SUMMARY

The OMFS inpatient fee schedule is adapted from the Medicare payment system for inpatient services furnished by acute care hospitals. A pre-determined maximum allowable fee is established for each admission based on the diagnosis-related group- or DRG- to which the patient is assigned. The DRG assignment takes into account factors such as the patient's principal diagnosis, co-morbidities, and surgical procedures. Each DRG has a relative weight reflecting the average resources or costs required by patients assigned to the DRG relative to patients in other DRGs. There are eight DRGs for burn cases. The FY03 relative weights indicate the most resource intensive burn DRG (DRG 504 Extensive Third Degree Burns with Skin Graft) is almost 21 times more costly than the least resource intensive DRG (DRG 511 Non-Extensive Burns without Complications or Comorbidities or Significant Trauma).

The OMFS standard allowance for a discharge is determined as the composite rate³ x DRG relative weight x 1.20. Additional allowances are made for discharges with atypically high costs, or outliers. The additional allowance for burn cases equals 90 percent of the difference between the estimated costs for the discharge and the standard payment for the DRG plus an outlier threshold.

This study updates analyses from a 2003 RAND report⁴ examining Official Medical Fee Schedule (OMFS) payments for workers' compensation burn discharges from acute care hospitals. Until January 1, 2004, burn cases were exempt from the OMFS maximum allowable fees for inpatient hospital care. The 2003 RAND report concluded that the fees should be adequate using a Medicare-based fee schedule. SB 228 (Alarcón 2003) ended the exemption for burns cases. The California Hospital Association has raised concerns regarding losses being incurred by hospitals for workers' compensation burn cases. Pending legislation⁵ would re-institute the OMFS exemption for inpatient

³ The composite rate is a hospital-specific rate based on the Medicare standard payment rate adjusted for geographic differences in wages and, if applicable, the hospital's additional payments for teaching and serving a disproportionate share of low-income patients.

⁴ Barbara O. Wynn, *Adopting Medicare Fee Schedules: Considerations for the California Workers' Compensation Program*, Santa Monica, CA: RAND, MR-1776-ICJ, 2003.

⁵ AB 935 (Koretz).

stays involving extensive burns. The OMFS would continue to apply to non-extensive burn discharges.

This study examines the adequacy of OMFS maximum allowable fees for inpatient burn cases by addressing two questions:

- How do the costs of caring for injured workers compare to the costs for Medicare patients in the burn DRGs?
- How do OMFS allowances for burn DRGs compare to the estimated costs of caring for injured workers?

We used 2003 administrative and financial data from the California Office of Statewide Health Planning and Development to compare the estimated costs per discharge for CA workers' compensation patients and Medicare patients. The underlying assumption is that if the estimated costs for the workers' compensation patients are less than 120 percent of the costs for Medicare patients, the OMFS payments for burn discharges should be sufficient.⁶ The 20 percent reflects the 1.20 multiplier that is intended to compensate for any higher costs that workers' compensation patients might incur and to provide a reasonable margin on treating injured workers.

Our comparative analysis of Medicare and workers' compensation burn cases shows that on average workers' compensation patients are less costly than Medicare patients and have a shorter length of stay. The DRG-mix adjusted Medicare cost per discharge is about 12% higher than the cost per discharge for workers' compensation patient and the average length of stay is 7% longer. The comparison suggests that the 1.20 multiplier to the Medicare payment rate should be sufficient to assure that OMFS payments on average for burn cases are substantially more than the cost of providing care. This does not mean that the payment for every workers' compensation discharge will be higher than the costs for that patient. The DRG system is built on a system of averages, where some discharges are more costly than others, and the goal is to assure that on average the payment is adequate. Further, the outlier policy is designed to protect hospitals from large financial losses on extraordinarily high cost cases. However,

⁶ For purposes of this study, we equate the OMFS allowances to payments for injured workers. The actual payments may differ from the OMFS allowances because of contractual arrangements between the hospital and the employer (or payer).

as discussed below, our payment simulations raise some potential concerns that warrant further consideration.

The second aspect of our study was to simulate what payments would have been under the OMFS if the Medicare-based fee schedule had applied in 2003 and to compare the simulated payments to estimated costs. To estimate costs, we applied an overall cost-to-charge ratio to the total charges in the administrative data for each workers' compensation burn case. Hospital charging practices affect the accuracy of the cost estimate. First, hospitals have different charge structures for the services they provide and there are limitations on the extent to which this can be taken into account. In theory, a hospital's charges should be consistently related to its costs. An overall cost-to-charge ratio reflects the hospital's average markup across all services, but there can be substantial differences in hospital markups for particular types of services. We are limited to using an overall cost-to-charge ratio for this analysis and do not have the detailed charge information needed to know how a particular hospital's average markup (or cost-to-charge ratio) for burn discharges compares with its markup for other services.

The results are sensitive to the cost-to-charge ratios that are used to estimate costs but suggest that if 1.20 times the Medicare rates had been used to pay for burn discharges in 2003, total OMFS payments would have exceeded estimated costs. The aggregate payment-to-cost ratio would have been 1.09 using an OSHPD overall cost-to-charge ratio for all hospital services and 1.33 using a cost-to-charge ratio for Medicare inpatient services. While neither statistic is definitive given the limitations of the methodology, they lend further support to a conclusion that in general the DRG-based payments seem to be working for the OMFS. While the aggregate payment-to-cost ratio across all DRGs is above 1.0, there is considerable variation among the DRGs:

- The payment-to-cost ratios for the three most resource intensive DRGs are well above 1.0. Nevertheless, DRG 504 is of some concern because it requires intensive specialized care at substantial cost. The estimated average cost for DRG 504 discharges is \$151,269, nearly 4.5 times the next costliest DRG. The DRG allowance may be considerably higher or lower than the cost a particular case. A hospital may not have sufficient volume to average out a large gain or loss on its patients in this DRG.

- The payment-to-cost ratios for the less resource intensive DRGs are below 1.0. Of particular concern is DRG 507 Full Thickness Burn with Skin Graft or Inhalation Injury without CC or Significant Trauma. A significant portion of discharges assigned to this DRG has either low or high payment-to-cost ratios and there is an aggregate net loss for these discharges.
- When the DRGs for patients with non-extensive burns (DRGs 510 and 511) are dropped from the simulation, the aggregate payment-to-cost ratios increase. The allowances for the non-extensive burn DRGs may be more problematic than some of the DRGs for extensive burn cases that are being considered for exemption.

Most hospitals treating injured workers with burns have only one or two cases and should not be of particular concern. These hospitals do not treat the most resource intensive burn patients and their estimated average cost is low relative to hospitals that treat more resource-intensive patients. Any over- or underpayment for their burn discharges should average out with payments for discharges in other DRGs.

There are 12 hospitals that have five or more workers' compensation burn discharges. Four of the six hospitals with 5–20 discharges have net gains on their workers' compensation burn discharges. The two hospitals with net losses are safety net hospitals. One had substantial losses on DRG 504 discharges; the other hospital's losses were attributable to non-extensive burn discharges.

Only five hospitals have more than 20 workers' compensation burn discharges. It is this group of hospitals that would be most harmed if the OMFS allowances for burn discharges are inadequate. Four on the five hospitals had net gains on their workers' compensation burn discharges. One safety net hospital had net losses on both extensive and non-extensive burn discharges.

The 2003 data do not support an across-the-board OMFS exemption for extensive burn cases. An outright exemption is likely to add unnecessary administrative costs because of the need for case-by-case negotiations and to unreasonably high payments because of the role of charges determining the negotiated price. There are several alternatives to an exemption that warrant further consideration. Options 1 and 2 are

mutually exclusive. Options 3 and 4 narrow eligibility for special treatment and could be considered with either of the first two options or an exemption policy.

Option 1: Create a Pass-Through Formula

The pass-through for hardware and instrumentation for spinal surgery is suggested as a precedent for exempting DRGs 504–509. However, there is an important distinction between a *pass-through* based on the costs of the hardware and an *exemption* that would rely on negotiated amounts between the hospital and the payor. The starting point for negotiated rates is typically a hospital's charges, which were more than three times cost in 2003 according to the OSHPD financial data.

One alternative would be to use the Medicare cost-to-charge ratio used to price outlier payments to estimate costs for the discharge and to set payment at a multiple of that amount, e.g., 1.20. Assuming that a hospital's cost-to-charge ratio in the FY05 Medicare PPS Impact File was .30, the payment for a burn patient with \$200,000 in total charges would be:

$$(\$200,000 \times .30) \times 1.20 = \$72,000$$

Relative to relaxing the outlier payment methodology (see Option 2), this option is likely to improve overall payment accuracy for burn discharges because it would reduce payments for relatively low cost discharges and increase payment for relatively high cost discharges. By eliminating the DRG payment for burn discharges, it would reduce incentives to provide services efficiently.

While all hospitals are likely to benefit from an exemption, the data suggest that most hospitals, including safety net hospitals, are operating with a net gain on workers' compensation burn discharges and might receive less payment under a pass-through policy than the OMFS. A variant of Option 1 would be to allow hospitals to elect prior to the beginning of the payment year whether they would be paid under Option 1 or the OMFS.

Option 2: Reduce the outlier threshold for burn cases.

The outlier threshold is a hospital-specific amount (ranging from about \$35,000 to \$45,000) that hospitals must absorb before payments are made for unusually high cost cases. Reducing the threshold to a lower amount (e.g., \$10,000) would reduce a

hospital's financial loss on atypically high cost cases. This option would pay a higher amount for atypically high cost cases that are generating losses but hospitals would continue to incur some loss on these cases (the amount of the outlier threshold plus 10% of the remaining excess costs). It would continue to make the same payments for other cases. Relative to Option 1, it retains the PPS incentives for efficiency.

If Option 1 were adopted, consideration should be given to extending it to DRGs 510 and 511, which have a low payment-to-cost ratio. As is the case with the other relatively inexpensive burn DRGs, there are discharges in DRGs 510–511 with losses that do not qualify for outlier payments because of the high outlier threshold relative to costs.

Option 3: Limit special treatment to hospitals with burn intensive care units.

Instead of providing special treatment under the OMFS on a DRG basis, only hospitals that have burn centers or burn intensive care units would qualify for special treatment. The option would assure that injured workers have access to these specialized units, which are the only hospitals likely to treat discharges in most extensive burn cases. This option would rely on the PPS averaging concept for hospitals with only a few relatively inexpensive burn discharges.

Option 4: Limit special treatment to DRGs 504–507

DRGs 508–509 Full Thickness Burns Without Skin Graft are about as resource-intensive as non-extensive burns (DRGs 510 and 511). The pattern of payment-to-cost ratio do not suggest a need for these DRGs to be exempted or paid as a pass-through. While DRG 506–507 are also relatively inexpensive, the pattern-of-cost to charge ratios suggests special treatment might be warranted for discharges assigned to these DRGs.

ACKNOWLEDGMENTS

We appreciate the support that Christine Baker, Executive Director of the California Commission on Workers' Compensation and Health and Safety has provided for our work on this issue. In developing our analytical approach, we benefited from a review of the methodology used by the California Hospital Association in its own analysis of the adequacy of the OMFS allowances for burn cases. We appreciate the willingness of the California Hospital Association to share its analysis with us.

We would like to thank Carol Gresenz of RAND's Institute for Civil Justice for her comments on an earlier draft of this report and Joanna Nelsen for her assistance in preparing the final version of this report.

INTRODUCTION

PURPOSE OF THE STUDY

The purpose of this study is to update analyses from a 2003 RAND report⁷ examining Official Medical Fee Schedule (OMFS) payments for workers' compensation burn discharges from acute care hospitals. Until January 1, 2004, burn cases were exempt from the OMFS maximum allowable fees for inpatient hospital care. These fees are based on 120 percent of the amount Medicare pays for inpatient services. The 2003 RAND report concluded that the fees for burn cases should be adequate using a Medicare-based fee schedule. SB 228 (Alarcón 2003) ended the exemption for burns cases. The California Hospital Association has raised concerns regarding losses being incurred by hospitals for workers' compensation burn cases. Pending legislation⁸ would re-institute the OMFS exemption for inpatient stays involving extensive burns. The OMFS would continue to apply to non-extensive burn cases.

BACKGROUND

The OMFS inpatient fee schedule is adapted from the Medicare payment system for inpatient services furnished by acute care hospitals. A pre-determined maximum allowable fee is established for each admission based on the diagnosis-related group- or DRG- to which the patient is assigned. The DRG assignment takes into account factors such as the patient's principal diagnosis, co-morbidities, and surgical procedures. Each DRG has a relative weight reflecting the average resources or costs required by patients assigned to the DRG relative to patients in other DRGs. The relative weight is used in the fee schedule to account for differences in case mix. In addition, adjustments are made in the allowance to take into account hospital characteristics such as geographic location and area wage differentials, involvement in medical education, and commitment to serving low-income patients.

⁷ Barbara O. Wynn, *Adopting Medicare Fee Schedules: Considerations for the California Workers' Compensation Program*, Santa Monica, CA: RAND, MR-1776-ICJ, 2003.

⁸ AB 935 (Koretz).

The OMFS standard allowance for a discharge is determined as the composite rate⁹ x DRG relative weight x 1.20. Additional allowances are made for discharges with atypically high costs, or outliers. The outlier formula is more generous for discharges assigned to the burn DRGs than other DRGs. The additional allowance equals 90 percent of the difference between the estimated costs for the discharge and the standard payment for the DRG plus an outlier threshold; for non-burn discharges, the additional allowance equals 80 percent of the difference.

There are eight DRGs for burn discharges. They are listed in Table 1 together with their respective relative weights and mean length of stay during federal fiscal year (FY) 2003 and FY05. (The FY03 rates are applicable to the most recent available data on workers' compensation inpatient stays and the FY05 rates are in use in 2005.) The relative weights and mean length of stay are based on national Medicare administrative data. The FY03 relative weights indicate the most resource intensive burn DRG (DRG 504 Extensive Third Degree Burns with Skin Graft) was almost 21 times more costly than the least resource intensive DRG (DRG 511 Non-Extensive Burns without CC or Significant Trauma).

The DRG classification rules for burn discharges were refined for FY05. With the refinement, cases that previously were assigned to DRGs 506-509 that involve long-term mechanical ventilation for more than 96 hours are now classified to DRGs 504 or 505, as applicable. This means that some of the more costly cases that were assigned to lower-weighted burn DRGs in 2003, the most recent year for which administrative data are available, would now be assigned to DRGs 504 or 505.¹⁰ DRGs 504 and 505 were renamed effective in FY05. The DRG relative weights are recalibrated annually based on the most recent available Medicare administrative data. There is a two-year lag, so that the FY05 relative weights are based on FY03 administrative data. The changes between the FY03 and FY05 relative weights reflect not only the DRG refinements that were made in FY05 but also

⁹ The composite rate is a hospital-specific rate based on the Medicare standard payment rate adjusted for geographic differences in wages and, if applicable, the hospital's additional payments for teaching and serving a disproportionate share of low-income patients.

¹⁰ In its recent analysis of burn DRGs, the California Hospital Association quoted a 2003 CMS document acknowledging potential shortcomings in its DRG logic. This FY05 DRG logic change addressed the issue mentioned in the document. Only one workers' compensation discharge in the 2003 OSHPD data would have been affected by the change.

Table 1
Burn DRG Descriptions, Relative Weights and Arithmetic Mean Length of Stay

DRG	Description	FY03		FY05	
		Relative Weight	Mean LOS	Relative Weight	Mean LOS
504	FY03: Extensive 3rd Degree Burns with Skin Graft FY05: Extensive Burns or Full Thickness Burn with Mechanical Ventilation 96 or More Hours with Skin Graft	14.65	34.9	13.01	29.3
505	FY03: Extensive 3rd Degree Burns without Skin Graft FY05: Extensive Burns or Full Thickness Burn with Mechanical Ventilation 96 or More Hours without Skin Graft	2.02	3.7	1.87	4.4
506	Full Thickness Burn with Skin Graft or Inhalation Injury with CC or Significant Trauma	4.67	17.3	4.06	16.2
507	Full Thickness Burn with Skin Graft or Inhalation Injury without CC or Significant Trauma	1.72	9.0	1.86	9.1
508	Full Thickness Burn without Skin Graft or Inhalation Injury with CC or Significant Trauma	1.43	8.4	1.34	7.3
509	Full Thickness Burn without Skin Graft or Inhalation Injury without CC or Significant Trauma	0.97	5.7	0.69	4.7
510	Non-Extensive Burns with CC or Significant Trauma	1.23	6.7	1.27	6.8
511	Non-Extensive Burns without CC or Significant Trauma	0.70	4.4	0.71	4.1

changes that occurred over a two-year period in the patterns of care and relative resources required by Medicare patients.

DATA AND METHODS

We used 2003 administrative data from the California Office of Statewide Planning and Development (OSHPD), which is the most recent available data, to compare the estimated costs per discharge for CA workers' compensation patients and Medicare patients. The underlying assumption is that if the estimated costs for the workers' compensation patients are no more than 20 percent higher than the costs for Medicare patients, the OMFS payments for burn discharges should be sufficient. The 20 percent reflects the 1.20 multiplier that is intended to compensate for any higher costs that workers' compensation patients might incur and to provide a reasonable margin on treating injured workers.

We used the 2003 OSHPD data to 1) determine the volume of discharges in each burn DRG for Medicare and workers' compensation patients, 2) compare by DRG the average length of stay and average charges for Medicare and workers' compensation patients and 3) compare how the overall average cost per discharge for workers' compensation patients

would compare to the overall average for Medicare patients assuming the same distribution of discharges across the burn DRGs. To estimate the costs for each stay, we applied a hospital-specific cost-to-charge ratio to the total charges reported for the stay.

Hospital charging practices affect the accuracy of the cost estimate. First, hospitals have different charge structures for the services they provide and there are limitations on the extent to which this can be taken into account. In theory, a hospital's charges should be consistently related to its costs. An overall cost-to-charge ratio reflects the hospital's average markup across all services, but there can be substantial differences in hospital markups for particular types of services. Generally, the markup is higher for ancillary services than for inpatient "room and board" services and for high cost stays (e.g., cardiac and orthopedic surgical procedures) than for lower cost stays. We are limited to using an overall cost-to-charge ratio for this analysis and do not have the detailed charge information needed to know how a particular hospital's average markup (or cost-to-charge ratio) for burn discharges compares with that for other services.¹¹ Second, hospital charges have been rising more rapidly than costs. The charge increases have been driven by payment arrangements that are based on charges. Examples are managed care stop-loss agreements to pay at least a minimum percentage of charges and Medicare's use of charges in determining outlier payments. As a result, a cost-to-charge ratio that is derived from an earlier period than the administrative data tends to overstate costs. Given these limitations, we estimated costs using two different cost-to-charge ratios. One was an overall cost-to-charge ratio derived from OSHPD financial data for hospital fiscal years ending in 2003. The second was the cost-to-charge ratio for Medicare inpatients reported on PPS impact file for FY05, which we believe is likely to have covered for most hospitals part of 2003 (see further discussion of this issue in Appendix A). The OSHPD cost-to-charge ratio generally provides higher cost estimates and most findings in this working paper are reported using this measure. The limitations of the cost-to-charge ratio are less important in a comparison of costs per discharge for workers' compensation patients and Medicare patients (since relative costliness is being examined) than in comparing how OMFS payments compare to estimated costs for injured workers assigned to the burn DRGs.

¹¹ The Medicare cost report has charges and costs by hospital department. If charges by department were available, one could determine the estimated cost per discharge by applying the departmental cost-to-charge ratio to the departmental charges. The OSHPD administrative data have only total charges and further investigation of this issue is beyond the scope of this study.

We examined the adequacy of a Medicare-based fee schedule payment for burn discharges in an earlier study using 2000 OSHPD data and Medicare payment rates for 2000 for burn discharges. The average payment was higher than the estimated average cost for every DRG. Across all the burn DRGs, the aggregate payment- to- cost ratio was 1.21 *before* application of the 1.20 multiplier. In other words, if OMFS payments had been based on the current Medicare rates and DRGs in 2000, we estimated aggregate payments would have been 21 percent higher than estimated costs before the 1.20 multiplier was applied and 45 percent higher with the multiplier.

For the current analysis, we simulated what OMFS payments would have been in 2003 for each workers' compensation discharge in 2003 OSHPD administrative data discharge after applying the 1.20 multiplier to FY03 Medicare payment rates. We then compared this amount to the estimated cost for the discharge. We chose to compare simulated 2003 payments to 2003 estimated costs because it does not require us to make assumptions regarding changes in costs, charges and practice patterns between 2003 and 2005. The underlying assumption is that if payments were adequate in 2003 they are also adequate in 2005. The alternative would be to update both estimated charges and cost-to-charge ratio to 2005 and compare 2005 payments to 2005 estimated costs. We believe this is less preferred approach because it requires making more assumptions regarding how costs have increased relative to charges. Additional information on our methodology is in Appendix A.

FINDINGS

Comparison of Medicare and Workers' Compensation Discharges

Table 2 summarizes our findings by DRG and payor with respect to the number of discharges, the average length of stay, the average charges per stay and the average estimated cost per stay. In total, there were 338 workers' compensation burn discharges compared to 400 for Medicare beneficiaries for which cost and charge data were available in the OSHPD data.

Figure 1 depicts the distribution of discharges across the burn DRGs graphically. The distribution of discharges is quite different for the two populations with a higher percentage of Medicare patients within a paired DRG set (those that differ only on the presence or absence of complications or co-morbidities (CCs)) being assigned to the DRG with CCs:

Table 2
Comparison of Workers' Compensation and Medicare Patients in Burn DRGs

DRG	Number of Discharges		Average Length of Stay		Average Charges Per Discharge (\$)		Estimated Average Cost Per Discharge(\$)*	
	WC	Medicare	WC	Medicare	WC	Medicare	WC	Medicare
504	25	19	35.2	31.2	431,278	491,201	151,269	158,310
505	2	9	12.0	4.1	129,361	76,260	34,589	24,310
506	49	89	12.1	15.8	94,643	141,148	26,915	42,880
507	113	23	7.9	8.4	63,561	62,145	17,747	18,548
508	5	51	5.2	7.5	21,260	42,829	7,061	13,434
509	24	12	2.4	3.3	18,081	37,838	6,247	9,856
510	25	132	9.2	8.6	94,528	58,524	31,924	18,024
511	95	65	3.2	4.7	25,771	33,275	8,438	10,943
All	338	400	8.9	10.2	83,468	91,343	26,509	28,409

*Determined by multiplying charges by hospital-specific cost-to-charge ratio from OSHPD 2003 financial data.

- DRG 507 Full Thickness Burn with Skin Graft or Inhalation Injury without CC or Significant Trauma accounts for 33 % of workers' compensation discharges compared to less than 6% of Medicare discharges while DRG 506 Full Thickness Burn with Skin Graft or Inhalation Injury with CC or Significant Trauma accounts for 14 % and 22 % of workers' compensation and Medicare discharges respectively.
- DRG 511 Non-significant Burns without CC or Significant Trauma account for 28% of workers' compensation burn discharges and 16% of Medicare discharges while DRG 510 Non-extensive Burns with CC or Significant Trauma account for 7% and 33% of workers' compensation and Medicare discharges, respectively.

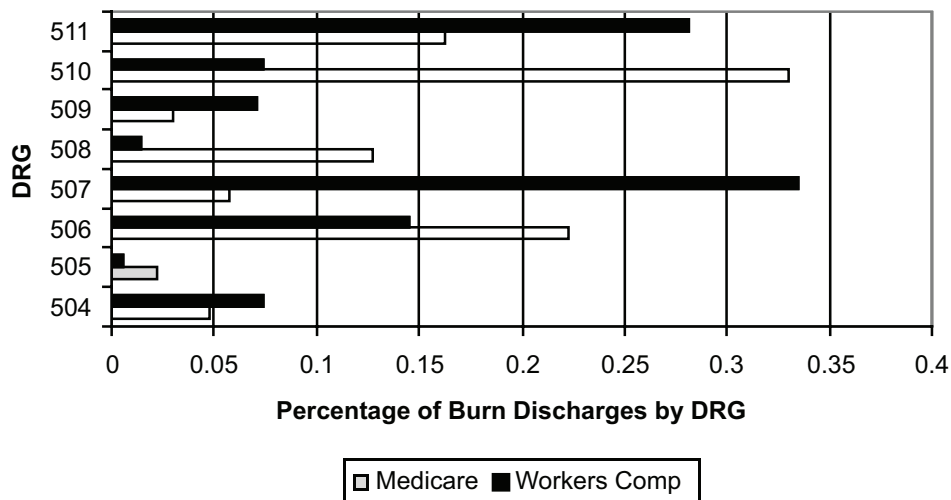


Figure 1—Distribution of Workers Compensation and Medicare Discharges Across Burn DRGs in 2003

As evidenced by its high relative weight, DRG 504 is the most resource intensive DRG. Seven percent of workers' compensation discharges and 5 % of Medicare discharges are assigned to this DRG. Although the mean length of stay for workers' compensation patients is longer than the Medicare length of stay in DRG 504, Medicare patients on average have higher charges and estimated costs.

Figure 2 compares the estimated average cost for workers compensation and Medicare patients by DRG. Medicare patients are more costly than workers' compensation patients in all but two DRGs.

- DRG 505 Extensive 3rd Degree Burns Without Skin Graft is an extremely small volume DRG. There were only two workers' compensation discharges in 2003. There are too few discharges assigned to this DRG to draw any conclusions about the comparative costs.
- DRG 510 Non-Extensive Burns with CC or Significant Trauma is more costly for workers' compensation discharges than for Medicare discharges. The discharges account for 7% of workers' compensation burn discharges and the estimated average cost of \$31,924 is substantial. Despite only a 7 % longer length of stay, the average cost for workers' compensation discharges is 77% higher than for Medicare patients.

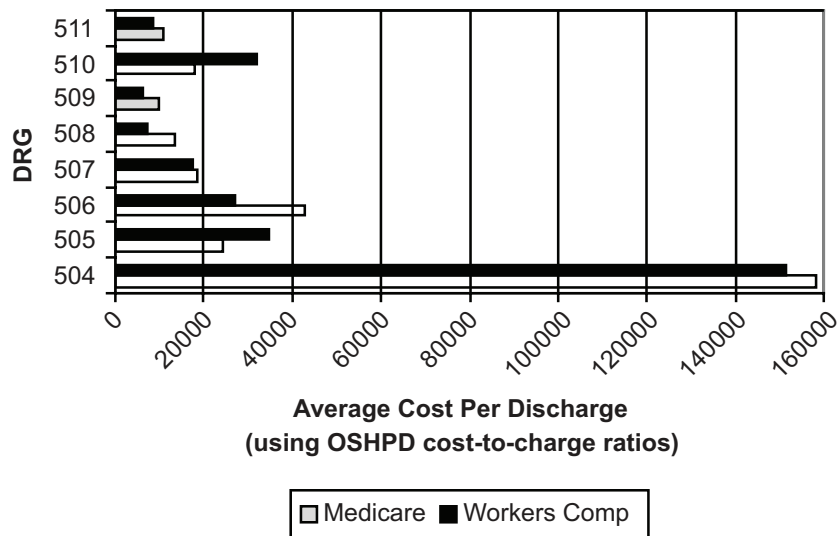
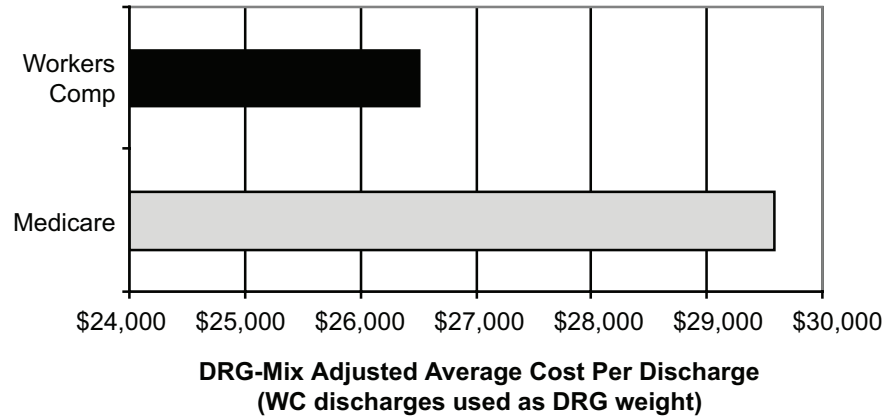


Figure 2—Estimated Average Cost Per Discharge for Workers Compensation and Medicare Burn Patients in 2003 by DRG

An important question is whether workers' compensation discharges on average across all the burn DRGs are more or less costly than Medicare patients after standardizing for differences in the distribution of discharges across the burn DRGs. Figure 3 summarizes the overall cost relationship. The workers' compensation estimated average cost is a discharge-



*Based on OSHPD 2003 cost-to-charge ratio

Figure 3—Comparison of Estimated DRG-Mix Adjusted Average Cost Per Discharge for Workers Compensation and Medicare Burn Discharges in 2003*

weighted average for all workers' compensation discharges. The Medicare estimated cost per case was computed by weighting the estimated average Medicare cost per discharge for each DRG by the number of workers' compensation discharges assigned to the DRG.

Thus, the graph shows the relationship between the estimated average cost for workers' compensation discharges and what the estimated average cost would have been for Medicare patients if the discharge distribution had been the same. The estimated average cost per discharge for workers' compensation discharges was \$26,509. If the Medicare discharges had been similarly distributed across the burn DRGs, the average cost per Medicare discharge would have been \$29,578, or 12% higher. The average length of stay for the worker's compensation discharges was 8.9 days. If the Medicare patients had been similarly distributed across the burn DRGs, their average length of stay would have been 9.7 days.¹² In short, the

¹² We also compared the average estimated cost for workers' compensation with what the Medicare cost would have been assuming the same discharge distribution and Medicare discharges assigned to the more extensive burn DRGs (DRGs 505-509) exclusively since AB 935 (Koretz) would exempt workers' compensation patients assigned to these DRGs but not less to the extensive burn DRGs 510-511. The pattern is similar. Workers' compensation patients had an average cost per discharge of \$33,763 and

data indicate that after controlling for differences in DRG mix Medicare burn discharges on average are more expensive than workers' compensation discharges and have a longer length of stay.

Estimated Payment-to-Cost Ratios

Our payment simulation compared the FY2003 payments with estimated average costs for workers' compensation patients in 2003. The cost estimates are sensitive to the cost-to-charge ratio that is used in the analysis. We show in Table 3 the payment-to-cost ratios using the overall cost-to-charge ratio from the OSHPD data and the ratio from the Medicare PPS FY05 impact file. The aggregate payment-to-cost ratio using the OSHPD overall cost-to-charge ratio is lower (1.09) than the payment-to-cost ratio using the Medicare inpatient cost-to-charge ratio from the Medicare PPS Impact File (1.33). There are two likely factors that contribute to the differences: the time period from which the cost-to-charge ratio is derived and the different service mix used to determine the ratio. This issue is discussed further in Appendix A.

Table 3
Estimated Payment-to-Cost Ratios for 2003 Workers' Compensation Discharges Using Medicare 2003 Payment Rules and Alternative Cost-to-Charge Ratios

DRG	Number of Discharges	Average Total Payment (\$)	Estimated Cost: OSHPD*	Aggregate Payment-to-Cost Ratio: OSHPD	Estimated Cost: PPS CCR** (\$)	Aggregate Payment to Cost Ratio: PPS CCR
504	25	189,557	151,269	1.25	120,570	1.57
505	2	29,616	34,589	0.86	27,913	1.06
506	49	38,498	26,915	1.43	23,156	1.66
507	113	14,645	17,747	0.83	15,080	0.97
508	5	12,111	7,061	1.72	6,506	1.86
509	24	9,310	6,247	1.49	5,128	1.82
510	25	19,868	31,924	0.62	25,084	0.79
511	95	6,598	8,438	0.78	6,920	0.95
All	338	28,837	26,509	1.09	21,742	1.33
504-509	218	39,557	33,763	1.17	27,818	1.42

* Estimate based on 2003 hospital-specific overall cost-to-charge ratio applied to total charges for workers compensation discharge.

** Estimate based on FY05 PPS Impact File hospital-cost-to-charge ratio applied to total charges for workers compensation discharge

average length of stay of 11.4 days. Assuming the same DRG mix, the average Medicare cost per case would have been \$39,023 with an average length of stay of 12.1 days.

While the aggregate payment-to-cost ratio across all DRGs is above 1.0, there is considerable variation among the DRGs:

- The payment-to-cost ratios for the three most resource intensive DRGs (DRGs 504, 506 and 508) are well above 1.0.
- The payment-to-cost ratios for the less resource intensive DRGs are below 1.0. Of particular concern is DRG 507, a high volume DRG with a payment-to-cost ratio of .83 and .97 using the OSHPD and Medicare cost-to-charge ratios, respectively.
- When the DRGs for patients with the least extensive burns (DRGs 510 and 511) are dropped from the simulation, the aggregate payment-to-cost ratios increase.

The aggregate payment-to-cost ratio measures the overall adequacy of the OMFS payments across all burn discharges and for particular DRGs. Another important of within DRG variation. Table 4 breaks out average payments, including outlier payments, by aggregate payment-to-cost ratios using the OSHPD cost-to-charge ratios. The within-DRG differences in the standard payment per discharge are attributable to differences in the composite rates for the hospitals providing the services (as a result of area wage differences and adjustments for teaching and serving low-income patients). The outlier payments for profitable cases (those with a payment-to-cost ratio greater than 1.0) are created by the lag between the cost-to-charge ratio used by CMS to price inpatient bills in 2003 and the actual cost-to-charge ratio for the period. As previously discussed, hospital charges have been rising faster than costs, and use of an outdated cost-to-charge ratio overstates a hospital's costs. For estimating actual costs, we used a cost-to-charge ratio that covers some or all of 2003. The cost-to-charge ratio that CMS used in FY03 to price inpatient bills was based on the hospital's most recently settled cost report and would have come from a much earlier cost report. We used the FY03 cost-to-charge ratio only to estimate costs for purposes of determining outlier payments.¹³

The table raises potential concerns with DRG 504 and DRG 507. Because DRG 504 requires the most resources, the gains or losses on a particular case can be substantial. Five

¹³ While we applied the FY03 payment rules, we note that CMS changed its policy for pricing inpatient claims effective in FY 2004. The cost-to-charge ratio is now taken from the most recently tentatively settled cost report (e.g., before audit) and, as a result, there should be less of a lag between the cost report period used to derive the ratio and the payment year. Relative to the FY03 payments in Table 5, we would expect fewer outlier payments would be paid for profitable cases in FY05 and a higher proportion would be paid for discharges with a payment-to-cost ratio of less than 1.0. In the aggregate, total Medicare outlier payments are estimated to remain the same- about 5 percent of total Medicare payments.

Table 4
Distribution of Workers' Compensation Burn Discharges by DRG and Payment-to-Cost (PTC) Ratios in 2003

DRG	N cases	Average Standard Payment (\$)	Average Outlier Payment (\$)	Average Total Payment (\$)	Estimated Average Cost (\$)	Aggregate Payment-to-Cost Ratio	Average Gain (\$)	N Outlier Cases	Outlier Pay as Total Pay (%)
DRG 504									
PTC < .75	0								
PTC.75 to <1.0	5	174,974	108,384	283,358	327,905	0.86	-44,547	4	38.2
PTC1.0 to<1.25	4	157,822	117,591	275,413	237,909	1.16	37,504	3	42.7
PTC1.25 and >	16	130,930	7,851	138,780	74,410	1.87	64,370	2	5.7
All Discharges	25	144,041	45,516	189,557	151,269	1.25	38,288	9	24.0
DRG 505									
PTC < .75	0								
PTC.75 to <1.0	1	21,149	23,451	44,600	58,950	0.76	-14,350	1	52.6
PTC1.0 to<1.25	0								
PTC1.25 and >	1	14,632	0	14,632	10,227	1.43	4,405	0	0.0
All Discharges	2	17,890	11,726	29,616	34,589	0.86	-4,973	1	39.6
DRG 506									
PTC <.75	2	37,432	17,023	54,454	89,528	0.61	-35,074	1	31.3
PTC.75 to <1.0	9	33,574	5,724	39,298	44,017	0.89	-4,719	3	14.6
PTC1.0 to<1.25	6	39,162	8,861	48,024	42,740	1.12	5,283	1	18.5
PTC1.25 and >	32	35,489	0	35,489	15,225	2.33	20,264	0	0.0
All Discharges	49	35,666	2,831	38,498	26,915	1.43	11,582	5	7.4
DRG 507									
PTC < .75	43	14,083	1,258	15,341	28,843	0.53	-13,502	6	8.2
PTC.75 to <1.0	17	14,739	3,529	18,267	22,201	0.82	-3,933	2	19.3
PTC1.0 to<1.25	8	15,194	0	15,194	13,443	1.13	1,751	0	0.0
PTC1.25 and >	45	12,514	0	12,514	6,227	2.01	6,287	0	0.0
All Discharges	113	13,635	1,009	14,645	17,747	0.83	-3,102	8	6.9
DRG 508									
PTC < .75	1	9,192	0	9,192	13,529	0.68	-4,337	0	0.0
PTC.75 to <1.0	0								
PTC1.0 to<1.25	0								
PTC1.25 and >	4	12,840	0	12,840	5,444	2.36	7,396	0	0.0
All Discharges	5	12,111	0	12,111	7,061	1.72	5,049	0	0.0
DRG 509									
PTC < .75	2	10,297	0	10,297	25,987	0.40	-15,690	0	0.0
PTC.75 to <1.0	2	8,346	0	8,346	9,682	0.86	-1,337	0	0.0
PTC1.0 to<1.25	1	10,653	0	10,653	8,727	1.22	1,926	0	0.0
PTC1.25 and >	19	9,236	0	9,236	3,677	2.51	5,560	0	0.0
All Discharges	24	9,310	0	9,310	6,247	1.49	3,063	0	0.0
DRG 510									
PTC < .75	13	12,654	11,656	24,310	48,396	0.50	-24,085	3	47.9
PTC.75 to <1.0	5	12,768	8,725	21,493	25,656	0.84	-4,163	1	40.6

Table 4 (continued)

DRG	N cases	Average Standard Payment (\$)	Average Outlier Payment (\$)	Average Total Payment (\$)	Estimated Average Cost (\$)	Aggregate Payment-to-Cost Ratio	Average Gain (\$)	N Outlier Cases	Outlier Pay as Total Pay (%)
PTC1.0 to<1.25	0								
PTC1.25 and >	7	10,457	0	10,457	5,810	1.80	4,647	0	0.0
All Discharges	25	12,061	7,806	19,868	31,924	0.62	-12,056	4	39.3
DRG 511									
PTC < .75	23	7,060	4	7,064	24,253	0.29	-17,189	1	0.1
PTC.75 to <1.0	8	6,675	0	6,675	7,604	0.88	-930	0	0.0
PTC1.0 to<1.25	3	7,007	0	7,007	6,069	1.15	937	0	0.0
PTC1.25 and >	61	6,393	0	6,393	2,701	2.37	3,692	0	0.0
All Discharges	95	6,597	1	6,598	8,438	0.78	-1,840	1	0.0
ALL BURN DRGS									
PTC < .75	84	12,346	2,854	15,201	31,807	0.48	-16,606	11	18.8
PTC.75 to <1.0	47	33,674	15,330	49,004	57,032	0.86	-8,029	11	31.3
PTC1.0 to<1.25	22	46,340	23,797	70,137	61,025	1.15	9,112	4	33.9
PTC1.25 and >	185	24,315	679	24,994	12,245	2.04	12,749	2	2.7
All Discharges	338	24,076	4,762	28,837	26,509	1.09	2,328	28	16.5

discharges (20%) assigned to DRG 504 have an average payment-to-cost ratio between .75 and 1.0 with an average loss of -\$44,547. There are also 16 discharges with an average payment-to-cost ratio greater than 1.25 and an average gain of \$64,370. While DRG 507 requires on average far less resources than DRG 504, the U-shaped distribution of the payment-to-cost ratios for the discharges raises some concern. Nearly 40% of discharges have payment-to-cost ratios of less than .75 and a comparable percentage have payment-to-cost ratios of more than 1.25.

The fact that some cases are paid considerably more or less than estimated cost is not necessarily an issue because the DRG system works on the basis of averages. It is expected that some cases will be profitable and others will not, but that on average, payment will be adequate to cover the cost of an efficiently operated hospital and provide a reasonable rate of return. There is a concern, however, if there are systematic differences in the way the relatively inexpensive and more costly burn discharges are distributed across hospitals.

Table 5 provides information on the distribution of workers' compensation burn patients across hospitals. Twenty-six hospitals have only one or two cases and should not be of particular concern. These hospitals do not treat the most resource intensive burn patients (there is no discharge in DRG 504) and their estimated average cost is low relative to hospitals that treat more resource-intensive patients (\$7,958 compared to \$26,509 for all workers'

Table 5
Distribution of Workers Compensation Burn Discharges Across
Hospitals by Payment-to-Cost Ratios and Volume in 2003

Number of Workers' Compensation Discharges Per Hospital	Number of Hospitals	Total Burn Discharges	PTC Ratio	PTC Range	Average Gain (\$)
Less than 5	26	30	1.44	.58-7.78	3,531
5-9	3	19	1.10	.88-1.44	7,283
10-19	4	55	0.98	.77-1.37	-722
20 or more	5	234	1.11	.84-1.29	2,488
All	37	338	1.09	.58-7.78	2,328

compensation burn cases). As shown by the range of payment-to-cost ratios, the hospitals may be substantially over- or underpaid for their burn discharge(s). The over- or underpayment for the burn case should average out with payments for discharges in other DRGs.

The range of payment-to-cost ratios for burn discharges narrows as hospitals have more burn discharges to average out payments and costs. There are 12 hospitals that have five or more workers' compensation burn discharges. Four have payment-to-cost ratios of less than 1.0, four have ratios between 1.0 and 1.20 and four have ratios exceeding 1.20. Four of the six hospitals with 5-20 discharges have net gains on their workers' compensation burn discharges. With regard to the two hospitals with net losses:

- One safety net hospital with only six burn discharges incurred substantial losses on two patients assigned to DRG 504 (\$128,000) that led to the payment-to-cost ratio of .88.
- Another safety net hospital with 12 discharges had an overall payment-to-cost ratio of .77. A closer examination of the hospital's data indicated that its losses were for discharges assigned to DRG 511, the least resource intensive DRG. The hospital had a net gain on the remainder of its workers' compensation discharges.

Only five hospitals have more than 20 workers' compensation burn discharges. It is this latter group of hospitals that would be most harmed if payments for workers' compensation burn discharges are inadequate. They have 234 discharges, of which 130 are accounted for by a single hospital. One safety net hospital had a payment-to-cost ratio of .84, or an average loss

of \$4,716 per discharge. The losses occurred in both extensive and non-extensive burn cases. The other four hospitals had net gains on their workers' compensation burn cases.

DISCUSSION OF FINDINGS AND POLICY OPTIONS

The comparison of Medicare and workers' compensation discharges shows that on average injured workers are less costly than Medicare patients and have a shorter length of stay. The DRG-mix adjusted Medicare cost per discharge is about 12% higher than the cost per discharge for workers' compensation patient and the average length of stay is 7% longer. The comparison suggests that the 1.20 multiplier to the Medicare payment rate should be sufficient to assure that OMFS payments on average for burn cases are substantially more than the cost of providing care. This does not mean that the payment for every workers' compensation discharge will be higher than the costs for that patient. The DRG system is built on a system of averages, where some discharges are more costly than others, and the goal is to assure that on average the payment is adequate. Further, the outlier policy is designed to protect hospitals from large financial losses on extraordinarily high cost cases. However, as discussed below, there are potential concerns with DRG 504 and DRG 507 that might warrant special consideration.

The results of the payment simulation are sensitive to the cost-to-charge ratio that is used to estimate costs. Among the readily available choices of cost-to-charge ratios, we examined two measures derived from the financial period that includes at least the earlier part of 2003. The results suggest that if 1.20 times the Medicare rates had been used to pay for burn discharges in 2003, total OMFS payments would have exceeded estimated costs. The aggregate payment-to-cost ratio would have been 1.09 using the OSHPD overall cost-to-charge ratio and 1.33 using the Medicare inpatient cost-to-charge ratio. While neither statistic is definitive given the limitations of the methodology, they lend further support to a conclusion that in general the DRG-based payments seem to be working for the OMFS.

Several findings emerging from the analysis warrant consideration in evaluating potential policy options to assure there are no large financial losses on burn cases.

- DRG 504 is of particular concern because it requires intensive specialized care at substantial cost. The estimated average cost for DRG 504 discharges is \$151,269, nearly 4.5 times DRG 505, the next costliest DRG. The DRG-based payment may be considerably higher or lower than the cost for the particular case and the hospital

may not have sufficient volume to average out large gains or losses on a particular case.

- DRG 507 is of less concern than DRG 504 because it is less costly (\$17,747) and there are more discharges assigned to this DRG. Nevertheless, the significant portion of discharges that have either low or high payment-to-cost ratios is noteworthy and across all discharges assigned to this DRG there is a net loss of \$3,102. Moreover, all 12 hospitals with more than 5 burn discharges had net losses on the discharges assigned to this DRG.
- DRGs 506 – 509 do not appear to require substantially more resources than DRGs 510–511. The data do not support having different policies across these DRGs. In fact, it appears that DRGs 510–511 may be more problematic than some of the DRGs proposed for exclusion.

The data do not support an across-the-board exemption for DRGs 504 – 509. Below we discuss alternatives to exemption. Options 1 and 2 are mutually exclusive. Options 3 and 4 narrow eligibility for special treatment and could be considered with either of the first two options or an exemption policy.

Option 1: Create a Pass-Through Formula

The pass-through for hardware and instrumentation for spinal surgery is suggested as a precedent for exempting DRGs 504-509. However, there is an important distinction between a *pass-through* based on the costs of the hardware and an *exemption* that would rely on negotiated amounts between the hospital and the payor. The starting point for such an exemption is the hospital's charges, which were more than three times cost in 2003 according to the OSHPD financial data. The discrepancy is likely to be even greater in 2005 since hospital charges have been rising more rapidly than cost. An outright exemption is likely to add unnecessary administrative costs because of the need for case-by-case negotiations and to unreasonably high payments because of the role of charges determining the negotiated price.

One alternative would be to use the Medicare cost-to-charge ratio used to price outlier payments to estimate costs for the discharge and to set payment at a multiple of that amount, e.g., 1.20. Assuming that a hospital's cost-to-charge ratio in the FY05 Medicare PPS Impact File was .30, the payment for a burn patient with \$200,000 in total charges would be:

$$(\$200,000 \times .30) \times 1.20 = \$72,000$$

A 1.20 multiplier would be consistent with current OMFS multiplier to the Medicare fee schedule and would result in payments that approximate the payment-to-cost ratio for private payers.¹⁴ The actual payment-to-cost ratio is likely to be higher because of the lag between the cost report year used to derive the cost-to-charge ratio and the payment year. Relative to relaxing the outlier payment methodology (see Option 2), this option is likely to improve payment accuracy for individual burn discharges. It would reduce payments for relatively low cost discharges and increase payment for relatively high cost discharges. However, by eliminating the DRG payment for burn discharges, it would reduce incentives to provide services efficiently.

While all hospitals are likely to benefit from an exemption, the data suggest that most hospitals, including safety net hospitals, are operating with a net gain on workers' compensation burn discharges and might receive less payment under a pass-through policy than under current OMFS rules. A variant of Option 1 would be to allow hospitals to elect prior to the beginning of the payment year whether they would be paid under Option 1 or the OMFS.

Option 2: Reduce the outlier threshold for burn cases.

The outlier payment formula for burn cases is already more generous than for other cases (90 percent of costs above the outlier threshold instead of 80 percent). The outlier threshold is a hospital-specific amount (ranging from about \$35,000 to \$45,000) that hospitals must absorb before payments are made for unusually high cost cases. Reducing the threshold to a lower amount (e.g., \$10,000) would further reduce a hospital's financial loss on atypically high cost cases and could make a substantial difference in the payment-to-cost ratios for DRG 507. While estimated costs are higher than the standard payment for many DRG 507 discharges, they are not sufficiently high to exceed the outlier threshold and qualify for additional payments. The option is intended to reduce the amount of losses a hospital incurs on particular cases. Relative to Option 1, this option retains the PPS incentives for efficiency. It would pay a higher amount for relatively high cost cases that are generating losses but hospitals would continue to incur some loss on these cases (the amount of the outlier

¹⁴ According to the Medicare Payment Advisory Commission, the private payer payment-to-cost ratio for hospital services was about 1.2 in 2003. MedPAC, *Report to the Congress: Medicare Payment Policy*, March 2005.

threshold plus 10% of the remaining excess costs). It would continue to make the same payments for other cases.

If Option 2 were adopted, consideration should be given to extending it to DRGs 510 and 511, which have relatively low aggregate payment-to-cost ratios. As is the case with the other relatively inexpensive burn DRGs, there are discharges in DRGs 510–511 with losses that do not qualify for outlier payments because of the high outlier threshold relative to costs.

Option 3: Limit special treatment to hospitals with burn intensive care units.

Instead of providing special treatment under the OMFS on a DRG basis, only hospitals that have burn centers or burn intensive care units would qualify for special treatment under this option. The option would assure that injured workers have access to these specialized units, which are the only hospitals likely to treat discharges in DRG 504–505. This option would rely on the PPS averaging concept for hospitals with only a few relatively inexpensive burn discharges.

Option 4: Limit special treatment to DRGs 504–507

DRGs 508–509 Full Thickness Burns Without Skin Graft are about as resource-intensive as non-extensive burns (DRGs 510 and 511). The pattern of payment-to-cost ratio do not suggest a need for these DRGs to be exempted or paid as a pass-through. While DRG 507 is also relatively inexpensive, the pattern-of-cost to charge ratios suggests special treatment might be warranted for discharges assigned to this DRG.

APPENDIX A

DATA SOURCES AND METHODOLOGY

We used OSHPD and Medicare data to do the analyses reported in this working paper. The specific data sources were:

OSHPD Claims Data. We used OSHPD inpatient administrative data for discharges occurring in 2003. The OSHPD data elements for each discharge include OSHPD provider number, expected payer, FY 2003 DRG assignment, total charges, and length of stay. We retained the discharges for which either workers' compensation and Medicare was the expected payer and the discharge was assigned to Major Diagnostic Category 24: Burns. We eliminated discharges for workers' compensation patients for which no charges were reported. Most of those discharges were for stays in facilities owned by Kaiser Permanente that are not required to report charges. With no charge data, one cannot compare the resources required to treat workers' compensation discharges relative to Medicare discharges nor estimate the cost of the stay.

OSHPD Financial Data. We used the Annual Hospital Financial Data, the financial reports that California hospitals are required to file annually using a uniform accounting and reporting system. These financial reports include a detailed income statement, balance sheet, statements of revenue and expense, and supporting schedules and undergo a desk audit. The 2003 financial reports are for fiscal years ending in 2003 and are available at www.oshpd.ca.gov/HQAD/Hospital/financial/hospAF.htm. The majority of burn discharges are from hospitals with fiscal years ending June 30, 2003.

PPS Impact File. The Medicare PPS Impact File is a public use file that contains the hospital-specific payment parameters to pay acute care hospitals under the prospective payment system (PPS) for inpatient hospital services, including the wage index, additional adjustment factors for teaching and serving low-income patients, and cost-to-charge ratios for determining outlier payments.

We used the PPS impact file for FY03 to derive the hospital-specific composite rate, outlier threshold and cost-to-charge ratio (CCR) for each hospital with discharges in the burn

DRGs. To develop the composite rate, we adjusted the standard rates for operating and capital costs for the area wage index applicable to the geographic location of the hospital and any adjustments for teaching activities and serving low-income patients. We applied the same adjustments to the standard outlier threshold to determine a hospital-specific outlier threshold. We used these factors to simulate payments for the 2003 workers' compensation discharges in the burn DRGs.

We simulated payments under the OMFS using the following formulae.

Standard payment = composite rate X DRG relative weight X 1.20.

Outlier payment = (charges X FY03 CCR - (standard payment + outlier threshold)) X .90

The purpose of the simulation was to compare payments to estimated costs. A methodological issue was what cost-to-charge ratio to use to estimate costs. Ideally, we would estimate costs for a particular case by applying departmental cost-to-charge ratios to line item charges on the bill. This would allow us to take into account differential markups for the services provided during each inpatient stay. However, since we had only total charges available, we needed to use an overall cost-to-charge ratio. Three cost-to-charge ratios were available for this purpose:

Medicare PPS Impact File FY03 CCR. Under the policies in effect in FY03, the CCR on the impact file was based on the most recently *final* settled cost report. The cost reporting period from which the CCR is derived is not provided on the impact file; however, the cost report needed to have been final settled by July 2002 and most likely covered a period ending in 2000 or earlier. Because hospital charges have been rising more rapidly than costs, using an old CCR will tend to overstate costs. We decided not to use the FY03 CCR to estimate actual costs although, consistent with Medicare payment rules, we used the FY03 CCR to estimate 2003 outlier payments.

Medicare PPS Impact File FY05. In response to abuses in outlier payments attributable to rapid charge increases, Medicare revised its outlier policies effective in FY04 to require that the CCR used to determine outlier payments be based on the most recently *tentatively* settled (before audit) cost report. Thus, the lag between the time period used to derive the CCR and the fiscal year it is used to determine outlier payments has been reduced. The FY05 CCR are the most recent available CCR and reflect the CCR from a hospital's most recent tentatively settled cost report as of July 2004. Assuming tentative settlement occurs at about eight months after the

close of the cost reporting period, it is likely that the CCR on the FY05 impact file was derived from a cost reporting period ending in 2003 for the majority of hospitals with burn discharges (because most discharges are from hospitals with fiscal years ending June 30). Thus, the CCR on the FY05 impact file is likely to have covered some of 2003 with the exception of hospitals with reporting periods ending December 31. The CCR for these hospitals is more likely to be based on their cost reporting period ending December 31, 2002.

The CCR is derived from a comparison of charges and accounting costs for Medicare inpatient services. It has two advantages that suggest it may be the stronger candidate than the OSHPD ratio to use in estimating the costs of workers' compensation burn cases. Namely, it is derived from inpatient services only and is already used under the OMFS to compute outlier payments. The disadvantages are that we do not know the specific time period covered by the CCR for each hospital and we do not know whether an overall CCR for Medicare patients is representative of a CCR for the workers' compensation burn discharges.

OSHPD Financial Reports for 2003. The OSHPD CCRs are derived from a fiscal period that covers at least the some of 2003. There are two advantages of using this CCR: it takes into consideration non-Medicare as well as Medicare services and is derived from a consistent time period for all hospitals. The disadvantage is that the CCR is based on both inpatient and outpatient services and, as was the case with the Medicare CCR, we do not know how representative it is of the CCR for workers' compensation burn discharges.

We calculated an overall cost-to-charge ratio from the OSHPD data using the formula $(\text{total operating expenses} - \text{other operating revenue}) / \text{gross patient revenue}$. This definition is provided by the OSHPD Glossary of Healthcare Reporting Terms. We merged the 2003 ratios with OSHPD's 2003 Public Patient Discharge Data using the OSHPD facility ID number that is included with each discharge. In doing this merge, some discharges were dropped because no matching facility was found in the financial data or there was otherwise missing data for deriving a cost-to-charge ratio. For each of the remaining discharges, we applied the cost-to-charge ratio to the total charges in the administrative data to estimate the total cost. We aggregated the costs to determine the average cost per discharge for Medicare and for workers compensation patients by DRG.

We compare the cost-to-charge ratios, the average estimated cost per discharge and estimated average payment-to-cost ratio resulting from the three alternative data sources in Table A.1.

Table A1
Comparison of Findings Using Alternative Cost-to-Charge Ratios

	Cost-to- Charge Ratio	Estimated Cost Per Discharge (\$)	Estimated Payment-to-Cost Ratio
FY03 PPS Impact File	0.412	33,754	0.854
OSHPD 2003 Data	0.319	26,509	1.088
FY05 PPS Impact File	0.275	21,742	1.326

*Based on an average payment per discharge of \$28,837

Not surprisingly, the FY03 PPS impact file has a considerably higher cost-to-charge ratio than either the OSHPD 2003 data or the PPS Impact file. For purposes of this report, we have chosen to report the results using the OSHPD 2003 data, which produces a more conservative estimate of the payment-to-cost ratio than the CCR from the FY05 PPS Impact File.

The limitations of the overall cost-to-charge ratio are less problematic for the comparisons between Medicare patients and injured workers, because the same ratios are being applied to both populations and the issue is comparative costs. They do, however, limit the accuracy of the payment-to-cost estimates. These estimates could be made more accurate using a more refined cost-to-charge ratio derived from departmental cost-to-charge ratios applied to billed charges by revenue center. However, we have only total charges, and not billed charges, available to us for this study.