

WORKING P A P E R

Evaluation of Alternative Methods to Establish DRG Relative Weights

BARBARA O. WYNN
MOLLY SCOTT

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PREFACE

The Centers for Medicare and Medicaid Services (CMS), the federal agency responsible for administering the Medicare program, asked the RAND Corporation to evaluate refinements in the way the prospective payment system for acute-care inpatient hospital services (IPPS) accounts for the cost of treating different types of patients. This working paper examines alternative methodologies that might be used to develop the relative weight, a measure of the average cost of caring for discharges in a specific diagnosis-related group (DRG) relative to the average costs for all Medicare discharges. The relative weight is used in the IPPS payment formula.

Our analyses address the following questions:

- How do the relative weights differ across the alternative methodologies?
- How well does each relative weight methodology explain variation in costs?
- How accurate are payments using the each relative weight methodology and current facility-level adjustments?
- What are the payment implications of alternatives to the current methodology for establishing relative weights?

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SUMMARY

Under the Medicare prospective payment system for acute care hospital services (IPPS), each inpatient discharge is assigned to a diagnosis-related group (DRG) that includes patients expected to have similar resource use and clinical patterns of care. Medicare's payment for the stay is based on a standard payment rate adjusted for the DRG relative weight and facility-level characteristics. The relative weight represents the average cost of caring for discharges in a specific DRG relative to the average cost for all Medicare discharges.

This working paper evaluates six different methods to establish the relative weights used in the Medicare IPPS. The questions that we examine are:

- How do the relative weights differ across the alternative methodologies?
- How well does each relative weight methodology explain variation in costs?
- How accurate are payments using each relative weight methodology and current facility-level adjustments?
- What are the payment impacts of alternatives to the current methodology for establishing relative weights?

Our baseline for comparison is RELWGT1, the cost-based relative weight methodology that CMS recently adopted. Under this method, the cost for each Medicare discharge is estimated by applying national cost-to-charge ratios (CCRs) for 15 cost center groupings to corresponding charges on the Medicare record for each inpatient stay. The estimated cost is then standardized for systematic differences in cost across hospitals. To standardize, estimated discharge-level costs are divided by a factor that reflects the operating and capital IPPS payment adjustments for geographic differences in hospital wage levels and cost of living, teaching activities, and serving a disproportionate share of low-income patients. The relative weight is the ratio of the average standardized cost for discharges assigned to a given DRG to the average standardized cost for all Medicare discharges.

Each alternative relative weight methodology also uses cost-based relative weights, but the method for estimating cost is different. The alternative methods use either:

- national CCRs for 19 cost center groupings, or
- hospital-specific CCRs for 15 cost center groupings.

The expansion to 19 cost center groupings is intended to reduce bias in the relative weights introduced by combining services with different CCRs into a single cost center for purposes of estimating cost. The hospital-specific CCRs are intended to account for differences in overall charging practices across hospitals.

We examine two alternative standardization methods to account for systematic cost differences across hospitals. The current "hospital payment factor" (HPF) method does not account for any sources of cost variation except those captured by the payment adjustment factors described earlier. The alternative methods eliminate all cost variation across hospitals not accounted for by case mix differences:

- The hospital-specific relative value (HSRV) method standardizes the cost for a given discharge by the hospital's own costliness rather than by the effect of the systematic cost differences across groups of hospitals. The cost for each discharge from a given hospital is divided by the average cost per discharge for that hospital. The resulting ratio is then standardized for differences in case mix. The national relative weight for a given DRG equals the average case-mix standardized relative weight for the discharges assigned to the DRG.
- The HSRVcc method removes hospital-level cost variation by calculating hospital-specific charge-based relative values for each DRG at the cost center level and standardizing them for differences in case mix. A national average charge-based relative weight is calculated for each cost center. It is converted to cost using a national CCR and adjusted to reflect the proportion of total costs accounted for by that cost center. The national relative weight for each DRG is based on the sum of the adjusted average cost center relative weights for discharges assigned to that DRG.

We combined the alternative methods of estimating cost and standardizing for systematic cost differences among hospitals to produce five sets of alternative relative weights (see Table ES-1 for a summary of the relative weight methods).

The analyses in this working paper rely on quantitative methods to evaluate the five relative weight methodologies. We conducted two different types of analyses at both the discharge-level and the hospital-level. One type compares each of the five alternative sets of relative weights to the relative weights constructed using the CMS current relative weight method (RELWGT1). To assess the payment implications, we compared average payment using each relative weight alternative to average payment across hospital groupings using fully phased-in MS-DRG cost weights. These analyses imply no explicit judgments that one set of relative weights is "better" than another; they simply report how the weights or payments would differ under alternative methods.

The other type of analyses examines the relative payment accuracy of alternative relative weight methods. We needed a measure of cost for the comparisons in these analyses. For this purpose, we used the cost for each discharge determined using 15 hospital-specific CCRs. Although we believe that our choice of this cost measure is appropriate, it may affect the results and conclusions of our analyses. For example, the relative weight methods that use hospital-specific CCRs may be assessed more favorably than would have been the case had we used a different cost measure. Similarly, the use of 15 rather than 19 cost center CCRs may favor the relative weight methods that do not account for charge compression.

The cost analyses include regression analyses to a) compare the performance of the relative weight methodologies in explaining variation in costs and b) assess how well payments using each relative weight methodology and current facility-level adjustments match the costs of the discharge. We also examined payment-to-cost ratios across hospital groupings and classes of MS-DRGs.

HOW DO THE RELATIVE WEIGHTS DIFFER ACROSS THE ALTERNATIVE METHODOLOGIES?

Table ES.1
Summary of Differences in Relative Weight Methods

Method	Methodology Used to		Key Differences in Weights
	Estimate Cost	Standardize	
RELWGT1	Nat. CCRs; 15 cost centers	HPF	Baseline
RELWGT2	Nat. CCRs; 19 cost centers	HPF	Increases values for a limited set of DRGs, primarily higher weighted DRGs in MDC 5 and 8, that account for 30% of discharges Average relative weight for surgical DRGs is higher than under other methods Nearly 50% of discharges have at least a 2.5% change in relative weight
RELWGT3	HSP CCRs; 15 cost centers	HPF	Increases values of lower weighted DRGs Involves the least change: 31.5% of discharges have at least a 2.5% change in relative weight
RELWGT4	Nat. CCRs; 15 cost centers	HSRVcc	Increases values of lower weighted DRGs 43% of discharges have at least a 2.5% change in relative weight
RELWGT5	Nat. CCRs; 19 cost centers	HSRVcc	No clear pattern of changes across cost deciles Tends to moderate change resulting from combining 19 national CCRs with HPF Nearly 50% of discharges have at least a 2.5% change in relative weight and 3.3 percent change at least 10 percent
RELWGT6	HSP CCRs; 15 cost centers	HSRV	HSRV tends to amplify change resulting from combining HSP CCRs with HPF (RELWGT3) Average relative weight for medical DRGs is higher than under other methods Involves the most change: 52.9% of discharges have at least a 2.5% change in relative weight

Table ES-1 provides a synopsis of each relative weight method and how each alternative differs from RELWGT1. Key findings are:

- All relative weight alternatives result in significant changes in the relative weights assigned to a substantial percentage of discharges. The methods that change both the way costs are estimated and how they are standardized produce the most change (RELWGT5 and RELWGT6). The method that uses hospital-specific CCRs to estimate cost while retaining the HPF standardization method has the least change.
- Accounting for differential markups for services within the same cost center by using 19 national CCRs concentrates the increases in 30 percent of discharges primarily in higher weighted cardiac and orthopedic surgical DRGs. As a result, the average relative weight for surgical cases is higher under RELWGT2 than the other methods.
- The weights for lower weighted medical DRGs tend to increase using hospital-specific CCRs. The HSRV method also tends to increase the weights for lower weighted DRGs, so that RELWGT6, which combines hospital-specific CCRs with HSRV, results in higher average relative weights for medical cases than the other methods. There is not a clear pattern in the changes under the HSRVcc methods.

HOW WELL DOES EACH RELATIVE WEIGHT METHODOLOGY EXPLAIN VARIATION IN COSTS?

We used regression analysis to assess how well each relative weight methodology explained variation in cost and to investigate whether there is weight compression at the discharge-level and/or CMI compression at the hospital-level. Ideally, the relative weight should increase in proportion to cost after controlling for systematic cost differences that are accounted for in the payment system. The weights are compressed if cost increases more rapidly than the relative weights. When this occurs, discharges with high relative weights are undervalued and discharges with low relative weights are overvalued. Similarly, if the CMI is compressed, hospitals that tend to serve more costly patients are underpaid relative to those caring for less expensive patients.

We performed a set of regressions that examined whether payment under each relative weight system is proportionate to cost. Key findings are:

- The differences in the ability of the different relative weight methods to explain variation in either discharge-level or hospital-level costs are minimal.
- After controlling for the hospital payment factors, both the relative weight in the discharge-level regression and the CMI in the hospital-level regression are compressed.
- The hospital payment factors increase more rapidly than cost. For every 10 percent increase in the hospital payment factors, cost increases about 5.6 percent under RELWGT1 in the discharge level regression. The relationship is similar for the other methods and in the hospital-level regressions examining CMI compression.
- When the relative weights are combined with the payment factors and total payment compared to cost, the payment factors more than offset the weight/CMI compression so that total payment also increases more rapidly than cost at both the discharge-level and the hospital-level. Under RELWGT1, cost increases 9.3 percent for every 10 percent increase in payment. Under the other methods, cost increases from 9.2 percent (RELWGT2) to 9.5 percent (RELWGT6) for every 10 percent increase in payment.

HOW ACCURATE ARE PAYMENTS USING EACH RELATIVE WEIGHT METHODOLOGY AND CURRENT FACILITY-LEVEL ADJUSTMENTS?

The regressions discussed above are one way to measure payment accuracy. We also examined payment-to-cost (PTC) ratios to examine DRG relative profitability. Key findings are:

- Under RELWGT1, 71.4 percent of discharges are assigned to DRGs with a PTC ratio between .95 and 1.05. RELWGT3 and RELWGT6 increase the percentage of discharges with these ratios. RELWGT2 and RELWGT5 have the lowest percentage of discharges assigned to DRGs with these ratios.

- RELWGT1 has 1.7 percent of discharges assigned to highly profitable DRGs with PTC ratios > 1.1 . These tend to be low volume, resource-intensive cases that are predominately treated at large teaching hospitals. RELWGT2 has 2.2 percent compared to 0.9 percent under RELWGT3. The HSRVcc methods (RELWGT 4 and RELWGT5) have about twice as many discharges assigned to high PTC ratio DRGs.
- RELWGT 1 has 0.5 percent of discharges assigned to highly unprofitable DRGs with PTC ratios $< .90$. RELWGT2 and RELWGT5 have substantially more discharges assigned to DRGs with these ratios (4.5 percent and 1.6 percent respectively). RELWGT3 and RELWGT6 have no DRGs with PTC ratios $< .90$.

Hospital-level PTC ratios can be used to measure payment equity across groups of hospitals. Under RELWGT1, the PTC ratios by geographic location are similar. Large urban hospitals have a PTC ratio of 1.0; other urban hospitals have a slightly lower than average PTC ratio (0.99) and rural hospitals having a slightly higher than average PTC ratio (1.01). In general, there are not substantial differences in the PTC ratios across the alternative relative weight methods for a given group of hospitals. The greatest variation occurs for rural hospitals, where the change under RELWGT2 is -0.6 percent compared to a 1.1 percent increase under RELWGT6. This is consistent with the increases in higher weighted surgical DRGs under RELWGT2 and increases in lower weighted medical DRGs under RELWGT6.

Without regard to the relative weight method, the PTC ratios vary considerably across classes of hospitals and reflect the impact of the IME and DSH payment adjustments. While the average PTC for urban hospitals is about 1.0, the average PTC for hospitals receiving both DSH and IME payments is 1.05 compared to 0.88 for urban hospitals that receive no IME or DSH payments. While the average PTC under RELWGT1 was 1.01 for rural hospitals, it is 0.90 for hospitals that receive no DSH, 0.98 for SCH hospitals receiving DSH (before consideration of the special payment policies), and 1.04 for rural referral centers receiving DSH payments.

WHAT ARE THE PAYMENT IMPACTS OF ALTERNATIVES TO THE CURRENT METHODOLOGY FOR ESTABLISHING RELATIVE WEIGHTS?

While there are relatively modest changes in average payment across hospital classes, there are significant redistributions that occur within hospital groupings. Under RELWGT2 (19 nat. CCRs; HPF), 50 percent of hospitals lose at least \$100 per discharge while 10 percent of hospitals gain at least \$377. Less redistribution occurs with RELWGT3 (HSP CCRs; HPF) than the other alternatives. Ten percent of hospitals have substantially higher losses under the HSRVcc and HSRV methods than under other alternatives to RELWGT1.

DISCUSSION

There are substantial differences in the weights for particular DRGs across the alternative methods and large redistributions across hospitals. However, none of the alternative weight methodologies represent a marked improvement over the current system. Our regression results show little difference across the methods in their ability to predict cost at either the discharge-level or the hospital level. Given these results, we believe it may be premature to consider further refinements in the relative weight methodology until data from FY08 or later can be evaluated that reflect coding improvement and other behavioral changes that are likely to occur as hospitals respond to the incentives of the MS-DRGs.

In the future, we believe that RELWGT3 warrants consideration as an improvement over RELWGT1. Although the method does not account for charge compression within cost centers, it does account for systematic differences across hospitals in overall charging practices that affect payment accuracy. Using the national CCRs, lower weighted DRGs that are provided in smaller non-teaching hospitals are undervalued relative to higher weighted DRGs that are disproportionately provided in larger urban teaching hospitals. Using PTC ratios as a measure of payment equity, RELWGT3 increases the percentage of discharges that are assigned to DRGs with average PTC ratios between 0.90 and 1.05 and reduces the percentage of discharges assigned to highly profitable or unprofitable DRGs. A second issue for future consideration is revision of the current HPF standardization method, which we found has larger

implications for DRG relative profitability and payment-to-cost ratios than the choice of relative weight methodology. Our results do not indicate that the HSRV or HSRVcc standardization methods are clearly preferable to the HPF method. However, our results reveal some significant limitations of the current HPF method. Traditionally, the Medicare program has viewed the IME and DSH payment adjustments as compensating hospitals for higher costs of care attributable to teaching activities and serving low-income patients. Consistent with this viewpoint, the payment factors should increase proportionately with cost. Instead, we found that the current factors increase more rapidly than cost and reduce payment accuracy.

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ACRONYMS AND ABBREVIATIONS

Symbol	Definition
3M/HIS	3M/Health Information Systems
CC	complication or comorbidity
CCR	cost-to-charge ratio
CMI	case mix index
CMS	Centers for Medicare & Medicaid Services
DRG	diagnosis-related group
DSH	disproportionate share hospital
FY	fiscal year
HCFA	Health Care Financing Administration
HCRIS	Healthcare Cost Reporting Information System
HPF	hospital payment factor
HSP	hospital-specific
HSRV	hospital-specific relative value
HSRVcc	hospital-specific relative value (cost center)
IME	indirect medical education
MCC	major complication or co-morbidity
MDC	major diagnostic category
MedPAC	Medicare Payment Advisory Commission
MedPAR	Medicare Payment and Review
O.R.	operating room
IPPS	inpatient prospective payment system
SAF	Standard Analytic File

1. INTRODUCTION

1.1 PURPOSE OF THIS STUDY

Under the Medicare prospective payment system for acute care hospital services (IPPS), each inpatient discharge is assigned to a diagnosis-related group (DRG) that includes patients expected to have similar resource use and clinical patterns of care. Medicare's payment for the stay is based on a standard payment rate adjusted by the relative weight of the DRG and for facility-level characteristics. The relative weight represents the average cost of caring for discharges in a specific DRG relative to the average cost for all Medicare discharges.

Over the past several years, the Centers for Medicare & Medicaid Services (CMS), the federal agency responsible for administering the Medicare program, has made significant refinements to the way the IPPS accounts for patient differences in resource usage. These refinements include adoption of:

- Medicare-severity DRGs (MS-DRGs) to reduce the amount of cost variation within the case mix groupings
- cost-based relative weights to improve the measurement of the average cost of discharges in a given DRG relative to all Medicare discharges.

To support the agency's assessment of additional refinements that might be made to the system, this working paper summarizes RAND's evaluation of alternative methodologies that might be used to establish the relative weights. Specifically, the report examines the following questions using the MS-DRGs as the patient classification system:

- How do the relative weights differ across the alternative methodologies?
- How well does each relative weight methodology explain variation in costs?
- How accurate are payments using the each relative weight methodology and current facility-level adjustments?
- What are the payment impacts of alternatives to the current methodology for establishing relative weights?

1.2 OVERVIEW OF MEDICARE'S PROSPECTIVE PAYMENT SYSTEM

The Social Security Amendments of 1983 (P.L. 98-21) established a per-discharge prospective payment to encourage acute care hospitals to provide services to Medicare beneficiaries more efficiently. Previously, payment was based on the reasonable costs of providing inpatient services to Medicare patients. Under IPPS, each inpatient discharge is assigned to a DRG that includes patients expected to have similar resource use and clinical patterns of care. The Medicare payment is based on a standard payment rate adjusted for the relative weight of the DRG and facility-level characteristics. The relative weight represents the average cost of caring for discharges in a specific DRG relative to the average cost for all Medicare discharges. Facility-level geographic adjustments take into account hospital wage levels for the geographic area and, for hospitals in Alaska and Hawaii, the cost of living. Additional adjustments are made for indirect medical education (IME) costs and for serving a disproportionate share of low-income patients (DSH). Separate payment rates apply to operating and capital costs, and hospital-specific rates affect payments for sole community and Medicare dependent hospitals. Special payment policies apply to transfer cases and to extraordinarily high-cost cases.

DRGs are intended to distinguish discharges that are clinically similar and require comparable resources. Resource use is defined as relative volume and types of diagnostic, therapeutic, and nursing services required for treatment of a given illness or injury and is measured by the estimated cost for the discharge. The estimated cost is standardized for systematic cost differences across hospitals in determining the average DRG-level cost used to calculate the relative weight.

The Medicare law requires that the DRGs be updated annually. During the federal fiscal year 2007 (FY07) rulemaking process, CMS proposed two substantial changes affecting the DRG classification system and relative weights. The proposals were based on recommendations made by the Medicare Payment Advisory Commission (MedPAC) to improve the accuracy of

the payment system. The first proposal called for adoption of a severity-adjusted DRG system to reduce cost variance within DRGs in FY08. Responding to public comment in the FY07 final rule, CMS developed the Medicare Severity (MS)-DRG system and adopted this system in the FY08 final rule. The MS-DRGs are being phased-in over a two-year period.¹

The FY07 proposed rule also called for changing the method used to calculate the DRG relative weights, which were based on average charges for Medicare discharges assigned to a given DRG relative to the average charges for all Medicare discharges. The final rule provided for a three-year transition from charge-based to cost-based relative weights and indicated that the method of establishing relative weights would be further evaluated. In this regard, CMS has funded three studies by independent contractors to examine refinements in the relative weight methodology. The first study by RTI International (Dalton, 2007) examined methods of refining the cost-to-charge ratios used to convert billed charges to cost. The RTI study focused on potential bias in the relative weights created by "charge compression" for hospital inpatient services.² A follow-on study extends the examination of distortions created by charging practices to hospital outpatient services. This working paper reports the results of a third study to examine alternative ways to establish the relative weights.

1.3 STUDY APPROACH

In this working paper, we compare alternative methodologies for establishing the relative weights using the MS-DRG classification system that CMS adopted in the FY08 IPPS final rule. We use the cost-based relative weight methodology that CMS adopted in the FY07 final rule

¹ For further explanation of the MS-DRGs and alternative severity-adjusted systems, see HHS (2007) and Wynn and Scott (2007).

² Charge compression is created by hospital charging practices that mark-up lower-priced items more than higher priced. When this occurs, the costs of higher priced is understated relative to lower priced services in the same cost center. Aggregation of services with different CCRs into a single CCR has the potential to over- or understate the costs of specific DRGs and bias the relative weights (Dalton, 2007).

(which we call RELWGT 1 in this paper) as the baseline for our analyses. We compare a fully phased-in RELWGT1 to alternatives that use different methods to 1) estimate costs for each discharge and/or 2) standardize for facility-level cost differences. Below, we provide an overview of our data and methods.

The IPPS annual update process uses information from the Medicare Payment and Review (MedPAR) file to recalibrate the DRG relative weights. This file contains a record for each Medicare discharge from an acute care hospital. The record includes clinical information and charge data by revenue code groupings that have been compiled from more detailed charge data submitted on the Medicare claim. The revenue code groupings crosswalk to cost centers on the Medicare cost report. The current CMS cost-based relative weights estimate the cost of each case by applying national cost-to-charge ratios (CCRs) for 15 cost center groupings to the corresponding revenue codes on the MedPAR record. Each alternative relative weight methodology also uses cost-based relative weights, but the method for determining cost is different. The alternative methods use either:

- national CCRs for 19 cost center groupings, or
- hospital-specific CCRs for 15 cost center groupings.

The expansion to 19 cost center groupings is based on recommendations made by Dalton (2007) and is intended to reduce bias in the relative weights introduced by combining services with different CCRs into a single cost center for purposes of estimating cost. The additional cost centers are created by dividing single cost centers for:

- drugs into separate cost centers for IV solutions and for other drugs
- supplies into separate cost centers for devices and implants only and for other supplies
- radiology into separate cost centers for CT scanning only, for MRI only, and for other radiology services.

The CMS relative weight methodology uses national CCRs to estimate the cost of each discharge. CMS adopted this method in FY07 in order to use more timely and complete MedPAR records than the hospital-specific (HSP) CCR method that CMS considered and decided against using. CMS

concluded the HSP CCR method was administratively burdensome and dropped approximately 10 percent of MedPAR records because a cost report covering the dates of the stay was not available. We explore the impact of using less restrictive rules in estimating costs using HSP CCRs.

The current CMS relative weight methodology uses the hospital payment factor (HPF) method to standardize costs for systematic differences in costs attributable to facility characteristics. To standardize using this method, estimated case-level costs are divided by the adjustment factors used in the IPPS payment formula (namely, adjustments for geographic differences in hospital wage levels and cost of living, indirect medical education (IME) costs, and serving a disproportionate share (DSH) of low-income patients). We examine two alternative methods to account for systematic cost differences across hospitals:

- The hospital-specific relative value (HSRV) method removes all hospital-level cost variation by calculating hospital-level relative weights for each MS-DRG and standardizing the weights for differences in case mix. The national relative weight for a given MS-DRG is based on the average standardized relative weight for the discharges assigned to that grouping.
- The HSRVcc method removes hospital-level cost variation by calculating hospital-specific charge-based relative weights for each MS-DRG at the cost-center level and standardizing the weights for differences in hospital case mix through an iterative process. The national average charge-based cost center relative weight is then converted to cost using a national CCR and adjusted to reflect the proportion of total costs accounted for by that cost center. The national relative weight for each MS-DRG is based on the sum of the adjusted average cost center relative weights for discharges assigned to that grouping.

The analyses in this working paper rely on quantitative methods to evaluate the five relative weight methodologies. We conducted two different types of analyses at both the discharge-level and the hospital-level. One type of analyses compares each of the five

alternative sets of relative weights to the relative weights constructed using the CMS current relative weight method (RELWGT1). To assess the payment implications, we compared average payment using each relative weight alternative to average payment across hospital groupings using fully phased-in MS-DRG cost weights. These analyses imply no explicit judgments that one set of relative weights is "better" than another; they simply report how the weights or payments would differ under alternative methods.

The other set of analyses examines the relative payment accuracy of alternative relative weight methods. We needed a measure of cost for the comparisons in these analyses. For this purpose, we used the cost for each discharge determined using 15 hospital-specific CCRs. Although we believe that our choice of this cost measure is appropriate, it may affect the results and conclusions of our analyses. For example, the relative weight methods that use hospital-specific CCRs may be assessed more favorably than would have been the case had we used a different cost measure. Similarly, the use of 15 rather than 19 cost center CCRs may favor the relative weight methods that do not account for charge compression.

The cost analyses include regression analyses to a) compare the performance of the relative weight methodologies in explaining variation in costs and b) assess how well payments using each relative weight methodology and current facility-level adjustments match the costs of the discharge. We also examined payment-to-cost ratios across hospital groupings and classes of MS-DRGs.

We supplemented the quantitative analyses with a review of recent literature, CMS rulemaking documents, and other reports. We prepared a draft report for CMS technical review and comment. We have taken the CMS staff comments into consideration in this report.

1.4 ORGANIZATION OF THIS REPORT

The remainder of this report is organized as follows.

Chapter 2 provides background information on the alternative methods to 1) estimate the cost of a discharge and 2) standardize the estimated cost for systematic cost differences. Chapter 3 presents

comparative information on the differences in relative values across different types of cases and the impact of the different methods on a hospital's case mix index (CMI), or average relative weight. Chapter 4 presents the results from our analyses of the ability of the relative weights methods to predict cost variation. Chapter 5 summarizes the results from our payment simulations and examination of payment accuracy issues. Chapter 6 summarizes our findings and conclusions regarding the differences in the relative weight methodologies.

2. OVERVIEW OF METHODS USED TO ESTABLISH DRG RELATIVE WEIGHTS

The relative weight measures the average resources required to treat a beneficiary assigned to a given DRG relative to the resources required by the average Medicare patient. This chapter provides background information on alternative methods that might be used to establish MS-DRG relative weights and explains the data and methods we used to develop the relative weights that we evaluated in our study. These methods employ different methods to 1) estimate the cost of a discharge and 2) standardize for systematic cost-differences across hospitals.

2.1 ESTIMATING COSTS

Until FY07, CMS used charge-based relative weights for the IPPS. That is, the relative weight for discharges assigned to a given DRG was based on the average charges for patients assigned to that DRG relative to the average charges for all discharges. The premise underlying charge-based relative weights is that charges are consistently related to costs. Earlier studies found relatively minor differences between charge-based relative weights and cost-based relative weights (Cotterill et al. 1986). CMS preferred the lower administrative burden of using charges in the annual update process. However, more recent studies suggest that charging practices are influenced by a number of factors, including competition, payer mix, and cost allocation practices and that charges have become less meaningful measures of cost over time (Dobson et al., 2005). There are systematic differences in hospital charging practices that potentially bias the relative weights. For example, there are systematic differences in:

- Overall charging practices. The CCR for large urban hospitals is .363 compared to .407 for other urban hospitals and .480 for rural hospitals (RAND analysis of FY08 IPPS impact file). If certain types of cases are concentrated in hospitals with low CCR (i.e., higher markups), using national CCR to estimate cost

overstates the relative weights for those DRGs relative to other DRGs.

- Departmental markups. For the FY08 IPPS rule, CMS calculated national CCRs ranging from 0.553 for routine room and board services to 0.146 for anesthesia (Table 2.1). If these charging differentials are not accounted for, the relative weights are overvalued for DRGs that have a disproportionate share of procedures and ancillary services and undervalued for DRGs with a disproportionate share of room and board services.
- Markups within the same department. For example, a survey of hospitals found that lower cost supplies are generally marked up at a higher rate than higher cost supplies (Dobson, 2005). Consistent with this finding, the RTI study found that within the cost center for medical supplies, the CCR for devices was 0.439 compared to 0.266 for other supplies. Higher-priced services do not always have lower markups. The RTI study also found that within the radiology cost center, the estimated CCRs for MRI and CT scanning were 0.165 and 0.101, respectively, compared to 0.258 for other radiology services. If there are significant CCR differences within a cost center and the distribution of those services varies across DRGs, the relative weights are potentially biased. DRGs with a disproportionate share of services with the higher CCR (lower markups) are relatively underpaid while the remaining services are relatively overpaid.

The rapid growth of small physician-owned hospitals specializing in cardiac, orthopedic or surgical care has increased attention on the relative profitability of certain types of care. MedPAC's study on physician-owned specialty hospitals evaluated various ways to refine the IPPS ratesetting methods to remove the differences in profitability across DRGs. One MedPAC recommendation was that CMS should implement cost-based relative weights (MedPAC, 2005). MedPAC derived cost-based relative weights using more detailed charges from the inpatient standard analytic file (SAF) matched with hospital-specific departmental CCRs derived from Medicare cost report data. Arguably, the hospital-specific

CCR method should produce a better cost estimate than a national CCR method because it accounts for overall differences in hospital charging practices as well as differences at the departmental level across hospitals. However, it is not clear whether costs using this method will be closer to actual costs (versus accounting costs) because departmental internal pricing rules vary (Carter and Rogowski, 1993).

The MedPAC methodology required a match between the hospital's cost reporting period used to derive the CCRs and the discharge date on the claims. Claims data used in the IPPS ratesetting process have a 2-year lag (FY06 MedPAR records were used to set FY08 rates) and cost report data typically take another two years. As a result, older claims data must be used under MedPAC's method to achieve a sufficient match rate. Even with a 4-year lag in cost report and claims data, MedPAC dropped about 10 percent of claims from its relative weight calculation because there were invalid or missing CCRs. Further, the MedPAC method used detailed cost center data that required use of the inpatient SAF, which increased processing time and the complexity of the relative weight methodology. Recognizing the difficulty of replicating this approach during the annual recalibration of the DRG weights, MedPAC suggested that the cost-based relative weights be recalculated periodically with adjustments in intervening years based on charges (MedPAC, 2005).

For this study, we used an alternative method that should allow a more recent and complete set of claims data to be utilized in constructing cost-based relative weights using hospital-specific CCRs. The approach computes hospital-specific CCRs from most recent available cost report data and gap-fills as needed when the CCR is missing or invalid. This method allows a more complete set of records to be used in constructing the relative weights than the method MedPAC used, which matched claims to the cost report for the same time period. We did not attempt to evaluate the tradeoff between the benefits of using more complete and timelier records and the costs of some loss in accuracy associated with the reduced matching of claims' charges and CCRs. Further, the method combines cost centers consistent with the MedPAR cost center groupings so that MedPAR records can be used instead of the

inpatient SAF, thereby reducing the complexity of the cost estimation process.

CMS with 3M/Health Information Systems (3M/HIS) developed the national CCR method to estimate cost as an alternative to the MedPAC approach. The method computes national CCR from available cost report data and then applies these CCR to MedPAR records for all discharges from hospitals with departmental charging practices. In contrast to the hospital-specific CCR alternative, the method does not account for individual hospital differences in charging practices, only differences across hospitals in departmental charging practices. The advantage is that there is no need either to drop records with missing or invalid CCRs or impute values for those records.

CMS adopted in the FY07 final rule (with a transition period) cost-based relative weights determined using national CCRs that CMS computed for 13 cost center groupings on the Medicare cost report. After creating MedPAR revenue code groupings that corresponded as closely as possible to the cost center groupings, CMS applied the national CCRs to charges on each MedPAR record. CMS concluded that that these relative weights were both an improvement on charge-based weights and administratively feasible. In the FY08 final rule, CMS expanded to 15 cost center groupings. The two new groupings were created by disaggregating Emergency Room and Blood Products and Administration from the Other Services cost center grouping. This expansion was in response to short-term recommendations in the RTI report (Dalton, 2007). Removing these services from the Other Services category raised the CCR for the remaining services in that grouping. The change was straightforward because the Medicare cost report has separate cost centers for these services.

The RTI report also recommended disaggregating the Medical Supplies, Drugs and Radiology cost centers to create a total of 19 cost center groupings and reclassifying intermediate care charges from the intensive care unit cost center to the routine cost center. The services that RTI identified as having different markups were:

- IV solution within the Drugs cost center;
- MRI and CT scanning within the Radiology cost center; and,

- Devices, prosthetics, and implants within the Medical Supplies cost center.

Because there are not separate cost centers for these services, regression-based estimates are needed to disaggregate the services from their respective cost centers. RTI's analysis was based on CMS DRGs (Version 24) and produced estimates for inpatient services only. CMS decided not to implement the expansion to 19 cost center groupings (or the reclassification of intermediate care charges) in FY08 in order to consider the effect of the recommendations using MS-DRGs and the interactions with other refinements under consideration, such as HSRVcc (HHS, 2007).

For this study, we explore the implications of using three different methods of estimating costs in constructing the relative weights:

- national CCR for the 15 cost center groupings used in the final FY08 rule
- national CCR for 19 cost center groupings using regression-based estimates produced by RTI and reclassified intermediate care charges
- hospital-specific departmental CCRs derived from the most recent available cost report with gap-filled CCR values as needed.

2.2 STANDARDIZING COSTS

After costs are estimated, the next step in the construction of relative weights is to standardize for differences in hospital characteristics that affect costs. We examine three alternatives for standardizing for cost differences: the HPF, the HSRV, and the HSRV cost-center method (HSRVcc).

The HPF approach standardizes for hospital differences in resource use by dividing the measure of resource use (cost or charges) by a hospital payment factor. The HPF is the payment adjustment that accounts for differences in both operating and capital costs across hospitals based on the hospital wage index, IME, DSH, and cost of living (with respect to Alaska and Hawaii). These standardized resource use

values are then averaged for all discharges within each DRG. To construct the DRG relative weight, each DRG-specific average is divided by the overall average standardized resource use (across discharges in all DRGs). A limitation to this approach is that hospital payment factors only account for a small part of the variation across hospitals in costs for any specific DRG. Moreover, the IME and DSH adjustments are policy adjustments that exceed analytically justified levels based on their effect on costs per discharge (MedPAC, 2000; MedPAC, 2007). The current CMS methodology for establishing the MS-DRG relative weights uses this approach.

In the HSRV method, the total cost for each discharge from a given hospital is divided by the average cost per discharge for that hospital. The resulting ratio is then multiplied by the hospital's CMI to produce a hospital-specific relative value. This method standardizes the cost for a given discharge by the hospital's own costliness rather than by the effect of the systematic cost differences across groups of hospitals.

The process of calculating the HSRV relative weights is iterative. Initial values are chosen for the CMI of each hospital. Earlier studies indicate that the starting CMI value is not important (Rogowski and Bryne, 1990). DRG-adjusted weights are then set in proportion to the average value of the hospital-specific relative weights for each MS-DRG. These result in a new CMI for each hospital and therefore new hospital-specific relative weights. The process is continued until there is convergence between the weights produced at adjacent steps, for instance when the maximum difference is less than 0.0001. CMS uses the HSRV method in developing relative weights for the prospective payment systems for inpatient rehabilitation hospitals and for long-term care hospitals.

Another MedPAC recommendation on DRG refinement was that CMS should adopt the HSRV method in conjunction with using hospital-specific CCRs to estimate costs. CMS did not adopt the recommendation because the agency was concerned about the feasibility of applying the HSRV methodology to the relative weight calculation (HHS, 2006a). However, it

is not clear the extent to which the concern arose from the HSRV method *per se* versus the burden associated with using inpatient SAF records.

CMS with 3M/HIS developed the HSRVcc method as an alternative standardization method that could be used with national CCRs to estimate costs annually. The HSRVcc method is similar to the HSRV method but it applies the HSRV method at the cost-center level rather than at the discharge- level. The method uses the HSRV approach to calculate charge-based relative weights for each cost center grouping through iteration. The charge-based national relative weights for each cost center grouping are then scaled to cost using national CCRs and the proportion of costs represented by each grouping. The national relative weight for each MS-DRG is based on the sum of the adjusted average relative weights for each discharges assigned to that grouping.

CMS proposed adopting the HSRVcc in the FY07 proposed rule. Public comments raised several concerns that are applicable to both the HSRV and HSRVcc methodology:

- Citing early RAND work (Carter and Rogowski, 1992), commenters noted that the HSRV method produces more compressed relative weights than the hospital payment factor method (HHS, 2006b). That is, the increase in relative weight is not proportional to increase in cost after controlling for systematic cost differences; rather, cost increases more rapidly than the relative weights so that the values are compressed. By reducing the range of relative weights, the HSRVcc method could have a disproportionate impact on certain hospitals or types of cases.
- The HSRV method eliminates all cost variation across hospitals that is not accounted for by case mix, some of which may be justifiable differences that should be recognized under the IPPS. This is in contrast to the HPF method, which retains all cost variation that is not accounted for by the payment adjustment factors.

In the FY07 final rule, CMS retained the HPF standardization method because the agency had not had time to examine whether the HSRVcc method increases weight compression (HHS, 2006b). The RTI study on CCRs used the HPF standardization method and CMS-DRGs. In the FY08 final rule, CMS

noted a need to examine how the relative weights would change if CMS were to adopt for the MS-DRGs simultaneous with the RTI-recommended 19 cost center groupings and the HSRVcc method (HHS, 2007b). One relative weight alternative that we examine in this working paper uses the RTI-recommended 19 cost center groupings and reclassified intermediate care charges to estimate cost and the HSRVcc method to standardize costs.

2.3 CONSTRUCTING ALTERNATIVE RELATIVE WEIGHTS

Table 2.1 summarizes the relative weight methodologies that that we investigated for this working paper.

Table 2.1
Summary of Relative Weight Alternatives and Data

Relative Weight Method	Method Used to Determine Cost	Standardizing method	MEDPAR File
RELWGT1 Baseline	National CCRs 15 cost center groupings	HPF	MedPAR0307 MedPARSAF120
RELWGT2	National CCRs 19 cost center groupings and reclassified intermediate care charges	HPF	MedPARSAF1206
RELWGT3	Hospital-specific CCRs 15 cost center groupings	HPF	MedPAR0307
RELWGT4	National CCRs 15 cost center groupings	HSRVcc	MedPAR0307
RELWGT5	National CCRs 19 cost center groupings and reclassified intermediate care charges	HSRVcc	MedPARSAF1206
RELWGT6	Hospital-specific CCRs 15 cost center groupings	HSRV	MedPAR0307

We used two different claims files to construct the relative weights.

- For the methods that use CCRs for 15 cost center groupings to estimate costs, we used the March 2007 MedPAR update file (MedPAR0307). The file contains records for Medicare beneficiaries discharged from general acute care hospitals during FY06 (discharges occurring on or after October 1, 2005 and before October 1, 2006). CMS assigned MS-DRGs to these discharges in developing the FY08 IPPS rates. We used the cross-walk published in the final rule to match the cost centers on the Medicare cost report with the revenue codes on the MedPAR. The file contained 11,823,246 records for acute care hospital stays.
- For the methods that use CCRs for 19 cost center groupings, we used the December 2006 MedPAR update with supplemental charge information from the inpatient SAF that was developed by RTI. RTI used the SAF, which contains more detailed charge information than the MedPAR records, to examine the charge compression issues. CMS supplied us with a MedPAR file that had charges from the SAF for the 19 cost centers and for intermediate care day charges appended to each record. Because this file was developed from an earlier update, it contained fewer records for acute care hospital stays (11,379,092). We grouped the records into the final FY08 MS-DRG assignments.

Short-stay transfers to other acute-care hospitals count as a partial discharge. For certain MS-DRGs, short-stay transfers to post-acute care providers also count as a partial discharge. A transfer is considered short-stay if the length of stay (LOS) plus one day is less than the geometric mean length of stay (GLOS) for the DRG. We used Table 5 published in the FY08 final rule to determine for each MS-DRG the GLOS and whether the post-acute care transfer policy applies. We used the discharge-destination field on the MedPAR record (DIS_DEST) to identify transfers to acute-care hospitals (discharge status = 02) and to post-acute care providers (DIS_DEST =03, 06, 61, 62 and 63). We compared the LOS for each transfer with the GLOS for the MS-DRG in Table 5 of the FY08 final rule. The transfer-adjusted count for a short-stay transfer to an acute-care hospital equals the lesser of $(LOS+1)/GLOS$ or 1.0. This

formula also applies to post-acute care transfers other than those in “special pay” MS-DRGs that have high device costs. For the “special pay” MS-DRGs, the post-acute care transfer counts as the lesser of $(0.5 + 0.5 \cdot \text{LOS} / \text{GLOS})$ or 1.0.

In the subsections that follow, we describe the methods used to establish the relative weights. Each method excludes pass-through costs that are paid separately (i.e., costs for organ acquisition, direct graduate medical education and allied health education) from the relative weight calculations.

For our analyses, we dropped records assigned to DRGs with fewer than 10 discharges, to MDC 15 (Newborns), and to the “error DRGs” for ungroupable discharges or invalid principal diagnoses. These are MS-DRGs 998 and 999. Before constructing the relative weights, we used the CMS methodology for eliminating statistical outliers. We computed the transfer-adjusted geometric mean standardized charges and mean standardized charges per day for each DRG (see section 2.3.1 for an explanation of the standardization factors). We eliminated as statistical outliers any records with *both* a transfer-adjusted charge and per diem charge that are plus or minus three standard deviations from the geometric mean. Because statistical outliers are removed based on charges, the same set of records were treated as statistical outliers across all relative weight methods. Table 2.1 summarizes the total number of records and providers on the MedPARSAF1206 and the MedPAR1206 files that were used to construct the relative weights.

Table 2.1
Records Used in the Relative Weight Calculations

<u>MedPARSAF1206</u>		<u>MedPAR0307</u>	
Number of Discharges	Number of Providers	Number of Discharges	Number of Providers
11,252,319	3,449	11,676,046	3,461

Table 2.2
Cost Center Groupings and Applicable National CCR for 15 and 19
Groupings

15 Cost Center Grouping	National CCR	19 Cost Center Grouping	National CCR
Routine days	0.553	Routine days	0.553
Intensive days	0.490	Intensive days	0.490
Therapy Services	0.428	Therapy Services	0.428
Lab	0.177	Lab	0.177
Operating Room	0.303	Operating Room	0.303
Cardiology	0.196	Cardiology	0.196
Emergency Room	0.309	Emergency Room	0.309
Blood	0.455	Blood	0.455
Other Services	0.451	Other Services	0.451
Labor & Delivery	0.501	Labor & Delivery	0.501
Inhalation therapy	0.198	Inhalation therapy	0.198
Anesthesia	0.146	Anesthesia	0.146
Supplies & Equip.	0.345	Supplies, Other	0.266
		Devices	0.439
Radiology	0.181	Radiology, Other	0.258
		CT Scan	0.101
		MRI	0.165
Drugs	0.209	Drugs, Other	0.225
		IV Drugs	0.101

2.3.1 RELWGT1

RELWGT1 follows the methodology that CMS used in the FY08 final rule to develop cost-based relative weights for the MS-DRGs.³ Namely, the method 1) uses national CCRs for 15 cost center groupings to estimate costs and 2) standardizes estimated costs using the HPF approach.

To estimate cost per case using the national CCRs, we took the following steps:

- Using the crosswalk between the cost center groupings on the Medicare cost report and the MedPAR revenue codes provided in the FY08 final rule (HHS, 2008b), we aggregated MedPAR charges into the 15 cost center groupings. We multiplied the aggregated

³ These are not the relative weights published in Table 5 of the final rule because the cost-based relative weights will not be fully phased-in until FY09.

charges for each grouping by the applicable national CCR to estimate the costs for each cost center grouping (Table 2.2).

- We summed the estimated costs for each cost center grouping to determine total costs for each discharge.

We used the hospital payment factors to standardize the cost of each discharge for facility characteristics that are accounted for in the payment system. We standardized for both operating and capital payment factors on the basis of the proportion of the hospital's total costs that are attributable to operating and capital costs, respectively. We used the CCRs on the FY08 IPPS impact file to determine the operating and capital shares and the standardization factors in the public use file issued for the final FY08 rule. The variable descriptions used in the standardization formula are given in Table 2.3. The formula that we used is:

$$\text{STDCOST} = \text{COST} / (\text{OPCCR}/\text{TOTCCR} * (\text{LSH} * \text{WINDEX} + (1 - \text{LSH}) * \text{COLA}) * (1 + \text{IME} + \text{DSH}) + \text{CAPCCR}/\text{TOTCCR} * \text{GAF} * \text{CAPCOLA} * (1 + \text{CAPIME} + \text{CAPDSH}))$$

Table 2.3
Description of Variables Used in HPF Standardization

Variable	Description
<i>Operating Payment Factors</i>	
OPCCR	operating CCR
LSH	labor-related share for operating costs
WINDEX	non-reclassified hospital wage index
COLA	operating cost of living adjustment for hospitals located in AK and HA
IME	indirect medical education adjustment for operating costs
DSH	disproportionate share adjustment for operating costs
<i>Capital Payment Factors</i>	
CAPCCR	capital CCR
GAF	non-reclassified geographic adjustment factor for capital
CAPCOLA	capital cost of living adjustment for hospitals located in AK and HA
CAPIME	indirect medical education adjustment for capital costs
CAPDSH	disproportionate share adjustment for capital costs

Special payment rules apply to hospitals located in Puerto Rico. Namely, their operating and capital geographic adjustment factors are based on 75 percent of the national wage index values and 25 percent of Puerto Rico-specific wage index values (using a Puerto Rico-specific labor-related share in determining the operating cost adjustment).

Once the standardized cost (STDCOST) for each case is estimated, we calculated RELWGT1 as the transfer-adjusted mean STDCOST for the patients assigned to a MS-DRG relative to the national mean STDCOST for all patients. We used the following steps to determine RELWGT1:

- We summed STDCOST for all cases assigned to a given MS-DRG and divided by the transfer-adjusted discharges assigned to the DRG to determine the (arithmetic) mean STDCOST for each DRG.
- We divided the mean STDCOST for each MS-DRG by the national mean STDCOST for all discharges in the relative-weight-analysis file to determine RELWGT1 for each MS-DRG. The average transfer-adjusted weight across all records equals 1.0.

The general formula for constructing the relative weights is:

$$\text{RELWGT1} = (\sum \text{STDCOST}_{\text{DRGi}} / \sum \text{DISCH}_{\text{DRGi}}) / (\sum \text{STDCOST}_{\text{All}} / \sum \text{DISCH}_{\text{All}})$$

2.3.2 RELWGT2

RELWGT2 follows the methodology described for RELWGT1 except that the method uses national CCRs for 19 cost center groupings and reclassified intermediate care charges to estimate costs. As discussed above, we used the December 2006 update to MedPAR supplemented by charge data from the inpatient SAF for those revenue codes that are not separately reported on MedPAR. CMS provided us with the merged MedPAR/SAF file that had been developed by RTI as part of its charge compression study (MedPARSAF1206). We grouped the discharges to the final FY08 MS-DRGs. After we computed preliminary relative weights based on the merged MedPAR SAF file, we computed the average CMI using the MedPAR0307 and found that it was 1.03. We adjusted the preliminary relative weights so that the average transfer-adjusted weight using the records in the MedPAR0307 was 1.0.

2.3.3 RELWGT3

RELWGT3 1)uses hospital-specific CCRs to estimate costs and 2) standardizes estimated costs using the HPF approach described above for RELWGT 1. To develop the cost estimate, we used the CMS Healthcare Cost Reporting Information System (HCRIS) March 2007 update for hospital cost reporting periods beginning in FY04 and FY05 and selected the cost reports for all the hospitals in our analysis file. CMS used the cost reports beginning in FY05 from the March 2007 HCRIS update to establish the FY08 national CCRs.

We determined the departmental CCRs from the hospital’s 12-month cost report that matched the MedPAR record or, if that cost report was not available, we used the most recent available 12-month cost report. We used the crosswalk CMS published in the FY08 final rule to match the revenue codes on the MedPAR record to the appropriate cost report line items. We set to missing any CCRs that were less than .01 or greater than 10. Consistent with the method CMS uses to calculate national CCRs, we also eliminated cost reports that covered less than 12 months or were submitted by all-inclusive providers. As seen in Table 2.3, we eliminated short-period FY05 cost reports for 152 hospitals and another 76 FY05 cost reports for all-inclusive hospitals. The all-inclusive providers have an atypically large number of Medicare discharges.

**Table 2.3
Number of Hospitals and Discharges Eliminated from Hospital-specific CCR Calculations**

	Less than 12-month Cost Report		All-Inclusive Rate	
	Hospitals	Discharges	Hospitals	Discharges
FY04	240	221,936	80	132,353
FY05	152	152,319	76	109,038

We used the methodology that CMS uses to eliminate statistical outliers. Namely, we normalized the departmental CCRs by dividing each departmental CCR by the overall CCR for the hospital. We then eliminated

any departmental CCR that was greater than or less than the log mean CCR plus or minus three times the standard deviation of the log mean CCR for that department.

For hospitals without 12-month cost reports or otherwise missing CCRs, we gap-filled the missing CCRs first using statewide CCRs by urban/rural status and secondarily, the national CCRs published in the final rule. Once the hospital-specific costs were estimated for each MedPAR record, our methodology for constructing the relative weights followed the steps outlined for RELWGT1.

Table 2.4 summarizes the source of the CCRs that we applied to MedPAR charges to estimate costs for RELWGT3. CCRs from a hospital's FY05 cost report, which also was the source the CMS used to compute the national CCR, were applied to 90 percent of the charges on the MedPAR records. CCRs from a hospital's cost reporting period beginning in FY04 were used to estimate cost for five percent of MedPAR charges. We calculated costs for the remaining MedPAR charges using the applicable statewide urban or rural average CCR (7.2 percent) or national CCR (0.5 percent).

Table 2.4
Revenue Center Charges and % of Total Revenue Center Charges by Source
of CCR Used to Estimate Cost

Revenue Center Grouping	FY05 Cost Report	FY04 Cost Report	Assigned State FY05 CCRs	Assigned State FY04 Ratios	Assigned National CCR	Total Charges
Routine Services	44,090,682,512 88.3%	2,060,357,237 4.1%	3,488,956,701 7.0%	78,889,592 0.2%	233,214,019 0.5%	49,952,100,061 100.0%
Intermediate Care	36,405,298,470 90.7%	1,892,345,383 4.7%	1,730,397,503 4.3%	44,176,848 0.1%	56,255,827 0.1%	40,128,474,031 100.0%
Operating Room	27,332,686,523 92.2%	1,527,457,628 5.2%	648,570,296 2.2%	19,884,078 0.1%	121,824,416 0.4%	29,650,422,941 100.0%
Anesthesia	3,188,892,494 72.6%	259,449,648 5.9%	878,189,071 20.0%	48,522,631 1.1%	18,164,874 0.4%	4,393,218,718 100.0%
Radiology	25,499,830,294 93.0%	1,274,181,766 4.6%	565,013,172 2.1%	15,656,512 0.1%	74,858,502 0.3%	27,429,540,246 100.0%
Laboratory	37,242,657,574 92.6%	1,890,877,192 4.7%	926,399,250 2.3%	19,651,173 0.0%	130,130,305 0.3%	40,209,715,494 100.0%
Drugs and Supplies	46,060,484,931 92.2%	2,495,673,821 5.0%	1,147,470,338 2.3%	35,214,481 0.1%	204,500,477 0.4%	49,943,344,048 100.0%
Inhalation Therapy	10,894,080,864 92.2%	542,585,973 4.6%	330,038,251 2.8%	21,082,207 0.2%	24,365,563 0.2%	11,812,152,858 100.0%
Rehabilitation Therapy	3,928,353,434 90.9%	212,111,225 4.9%	162,565,748 3.8%	5,313,918 0.1%	11,358,165 0.3%	4,319,702,490 100.0%
Cardiology	16,737,887,962 81.8%	1,001,974,707 4.9%	2,389,862,881 11.7%	320,478,838 1.6%	17,912,248 0.1%	20,468,116,636 100.0%
Equipment	44,887,957,926 88.8%	2,987,251,749 5.9%	2,493,611,171 4.9%	80,558,858 0.2%	93,413,667 0.2%	50,542,793,371 100.0%
Labor and Delivery Room	24,740,200 84.1%	1,487,077 5.1%	2,861,206 9.7%	238,890 0.8%	101,196 0.3%	29,428,569 100.0%
Blood Products and Administration	2,400,568,243 63.5%	146,913,458 3.9%	1,055,180,326 27.9%	159,381,157 4.2%	20,514,313 0.5%	3,782,557,497 100.0%
Emergency Room	7,471,605,959 92.8%	392,152,839 4.9%	164,524,437 2.0%	6,466,425 0.1%	17,769,235 0.2%	8,052,518,895 100.0%
Other Services	6,252,621,195 89.4%	425,981,002 6.1%	294,096,328 4.2%	7,451,785 0.1%	14,278,055 0.2%	6,994,428,365 100.0%
Total Charges	312,418,348,581 89.9%	17,110,800,705 4.9%	16,277,736,679 4.7%	862,967,393 0.2%	1,038,660,862 0.3%	347,708,514,220 100.0%

2.3.4 RELWGT4

RELWGT4 uses the HSRVcc method for 15 cost center groupings to establish the relative weights. The method does not calculate discharge-level cost estimates. Rather, it converts DRG charge-based relative weights for each grouping into a cost-based relative weight using a national CCR and the share of total costs each cost center grouping accounts for.

We followed the steps used by CMS in the FY07 proposed rule to compute the relative weights. The first step in the process is to develop charge-based relative weights by cost center for each DRG through an iterative process:

- Using the MedPAR records, we computed an average charge for each hospital for each of the 15 cost center groupings. The average charge is the sum of the charges for each cost center divided by the transfer-adjusted discharge count.
- We calculated the relative charge for each cost center for each discharge by dividing the cost center charge on each record by the hospital's average charge for the matching cost center. For example, the routine service charge on the record is divided by the average charge for routine services for the hospital, the radiology charge on the record is divided by the average radiology charge for the hospital, and so on. This generates a discharge-specific relative charge for each cost center.
- We multiplied each discharge-specific cost center relative charge by the hospital's CMI. Our starting CMI was determined using RELWGT1.
- We determined the mean DRG relative charge for each cost center by taking the sum of the CMI-adjusted relative charges for that DRG and dividing by the DRG transfer adjusted discharge count.
- We created a DRG-level cost center relative weight by dividing the mean DRG relative charge for each cost center by the mean national average relative charge for the cost center. The result is a set of 15 relative weights for each DRG where the weighted average relative weight across all DRGs for each cost center is 1.0.

- We assigned the 15 DRG relative weights to all records at each hospital and created a new CMI for each hospital's cost center. The CMI for the cost center is the sum of the hospital's relative weights for the cost center divided by the hospital's transfer-adjusted discharge count.
- We multiplied the relative charges for each cost center on the claim (total charge for cost center is divided by the hospital's average charge for that cost center) by the new CMI. We iterated the weights until the national average CMI for each cost center stopped changing between iterations; that is, the maximum fractional change was less than 0.00005. This is the final set of charge-based relative weights for each DRG.

After we determined the DRG charge-based relative weights for each cost center, we converted them into cost-based relative weights.

- We determined the proportion of total costs represented by each cost center (cost share). To do so, we first multiplied the total national charges for the cost center grouping by the national CCR for that grouping to determine total estimated costs for the cost center. We then divided the total costs for each cost center by the sum of the total costs for the 15 cost centers to determine the cost share of each cost center.
- We then multiplied each cost center's charge-based relative weight by the cost center's 1) national CCR and 2) cost share.

Finally, we summed the DRG cost-based relative weights for each cost center to establish RELWGT4 for the DRG.

2.3.5 RELWGT5

RELWGT5 follows the HSRVcc methodology outlined above for RELWGT4 except that the charge data in the MedPARSAF1206 file for the 19 cost center groupings was used. These are the same records as were used to construct RELWGT2. After we constructed the relative weights using the MedPARSAF1206 file, we normalized them so that the average transfer-adjusted relative weight using the MedPAR0307 file was 1.0.

2.3.6 RELWGT6

In constructing RELWGT6, we 1) used the hospital-specific CCR method described above for RELWGT3 to estimate the cost for each record and 2) used the HSRV method to standardize for hospital cost differences. We adapted the method used by Carter et al. (2002) to construct the relative weights for the prospective payment system for inpatient rehabilitation facilities.

- For each hospital, we divided the estimated cost for each discharge by the average cost per transfer-adjusted discharge across all DRGs in that hospital. This gives a discharge-specific relative weight for each record with an overall average relative weight of 1.0.
- We multiplied each discharge-specific relative weight by the hospital's case mix index (CMI, or \sum DRG relative values/ \sum transfer-adjusted discharges) determined using RELWGT1.
- We determined the national geometric mean relative weight for each DRG.
- We used these relative weights to calculate a revised CMI for each hospital.
- We multiplied each discharge-specific relative weight by the hospital's revised CMI.
- We recalculated the transfer-adjusted arithmetic mean DRG relative weight across all discharges within a given DRG. We used the revised relative weights to recalculate each hospital's CMI.
- We reiterated the last two steps until there was convergence between the weights produced at adjacent steps, that is, the maximum fractional change is less than 0.00005.

2.4 NORMALIZATION

The transfer-adjusted mean relative weight for each RELWGT method equals 1.0 using the MedPAR0307 file. In the annual DRG updating process, CMS normalizes the relative weights so that the average relative weight after DRG classification changes and recalibration

equals the average relative weight before updating. Except where required for simulating payments, we have not normalized the relative weights, because an average relative weight of 1.0 makes it easier to compare relative values across DRGs and CMIs across hospitals. For example, a hospital with a CMI = 1.10 has discharges that, on average, are 10 percent more costly than the average Medicare patient. As explained in Chapter 4, for the payment simulations we normalized the relative weights to the average FY08 relative weight for the records in our analysis file.

3. COMPARISON OF DRG RELATIVE WEIGHTS

In this chapter, we compare how the method used to construct the relative weights affects the DRG relative weight and the CMI, or average relative weight, of hospitals. The cost-based relative weights that we developed consistent with the current CMS method serve as our baseline for comparison (RELWGT1). To facilitate comparisons, we first provide summary tables across all systems:

- Table 3.1 summarizes the distribution of discharges by the percentage difference between RELWGT1 and the remaining relative weight methods.
- Table 3.2 shows the number of DRGs and percentage of discharges that have an increase in relative weight ("winner") and those that have a decrease in relative weight ("loser"). The first row shows the overall distribution of winners and losers. The 740 DRGs are then broken into deciles based on their RELWGT1 relative values, so that DRG Cost Decile 1 is comprised of the 73 DRGs with the lowest relative weight values.

The differences in relative weights by MS-DRG are reported in Appendix A.

Table 3.1
Percentage Change in DRG Relative Weights from RELWGT1 (15 National CCRs; Hospital Payment Factor Standardization)

	RELWGT2		RELWGT3		RELWGT4		RELWGT5		RELWGT6	
	19 Nat CCR; HPF		HSP CCR; HPF		15 Nat. CCR; HSRV		19 Nat. CCR; HSRV		HSP CCR; HSRV	
	% Drgs	% Cases	% Drgs	% Cases	% Drgs	% Cases	% Drgs	% Cases	% Drgs	% Cases
Increases										
> 10%	0.7%	0.6%	1.5%	0.2%	3.8%	1.6%	4.1%	2.7%	2.8%	1.2%
5-10%	3.7%	3.3%	4.7%	4.2%	7.6%	5.0%	5.7%	6.6%	7.1%	9.6%
2.5-5%	6.0%	10.7%	10.2%	16.0%	11.7%	7.3%	7.5%	10.0%	12.5%	22.9%
0-2.5%	8.8%	15.2%	28.6%	38.0%	22.7%	31.5%	12.9%	20.7%	23.7%	33.6%
Decreases										
0-2.5%	23.3%	35.1%	33.5%	31.5%	29.7%	25.7%	20.8%	29.6%	23.9%	14.5%
2.5-5%	38.8%	26.1%	14.9%	9.0%	15.1%	17.5%	20.8%	16.4%	20.4%	11.4%
5-10%	17.6%	8.9%	5.8%	1.1%	9.1%	10.0%	24.4%	13.3%	8.8%	6.9%
> 10%	1.1%	0.1%	0.7%	0.1%	0.4%	1.5%	3.9%	0.6%	0.8%	0.0%

Table 3.2
Distribution of DRGs with Gains and Losses in Relative Weight Values by DRG Cost Decile

DRG Cost	RELWGT2				RELWGT3				RELWGT4			
	Gainers		Losers		Gainers		Losers		Gainers		Losers	
Decile	DRGs	Discharges	DRGs % disch	DRGs % disch	DRGs % disch	DRGs % disch	DRGs % disch	DRGs % disch	DRGs % disch	DRGs % disch	DRGs % disch	
All	736	11,676,046	141 29.7%	595 70.3%	332 58.3%	404 41.7%	337 45.3%	399 54.7%				
1	73	1,409,252	4 34.5%	69 65.5%	45 66.7%	28 33.3%	46 30.7%	27 69.3%				
2	74	2,372,405	5 10.4%	69 89.6%	36 60.1%	38 39.9%	33 49.4%	41 50.6%				
3	73	876,706	7 10.1%	66 89.9%	34 65.8%	39 34.2%	31 42.8%	42 57.2%				
4	74	1,788,150	4 14.9%	70 85.1%	40 69.8%	34 30.2%	31 37.1%	43 62.9%				
5	74	786,521	16 21.3%	58 78.7%	34 63.1%	40 36.9%	32 49.3%	42 50.7%				
6	73	993,904	9 28.2%	64 71.8%	31 59.1%	42 40.9%	29 44.0%	44 56.0%				
7	74	876,423	19 32.4%	55 67.6%	31 31.1%	43 68.9%	37 60.1%	37 39.9%				
8	73	1,333,730	18 69.9%	55 30.1%	27 51.9%	46 48.1%	28 51.1%	45 48.9%				
9	74	673,163	28 62.7%	46 37.3%	28 55.6%	46 44.4%	33 36.7%	41 63.3%				
10	74	565,792	31 53.0%	43 47.0%	26 33.9%	48 66.1%	37 64.5%	37 35.5%				
DRG Cost	RELWGT5				RELWGT6							
Decile	DRGs	Discharges	DRGs % disch	DRGs % disch	DRGs % disch	DRGs % disch	DRGs % disch	DRGs % disch				
All	736	11,676,046	222 40.0%	514 60.0%	340 67.3%	396 32.7%						
1	73	1,409,252	31 30.6%	42 69.4%	60 88.8%	13 11.2%						
2	74	2,372,405	24 34.3%	50 65.7%	48 87.4%	26 12.6%						
3	73	876,706	21 39.3%	52 60.7%	43 70.2%	30 29.8%						
4	74	1,788,150	21 61.1%	53 38.9%	40 72.9%	34 27.1%						
5	74	786,521	21 51.0%	53 49.0%	37 65.5%	37 34.5%						
6	73	993,904	15 43.4%	58 56.6%	30 76.6%	43 23.4%						
7	74	876,423	27 39.0%	47 61.0%	33 40.7%	41 59.3%						
8	73	1,333,730	15 20.4%	58 79.6%	17 47.4%	56 52.6%						
9	74	673,163	22 31.3%	52 68.7%	16 27.0%	58 73.0%						
10	74	565,792	25 59.1%	49 40.9%	16 28.8%	58 71.2%						

3.1 RELWGT2

The difference between RELWGT1 and RELWGT2 is that RELWGT1 uses 15 national CCRs to estimate costs while RELWGT2 uses 19 national CCRs and reclassifies the charges for intermediate care from intensive care to routine care days. Both methods use the HPF to standardize cost. Under RELWGT 2, the weights for nearly 50 percent of discharges increase or decrease by at least 2.5 percent (Table 3.3). We examined the distribution of weight increases across DRG cost deciles to see how the weights changes are distributed between lower cost and higher cost MS-DRGs. The lowest two cost deciles and the upper four cost deciles each account for nearly a third of discharges. In total, 141 DRGs accounting for 29.8 percent of discharges have higher relative weights; the remaining DRGs have lower relative weights. Across cost deciles, 19.4 percent of discharges in DRGs assigned to the lowest 2 cost deciles have weight increases compared to 56.2 percent in the upper four cost deciles.

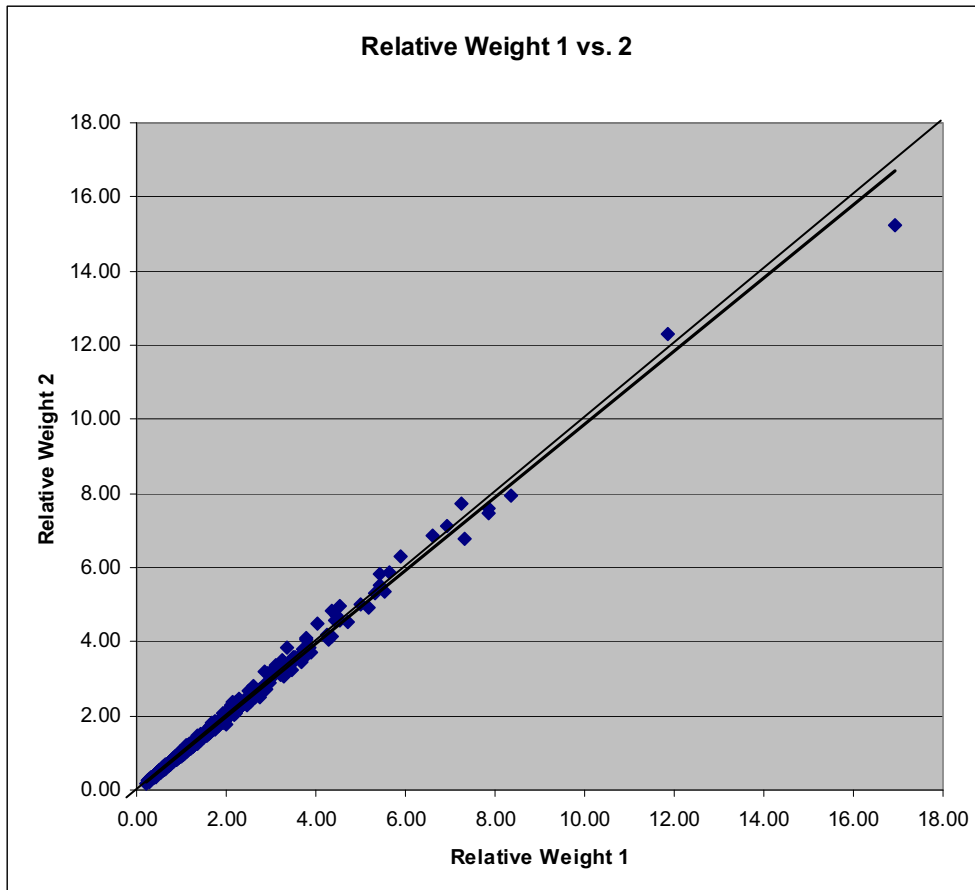
Table 3.3
Summary of Differences Between RELWGT2 and RELWGT1

Amount of change (+/-) in relative weight:	
% of discharges with > 2.5% change	49.7
% of discharges with > 10% change	0.7
Distribution of change:	
% discharges with weight increase	
All discharges	29.8
Lowest 2 cost deciles (32.3% of discharges)	19.4%
Upper 4 cost deciles (29.5% of discharges)	56.2%

Figure 3.1 is a scattergram of RELWGT1 and RELWGT2 weights. Each point in the scattergram represents a DRG, with RELWGT1 plotted along the horizontal axis and RELWGT2 plotted along the vertical axis. If there were no differences between the values of the relative weights, all values would fall along the 45-degree line. Most DRGs that deviate visibly from the 45-degree line are scattered throughout the line so that there is no apparent relationship between the magnitude of the

weight and the difference between the weights. The trendline indicates that most RELWGT2 values are lower than the RELWGT1 values. The DRGs with weight increases are concentrated in Cost Deciles 8 and 9. The weights for five DRGs that require devices increase more than 10 percent. Four of the five DRGs are in MDC 5 and involve defibrillators; the other DRG is in MDC 8 (MS-DRG 466 Revision of hip or knee replacement with MCC). Most MS-DRGs with at least a 10 percent weight decrease are relatively low-volume and/or low-cost DRGs. MS-DRG 1 (Heart transplant or impact of heart assist system with MCC; 650 discharges) which is the highest cost MS-DRG, and the low-cost MS-DRG 343 (Appendectomy w/o complicated principal diagnosis w/o CC/MCC; 6,825 discharges) would both decrease 10 percent.

Figure 3.1
Comparison of RELWGT1 and RELWGT2 Weights



3.2 RELWGT3

The difference between RELWGT1 and RELWGT3 is that RELWGT1 uses national CCRs to estimate cost while RELWGT3 uses hospital-specific CCRs. Both methods use the HPF to standardize cost. Using RELWGT3, the weights for 30.5 percent of discharges increase or decrease by at least 2.5 percent (Table 3.4), which is the smallest percentage of discharges across the alternatives with this amount of change. In total, 332 MS-DRGs accounting for 58.4 percent of discharges have higher relative weights; the remaining DRGs have lower relative weights. Across cost deciles, 62.6 percent of discharges in DRGs assigned to the lowest 2 cost deciles have weight increases compared to 44.4 percent in the upper four cost deciles.

**Table 3.4
Summary of Differences Between RELWGT3 and RELWGT1**

Amount of change (+/-) in relative weight:	
% of discharges with > 2.5% change	30.5
% of discharges with > 10% change	0.3
Distribution of change:	
% discharges with weight increase	
All discharges	58.4
Lowest 2 cost deciles (32.3% of discharges)	62.6%
Upper 4 cost deciles (29.5% of discharges)	44.4%

Figure 3.2
Comparison of RELWGT1 and RELWGT3 Weights

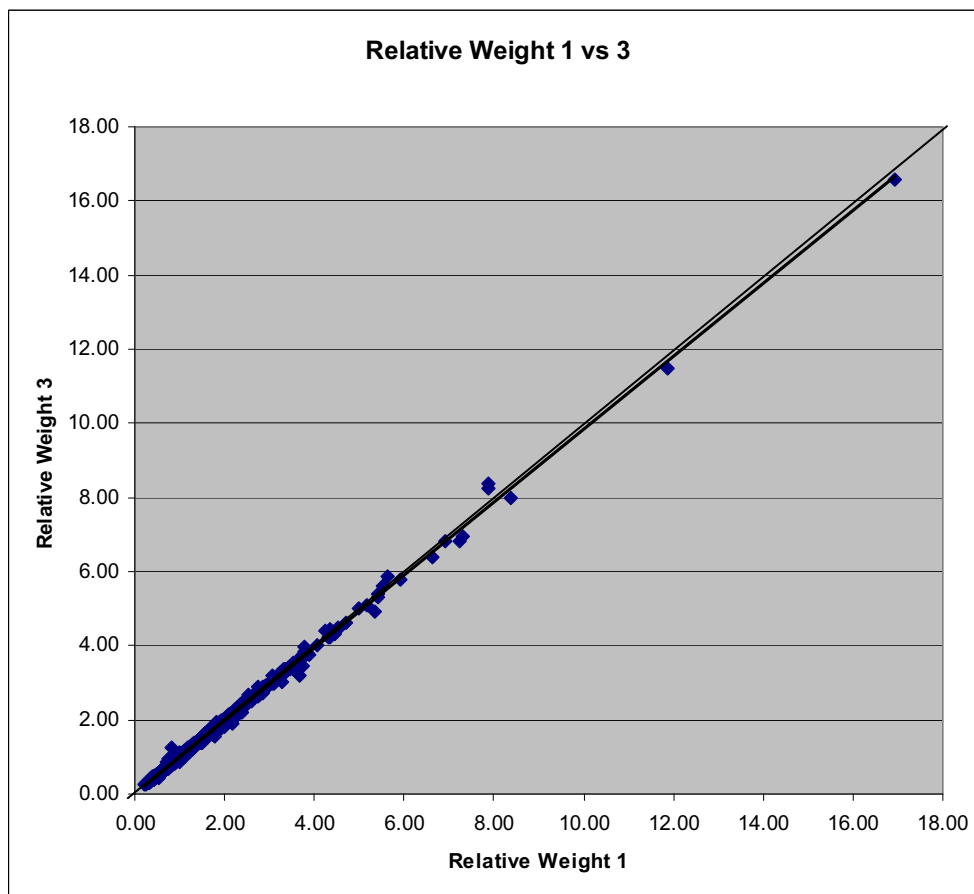


Figure 3.2 is a scattergram of RELWGT1 and RELWGT3. As with RELWGT2, the trendline also generally parallels the 45-degree line; however, the trendline is closer to the 45-degree line and less divergence is apparent. Only one MS-DRG with more than 5,000 discharges has at least a 10-percent change: MS-DRG 945 (Rehabilitation w/o CC/MCC; 5,056 discharges) increases 54.7 percent from .82 to 1.27.

3.3 RELWGT4

The difference between RELWGT1 and RELWGT4 is that RELWGT1 uses the HPF method to standardize cost while RELWGT4 uses the HSRVcc method. Both methods use 15 national CCRs to estimate cost. Using RELWGT4, the weights for 42.8 percent of discharges increase or decrease by at least 2.5 percent; 3.1 percent change by at least 10 percent (Table 3.5). In total, 337 MS-DRGs accounting for 45.4 percent of discharges have higher

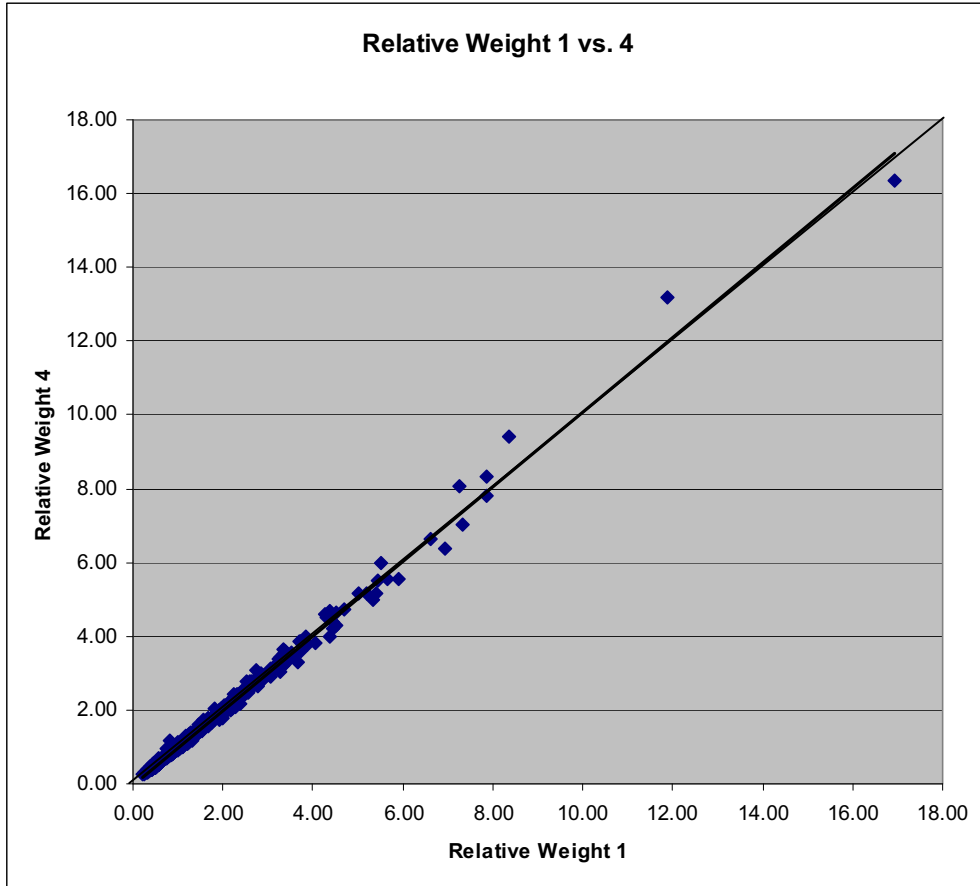
relative weights; the remaining DRGs have lower relative weights. Across cost deciles, 42.4 percent of discharges in DRGs assigned to the lowest 2 cost deciles have weight increases compared to 52.8 percent in the upper four cost deciles.

Table 3.5
Summary of Differences Between RELWGT4 and RELWGT1

Amount of change (+/-) in relative weight:	
% of discharges with > 2.5% change	42.8
% of discharges with > 10% change	3.1
Distribution of change:	
% discharges with weight increase	
All discharges	45.4
Lowest 2 cost deciles (32.3% of discharges)	42.4%
Upper 4 cost deciles (29.5% of discharges)	52.8%

Figure 3.3 is a scattergram of RELWGT1 and RELWGT4. While the trendline nearly coincides with the 45-degree line, there is more divergence than with the systems using HPF to standardize. High volume DRGs with at least a 10 percent increase include the MS-DRGs 3 and 4 (ECMO or tracheostomy w Mechanical Ventilation 96+ hrs or PDX excluding face, mouth & neck w and w/o major O.R.; 24,113 and 21,986 discharges), MS- DRG 311 (Angina pectoris; 25,155 discharges) and MS-DRG 885 (Psychoses; 78,951 discharges). One high volume MS-DRG (312 Syncope and collapse; 170,278 discharges) had more than a 10 percent weight reduction (-11.0 percent).

Figure 3.3
Comparison of RELWGT1 and RELWGT4 Weights



3.4 RELWGT5

The difference between RELWGT1 and RELWGT5 is that RELWGT5 uses 19 rather than 15 national CCRs to estimate cost and the HSRVcc method instead of the HPF method to standardize cost. Using RELWGT5, the weights for 49.7 percent of discharges increase or decrease by at least 2.5 percent; 3.3 percent change by at least 10 percent (Table 3.6). In total, 222 MS-DRGs accounting for 40.0 percent of discharges have higher relative weights; the remaining DRGs have lower relative weights. There is no clear pattern of weight changes across the cost deciles. 32.9 percent of discharges in DRGs assigned to the lowest 2 cost deciles have weight increases compared to 33.6 percent in the upper four cost deciles. Most DRGs with least a 10 percent change are relatively low

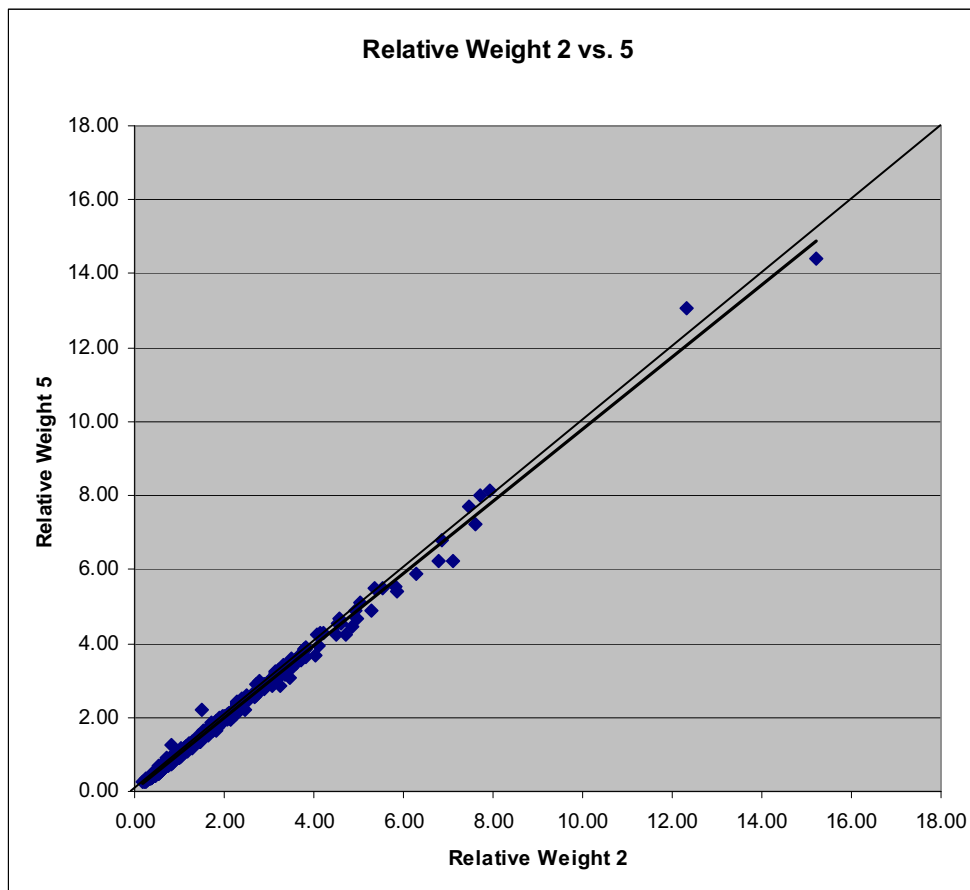
volume. Exceptions are high volume DRG 311 (Angina pectoris; 25,155 discharges) and 885 (Psychoses; 78,951 discharges).

Table 3.6
Summary of Differences Between RELWGT5 and RELWGT1

Amount of change (+/-) in relative weight:	
% of discharges with > 2.5% change	49.7
% of discharges with > 10% change	3.3
Distribution of change:	
% discharges with weight increase	
All discharges	40.0%
Lowest 2 cost deciles (32.3% of discharges)	32.9%
Upper 4 cost deciles (29.5% of discharges)	33.6%

RELWGT2 also uses national CCRs for 19 cost center groupings but uses the HPF to standardize. We are presenting a scattergram comparing RELWGT5 to RELWGT2 (Figure 3. 4) in order to compare the two different standardization methods that use the 19 national CCRs cost estimation method. The scattergram indicates the two methods produce DRGs with different values and that more DRGs have lower values under RELWGT5 than RELWGT2.

Figure 3.4
Comparison of RELWGT2 and RELWGT5 Weights



3.5 RELWGT6

The difference between RELWGT1 and RELWGT6 is that RELWGT6 uses hospital-specific CCRs rather than 15 national CCRs to estimate cost and the HSRV method instead of the HPF method to standardize cost. Using RELWGT6, the weights for 51.9 percent of discharges increase or decrease by at least 2.5 percent; 1.2 percent change by at least 10 percent (Table 3.7). In total, 340 MS-DRGs accounting for 67.3 percent of discharges have higher relative weights; the remaining DRGs have lower relative weights. More discharges have increased relative weights under RELWGT6 than any other alternative. Across the cost deciles, 87.9 percent of discharges in DRGs assigned to the lowest 2 cost deciles have

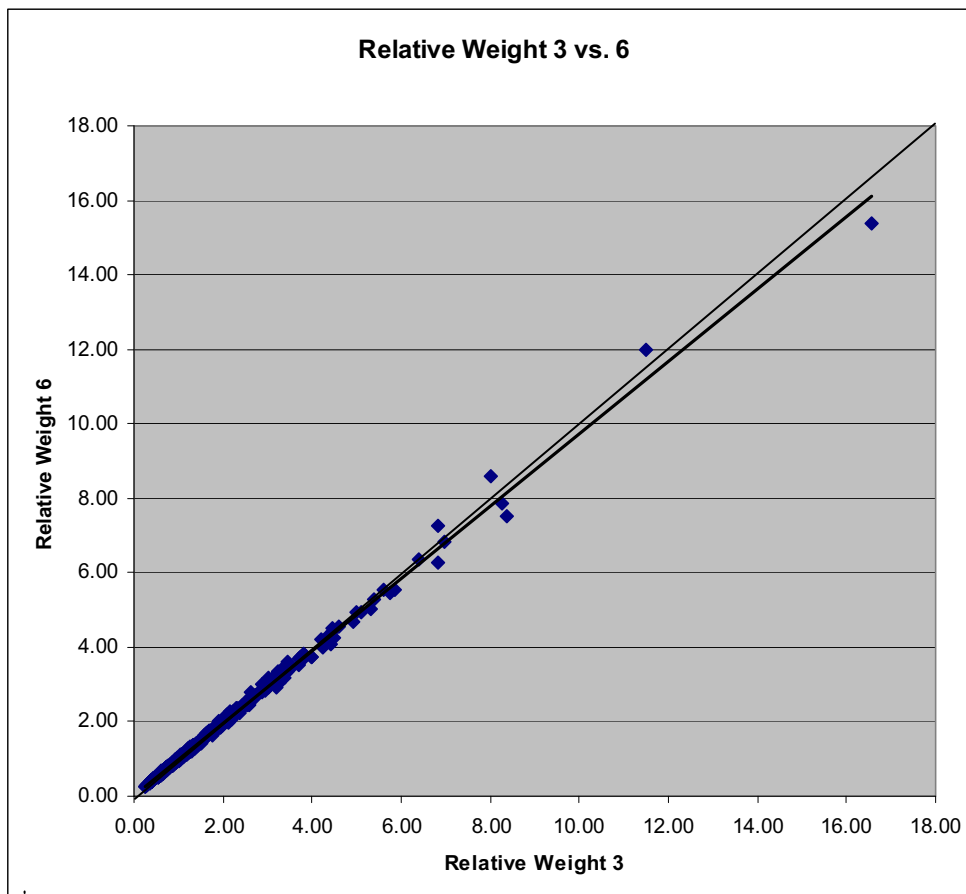
weight increases compared to 38.7 percent in the upper four cost deciles. Two high volume MS-DRG would increase more than 10 percent: MS-DRG 311(Angina pectoris; 25,155 discharges) and 885 (Psychoses; 78,951 discharges). Both of these also increased more than 10 percent under RELWGT5. No MS-DRG has at least a 10 percent decrease in relative weight.

Table 3.7
Summary of Differences Between RELWGT6 and RELWGT1

Amount of change (+/-) in relative weight:	
% of discharges with > 2.5% change	51.9
% of discharges with > 10% change	1.2
Distribution of change:	
% discharges with weight increase	
All discharges	67.3
Lowest 2 cost deciles (32.3% of discharges)	87.9%
Upper 4 cost deciles (29.5% of discharges)	38.7%

Both RELWGT 3 and RELWGT6 use hospital-specific CCRs to estimate costs but RELWGT3 uses the HPF method to standardize for costs and RELWGT6 uses HSRV. The scattergram of the weights for the two methods shows the effect of the different standardization method when hospital-specific CCRs are used to estimate costs. It indicates that RELWGT6 results in lower relative weights for higher cost DRGs than RELWGT3. This can be seen in the trendline, which is below the 45-degree line and increasingly diverges from the 45-degree line as the relative weight increases.

Figure 3.5
Comparison of RELWGT3 and RELWGT6 Weights



3.6 AVERAGE RELATIVE WEIGHT BY TYPE OF CARE

Table 3.8 summarizes the average relative weight under each relative weight method by type of stay (medical or surgical) and by major diagnostic category (MDC). RELWGT2 (19 nat. CCRs; HPF) produces the lowest average weight for medical discharges and the highest average weight for surgical discharges. RELWGT6 (HSP CCRs; HSRV) has the opposite effect; that is, it produces the highest average weight for medical discharges and the lowest average weight for surgical discharges.

Table 3.8
Average Relative Weight by Type of Care and by MDC

		Number of	RELWGT1	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
		Discharges						
ALL		11,676,046	1.000	1.000	1.000	1.000	1.000	1.000
	Medical	8,152,258	0.698	0.687	0.701	0.699	0.697	0.712
	Surgical	3,523,788	1.701	1.726	1.693	1.698	1.704	1.669
MDC	Description							
00	Pre-MDC	55,619	8.684	9.012	8.356	9.551	9.433	8.702
01	Diseases and Disorders of the Nervous System	891,783	0.822	0.805	0.823	0.816	0.803	0.824
02	Diseases and Disorders of the	13,941	0.540	0.520	0.528	0.533	0.524	0.541
03	Diseases and Disorders of the Ear, Nose, Mouth, and Throat	99,527	0.514	0.495	0.513	0.500	0.490	0.513
04	Diseases and Disorders of the Respiratory System	1,669,121	0.887	0.875	0.902	0.910	0.903	0.914
05	Diseases and Disorders of the Circulatory System	3,152,821	1.095	1.118	1.087	1.064	1.097	1.072
06	Diseases and Disorders of the Digestive System	1,283,648	0.900	0.871	0.905	0.910	0.880	0.909
07	Diseases and Disorders of the Hepatobiliary System and Pancreas	328,625	0.983	0.941	0.977	0.980	0.942	0.981
08	Diseases and Disorders of the Musculoskeletal System and Connective Tissue	1,376,902	1.168	1.201	1.193	1.169	1.175	1.170
09	Diseases and Disorders of the Skin, Subcutaneous Tissue and Breast	293,095	0.675	0.667	0.663	0.678	0.674	0.677
10	Endocrine, Nutritional and Metabolic Diseases and Disorders	420,473	0.616	0.604	0.611	0.608	0.606	0.623
11	Diseases and Disorders of the Kidney and Urinary Tract	728,440	0.801	0.786	0.798	0.792	0.787	0.805
12	Diseases and Disorders of the Male Reproductive System	91,316	0.633	0.598	0.622	0.617	0.590	0.615
13	Diseases and Disorders of the Female Reproductive System	118,887	0.702	0.670	0.695	0.695	0.667	0.687
14	Pregnancy, Childbirth, and the Puerperium	17,003	0.454	0.429	0.425	0.504	0.484	0.442
16	Diseases and Disorders of the Blood and Blood Forming Organs	132,495	0.641	0.613	0.640	0.645	0.623	0.652
17	Myeloproliferative Diseases and Disorders and Poorly Differentiated Neoplasm	90,666	1.260	1.225	1.249	1.250	1.212	1.227
18	Infectious and Parasitic Diseases (Systemic or Unspecified Sites)	437,642	1.328	1.313	1.294	1.338	1.314	1.323
19	Mental Diseases and Disorders	120,160	0.552	0.535	0.587	0.641	0.638	0.626
20	Alcohol/Drug Use and Alcohol/Drug Induced Organic Mental Disorders	53,720	0.462	0.451	0.473	0.486	0.494	0.502
21	Injuries, Poisonings, and Toxic Effects of Drugs	131,585	0.772	0.751	0.780	0.792	0.761	0.781
22	Burns	4,523	1.667	1.594	1.565	1.759	1.607	1.659
23	Factors Influencing Health Status and Other Contacts with Health Services	51,888	0.532	0.523	0.595	0.572	0.583	0.599
24	Multiple Significant Trauma	12,218	2.094	2.034	2.141	2.253	2.148	2.177
25	Human Immunodeficiency Virus Infections	19,311	1.159	1.113	1.073	1.142	1.084	1.120

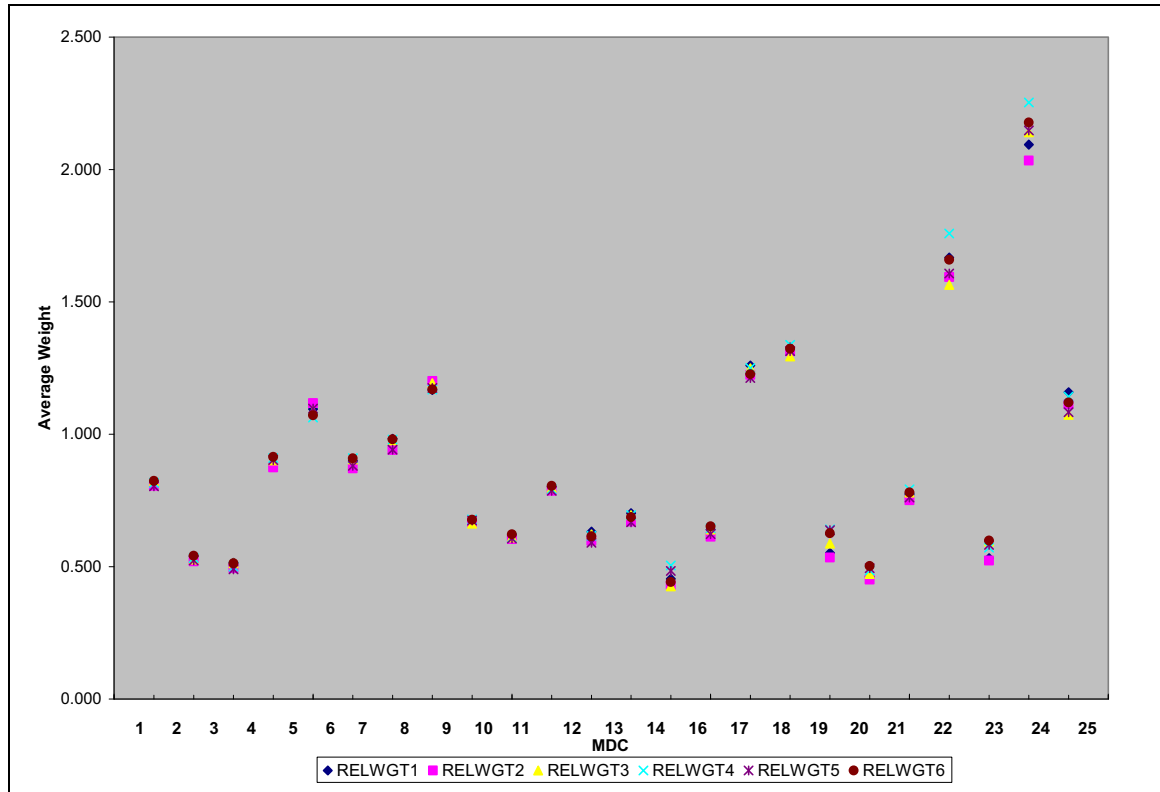
Despite the substantial changes in weights that occur under each system, the average weight in most MDCs remains relatively stable. This can be seen in the Figure 3.6 scattergram of MDC average weights across the alternative relative weight methods. Some noteworthy variations in the average relative weight are:

- Pre-MDC MS-DRGs (not shown in Figure 3.6). The average relative weight for these high cost cases range from a low of 8.356 for RELWGT3 (HSP CCRs; HPF) to a high of 9.551 for RELWGT5 (19 nat. CCRs; HSRVcc). Under each relative weight method, at least one MS-DRG weight changes more than 10 percent. Under the methods that use 19 CCRs to estimate cost, the weight for MS- DRG 1 (Heart transplant or implant of heart assist system w MCC) decreases 10.1 percent (RELWGT2) and 14.8 percent (RELWGT5). Only MS-DRG 3 and 4 (ECMO or trach w MV 36+ hrs or PDX exc face, mouth and neck w and w/o major O.R.) increase under the 19 CCR cost estimation methods. Using HSRVcc, the relative weights for these two MS-DRGs increase more than 10 percent. In contrast, the relative weights for two transplant MS-DRGs (1 Heart transplant and 5 Liver transplant w MCC or intestinal transplant) decrease nearly 15 percent under RELWGT5 (19 nat. CCRs; HSRVcc).
- MDC 14 (Pregnancy Childbirth and the Puerperium). A relatively small number of Medicare discharges are assigned to this MDC with short-stay cases. The substantial changes in both directions across the relative weights for some MS-DRGs are striking. For example, the weight for the most common MS-DRG (775 Vaginal delivery w/o complicating diagnoses; 5,343 discharges) decreases nearly 10 percent under RELWGT 3 (HSP CCRs; HPF) but increases 13.2 percent under RELWGT4 (15 nat. CCRs; HSRVcc). The weights for all DRGs decline under RELWGT2 (19 nat. CCRs; HPF) resulting in a 5.4 percent decrease in the average relative weight. However, the hospital-specific CCRs have a larger impact, with RELWGT3 (HSP CCRs; HPF) resulting in a 6.2 percent reduction in the average relative weight. In

contrast, the HSRVcc methods increase the weights for most DRGs in MDC 14.

- MDC 19 (Mental Diseases and Disorders). The average MS-DRG weight for this MDC decreases from .552 to .535 under RELWGT 2 (19 nat. CCRs; HPF). In contrast, the other methods result in weight increases in nearly all MS-DRGs in MDC 19. DRG 885 (Psychoses; 78,951 discharges) has increases ranging from 7.2 percent under RELWGT3 (HSP CCR; HPF) to 22.3 percent under RELWGT4 (15 nat. CCRs; HSRVcc). The MS- DRG 885 weight decrease under the expanded cost center groupings is more than offset by the HSRVcc method; there is a - 3.4 percent change under RELWGT2 (19 nat. CCRs; HSP) and 21.0 percent increase under RELWGT5 (19 nat. CCRs; HSRVcc) (19 nat. CCRs; HSRVcc).
- MDC 22 (Burns). These MS-DRGs have low Medicare volume but several are high cost. All have weight decreases under RELWGT2 (19 nat. CCRs; HPF) and RELWGT3 (HSP CCRs; HPF). RELWGT4 (15 nat. CCRs; HSRVcc) increases the weight for the high cost MS-DRG 927(Extensive Burns or full thickness burns w MV 36+ hours w skin graft, 187 discharges) 12.5 percent with the other MS-DRGs having increases ranging from 1.4 to 8.0 percent.
- MDC 24 (Multiple Significant Trauma). Except for MS-DRG 956 (Limb reattachment, hip & femur pro for multiple significant trauma, 3,763 discharges), the MS-DRG weights decrease under RELWGT2 (19 nat. CCRs; HPF). When HSRVcc is added under RELWGT5 (19 nat. CCRs; HSRVcc), most MS-DRGs have small changes relative to the RELWGT1 weight; however, the weight for MS-DRG 959 (Other OR procedures for multiple significant trauma w/o CC/MCC, 297 discharges) increases 39.1 percent under RELWGT5 (19 nat. CCRs; HSRVcc). The weights generally increase under the RELWGT3 (HSP CCRs; HPF), RELWGT4 (15 nat. CCRs; HSRVcc) and RELWGT6 (HSP CCRs; HSRV).

Figure 3.6
Average Relative Weight by MDC (Exclusive of Pre MDC)



3.7 AVERAGE CMI BY TYPE OF HOSPITAL

Table 3.9 shows the average CMI by classes of hospitals under the alternative relative weight systems. Compared to the changes in the relative weights for specific DRGs, the average CMI changes are relatively modest and consistent with what one might expect based on the types of cases treated by the various types of hospitals. Generally, average CMI changes using RELWGT2 (19 nat. CCRs; HPF) are small, with the increases concentrated in larger hospitals with higher CMIs. For example, the average CMI for urban hospitals with 500 or more beds increases 0.20 percent and 0.21 percent for hospitals more than 100 residents. The average CMI increase for rural referral centers is 0.31 percent but the average CMI for all rural hospitals changes -0.62 percent. HSRVcc tends to offset the changes under RELWGT2, so that under

RELWGT5 (19 nat. CCRs; HSRVcc), average CMI changes are quite small but often in the opposite direction from RELWGT2. For example, the average CMI for all rural hospitals increases 0.06 percent.

The hospital-specific cost estimation methods generate larger changes in the average CMIs and typically in the opposite direction than the 19 CCRs methods. That is, the average CMI increases tend to be concentrated in rural and smaller hospitals, so that hospital classes that had CMI increases under the 19 national CCR method have smaller increases or decreases under the HSP CCR methods. The differences are magnified when HSRVcc is used instead of HPF to standardize costs. For example, the average CMI for rural hospitals increases 0.5 percent under RELWGT3 (HSP CCRs; HPF) and 1.15 percent under RELWGT6 (HSP CCRs; HSRV). Teaching hospitals with 100 or more residents have a decrease of 0.47 percent under RELWGT3 (HSP CCR; HPF) compared to a 0.72 percent decrease under RELWGT6 (HSP CCRs; HSRV).

Table 3.9
Average CMI by Type of Hospital

	N Hospitals	N Transfer-Adjusted Discharges	RELWGT1 CMI	Percentage Change from RELWGT1 CMI				
				RELWGT 2	RELWGT 3	RELWGT 4	RELWGT 5	RELWGT 6
ALL	3,455	11,488,496	1.000	0.00%	0.00%	0.00%	0.00%	0.00%
By Geographic Location:								
Large urban areas	1,381	5,432,229	1.026	0.04%	-0.15%	0.06%	0.03%	-0.10%
Other urban areas	1,094	4,380,432	1.036	0.14%	0.02%	-0.11%	-0.05%	-0.23%
Rural hospitals	980	1,675,836	0.821	-0.62%	0.53%	0.10%	0.06%	1.15%
Bed Size (Urban):								
0-99 beds	543	563,057	0.872	-0.07%	0.60%	-0.28%	-0.03%	0.57%
100-199 beds	856	2,224,458	0.898	-0.31%	0.27%	0.18%	0.12%	0.73%
200-299 beds	490	2,346,848	0.968	-0.09%	0.03%	-0.01%	0.00%	0.17%
300-499 beds	419	2,810,555	1.045	0.15%	-0.08%	-0.08%	-0.01%	-0.26%
500 or more beds	167	1,867,742	1.133	0.20%	-0.32%	0.02%	-0.08%	-0.63%
Bed Size (Rural):								
0-49 beds	323	225,113	0.842	-0.66%	0.42%	0.06%	0.03%	1.04%
50-99 beds	371	525,358	0.934	-0.25%	0.26%	0.15%	0.09%	0.56%
100-149 beds	173	426,001	0.999	0.01%	-0.04%	-0.03%	-0.01%	-0.01%
150-199 beds	69	258,815	1.089	0.30%	-0.23%	-0.13%	-0.11%	-0.58%
200 or more beds	44	240,550	1.198	0.56%	-0.44%	-0.13%	-0.06%	-1.06%
Urban by Region:								
New England	118	520,060	0.940	-0.23%	0.10%	0.02%	-0.01%	0.28%
Middle Atlantic	334	1,513,534	0.969	0.01%	-0.22%	0.00%	0.10%	0.05%
South Atlantic	418	2,121,847	1.006	0.02%	0.05%	0.03%	0.05%	0.07%
East North Central	380	1,786,328	0.995	-0.01%	0.02%	-0.03%	-0.02%	0.02%
East South Central	163	663,680	1.020	0.03%	-0.02%	-0.02%	0.00%	-0.14%
West North Central	153	640,016	1.037	0.17%	0.17%	-0.10%	-0.06%	-0.27%
West South Central	331	1,061,551	1.025	0.05%	-0.06%	-0.12%	-0.10%	-0.18%
Mountain	148	445,342	1.043	0.14%	0.17%	-0.04%	-0.14%	-0.23%
Pacific	378	988,721	1.002	-0.13%	0.02%	0.17%	-0.02%	0.12%
Puerto Rico	52	71,582	0.855	-0.60%	-0.14%	0.77%	0.53%	1.26%
Rural by Region:								
New England	23	50,013	1.100	0.36%	0.03%	0.23%	0.14%	-0.35%
Middle Atlantic	72	144,610	1.004	0.10%	-0.05%	-0.08%	0.05%	-0.06%
South Atlantic	172	381,339	0.985	-0.06%	-0.05%	-0.02%	-0.02%	0.15%
East North Centra	121	254,480	1.037	0.16%	0.05%	-0.09%	-0.07%	-0.23%
East South Central	174	298,821	0.980	-0.19%	-0.15%	0.07%	0.05%	0.08%
West North Central	110	180,832	1.052	0.33%	0.16%	-0.02%	0.08%	-0.28%
West South Central	196	247,105	0.945	-0.23%	-0.03%	-0.07%	-0.03%	0.21%
Mountain	76	65,235	0.989	-0.10%	0.36%	0.15%	-0.19%	0.14%
Pacific	36	53,400	1.035	-0.03%	0.23%	0.35%	0.00%	0.11%

	N Hospitals	N Transfer-Adjusted Discharges	RELWGT1 CMI	Percentage Change from RELWGT1 CMI				
				RELWGT 2	RELWGT 3	RELWGT 4	RELWGT 5	RELWGT 6
By Payment Classification:								
Teaching Status:								
Non-teaching	2,401	5,737,984	0.920	-0.23%	0.22%	-0.01%	0.00%	0.46%
< 100 Residents	820	3,907,981	1.039	0.19%	-0.04%	-0.08%	0.02%	-0.22%
100 or more Residents	234	1,842,531	1.166	0.21%	-0.47%	0.19%	-0.04%	-0.72%
Urban DSH:								
Non-DSH	660	2,372,387	0.983	0.14%	0.17%	-0.34%	-0.14%	-0.09%
100 or more beds	1,508	7,120,305	1.015	-0.02%	-0.08%	0.10%	0.04%	-0.02%
Less than 100 beds	307	319,968	0.795	-0.70%	0.62%	0.20%	0.16%	1.40%
Rural DSH:								
Non-DSH	155	231,262	1.044	0.28%	0.10%	-0.20%	-0.11%	-0.33%
SCH	341	550,070	0.986	-0.06%	0.07%	0.11%	0.05%	0.16%
RRC	133	451,364	1.098	0.29%	-0.30%	-0.11%	-0.07%	-0.60%
Other Rural:								
100 or more beds	62	138,505	0.958	-0.17%	0.05%	0.09%	0.06%	0.33%
Less than 100 beds	289	304,634	0.865	-0.59%	0.31%	0.12%	0.09%	0.94%
Urban teaching and DSH:								
Both teach and DSH	805	4,529,448	1.061	0.10%	-0.17%	0.09%	0.03%	-0.26%
Teach and no DSH	184	995,044	1.011	0.19%	0.05%	-0.32%	-0.13%	-0.26%
No teach and DSH	1,010	2,910,825	0.919	-0.31%	0.16%	0.13%	0.07%	0.54%
No teach and no DSH	476	1,377,343	0.963	0.10%	0.27%	-0.35%	-0.16%	0.03%
Rural Hospital Types:								
RRC	144	492,434	1.102	0.31%	-0.27%	-0.14%	-0.10%	-0.64%
SCH	323	376,219	0.932	-0.28%	0.20%	0.15%	0.08%	0.53%
MDH	132	144,220	0.878	-0.50%	0.32%	0.02%	0.05%	0.82%
SCH and RRC	84	272,745	1.093	0.35%	-0.11%	-0.06%	-0.01%	-0.51%
MDH and RRC	7	14,088	0.928	-0.19%	0.20%	0.09%	0.15%	0.56%
Other Rural:	290	376,130	0.917	-0.32%	0.20%	0.11%	0.06%	0.59%
Ownership Types:								
Voluntary	1,970	7,982,091	1.013	0.05%	-0.02%	-0.04%	-0.02%	-0.09%
Proprietary	793	1,804,249	0.968	0.00%	0.00%	-0.10%	0.00%	0.07%
Government	535	1,319,051	0.969	-0.26%	0.01%	0.20%	-0.02%	0.25%
Unknown	157	383,104	0.978	-0.11%	0.41%	0.62%	0.61%	0.76%

Note: 1681 cases were not included because their provider did not have data in the impact file.

4. ABILITY OF RELATIVE WEIGHT METHODS TO PREDICT COST

This chapter reports the findings from our analyses of the ability of the relative weight methods to explain variation in cost across discharges and across hospitals. We begin with a brief explanation of the data and methods we employed to explore this issue. We then present our findings.

4.1 OVERVIEW OF ANALYSES

Our analysis of the comparative performance of the alternative relative weight methods explores several issues using log-linear regression models. We report the results from four regression models.

- Model 1 explores how well the relative weight predicts discharge-level cost. It is a discharge-level regression that uses for the dependent variable the log of cost determined using the HSP CCR method to estimate cost. There are two explanatory variables. The first is the log of the relative weight. The second is the log of the standardization factor. We include this variable because we want to control for systematic cost differences that are accounted for in the payment system. Each observation is weighted by its transfer-adjusted discharge value.
- Model 2 explores payment accuracy across Medicare discharges. It is also a discharge-level regression that uses for the dependent variable the log of cost determined using the HSP CCR method to estimate cost. The explanatory variable is the log of the payment for the discharge. Each observation is weighted by its transfer-adjusted discharge value.
- Model 3 explores how well the relative weight explains cost variation across hospitals. It uses the log of each hospital's average cost per discharge (determined using HSP CCRs) as the dependent variable. The explanatory variables are the log CMI for the hospital and the log of the standardization factor. The regression is weighted for the number of transfer-adjusted discharges at each hospital.

- Model 4 explores payment accuracy at the hospital-level. It uses the log of each hospital’s average cost per discharge as the dependent variable and the log of average payment per discharge for the hospital as the explanatory variable. The regression is weighted for the number of transfer-adjusted discharges at each hospital.

Table 4.1 summarizes the specification for the regression models.

**Table 4.1
Summary of Regression Model Specifications**

Model	Level	Dependent Variable	Explanatory Variable(s)
1	discharge	log (cost)	log (relwgt) log (HPF)
2	discharge	log (cost)	log (payment)
3	hospital	log (average cost per transfer-adjusted discharge)	log (CMI) log (HPF)
4	hospital	log (average cost per transfer-adjusted discharge)	log (average payment per transfer-adjusted discharge)

4.1.1 Cost Measures

In specifying the regressions, we had to decide which cost estimation method should be used as the “gold standard” against which the comparative performance of the alternative relative weight methods would be evaluated. For estimates of both discharge-level and hospital-level costs, we defined the dependent variable using the cost determined under the HSP CCR method. Our reasoning is that hospital charging practices vary across hospitals, and that the best way to take this into account is to use the HSP CCRs from available cost reports. This applies not only to situations where the cost report covers the discharge date but also to situations where only the prior year cost report is available. Our assumption is that a hospital’s charging practice in the preceding year is more likely to predict its charging practice in the subsequent year than the national CCR. Testing this assumption using multiple years cost report data was not feasible within the time and

resource constraints for the study and is a study limitation. Moreover, all of the available cost measures are based on accounting cost and do not reflect the actual resource cost of providing inpatient care.

The regressions need to control for systematic cost variation across hospitals. We have chosen to do this in the regressions that use relative weight or CMI as the explanatory variable by including the HPF as an explanatory variable. Because the adjustments for IME and DSH exceed the analytically justified levels based on their effect on cost per case (MedPAC, 2000; MedPAC 2007), we considered whether to include instead the measures used to determine the payment adjustments (i.e., the DSH patient percentage and a measure of teaching activity such as the ratio of residents-to-beds).⁴ We decided not to do so because the adjustment factors represent current policy and re-estimating them raises important policy issues that warrant additional analyses that are beyond the scope of this study. By making the HPF an explanatory variable, we are able to separately assess the performance of the relative weights and the payment factors.

4.1.2 Payment Measure

We simulated payments under each relative weight methodology holding total payments and outlier payments constant to estimated payments using the actual FY08 DRG relative weights, payment rates and outlier thresholds. See Chapter 5 for a more detailed explanation of our methodology.

⁴ The current IME adjustment increases 5.5 percent for each 10 percent increase in the ratio of residents to beds. Based on the CMS-DRGs, MedPAC estimates that costs increase about 2.1 percent for each 10 percent increase in the ratio of residents to beds. DSH payments are distributed using 10 different formulae. MedPAC analyses found that the DSH adjustments also exceed the analytically justified level. Costs increase about 0.4 percent for each 10 percent increase in the low income patient percentage (and about 1.4 percent with respect to urban hospitals with more than 100 beds) (MedPAC, 2007).

4.1.3 Measure of Explanatory Power

We used the r-squared statistic resulting from the regression to measure the proportion of cost variation within a population that is explained by the regression model. R-squared is a descriptive measure between 0 and 1. An R-squared value of 0.45 means that the model explains 45 percent of the cost variation for a sample of discharges. The closer the value is to 1.0, the better the model is at explaining the variation.

4.1.4 Measure of Weight and CMI Compression

We used the regression coefficient to assess whether weight compression is associated with each relative weight alternative. Ideally, the relative weight should increase in proportion to cost after controlling for systematic cost differences that are accounted for in the payment system. The regression coefficient for cost as a function of the relative weight indicates whether this relationship exists. A coefficient of 1.0 indicates the relationship is proportional. A coefficient greater than 1.0 indicates that cost increases more rapidly than the relative weights and the relative weights are compressed. For example, a coefficient of 1.05 means that for every 10 percent increase in the relative weight, there is a 10.5 percent increase in cost. When the weights are compressed, discharges with high relative weights are undervalued and discharges with low relative weights are overvalued. Conversely, a coefficient less than 1.0 indicates that cost increases less rapidly than the relative weights and that discharges with high relative weights are overvalued. We refer to this situation as relative weight decompression. Similarly, the coefficient from the hospital-level cost regression that uses the log CMI as the explanatory variable can be used to determine whether there is CMI compression. A coefficient greater than 1.0 indicates CMI compression, that is, hospitals with a high CMI have higher costs relative to their CMI than hospitals with lower CMIs. If the coefficient is 1.25, this means that a hospital with a CMI of 1.10 (i.e., the hospital has patients that expected to require

on average 10 percent more resources than the average Medicare discharge) has costs that are nearly 12.7 percent higher than average.

Because the IPPS formula includes the payment adjustment factors and outlier policies, compressed CMIs do not necessarily mean that the higher CMI hospitals are underpaid. These hospitals are more likely to have higher payment adjustments and receive a larger share of outlier payments. The coefficient from the regressions that use the log of average payment as the explanatory variable can be used to determine payment accuracy, or whether total payment is proportional to cost. A coefficient greater than 1.0 indicates that hospitals with higher costs are underpaid relative to hospitals with lower costs. A coefficient less than 1.0 indicates the higher cost hospitals are overpaid relative to hospitals with lower costs. Unfortunately, we do not have a measure of hospital efficiency that can be used to determine whether the relationship between cost and payment is appropriate for efficiently operating hospitals but must assume that on average hospitals are operating efficiently.

4.2 ABILITY TO EXPLAIN CASE-LEVEL COST VARIATION

We report the results for the Model 1 regressions on the ability of the relative weights to explain discharge-level cost variation in Table 4.2. We show the results for all cases, and separately for medical and surgical cases. The adjusted R-squared value for RELWGT1, the current relative weight method, is .500. There is minimal variation in explanatory power across the alternatives. RELWGT3 (HSP CCRs; HPF) has the highest r-squared value (.501), but in part this may be attributable to using the same cost estimation method for both the relative weights and the dependent variable. The HSRV and HSRVcc methods have slightly lower R-squared values (.498-.499) than RELWGT1; the RELWGT2 (19 nat. CCRs; HPF) method does not show any change relative to the current system. The r-squared values for medical cases are lower than for

surgical cases, but the general pattern of very little variation across the relative weight methods holds for the medical and surgical cases.⁵

Table 4.2
Model 1 Regression Results: Overall and by Type of Care

	R-SQ	Intercept	Relative Weight Coefficient	T-stat value (Coeff ≠1)	Standardization Factor Coefficient	T-stat value (Coeff ≠1)
Overall						
RelWGT1	0.50	8.57	1.02	49.73	0.57	436.55
RelWGT2	0.50	8.58	0.99	31.35	0.58	431.81
RelWGT3	0.50	8.56	1.02	80.59	0.58	429.40
RelWGT4	0.50	8.58	1.00	10.38	0.57	436.12
RelWGT5	0.50	8.58	1.01	17.25	0.58	431.90
RelWGT6	0.50	8.55	1.04	130.95	0.57	432.57
Medical cases only						
RelWGT1	0.28	8.55	0.96	73.53	0.56	363.06
RelWGT2	0.28	8.57	0.95	93.70	0.56	361.82
RelWGT3	0.28	8.55	0.97	51.28	0.56	358.40
RelWGT4	0.28	8.55	0.93	131.08	0.56	362.58
RelWGT5	0.28	8.55	0.95	89.14	0.56	360.67
RelWGT6	0.28	8.53	0.97	45.79	0.56	360.12
Surgical cases only						
RelWGT1	0.54	8.61	0.99	10.40	0.61	238.80
RelWGT2	0.54	8.63	0.96	87.09	0.63	231.03
RelWGT3	0.54	8.61	1.00	2.84	0.62	232.89
RelWGT4	0.54	8.63	0.98	42.82	0.61	237.87
RelWGT5	0.54	8.65	0.96	91.54	0.62	232.17
RelWGT6	0.54	8.63	0.99	13.33	0.62	234.58

The regression coefficients for log relative weight differ across the methods. For these coefficients, we report the T-statistic for whether the coefficient is significantly different from 1.0. All coefficients for the relative weight from the overall regression are significantly different from 1.0, but the level of

⁵ We also ran the regressions by MDC and while the amount of variation that was explained differed across MDCs, the r-squared values were generally similar across the relative weight methods.

compression/decompression is small under most methods. The RELWGT6 (HSP CCRs; HSRV) weights indicate the most compression, with a coefficient of 1.041. When surgical and medical cases are examined separately, the coefficients are less than 1.0. For medical cases, the coefficients range from 0.93 under RELWGT4 (15 nat. CCRs; HSRVcc) to 0.97 under the two methods that use HSP CCRs to estimate cost (RELWGT3 and RELWGT6). The weights for surgical cases are not as decompressed, with the coefficients ranging from 0.96 under the two methods that use the 19 national CCRs to estimate cost (RELWGT2 and RELWGT5) to 1.0 under RELWGT3 (HSP CCRs; HPF).

Perhaps the most striking regression results are the coefficients for log HPF that show that the HPF increases considerably more rapidly than cost. Across all methods, the coefficient for all types of cases is .57 to .58; or in words, for each 10 percent increase in the HPF there is a 5.7 to 5.8 percent increase in cost. The coefficient is lower for medical cases (0.559 to 0.565) than for surgical cases (0.612 to 0.625).

4.3 CASE-LEVEL PAYMENT ACCURACY

We performed the Model 2 regressions to compare the combined performance of the relative weights and the other payment parameters in explaining case-level costs. Our dependent variable was log cost (non-standardized) and our explanatory variable was log payment (including outlier payments). Each observation was weighted for its transfer-adjusted discharge value. The Model 2 payment regressions have higher explanatory power than the Model 1 regressions. Using RELWGT1 as an example, the R-squared value for the Model 2 overall payment regression is .528 (Table 4.3) compared to .500 in the Model 1 overall relative weight regression. As was the case in the Model 1 regressions, there is little difference in the explanatory power across the relative weight methods. However, RELWGT2 (19 nat. CCRs; HPF) has the highest explanatory power (.530) and RELWGT6 (HSP CCRs; HSRV) has the lowest (.526) in the overall regressions. When looking separately at medical and surgical cases, the methods using 19 national CCRs to estimate cost (RELWGT2 and RELWGT5) perform better than the other methods in explaining the cost of medical discharges (.314), but the improvement

over the other methods is less than .5 percent. For surgical discharges, RELWGT1 and RELWGT 2 do not perform as well as the other methods, but here again the differences are small.

Table 4.3
Model 2 Regression Results: Overall and by Type of Care

	R-SQ	Intercept	Total Payments Coefficient	T-stat value (Coeff ≠ 1)
Overall				
RelWGT1	0.528	0.17	0.969	114.07
RelWGT2	0.530	0.35	0.951	184.72
RelWGT3	0.529	0.10	0.977	84.22
RelWGT4	0.527	0.26	0.960	148.53
RelWGT5	0.529	0.24	0.962	139.67
RelWGT6	0.526	-0.01	0.989	39.35
Medical cases only				
RelWGT1	0.312	0.70	0.906	197.54
RelWGT2	0.314	0.78	0.899	213.55
RelWGT3	0.312	0.62	0.915	176.67
RelWGT4	0.312	0.89	0.885	245.89
RelWGT5	0.314	0.74	0.901	208.34
RelWGT6	0.311	0.59	0.917	172.16
Surgical cases only				
RelWGT1	0.591	0.39	0.952	113.74
RelWGT2	0.593	0.63	0.926	178.99
RelWGT3	0.594	0.35	0.955	105.28
RelWGT4	0.594	0.50	0.941	140.65
RelWGT5	0.594	0.66	0.924	183.87
RelWGT6	0.594	0.41	0.951	116.85

4.4 ABILITY TO EXPLAIN HOSPITAL-LEVEL COST VARIATION

Model 3 explores the comparative performance of the relative weight methods in explaining hospital-level cost variation. We used the log of each hospital's average cost per transfer-adjusted discharge as the dependent variable. Explanatory variables were the log of the hospital's CMI and log HPF. We weighted the regression for the number of transfer-adjusted discharges at each hospital. The t-statistic tests whether the coefficient is 1, rather than the usual test of whether the coefficient is 0.

Table 4.4
Model 3 Regression Results: Overall

	R-SQ	Intercept	CMI Coefficient	T-stat Value (Coeff≠1)	Standardization Factor Coefficient	T-stat Value (Coeff≠1)
RelWGT1	0.67	8.63	1.25	12.61	0.64	18.83
RelWGT2	0.67	8.64	1.21	10.88	0.65	18.48
RelWGT3	0.67	8.62	1.27	13.65	0.65	18.36
RelWGT4	0.67	8.62	1.26	13.10	0.62	19.60
RelWGT5	0.67	8.63	1.25	12.72	0.63	19.06
RelWGT6	0.67	8.60	1.32	15.54	0.63	19.15

The R-squared statistic is quite similar across the relative weight methods and higher than the results from the individual level regressions, indicating that there is some averaging of errors in the hospital-level measures and less variability than in the individual-level regressions. Consistent with the individual-level regressions, RELWGT3 (HSP CCRs; HPF) has the highest value (0.672) and the methods using national CCRs and HSRVcc (RELWGT4 and RELWGT5) have the lowest values (0.666).

The CMI coefficients for all six methods are greater than 1.0 and notably higher than the relative weight coefficients in Model 1. Model 1 addresses the effect of the relative weight on expected discharge-level costs, and Model 3 addresses the hospital-level CMI's effect on expected hospital costs. Relative weights are more variable than CMI, and discharge-level costs are more variable than hospital costs. The hospital-level regression removes the discharge-level variation and, in doing so, may result in higher compression for the CMI than the relative weights. Assuming no relationship between CMI and hospital efficiency, this means that the CMI undervalues the care that the hospital is providing. This occurs regardless of whether the HPF or HSRV/HSRVcc method is used to construct the relative weights. As in the Model 1 regression, the average cost per discharge rises more slowly than the HPF.

4.5 HOSPITAL-LEVEL PAYMENT ACCURACY

Model 4 explores payment accuracy at the hospital-level. It also uses the log of each hospital's average cost (non-standardized) per transfer-adjusted discharge as the dependent variable. The explanatory variable is the log of the hospital's average payment per transfer-adjusted discharge. The regression is weighted for the number of transfer-adjusted discharges at each hospital. The t-statistic tests whether the coefficient is significantly different from 1.0.

**Table 4.5
Model 4 Regression Results: Overall**

Method	R-SQ	Intercept	Average Payment Coefficient	T -value (Coeff≠1)
RelWGT1 (15 nat. CCR; HPF)	0.685	0.66	0.93	6.52
RelWGT2 (19 nat. CCR; HPF)	0.689	0.74	0.92	7.48
RELWGT3 (HSP CCR; HPF)	0.685	0.56	0.94	5.45
RELWGT4 (15 nat. CCR; HSRVcc)	0.680	0.69	0.93	6.70
RELWGT5 (19 nat. CCR; HSRVcc)	0.680	0.67	0.93	6.57
RELWGT6 (HSP CCR; HSRV)	0.676	0.51	0.95	22.61

The R-squared values are similar across the relative weight methods when payment is used as the explanatory variable (Table 4.5). RELWGT 6 (HSP CCRs; HSRV) has the lowest value (0.676); the highest R-squared value (0.689) is for RELWGT2 (19 nat. CCRs; HPF), which is less than a 2 percent improvement over RELWGT6.

The average payment per transfer-adjusted discharge consolidates the effect of the relative weight with the effect of the other payment factors. As seen in Table 4.5, the other payment adjustments more than offset the CMI compression. Across all relative weight methods, the coefficient for the payment variable is less than 1.0 and significantly different from 1.0. Thus, payments rise faster than cost. To the extent payment should be proportionate to cost, hospitals with low payment adjustment factors, i.e., those that do not receive IME or DSH payments,

are undercompensated relative to hospitals that receive these additional payments.

4.6 SUMMARY AND DISCUSSION

The results from our regression analysis reveal little variation in how well the alternative relative weight methods predict variation in cost. The R-squared statistics are similar across the methods and provide little guidance in selecting a relative weight method.

The coefficients from the Model 1 and Model 3 regressions across relative weight methods are also fairly consistent. In both sets of regressions, compression in the relative weight or CMI, as applicable, is evident across all methods. The HSRV and HSRVcc methods remove all cost variation across hospitals, including factors that are not accounted for in the HPF. We would expect weights derived from these methods to be compressed to the extent factors other than DSH and IME contribute to some hospitals having systematically higher costs and they disproportionately provide more resource-intensive types of care. Compression is less expected for the methods using the HPF standardization method because the HPF removes only the variation that is accounted for by the payment factors from the costs used to construct the relative weights. We suspect that weight compression occurs in the HPF standardization because the IME and DSH adjustment factors exceed analytically justified levels. By removing these factors in their entirety using the HPF method, the average standardized cost is understated for those types of cases - typically more resource-intensive-that are disproportionately provided by hospitals receiving DSH and IME.

When payment is used as the explanatory variable, the coefficient across all systems is less than 1.0 indicating that payments rise more rapidly than cost. This effect is also consistent with the impact of the IME and DSH payment adjustments so that, as we will see in the next chapter, the payment-to-cost ratio is higher for hospitals that receive these additional payments than those that do not.

5. PAYMENT IMPACTS AND PAYMENT-TO-COST RATIOS

This chapter reports our methods and findings related to two questions:

- What are the payment impacts of the alternative relative weight methods?
- What are the implications of the alternative relative weight methods on DRG profitability and hospital-level payment accuracy?

To address these questions, we simulated payments under each of the relative weight methods using current law payment parameters and the FY06 MedPAR records. We defined payment accuracy as the ratio of payment to cost. We defined payment impact as the difference between what would have been payable in FY08 under fully implemented MS-DRGs using the 100 percent cost-based relative weights (RELWGT1) and what would have been payable under each of the alternatives.

The first section provides an explanation of our data and methods to derive the payment variables used in these analyses. The remaining two sections present a summary of our analysis results on payment impact and payment accuracy. DRG-specific information is found in Appendix B.

5.1 OVERVIEW OF DATA AND METHODS USED TO DERIVE VARIABLES

5.1.1 Estimated Payments

For the payment simulations, we used the full set of FY06 records as we used in Chapter 3 with one exception: we eliminated the Maryland hospitals because they have a waiver from the IPPS. There were 11,051,325 records in our payment simulation file.

The first step in the analysis was to set a budget neutrality target by modeling case-level payments using the actual FY08 relative weights, payment rates, and outlier thresholds. We used these simulations to set targets for total expenditures and outlier payments.

We then normalized the weights under RELWGT1-RELWGT6 to the average CMI for the records in our analysis file using the actual FY08 DRG relative weights.⁶ We used an iterative process to determine the payment rate and outlier threshold that would result in total payments and total outlier payments across the relative weight methods that were budget neutral to actual FY08 payments for the records in our analysis file. In determining outlier payments, we used to cost-to-charge ratios on the IPPS impact file and made the adjustments to costs and charges consistent with the adjustments outlined in the FY08 final rule.⁷

Our payment simulations included transfer payment policies for short-stay transfers to hospitals and post-acute care providers. We did not model the special policies applicable to sole community hospitals and Medicare dependent hospitals; rather, we assumed all hospitals would be paid 100% of the IPPS national rates (or 75% national and 25% Puerto Rico rates in the cases of hospitals located in Puerto Rico). There were small differences in the payment rates and outlier thresholds across the relative weight methods.

5.1.2 Payment Impacts

To assess the redistribution of payments across the alternative relative weight methods, we compared payments under the MS-DRGs using RELWGT1 to payments under the alternative relative weight methods. We used RELWGT1 instead of the actual FY08 relative weights because RELWGT1 represents full implementation of both the MS-DRGs and cost-based relative weights under current policy, i.e., using the CCRs for 15 cost center groupings to estimate cost and the HPF method to standardize cost.

⁶ The normalization factor was 1.50035, slightly higher than the 1.49338 national CMI used to normalize the FY07 relative weights.

⁷ Specifically, we inflated covered charges (net of organ acquisition charges) by 12.78 percent and applied adjustment factors of 1.0027 and .9744 to the operating and capital CCRs, respectively.

5.1.3 Payment-to-Cost Ratios

The PTC ratios are a measure of payment accuracy. By normalizing the average PTC to 1.0, we are able to examine whether some DRGs or classes of hospitals are relatively more or less profitable than others. To construct the costs used in determine PTC ratios, we began with the costs for each discharge estimated using the hospital-specific cost-to-charge ratios. This is the same measure that we used in the payment regressions described in Chapter 4. We inflated the costs by the estimated increase in hospital costs per discharge between FY06 and FY08.⁸

We computed the PTC for each relative weight method using the payments from our simulation and the inflation-adjusted costs. We then computed a normalization factor as $\sum \text{total costs} / \sum \text{total payments}$ and applied this factor to the overall PTC for all records in the analysis file, so that the normalized PTC for each relative weight system equals 1.0. This approach facilitates comparisons across groupings within a relative weight method and across the relative weight methods.⁹ For example, if the PTC ratio for a grouping of discharges equals 1.10, the PTC is 10% higher than the average PTC for all discharges in the analysis file, or, in other words, the discharges are 10 percent more profitable than the average discharge.

5.2 RESULTS

5.2.1 Payment Impacts

Table 5.1 summarizes the payment changes across the relative weights for classes of hospitals. Several trends are noteworthy. First, the changes in average payment per discharge are relatively modest

⁸ The inflation factor was derived by adjusting Global Insight, Inc. projections for hospital market basket increase from the midpoint of FY06 to the midpoint of FY08 (7.1 percent) by the historical ratio of the rate of increase in operating cost per discharge to the market basket rate of increase. The ratio (1.0203) was taken from the FY08 final rule.

⁹ Other than rounding differences, the actual values for total payments are the same across all relative weight methods.

across the hospital classes. The average payment for hospitals located in large urban areas with one million or more population and other urban hospitals changes less than 0.2 percent across the methods. For rural hospitals, the different relative weight methods have more impact on the average payment amount, ranging from -0.6 percent under RELWGT2 (19 nat. CCRs; HPF) to 1.1 percent under RELWGT6 (HSP CCRs; HSRV).

Second, with regard to cost estimation methods, smaller and rural hospitals that treat less resource intensive cases tend to fare worse than other hospitals under RELWGT2 (19 nat. CCRs; HPF) but better under RELWGT3 (HSP CCRs; HPF). The average payment for all rural bed sizes decreases under RELWGT2 (19 nat. CCRs; HPF) and increases under RELWGT3 (HSP CCRs; HPF), but the magnitude of the changes are larger for the smaller bed size categories. For example, rural hospitals with fewer than 50 beds experience a -1.2 percent change in average payments under RELWGT2 compared to a 1.0 percent increase under RELWGT3 (HSP CCRs; HPF). For rural hospitals with 200 or more beds, the changes are -0.1 percent and 0.1 percent under RELWGT2 (19 nat. CCRs; HPF) and RELWGT3 (HSP CCRs; HPF), respectively. In contrast, urban hospitals with more than 500 beds have a 0.3 percent increase under RELWGT2 (19 nat. CCRs; HPF) compared to a -0.3 percent reduction under RELWGT3 (HSP CCRs; HPF). Interestingly, the average payment to urban hospitals with less than 100 beds does not decline under RELWGT2, which may reflect the concentration of specialty hospitals in this bed size category.

Next, with regard to standardization methods, RELWGT4 (15 nat. CCRs; HSRVcc) results in a 0.3 percent or less change across the various hospital groupings except for Puerto Rico hospitals. For these hospitals, there is a 0.7 percent increase in average payment per discharge. RELWGT 5's use of the HSRVcc method tends to moderate or offset the impact of using the 19 cost center groupings. For example, the -0.6 percent change for rural hospitals under RELWGT2 (19 nat. CCRs; HPF) becomes a 0.1 percent increase in average payment per discharge under RELWGT5. For major teaching hospitals with 100 or more residents, the 0.2 percent increase under RELWGT2 becomes a -0.1 percent change under RELWGT5. Generally, RELWGT6 (HSP CCRs; HSRV) amplifies the impact of RELWGT3 (HSP CCRs; HPF). Classes of hospitals that tend to gain by

using the HSP CCR under RELWGT3 gain even more under RELWGT6. For example, the 0.5 percent increase in the average payment to rural hospitals under RELWGT3 becomes a 1.1 percent increase under RELWGT6. The -0.4 percent change for major teaching hospitals under RELWGT3 becomes a -0.6 percent change under RELWGT6 (HSP CCRs; HSRV).

Finally, the changes in the average payment across hospital classes mask significant redistributions that occur within hospital groupings. Per case gains and losses are shown in Table 5.2 for selected hospital groupings by hospital percentile of gains. Under RELWGT2 (19 nat. CCRs; HPF), 50 percent of hospitals lose at least \$100 per discharge while 10 percent of hospitals gain at least \$377. Less redistribution occurs with RELWGT3 (HSP CCRs; HPF) than the other alternatives. Ten percent of hospitals have substantially higher losses under the HSRVcc and HSRV methods than under other alternatives to RELWGT1.

There are gains and losses within each hospital class. For example, the average payment to rural hospitals increases 0.5 percent under RELWGT 3 (HSP CCR; HPF). However, 10 percent of rural hospitals lose at least \$176 per discharge and 10 percent will gain at least \$420 per discharge. Under RELWGT2 (19 nat. CCRs; HPF), the average payment to urban hospitals with fewer than 100 beds does not change. However, 50 percent of the hospitals in this class lose at least \$96 under RELWGT2 while 10 percent gain at least \$340.

Table 5.1
Distribution of Change in Average Payment Per Discharges Across Classes of Hospitals

	N Hospitals	N Transfer-Adj Discharges	RELWGT 1 Avg Payment	RELWGT 2 Average Payment	RELWGT 3 Average Payment	RELWGT 4 Average Payment	RELWGT 5 Average Payment	RELWGT 6 Average Payment
ALL	3,534	11,051,325	\$10,131	\$10,132 0.0%	\$10,130 0.0%	\$10,132 0.0%	\$10,131 0.0%	\$10,132 0.0%
By Geographic Location:								
Large urban areas	1,406	5,133,100	\$11,212	\$11,218 0.1%	\$11,195 -0.2%	\$11,219 0.1%	\$11,215 0.0%	\$11,202 -0.1%
Other urban areas	1,133	4,286,065	\$9,972	\$9,983 0.1%	\$9,977 0.1%	\$9,963 -0.1%	\$9,967 -0.1%	\$9,955 -0.2%
Rural areas	995	1,632,160	\$7,148	\$7,107 -0.6%	\$7,186 0.5%	\$7,156 0.1%	\$7,155 0.1%	\$7,229 1.1%
Urban by Bed Size								
0-99 beds	630	557,126	\$8,005	\$8,005 0.0%	\$8,052 0.6%	\$7,991 -0.2%	\$8,010 0.1%	\$8,049 0.6%
100-199 beds	851	2,132,283	\$9,015	\$8,996 -0.2%	\$9,032 0.2%	\$9,031 0.2%	\$9,027 0.1%	\$9,067 0.6%
200-299 beds	480	2,227,106	\$9,976	\$9,975 0.0%	\$9,972 0.0%	\$9,975 0.0%	\$9,976 0.0%	\$9,981 0.0%
300-499 beds	411	2,677,331	\$11,166	\$11,188 0.2%	\$11,148 -0.2%	\$11,157 -0.1%	\$11,161 0.0%	\$11,126 -0.4%
500 or more beds	167	1,825,318	\$13,423	\$13,457 0.3%	\$13,381 -0.3%	\$13,418 0.0%	\$13,409 -0.1%	\$13,333 -0.7%
Rural Bed Size								
0-49 beds	337	218,605	\$5,766	\$5,695 -1.2%	\$5,822 1.0%	\$5,776 0.2%	\$5,773 0.1%	\$5,892 2.2%
50-99 beds	372	509,857	\$6,477	\$6,423 -0.8%	\$6,529 0.8%	\$6,495 0.3%	\$6,491 0.2%	\$6,589 1.7%
100-149 beds	173	418,239	\$7,112	\$7,071 -0.6%	\$7,148 0.5%	\$7,117 0.1%	\$7,118 0.1%	\$7,194 1.2%
150-199 beds	68	248,485	\$7,923	\$7,899 -0.3%	\$7,947 0.3%	\$7,922 0.0%	\$7,921 0.0%	\$7,968 0.6%
200 or more beds	45	236,973	\$9,118	\$9,113 -0.1%	\$9,129 0.1%	\$9,115 0.0%	\$9,118 0.0%	\$9,127 0.1%
By Payment Classification:								
Teaching Status:								
Non-teaching	2,480	5,493,236	\$8,466	\$8,447 -0.2%	\$8,485 0.2%	\$8,467 0.0%	\$8,468 0.0%	\$8,507 0.5%
< 100 Residents	819	3,773,000	\$10,268	\$10,285 0.2%	\$10,266 0.0%	\$10,261 -0.1%	\$10,270 0.0%	\$10,252 -0.2%
100 or more Residents	235	1,785,088	\$14,966	\$14,992 0.2%	\$14,906 -0.4%	\$14,981 0.1%	\$14,955 -0.1%	\$14,876 -0.6%

	N Hospitals	N Transfer- Adj Discharges	RELWGT 1 Avg Payment	RELWGT 2 Average Payment	RELWGT 3 Average Payment	RELWGT 4 Average Payment	RELWGT 5 Average Payment	RELWGT 6 Average Payment
Urban DSH:								
Non-DSH	698	2,211,770	\$9,300	\$9,320	\$9,313	\$9,271	\$9,288	\$9,282
				0.2%	0.1%	-0.3%	-0.1%	-0.2%
100 or more beds	1,501	6,894,278	\$11,222	\$11,229	\$11,206	\$11,230	\$11,224	\$11,206
				0.1%	-0.1%	0.1%	0.0%	-0.1%
<100 beds	340	313,116	\$7,527	\$7,483	\$7,569	\$7,542	\$7,540	\$7,620
				-0.6%	0.6%	0.2%	0.2%	1.2%
Rural DSH:								
Non-DSH	161	222,166	\$7,116	\$7,094	\$7,160	\$7,111	\$7,115	\$7,173
				-0.3%	0.6%	-0.1%	0.0%	0.8%
SCH	342	539,319	\$7,040	\$6,995	\$7,083	\$7,055	\$7,050	\$7,131
				-0.6%	0.6%	0.2%	0.1%	1.3%
RRC	133	443,421	\$8,204	\$8,180	\$8,224	\$8,202	\$8,204	\$8,247
				-0.3%	0.3%	0.0%	0.0%	0.5%
Other Rural:								
100 or more beds	62	130,037	\$6,782	\$6,730	\$6,822	\$6,795	\$6,793	\$6,882
				-0.8%	0.6%	0.2%	0.2%	1.5%
< 100 beds	297	297,217	\$5,954	\$5,884	\$6,006	\$5,968	\$5,968	\$6,082
				-1.2%	0.9%	0.2%	0.2%	2.2%
Urban teaching and DSH:								
Both teaching and DSH	806	4,381,821	\$12,284	\$12,304	\$12,256	\$12,291	\$12,284	\$12,241
				0.2%	-0.2%	0.1%	0.0%	-0.3%
Teaching and no DSH	183	954,232	\$10,074	\$10,100	\$10,075	\$10,042	\$10,061	\$10,038
				0.3%	0.0%	-0.3%	-0.1%	-0.4%
No teaching and DSH	1035	2,825,574	\$9,166	\$9,147	\$9,174	\$9,176	\$9,172	\$9,203
				-0.2%	0.1%	0.1%	0.1%	0.4%
No teaching and no DSH	515	1,257,539	\$8,713	\$8,729	\$8,734	\$8,686	\$8,701	\$8,708
				0.2%	0.2%	-0.3%	-0.1%	-0.1%
Rural Hospital Types:								
RRC	144	483,793	\$8,169	\$8,146	\$8,191	\$8,166	\$8,167	\$8,210
				-0.3%	0.3%	0.0%	0.0%	0.5%
SCH	324	368,207	\$6,455	\$6,401	\$6,502	\$6,471	\$6,466	\$6,561
				-0.8%	0.7%	0.3%	0.2%	1.6%
MDH	135	141,246	\$5,977	\$5,912	\$6,030	\$5,984	\$5,986	\$6,097
				-1.1%	0.9%	0.1%	0.1%	2.0%
SCH and RRC	84	268,216	\$7,877	\$7,856	\$7,911	\$7,882	\$7,883	\$7,930
				-0.3%	0.4%	0.1%	0.1%	0.7%
MDH and RRC	7	1,3782	\$6,529	\$6,480	\$6,578	\$6,541	\$6,545	\$6,640
				-0.8%	0.7%	0.2%	0.2%	1.7%
Other Rural:	301	356,916	\$6,419	\$6,361	\$6,468	\$6,435	\$6,432	\$6,533
				-0.9%	0.8%	0.2%	0.2%	1.8%

Table 5.2
Distribution of Per Case Gains and Losses Across Classes of Hospitals by Percentile

	Hospitals	Transfer-adjusted Cases	RELWGT	Per Case Change in Payment by Hospital Percentile				
				10th	25th	50th	75th	90th
Overall	3534	11,051,325	2	-\$333	-\$197	-\$100	\$44	\$377
			3	-\$286	-\$88	\$37	\$134	\$282
			4	-\$468	-\$216	-\$15	\$92	\$365
			5	-\$469	-\$245	-\$36	\$129	\$377
			6	-\$482	-\$107	\$83	\$198	\$350
Geographic Location								
Large Urban	1406	5,133,100	2	-\$364	-\$211	-\$106	\$47	\$402
			3	-\$323	-\$114	\$34	\$134	\$292
			4	-\$506	-\$238	-\$21	\$97	\$401
			5	-\$512	-\$268	-\$44	\$123	\$414
			6	-\$535	-\$124	\$83	\$203	\$371
Other Urban	1133	4,286,065	2	-\$327	-\$195	-\$96	\$49	\$387
			3	-\$277	-\$92	\$36	\$135	\$291
			4	-\$473	-\$222	-\$19	\$89	\$364
			5	-\$476	-\$252	-\$38	\$125	\$381
			6	-\$514	-\$131	\$73	\$185	\$338
Rural	995	1,632,160	2	-\$255	-\$164	-\$97	\$17	\$288
			3	-\$176	-\$37	\$43	\$130	\$240
			4	-\$295	-\$151	-\$1	\$87	\$271
			5	-\$317	-\$135	-\$8	\$138	\$295
			6	-\$185	\$9	\$111	\$211	\$327
Urban by Bed Size								
0-99 beds	630	557,126	2	-\$265	-\$164	-\$93	\$44	\$340
			3	-\$208	-\$49	\$43	\$144	\$299
			4	-\$390	-\$186	-\$5	\$84	\$291
			5	-\$360	-\$181	-\$10	\$137	\$332
			6	-\$352	-\$39	\$89	\$196	\$335
100-199 beds	851	2,132,283	2	-\$303	-\$190	-\$101	\$39	\$349
			3	-\$258	-\$65	\$40	\$136	\$280
			4	-\$414	-\$193	-\$7	\$94	\$363
			5	-\$408	-\$212	-\$21	\$140	\$372
			6	-\$360	-\$44	\$95	\$211	\$362
200-299 beds	480	2,227,106	2	-\$328	-\$199	-\$102	\$44	\$377
			3	-\$289	-\$92	\$36	\$132	\$281
			4	-\$472	-\$223	-\$18	\$90	\$365
			5	-\$465	-\$249	-\$39	\$119	\$381
			6	-\$477	-\$109	\$81	\$195	\$354

	Hospitals	Transfer-adjusted Cases	RELWGT	Per Case Change in Payment by Hospital Percentile				
				10th	25th	50th	75th	90th
300-499 beds	411	2,677,331	2	-\$367	-\$209	-\$101	\$55	\$420
			3	-\$315	-\$128	\$31	\$133	\$296
			4	-\$516	-\$252	-\$27	\$93	\$392
			5	-\$527	-\$276	-\$53	\$113	\$422
			6	-\$600	-\$179	\$70	\$187	\$352
500 or more beds	167	1,825,318	2	-\$430	-\$235	-\$108	\$70	\$487
			3	-\$373	-\$171	\$16	\$135	\$308
			4	-\$590	-\$288	-\$33	\$104	\$434
			5	-\$620	-\$321	-\$72	\$110	\$466
			6	-\$731	-\$264	\$63	\$187	\$360
Rural by Bed size								
0-49 beds	337	218,605	2	-\$225	-\$148	-\$99	-\$1	\$67
			3	-\$97	-\$15	\$50	\$127	\$223
			4	-\$223	-\$85	\$20	\$84	\$190
			5	-\$256	-\$101	-\$7	\$134	\$214
			6	-\$45	\$56	\$116	\$232	\$322
50-99 beds	372	509,857	2	-\$242	-\$155	-\$97	\$15	\$232
			3	-\$134	-\$29	\$47	\$132	\$237
			4	-\$254	-\$113	\$20	\$88	\$260
			5	-\$284	-\$111	-\$7	\$141	\$284
			6	-\$105	\$45	\$114	\$227	\$331
100-149 beds	173	418,239	2	-\$257	-\$166	-\$97	\$17	\$291
			3	-\$182	-\$39	\$42	\$128	\$241
			4	-\$304	-\$159	-\$4	\$86	\$278
			5	-\$320	-\$140	-\$9	\$138	\$301
			6	-\$192	\$8	\$111	\$208	\$329
150-199 beds	68	248,485	2	-\$270	-\$175	-\$95	\$34	\$328
			3	-\$230	-\$51	\$40	\$128	\$244
			4	-\$368	-\$179	-\$7	\$85	\$300
			5	-\$353	-\$197	-\$19	\$137	\$316
			6	-\$338	-\$40	\$92	\$197	\$319
200 or more beds	45	236,973	2	-\$301	-\$189	-\$96	\$43	\$356
			3	-\$266	-\$76	\$39	\$131	\$269
			4	-\$441	-\$205	-\$16	\$88	\$349
			5	-\$428	-\$236	-\$34	\$133	\$355
			6	-\$442	-\$101	\$83	\$190	\$328
Teaching Status:								
Non-teaching	2480	5,493,236	2	-\$285	-\$180	-\$97	\$38	\$335
			3	-\$244	-\$57	\$39	\$130	\$260
			4	-\$398	-\$186	-\$7	\$87	\$319
			5	-\$380	-\$204	-\$20	\$134	\$333
			6	-\$358	-\$42	\$92	\$198	\$335
Fewer than 100 Residents	819	3,773,000	2	-\$332	-\$200	-\$100	\$51	\$397

	Hospitals	Transfer-adjusted Cases	RELWGT	Per Case Change in Payment by Hospital Percentile				
				10th	25th	50th	75th	90th
			3	-\$291	-\$101	\$35	\$135	\$293
			4	-\$492	-\$233	-\$23	\$91	\$374
			5	-\$483	-\$258	-\$41	\$124	\$409
			6	-\$532	-\$133	\$75	\$189	\$349
100 or more Residents	235	1,785,088	2	-\$482	-\$264	-\$124	\$68	\$522
			3	-\$414	-\$196	\$8	\$146	\$323
			4	-\$648	-\$312	-\$36	\$120	\$467
			5	-\$682	-\$358	-\$83	\$116	\$493
			6	-\$793	-\$266	\$71	\$211	\$407
Rural DSH								
Non-DSH	161	222,166	2	-\$247	-\$155	-\$90	\$36	\$312
			3	-\$174	-\$36	\$42	\$128	\$250
			4	-\$303	-\$151	\$0	\$79	\$258
			5	-\$317	-\$148	-\$8	\$128	\$292
			6	-\$231	-\$19	\$96	\$188	\$306
SCH	342	539,319	2	-\$256	-\$165	-\$97	\$17	\$276
			3	-\$162	-\$35	\$44	\$131	\$243
			4	-\$280	-\$143	\$11	\$88	\$279
			5	-\$312	-\$130	-\$8	\$140	\$298
			6	-\$146	\$20	\$112	\$215	\$332
RRC	133	443,421	2	-\$280	-\$178	-\$98	\$30	\$335
			3	-\$243	-\$54	\$40	\$130	\$253
			4	-\$387	-\$186	-\$10	\$87	\$309
			5	-\$366	-\$205	-\$21	\$137	\$320
			6	-\$357	-\$36	\$96	\$202	\$329
Other Rural: 100 or more beds	62	130,037	2	-\$248	-\$160	-\$97	\$15	\$225
			3	-\$151	-\$35	\$43	\$128	\$231
			4	-\$279	-\$147	\$0	\$88	\$270
			5	-\$302	-\$122	-\$7	\$142	\$288
			6	-\$125	\$33	\$115	\$215	\$329
Other Rural: Less than 100 beds	297	297,217	2	-\$230	-\$151	-\$99	-\$1	\$70
			3	-\$111	-\$16	\$48	\$127	\$224
			4	-\$230	-\$94	\$20	\$87	\$217
			5	-\$268	-\$103	-\$7	\$141	\$233
			6	-\$55	\$56	\$118	\$241	\$330
Urban teaching and DSH								
Both teaching and DSH	806	4,381,821	2	-\$399	-\$226	-\$109	\$56	\$448
			3	-\$346	-\$141	\$30	\$140	\$309
			4	-\$550	-\$264	-\$27	\$104	\$428
			5	-\$571	-\$297	-\$57	\$126	\$459
			6	-\$639	-\$188	\$75	\$203	\$380
Teaching and no DSH	183	954,232	2	-\$320	-\$189	-\$95	\$54	\$405
			3	-\$285	-\$100	\$33	\$130	\$287

	Hospitals	Transfer-adjusted Cases	RELWGT	Per Case Change in Payment by Hospital Percentile				
				10th	25th	50th	75th	90th
No teaching and DSH	1035	2,825,574	4	-\$491	-\$236	-\$27	\$80	\$324
			5	-\$467	-\$259	-\$45	\$92	\$365
			6	-\$540	-\$141	\$68	\$168	\$319
			2	-\$307	-\$193	-\$102	\$38	\$349
			3	-\$268	-\$72	\$39	\$133	\$271
			4	-\$429	-\$201	-\$10	\$93	\$368
No teaching and no DSH	515	1,257,539	5	-\$419	-\$225	-\$25	\$140	\$369
			6	-\$393	-\$63	\$92	\$206	\$357
			2	-\$275	-\$170	-\$87	\$49	\$351
			3	-\$245	-\$71	\$36	\$127	\$277
			4	-\$436	-\$206	-\$20	\$73	\$296
			5	-\$410	-\$223	-\$34	\$94	\$327
Rural hospital types			6	-\$441	-\$108	\$67	\$163	\$300
RRC	144	483,793	2	-\$279	-\$176	-\$96	\$37	\$333
SCH	324	368,207	3	-\$240	-\$54	\$40	\$130	\$255
			4	-\$389	-\$185	-\$9	\$86	\$307
			5	-\$367	-\$205	-\$21	\$135	\$319
			6	-\$357	-\$39	\$93	\$199	\$327
			2	-\$238	-\$155	-\$96	\$13	\$211
			3	-\$136	-\$30	\$44	\$128	\$230
MDH	135	141,246	4	-\$252	-\$111	\$19	\$87	\$242
			5	-\$282	-\$110	-\$7	\$136	\$274
			6	-\$106	\$44	\$113	\$218	\$322
			2	-\$229	-\$148	-\$98	\$12	\$75
			3	-\$112	-\$16	\$46	\$127	\$223
			4	-\$241	-\$101	\$15	\$82	\$203
SCH and RRC	84	268,216	5	-\$268	-\$104	-\$7	\$137	\$225
			6	-\$64	\$53	\$116	\$229	\$322
			2	-\$274	-\$179	-\$96	\$38	\$334
			3	-\$220	-\$48	\$42	\$134	\$266
			4	-\$353	-\$173	-\$5	\$88	\$320
			5	-\$357	-\$192	-\$10	\$141	\$338
MDH and RRC	7	13,782	6	-\$328	-\$35	\$94	\$202	\$333
			2	-\$239	-\$147	-\$96	\$16	\$244
			3	-\$134	-\$22	\$51	\$131	\$230
			4	-\$266	-\$134	\$0	\$89	\$215
			5	-\$291	-\$109	-\$7	\$145	\$279
			6	-\$112	\$46	\$117	\$231	\$306
Other Rural	301	356,916	2	-\$240	-\$155	-\$98	\$13	\$133
			3	-\$135	-\$31	\$46	\$129	\$230
			4	-\$259	-\$119	\$17	\$88	\$247
			5	-\$286	-\$110	-\$7	\$141	\$275
			6	-\$107	\$47	\$115	\$227	\$330

5.2.2 Payment-to-Cost Ratios

The PTC ratios inform the question of whether the redistributions improve payment accuracy. Assuming there are not systematic differences in efficiency associated with specific types of services or hospitals, the average PTC should be 1.0 for a given grouping of discharges. Payment changes that bring the average PTC ratio closer to 1.0 improve payment accuracy for that set of discharges.

Figure 5.1 and Table 5.2 summarize the distribution of discharges by magnitude of PTC ratio across the relative weight methods. Appendix B contains a DRG-specific table of PTC ratios. The distribution of PTC ratios mirrors the payment regression results. The two methods that use hospital-specific CCRs to estimate cost have the highest percentage of discharges assigned to MS-DRGs with average PTC ratios between .95 and 1.05; no discharges are assigned to a MS-DRG with an average PTC ratio of less than .90. Under RELWGT1, 71 percent of discharges are assigned to MS-DRGs that fall within the .95-1.05 range compared to 94 percent of discharges under RELWGT3. Under RELWGT6 (HSP CCR; HSRV), 82 percent of discharges fall within this range and fewer discharges are assigned to MS-DRGs with PTC ratios of .90-.94 (12 percent vs. 22 percent under RELWGT1). High volume DRGs under RELWGT6 (HSP CCR; HSRV) that have PTC ratios of .90-.94 include device-intensive DRGs in MDC5 and MDC8 that benefit from the 19 CCR method of cost estimation (see discussion below). Under RELWGT2 (19 nat. CCRs; HPF) and RELWGT5 (19 nat. CCRs; HSRVcc), a smaller percentage of discharges are assigned to MS-DRGs with an average PTC ratio of 0.95-1.05 (54 percent and 59 percent, respectively) and a higher percentage are assigned to MS-DRGs with an average PTC ratio of less than 0.95 (39 percent and 33 percent, respectively) than under the other methods.

Generally, the same MS-DRGs have PTC ratios exceeding 1.20 across all relative weight methods. These tend to be relatively low volume, resource-intensive procedures such as transplants and full-thickness burn cases that are predominately treated at large teaching hospitals. Under RELWGT4 (15 nat. CCRs; HSRVcc), the PTC ratios for the tracheostomy DRGs (MS-DRGs 3 and 4) also exceed 1.20; they are in the 1.11-1.20 range under the other relative weight methods.

Figure 5.1
Distribution of Discharges by PTC Ratio

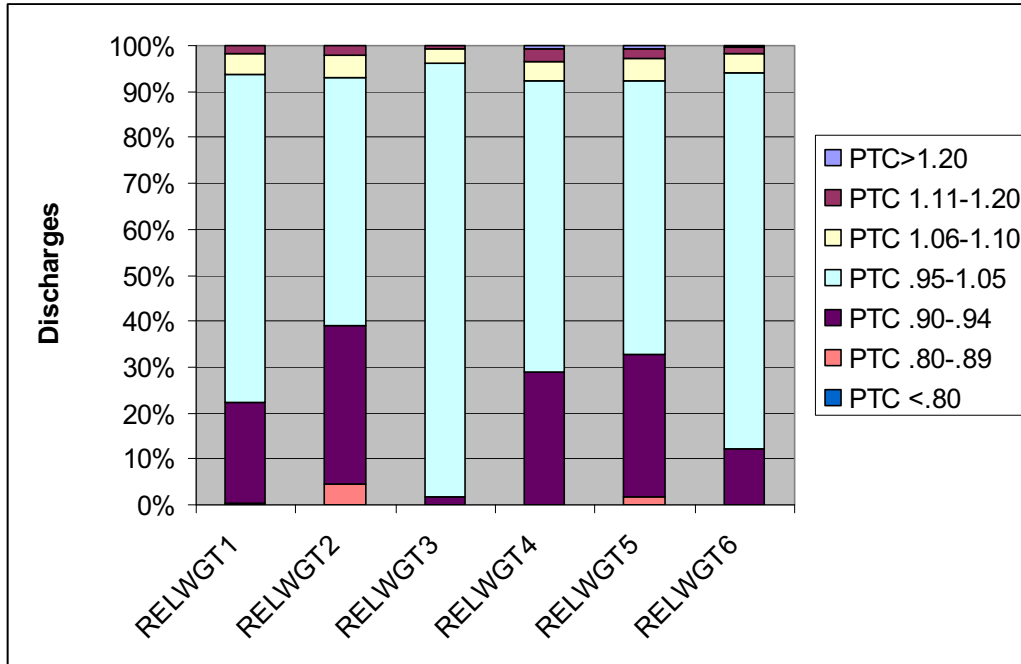


Table 5.2
Distribution of DRGs and Discharges by PTC Ratios

RELWGT		PTC		PTC		PTC		Total	
		PTC>1.2 0	1.11- 1.20	1.06- 1.10	PTC .95- 1.05	PTC .90-.94	PTC .80-.89		PTC <.80
1	DRGs	11	54	100	492	66	11	2	736
	Discharges	14,472	170,813	505,884	7,894,692	2,411,347	52,184	1,931	11,051,325
2	DRGs	9	43	89	358	195	37	5	736
	Discharges	14,573	227,415	532,836	5,952,021	3,820,987	501,379	2,111	11,051,325
3	DRGs	10	36	68	610	12			736
	Discharges	14,094	814,824	322,844	10,424,899	2,080,048			11,051,325
4	DRGs	19	63	99	462	91	2		736
	Discharges	66,130	331,825	438,858	7,034,489	3,170,586	9,436		11,051,325
5	DRGs	12	39	86	380	203	15	1	736
	Discharges	61,898	254,802	541,547	6,566,356	3,444,691	182,017	10	11,051,325
6	DRGs	11	38	77	563	47			736
	Discharges	26,547	152,890	487,954	9,026,180	1,357,752			11,051,325

The device-intensive MS-DRGs in MDC 5 that benefit from the 19 CCR cost estimation method show the greatest variation in PTC ratios across the relative weight methods. As seen in Table 5.3, the average PTC ratios for the defibrillator MS-DRGs are highest under RELWGT2 (19 nat.

CCRs; HPF) (1.11-1.14). The ratios decline when the HSRVcc method is combined with the 19 CCR cost estimation method, but these discharges are still 6 percent more profitable than the average discharge under RELWGT5 (19 nat. CCRs; HSRVcc). In comparison to RELWGT1, the hospital-specific CCR cost estimation method results in lower PTC ratios, but the average ratios remain above 1.0 (with the PTC ratio for MS-DRG 227 increasing from 0.99 to 1.0) under RELWGT3 (HSP CCR; HPF). However, most PTC ratios drop to below 1.0 under RELWGT4 (15 nat. CCRs; HSRVcc) and RELWGT6 (HSP CCRs; HSRV). The lowest average PTC ratios for the defibrillator MS-DRGs are under RELWGT6 (HSP CCRs; HSRV).

The pattern is somewhat different with the MDC 8 MS-DRGs for hip and knee replacements and revisions (MS-DRGs 467-470). The average PTC ratios under RELWGT1 for these MS-DRGs are 0.95 or below and, with the exception of MS-DRG 469 (Major joint replacement or reattachment of lower extremity with MCC), increase but remain below 1.0 under RELWGT2 (19 nat. CCRs; HPF) and the other relative weight methods. These discharges are less concentrated in large teaching hospitals than the cardiac device-intensive DRGs and do not benefit as much from the IME and DSH payment adjustments. In contrast to the general pattern, the average PTC ratio for MS-DRG 469 is highest under RELWGT5 (19 nat. CCRs; HSRVcc).

Table 5.3
PTC Ratios for Selected MS-DRGs Involving Implanted Devices

MS-DRG	MS-DRG Title	Discharges	Payment-to-Cost Ratios					
			RELWGT1	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
222	Cardiac defib implant w cardiac cath w AMI/HF/shock w MCC	2,774	1.06	1.12	1.04	1.02	1.06	1.00
223	Cardiac defib implant w cardiac cath w AMI/HF/shock w/o MCC	5,667	1.04	1.14	1.01	0.97	1.06	0.96
224	Cardiac defib implant w cardiac cath w/o AMI/HF/shock w MCC	1,866	1.06	1.12	1.04	1.03	1.08	1.00
225	Cardiac defib implant w cardiac cath w/o AMI/HF/shock w/o MCC	5,779	1.02	1.12	1.01	0.97	1.06	0.95
226	Cardiac defibrillator implant w/o cardiac cath w MCC	6,783	1.03	1.11	1.02	0.99	1.06	0.98
227	Cardiac defibrillator implant w/o cardiac cath w/o MCC	49,904	0.99	1.12	1.00	0.96	1.06	0.95
467	Revision of hip or knee replacement w CC	12,744	0.91	0.98	0.95	0.94	0.97	0.94
468	Revision of hip or knee replacement w/o CC/MCC	20,738	0.94	0.99	0.96	0.94	0.93	0.93
469	Major joint replacement or reattachment of lower extremity w MCC	24,930	0.95	1.01	0.96	0.99	1.04	0.98
470	Major joint replacement or reattachment of lower extremity w/o MCC	399,968	0.93	0.96	0.96	0.93	0.93	0.93

When we look at PTC ratios by types of hospitals, most variation is caused by the additional payments and other special payment policies under the IPPS. Under RELWGT1, the average PTC ratio is lowest for hospitals located in large urban areas with more than 1 million population(0.99) and highest for rural hospitals (1.01). However, the rural hospital PTC differs by region. In the East South Central and West South Central regions, the average PTC ratios are 1.13 and 1.09, respectively. They are also at least 1.0 in the Middle Atlantic (1.02) and South Atlantic (1.0) regions. The average PTC ratios for the

remaining regions range from .89 to .93. There are slight changes in average PTC for large urban and other urban hospitals across the relative methods; the changes for rural hospitals are greater, ranging from a decrease to 1.0 under RELWGT2 (19 nat. CCRs; HPF) to an increase to 1.02 under RELWGT6 (HSP CCRs; HSRV).

The variation in PTC ratios across hospitals is evident when hospitals are grouped by payment classifications. For example, the average PTC ratio for non-teaching hospitals is 0.96 under RELWGT1 compared to 1.08 for hospitals with 100 or more residents. RELWGT6 (HSP CCRs; HSRV) reduces the disparity the most, increasing the average PTC ratio for non-teaching hospitals and reducing it for major teaching hospitals to 1.07. Among urban hospitals, the 806 hospitals that receive both teaching and DSH payments have an average PTC ratio of 1.05 compared an average PTC ratio of 0.88 for the 515 hospitals that receive neither teaching nor DSH payments. The latter hospitals fare better under RELWGT2 (19 nat. CCRs; HPF) than the other relative weight methods.

Among rural hospitals, hospitals that do not receive DSH payments have a lower average PTC ratio (0.90 under RELWGT1) than rural hospitals receiving DSH payments. Within the latter group of hospitals, rural referral centers receiving DSH payments have an average PTC ratio of 1.04 under RELWGT1 and the PTC ratio remains about the same across the alternative relative weight methods, decreasing to 1.03 under RELWGT2 (19 nat. CCRs; HPF). The average PTC ratio for other rural hospitals receiving DSH payments is 1.02 for hospitals with 100 or more beds and 1.05 for those with less than 100 beds. The latter hospitals fare better under RELWGT2 (19 nat. CCRs; HPF) than the other relative weight methods.

5.3 SUMMARY AND DISCUSSION

The alternative weight methodologies result in substantial payment redistributions across DRGs and hospitals. Under RELWGT1, 71.4 percent of discharges are assigned to DRGs with a PTC ratio between .95 and 1.05. RELWGT3 and RELWGT6 increase the percentage of discharges with these ratios and reduce the percentage of highly profitable or

unprofitable discharges. The 19 CCR cost estimation methods have substantially more discharges assigned to DRGs with an average PTC<.90 than the other methods (4.5 percent and 1.6 percent respectively for RELWGT2 and RELWGT5). The HSRVcc methods (RELWGT 4 and RELWGT5) have about twice as many discharges assigned to high PTC ratio DRGs than the other DRGs. Using DRG profitability as a criterion to evaluate payment accuracy, RELWGT3 represents an improvement over RELWGT1; the other methods do not because they either increase the percentage of discharges assigned to highly profitable and/or unprofitable DRGs.

Despite the substantial variation across hospitals in PTC ratios, there are not substantial differences in the PTC ratios across the alternative relative weight methods for a given group of hospitals. For most hospital classes, there is less than a onepercent change in the ratios. The differences in hospital-level average PTC ratios are more attributable to the hospital payment adjustments than to the relative weight method.

Table 5.4
Distribution of Payment-to-Cost Ratios Across Hospital Classes

	N Hospitals	N Transfer- Adjusted Discharges	Payment-to-Cost Ratios					
			RELWGT1	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
ALL	3534	11,051,325	1.00	1.00	1.00	1.00	1.00	1.00
				0.0%	0.0%	0.0%	0.0%	0.0%
By Geographic Location:								
Large urban areas (pop>1 million)								
	1406	5,133,100	1.00	1.00	1.00	1.00	1.00	1.00
				0.0%	-0.2%	0.0%	0.0%	-0.1%
Other urban areas (pop<1 million)								
	1133	4,286,065	0.99	0.99	0.99	0.99	0.99	0.99
				0.1%	0.1%	-0.1%	-0.1%	-0.2%
Rural hospitals								
	995	1,632,160	1.01	1.00	1.01	1.01	1.01	1.02
				-0.6%	0.5%	0.1%	0.1%	1.1%
Bed Size (Urban):								
0-99 beds								
	630	557,126	0.93	0.92	0.93	0.92	0.93	0.93
				-0.1%	0.7%	-0.2%	0.1%	0.7%
100-199 beds								
	851	2,132,283	0.98	0.97	0.98	0.98	0.98	0.98
				-0.3%	0.3%	0.2%	0.1%	0.7%
200-299 beds								
	480	2,227,106	0.99	0.99	0.99	0.99	0.99	0.99
				-0.1%	0.0%	0.0%	0.0%	0.2%
300-499 beds								
	411	2,677,331	1.01	1.01	1.01	1.01	1.01	1.01
				0.1%	-0.1%	-0.1%	0.0%	-0.2%
500 or more beds								
	167	1,825,318	1.03	1.03	1.03	1.03	1.03	1.02
				0.2%	-0.2%	0.0%	-0.1%	-0.5%
Bed Size (Rural):								
0-49 beds								
	337	218,605	1.04	1.03	1.04	1.04	1.04	1.05
				-0.7%	0.4%	0.1%	0.0%	1.0%
50-99 beds								
	372	509,857	0.98	0.98	0.98	0.98	0.98	0.99
				-0.3%	0.3%	0.2%	0.1%	0.6%
100-149 beds								
	173	418,239	1.00	1.00	1.00	1.00	1.00	1.00
				0.0%	0.0%	0.0%	0.0%	0.0%

		<u>Payment-to-Cost Ratios</u>						
	N	N						
	Hospitals	Transfer- Adjusted Discharges	RELWGT1	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
150-199 beds	68	248,485	0.98	0.99	0.98	0.98	0.98	0.98
				0.3%	-0.2%	-0.1%	-0.1%	-0.6%
200 or more beds	45	236,973	1.03	1.03	1.02	1.03	1.03	1.02
				0.5%	-0.4%	-0.1%	-0.1%	-1.0%
By Payment Classification:								
Teaching Status:								
Non-teaching	2480	5,493,236	0.96	0.96	0.96	0.96	0.96	0.96
				-0.2%	0.2%	0.0%	0.0%	0.5%
Fewer than 100 Residents	819	3,773,000	1.00	1.00	1.00	1.00	1.00	1.00
				0.2%	0.0%	-0.1%	0.0%	-0.2%
100 or more Residents	235	1,785,088	1.08	1.08	1.08	1.08	1.08	1.07
				0.2%	-0.4%	0.1%	-0.1%	-0.6%
Urban DSH:								
Non-DSH	698	2,211,770	0.91	0.91	0.91	0.90	0.91	0.91
				0.1%	0.2%	-0.3%	-0.1%	-0.1%
100 or more beds	1501	6,894,278	1.03	1.03	1.03	1.03	1.03	1.03
				0.0%	-0.1%	0.1%	0.0%	0.0%
Less than 100 beds	340	313,116	0.97	0.96	0.97	0.97	0.97	0.98
				-0.7%	0.6%	0.2%	0.2%	1.4%
Rural DSH:								
Non-DSH	161	222,166	0.90	0.90	0.90	0.90	0.90	0.90
				0.3%	0.1%	-0.2%	-0.1%	-0.3%
SCH	342	539,319	0.98	0.98	0.98	0.98	0.98	0.98
				-0.1%	0.1%	0.1%	0.0%	0.2%
RRC	133	443,421	1.04	1.04	1.04	1.04	1.04	1.03
				0.3%	-0.3%	-0.1%	-0.1%	-0.6%
Other Rural:								
100 or more beds	62	130,037	1.02	1.02	1.02	1.02	1.02	1.03
				-0.2%	0.1%	0.1%	0.1%	0.3%
Less than 100 beds	297	297,217	1.06	1.05	1.06	1.06	1.06	1.07
				-0.6%	0.3%	0.1%	0.2%	1.0%

		<u>Payment-to-Cost Ratios</u>						
	N	N						
	Hospitals	Transfer- Adjusted Discharges	RELWGT1	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
Urban teaching and DSH:								
Both teaching and DSH	806	4,381,821	1.05	1.05 0.1%	1.05 -0.2%	1.05 0.1%	1.05 0.0%	1.05 -0.2%
Teaching and no DSH	183	954,232	0.94	0.94 0.2%	0.94 0.1%	0.94 -0.3%	0.94 -0.1%	0.94 -0.2%
No teaching and DSH	1035	2,825,574	0.98	0.97 -0.3%	0.98 0.2%	0.98 0.1%	0.98 0.1%	0.98 0.5%
No teaching and no DSH	515	1,257,539	0.88	0.88 0.1%	0.88 0.3%	0.88 -0.3%	0.88 -0.1%	0.88 0.1%
Rural Hospital Types:								
RRC	144	483,793	1.03	1.03 0.3%	1.03 -0.3%	1.03 -0.1%	1.03 -0.1%	1.02 -0.6%
SCH	324	368,207	0.96	0.96 -0.3%	0.97 0.2%	0.97 0.1%	0.97 0.1%	0.97 0.5%
MDH	135	141,246	1.03	1.02 -0.5%	1.03 0.3%	1.03 0.0%	1.03 0.0%	1.04 0.9%
SCH and RRC	84	268,216	0.96	0.97 0.3%	0.96 -0.1%	0.96 0.0%	0.96 0.0%	0.96 -0.5%
MDH and RRC	7	13,782	0.92	0.92 -0.2%	0.92 0.2%	0.92 0.1%	0.92 0.1%	0.92 0.6%
Other Rural:	301	356,916	1.02	1.02 -0.3%	1.02 0.2%	1.02 0.1%	1.02 0.1%	1.03 0.6%

6. SUMMARY OF FINDINGS AND DISCUSSION

This working paper evaluates six different methods to establish the relative weights used in the Medicare IPPS for acute care hospital services. We conducted two different types of analyses at both the discharge-level and the hospital-level. One type of analyses compares the five alternatives to the relative weights constructed using the CMS current cost-based relative weight method (RELWGT1). To assess the payment implications, we compared average payment using each relative weight alternative to average payment across hospital groupings using fully phased-in MS-DRG cost weights. These analyses imply no explicit judgments that one set of relative weights is "better" than another; they simply report how the weights or payments would differ under alternative methods.

The other type of analyses examines the relative payment accuracy of alternative relative weight methods. We needed a measure of cost to make the comparisons in these analyses. For this purpose, we used the cost for each discharge determined using 15 hospital-specific CCRs. Although we believe that our choice of this cost measure is appropriate, it may affect the results and conclusions of our analyses. For example, the relative weight methods that use hospital specific CCRs (RELWGT3 and RELWGT6) may be assessed more favorably than would have been the case had we used a different cost measure. Similarly, the use of 15 rather than 19 cost center CCRs may favor the relative weight methods that do not account for charge compression (RELWGT3, RELWGT4, and RELWGT6).

In this chapter, we summarize the questions that we examined and our key findings. We follow this with a discussion of the payment policy implications of our findings.

6.1 SUMMARY OF KEY FINDINGS

6.1.1 How do the relative weights differ across the alternative methodologies?

Table 6.1 provides a synopsis of each relative weight method and findings specific to a particular relative weight method. Key findings are:

- All relative weight alternatives result in significant changes in the relative weights assigned to a substantial percentage of discharges. The methods that change both the way costs are estimated and how they are standardized produce the most change (RELWGT5 and RELWGT6). RELWGT3, which uses hospital-specific CCRs to estimate cost while retaining the HPF standardization method, has the least change.
- Accounting for differential markups for services within the same cost center by using 19 national CCRs concentrates the increases in 30 percent of discharges primarily in higher weighted cardiac and orthopedic surgical DRGs. As a result, the average relative weight for surgical cases is higher under RELWGT2 than the other methods. Using hospital-specific CCRs to estimate cost tends to increase the weights for lower weighted medical DRGs. The HSRV method also tends to increase the weights for lower weighted DRGs, so that RELWGT6, which combines hospital-specific CCRs with HSRV, results in higher average relative weights for medical cases than the other methods. There is not a clear pattern in the changes under the HSRVcc methods across the cost deciles.

Table 6.1
Summary of Differences in Relative Weight Methods

Method	Methodology to Estimate Cost and Standardize	Key Differences in Weights
RELWGT1	Nat. CCRs;15 cost centers HPF	Baseline
RELWGT2	Nat. CCRs;19 cost centers HPF	Increases values for a limited set of DRGs, primarily higher weighted DRGs in MDC 5 and 8, that account for 30% of discharges Average relative weight for surgical DRGs is higher than under other methods Nearly 50% of discharges have at least a 2.5% change in relative weight
RELWGT3	HSP CCRs;15 cost centers HPF	Increases values of lower weighted DRGs Involves the least change: 31.5% of discharges have at least a 2.5% change in relative weight
RELWGT4	Nat. CCRs;15 cost centers HSRVcc	Increases values of lower weighted DRGs 43% of discharges have at least a 2.5% change in relative weight
RELWGT5	Nat. CCRs;19 cost centers HSRVcc	No clear pattern of changes across cost deciles Tends to moderate change resulting from combining 19 national CCR with HPF Nearly 50% of discharges have at least a 2.5% change in relative weight and 3.3 percent change at least 10 percent
RELWGT6	HSP CCRs;15 cost centers HSRV	HSRV tends to amplify change resulting from combining HSP CCR with HPF (RELWGT3) Average relative weight for medical DRGs is higher than under other methods Involves the most change: 52.9% of discharges have at least a 2.5% change in relative weight

6.1.2 How well does each relative weight methodology explain variation in costs?

We used regression analysis to assess how well the each relative weight methodology explained variation in cost at the discharge-level and at the hospital-level. Key findings are:

- The differences in the ability of the different relative weight methods to explain variation in either discharge-level or hospital-level costs are minimal.
- After controlling for the hospital payment factors, the relative weight in the discharge-level regression and the CMI in the hospital-level regression are compressed.
- The hospital payment factors increase more rapidly than cost. For every 10 percent increase in the hospital payment factors, cost increases about 5.6 percent under RELWGT1 in the discharge level regression. The relationship is similar for the other methods and for the hospital-level regressions examining CMI compression.
- When the relative weights are combined with the payment factors and total payment compared to cost, the payment factors more than offset the weight/CMI compression so that total payment also increases more rapidly than cost at both the discharge-level and the hospital-level. Under RELWGT1, cost increases 9.3 percent for every 10 percent increase in payment. Under the other methods, cost increases from 9.2 percent (RELWGT2) to 9.5 percent (RELWGT6) for every 10 percent increase in payment.

6.1.3 How accurate are payments using each relative weight methodology and current facility-level adjustments?

The regressions discussed above are one way to measure payment accuracy. We also used PTC ratios to examine DRG relative profitability. Key findings are:

- Under RELWGT1, 71.4 percent of discharges are assigned to DRGs with a PTC ratio between .95 and 1.05. RELWGT3 and RELWGT6 increase the percentage of discharges with these ratios.

RELWGT2 and RELWGT5 have the lowest percentage of discharges assigned to DRGs with these ratios.

- RELWGT1 has 1.7 percent of discharges assigned to highly profitable DRGs with PTC ratios > 1.1 . These tend to be low volume, resource-intensive cases that are predominately treated at large teaching hospitals. RELWGT2 has 2.2 percent compared to 0.9 percent under RELWGT3. The HSRVcc methods (RELWGT 4 and RELWGT5) have about twice as many discharges assigned to high PTC ratio DRGs.
- RELWGT 1 has 0.5 percent of discharges assigned to highly unprofitable DRGs with PTC ratios $< .90$. RELWGT2 and RELWGT5 have substantially more discharges assigned to DRGs with these ratios (4.5 percent and 1.6 percent respectively). RELWGT3 and RELWGT6 have no DRGs with PTC ratios $< .90$.

Hospital-level PTC ratios can be used to measure payment equity across groups of hospitals. Under RELWGT1, the PTC ratios by geographic location are similar. Large urban hospitals having a PTC ratio of 1.0; other urban hospitals have a slightly lower than average PTC ratio (0.99) and rural hospitals having a slightly higher than average PTC ratio (1.01). In general, there are not substantial differences in the PTC ratios across the alternative relative weight methods for a given group of hospitals. The greatest variation occurs for rural hospitals, where the change under RELWGT2 is -0.6 percent compared to a 1.1 percent increase under RELWGT6. This is consistent with the increases in higher-weighted surgical DRGs under RELWGT2 and increases in lower-weighted medical DRGs under RELWGT6.

Without regard to the relative weight method, the PTC ratios vary considerably across classes of hospitals and reflect the impact of the IME and DSH payment adjustments. While the average PTC for urban hospitals is about 1.0, the average PTC for hospitals receiving both DSH and IME payments is 1.05 compared to 0.88 for urban hospitals that receive no IME or DSH payments. While the average PTC under RELWGT1 was 1.01 for rural hospitals, it is 0.90 for hospitals that receive no DSH, 0.98 for SCH hospitals receiving DSH (before consideration of the

special payment policies), and 1.04 for rural referral centers receiving DSH.

6.1.4 What are the payment impacts of alternatives to the current methodology for establishing relative weights?

While there are relatively modest changes in average payment across hospital classes, there are significant redistributions that occur within hospital groupings. Under RELWGT2 (19 nat. CCRs; HPF), 50 percent of hospitals lose at least \$100 per discharge while 10 percent of hospitals gain at least \$377. Less redistribution occurs with RELWGT3 (HSP CCRs; HPF) than the other alternatives. Ten percent of hospitals have substantially higher losses under the HSRVcc and HSRV methods than under other alternatives to RELWGT1.

6.2 DISCUSSION

There are substantial differences in the weights for particular DRGs across the alternative methods and large redistributions across hospitals. However, none of the alternative weight methodologies represent a marked improvement over the current system. Our regression results show little difference across the methods in their ability to predict cost at either the discharge-level or the hospital level. Given these results, we believe it may be premature to consider further refinements in the relative weight methodology until data from FY08 or later can be evaluated. CMS made significant refinement beginning in FY08 in the patient classification system. While we used the MS-DRGs in our analyses, the MedPAR data pre-date the changes and do not reflect coding improvement and other behavioral changes that are likely to occur as hospitals respond to the incentives of the severity-adjusted DRGs.

In the future, we believe that RELWGT3 warrants further consideration as an improvement over RELWGT1. Using PTC ratios as a measure of payment equity, RELWGT3 increases the percentage of discharges that are assigned to DRGs with average PTC ratios between 0.90 and 1.05 and reduces the percentage of discharges assigned to highly profitable or unprofitable DRGs. Using the national CCRs, lower weighted DRGs that are provided in smaller non-teaching hospitals are

undervalued relative to higher weighted DRGs that are disproportionately provided in larger urban teaching hospitals. This result was based on our use of the cost per discharge estimated by applying the hospital-specific CCR. Although this measure does not account for charge compression within cost centers, it does account for systematic differences across hospitals in overall charging practices that affect payment accuracy. We believe that this is the best available measure of discharge-level cost. However, it may also contribute to RELWGT3's better performance on payment accuracy measures.

A second issue for future consideration is revision of the current HPF standardization method, which we found has larger implications for DRG relative profitability and payment-to-cost ratios than the choice of relative weight methodology. Our results do not indicate that the HSRV or HSRVcc standardization methods are clearly preferable to the HPF method. However, our results reveal some significant limitations of the current HPR method.

We designed our analyses to assess how well the relative weight methods explain cost given the current payment adjustments rather than how well the relative weight methods *could* explain cost given analytically-justified payment adjustments. The policy rationale for the IME and DSH payment adjustments should be taken into account in establishing the relative weights. Traditionally, the Medicare program has viewed the IME and DSH payment adjustments as compensating hospitals for higher costs of care attributable to teaching activities and serving low-income patients. Consistent with this viewpoint, the payment factors should increase proportionate to cost. Instead, they increase more rapidly than cost and have larger implications for DRG relative profitability and payment-to-cost ratios than the choice of relative weight methodology. Through the HPF standardization process, the costs for services are undervalued to the extent services are provided by hospitals receiving these adjustments. As a result, the DRG weights for the services that are disproportionately furnished by these hospitals are also undervalued. When the payment adjustments are applied, the hospitals that receive DSH and/or IME are overcompensated, but those

hospitals that do not receive these payment adjustments are not adequately compensated.

The viewpoint that the IME and DSH payment adjustments should compensate for higher Medicare costs attributable to these activities is not universally held. For example, some argue that the DSH adjustment is intended to assure access for Medicare beneficiaries by subsidizing uncompensated care and Medicaid under-payments. Others have argued that the IME adjustment is intended to compensate not only for teaching activities but for other social missions such as specialized services, charity care, and research activities (MedPAC, 2007). To the extent these payment adjustments are not intended to compensate for higher Medicare costs but rather to compensate for other non-recovered costs, the additional payment amounts should not be taken into account in the HPF standardization method or in assessing payment accuracy. Thus, important next steps in refining the IPPS are to clarify the intended purpose of the IME and DSH adjustments, define measures that are consistent with the intended purposes, and determine the analytically justified-levels using the MS-DRGs. For example, if the DSH adjustment is intended to both account for higher Medicare costs in hospitals that serve low-income patients and to subsidize uncompensated care, it would be appropriate to include uncompensated care in the measure of low-income patients and to consider only the analytically justified level in both the standardization process and in assessing payment accuracy. Taking these steps will have greater implications for payment accuracy than the alternative weight methodologies considered in this paper.

Appendix

A. PERCENT CHANGE IN WEIGHT FROM RELWGT1 BY MS-DRG

MS-				Number of	RELWGT1	Percent Change in Weight from RELWGT1				
DRG	MDC	Type	Description	Discharges	Weight	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
003	PRE	SURG	ECMO or trach w MV 96+ hrs or PDX exc face, mouth & neck w maj O.R.	24,113	11.87	3.84%	-3.08%	11.08%	10.21%	0.94%
004	PRE	SURG	Trach w MV 96+ hrs or PDX exc face, mouth & neck w/o maj O.R.	21,986	7.24	6.47%	-5.58%	11.16%	10.75%	0.52%
013	PRE	SURG	Tracheostomy for face,mouth & neck diagnoses w/o CC/MCC	1,447	1.29	-3.28%	2.00%	6.56%	1.15%	1.92%
021	01	SURG	Intracranial vascular procedures w PDX hemorrhage w CC	567	4.25	-1.25%	3.21%	7.98%	0.33%	0.28%
022	01	SURG	Intracranial vascular procedures w PDX hemorrhage w/o CC/MCC	249	2.75	-0.76%	5.65%	12.04%	5.14%	4.82%
025	01	SURG	Craniotomy & endovascular intracranial procedures w MCC	8,403	3.27	-0.19%	-2.51%	3.07%	0.44%	-2.96%
041	01	SURG	Periph/cranial nerve & other nerv syst proc w CC or periph neurostim	8,020	1.44	3.49%	-1.21%	-3.21%	1.04%	-2.46%
042	01	SURG	Periph/cranial nerve & other nerv syst proc w/o CC/MCC	5,241	1.12	5.83%	2.83%	-1.56%	4.10%	0.91%
056	01	MED	Degenerative nervous system disorders w MCC	7,634	1.08	2.53%	-2.57%	-1.71%	2.04%	-0.28%
064	01	MED	Intracranial hemorrhage or cerebral infarction w MCC	55,851	1.25	-1.01%	-0.03%	1.87%	0.28%	2.03%
065	01	MED	Intracranial hemorrhage or cerebral infarction w CC	115,288	0.78	-0.98%	2.91%	1.09%	2.57%	4.39%
066	01	MED	Intracranial hemorrhage or cerebral infarction w/o CC/MCC	92,346	0.56	-3.25%	4.48%	1.23%	0.82%	5.56%
075	01	MED	Viral meningitis w CC/MCC	1,218	1.12	-3.61%	3.19%	3.39%	0.13%	3.59%
077	01	MED	Hypertensive encephalopathy w MCC	1,102	1.17	-2.98%	5.44%	8.63%	3.04%	7.86%
080	01	MED	Nontraumatic stupor & coma w MCC	2,058	0.71	-3.83%	5.97%	4.61%	1.62%	7.33%
094	01	MED	Bacterial & tuberculous infections of nervous system w MCC	1,524	2.30	0.21%	1.09%	6.27%	3.50%	2.51%
095	01	MED	Bacterial & tuberculous infections of nervous system w CC	1,104	1.53	0.83%	4.63%	5.12%	6.36%	4.66%

MS-				Number of	RELWGT1	Percent Change in Weight from RELWGT1				
DRG	MDC	Type	Description	Discharges	Weight	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
096	01	MED	Bacterial & tuberculous infections of nervous system w/o CC/MCC	755	1.22	3.10%	-0.59%	1.03%	2.51%	-0.13%
097	01	MED	Non-bacterial infect of nervous sys exc viral meningitis w MCC	1,154	2.01	-2.39%	1.47%	5.21%	1.92%	1.72%
098	01	MED	Non-bacterial infect of nervous sys exc viral meningitis w CC	976	1.25	-2.23%	2.79%	1.97%	0.18%	2.83%
099	01	MED	Non-bacterial infect of nervous sys exc viral meningitis w/o CC/MCC	588	0.90	-3.36%	1.43%	0.55%	0.02%	2.04%
116	02	SURG	Intraocular procedures w CC/MCC	708	0.68	-2.70%	-1.81%	3.03%	6.57%	1.18%
117	02	SURG	Intraocular procedures w/o CC/MCC	1,376	0.44	-5.42%	-1.52%	7.48%	3.98%	6.93%
122	02	MED	Acute major eye infections w/o CC/MCC	677	0.38	-3.07%	1.88%	10.04%	5.87%	9.05%
129	03	SURG	Major head & neck procedures w CC/MCC or major device	1,392	1.32	-1.92%	2.27%	4.25%	1.39%	-1.44%
148	03	MED	Ear, nose, mouth & throat malignancy w/o CC/MCC	935	0.49	-3.20%	1.72%	5.13%	2.71%	4.38%
153	03	MED	Otitis media & URI w/o MCC	16,361	0.40	-3.97%	5.93%	4.05%	3.21%	7.10%
175	04	MED	Pulmonary embolism w MCC	11,799	1.07	0.04%	6.93%	4.11%	6.24%	7.76%
176	04	MED	Pulmonary embolism w/o MCC	40,579	0.73	-0.86%	8.39%	2.40%	5.33%	7.53%
177	04	MED	Respiratory infections & inflammations w MCC	56,687	1.35	0.81%	-0.97%	-0.44%	1.37%	1.16%
178	04	MED	Respiratory infections & inflammations w CC	73,025	0.99	0.62%	1.34%	0.99%	4.88%	3.60%
179	04	MED	Respiratory infections & inflammations w/o CC/MCC	26,908	0.69	-0.91%	4.20%	3.62%	5.85%	7.47%
186	04	MED	Pleural effusion w MCC	8,323	1.09	-0.19%	2.70%	0.18%	2.51%	4.09%
187	04	MED	Pleural effusion w CC	10,363	0.75	-0.54%	2.45%	-2.28%	0.23%	2.03%
188	04	MED	Pleural effusion w/o CC/MCC	5,102	0.55	-1.38%	2.76%	-2.33%	0.16%	3.59%
189	04	MED	Pulmonary edema & respiratory failure	105,013	0.91	-3.16%	6.24%	6.72%	2.41%	6.21%
190	04	MED	Chronic obstructive pulmonary disease w MCC	56,447	0.89	-0.42%	1.24%	-0.67%	1.42%	2.72%
191	04	MED	Chronic obstructive pulmonary disease w CC	126,496	0.66	-1.59%	1.44%	-1.28%	0.81%	2.89%
192	04	MED	Chronic obstructive pulmonary disease w/o CC/MCC	194,942	0.49	-2.37%	3.18%	2.32%	3.79%	6.80%
193	04	MED	Simple pneumonia & pleurisy w MCC	84,873	0.97	-0.33%	0.40%	-0.26%	0.95%	2.54%
194	04	MED	Simple pneumonia & pleurisy w CC	275,763	0.68	-1.82%	3.00%	1.24%	2.69%	4.99%
195	04	MED	Simple pneumonia & pleurisy w/o CC/MCC	144,635	0.49	-2.84%	5.91%	3.88%	5.19%	8.64%
196	04	MED	Interstitial lung disease w MCC	5,089	1.04	-0.52%	2.31%	-0.67%	0.70%	1.49%
198	04	MED	Interstitial lung disease w/o CC/MCC	4,954	0.56	-2.83%	4.08%	-1.00%	0.21%	3.28%
199	04	MED	Pneumothorax w MCC	3,253	1.20	-2.92%	3.95%	3.06%	0.33%	4.55%

MS-				Number of Discharges	RELWGT1 Weight	Percent Change in Weight from RELWGT1					
DRG	MDC	Type	Description			RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6	
200	04	MED	Pneumothorax w CC	8,353	0.69	-3.82%	6.98%	3.34%	1.79%	6.06%	
201	04	MED	Pneumothorax w/o CC/MCC	3,497	0.49	-2.34%	9.13%	5.90%	5.70%	9.50%	
203	04	MED	Bronchitis & asthma w/o CC/MCC	40,881	0.40	-3.14%	2.18%	3.39%	3.98%	7.35%	
205	04	MED	Other respiratory system diagnoses w MCC	5,699	0.82	-1.32%	4.77%	3.58%	3.25%	5.49%	
207	04	MED	Respiratory system diagnosis w ventilator support 96+ hours	46,457	3.33	0.12%	-2.74%	9.67%	3.02%	0.25%	
208	04	MED	Respiratory system diagnosis w ventilator support <96 hours	79,964	1.47	-2.14%	1.21%	9.98%	2.37%	2.69%	
216	05	SURG	Cardiac valve & oth maj cardiothoracic proc w card cath w MCC	8,403	6.62	3.32%	-3.29%	0.27%	2.47%	-3.72%	
217	05	SURG	Cardiac valve & oth maj cardiothoracic proc w card cath w CC	7,964	4.44	3.34%	-2.61%	-1.55%	2.22%	-4.47%	
219	05	SURG	Cardiac valve & oth maj cardiothoracic proc w/o card cath w MCC	10,064	5.43	1.93%	-0.47%	1.64%	1.40%	-2.88%	
220	05	SURG	Cardiac valve & oth maj cardiothoracic proc w/o card cath w CC	14,318	3.51	1.68%	0.74%	0.58%	0.86%	-2.58%	
223	05	SURG	Cardiac defib implant w cardiac cath w AMI/HF/shock w/o MCC	5,787	4.36	11.12%	-3.23%	-8.45%	1.92%	-8.62%	
224	05	SURG	Cardiac defib implant w cardiac cath w/o AMI/HF/shock w MCC	1,920	5.42	7.62%	-1.85%	-4.43%	2.10%	-7.09%	
225	05	SURG	Cardiac defib implant w cardiac cath w/o AMI/HF/shock w/o MCC	5,892	4.05	11.40%	-1.10%	-6.18%	4.64%	-7.48%	
226	05	SURG	Cardiac defibrillator implant w/o cardiac cath w MCC	7,002	4.52	9.56%	-0.78%	-5.31%	3.31%	-5.76%	
227	05	SURG	Cardiac defibrillator implant w/o cardiac cath w/o MCC	50,764	3.34	14.37%	0.95%	-3.84%	8.29%	-4.92%	
228	05	SURG	Other cardiothoracic procedures w MCC	3,093	5.01	0.26%	0.10%	2.98%	2.02%	-1.20%	
233	05	SURG	Coronary bypass w cardiac cath w MCC	16,926	4.53	1.02%	-1.76%	2.49%	3.47%	-0.67%	
235	05	SURG	Coronary bypass w/o cardiac cath w MCC	9,646	3.75	0.74%	-0.12%	2.39%	2.89%	-1.06%	
239	05	SURG	Amputation for circ sys disorders exc upper limb & toe w MCC	13,853	2.92	7.93%	-1.87%	1.41%	9.73%	2.43%	
240	05	SURG	Amputation for circ sys disorders exc upper limb & toe w CC	13,868	1.69	7.78%	-0.71%	4.61%	14.03%	5.16%	

MS-				Number of	RELWGT1	Percent Change in Weight from RELWGT1				
DRG	MDC	Type	Description	Discharges	Weight	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
241	05	SURG	Amputation for circ sys disorders exc upper limb & toe w/o CC/MCC	2,944	1.01	4.45%	3.11%	8.88%	15.47%	9.60%
242	05	SURG	Permanent cardiac pacemaker implant w MCC	16,932	2.50	7.29%	-1.29%	-2.35%	7.90%	-2.12%
243	05	SURG	Permanent cardiac pacemaker implant w CC	40,607	1.73	7.96%	0.00%	-4.75%	8.29%	-3.53%
244	05	SURG	Permanent cardiac pacemaker implant w/o CC/MCC	66,151	1.35	9.24%	-0.26%	-4.74%	10.64%	-4.11%
245	05	SURG	AICD lead & generator procedures	6,081	2.15	11.24%	-1.99%	-5.64%	3.83%	-6.45%
255	05	SURG	Upper limb & toe amputation for circ system disorders w MCC	2,607	1.64	4.31%	-1.64%	-0.54%	3.79%	1.69%
256	05	SURG	Upper limb & toe amputation for circ system disorders w CC	3,957	1.03	2.63%	-3.13%	1.02%	5.67%	1.73%
257	05	SURG	Upper limb & toe amputation for circ system disorders w/o CC/MCC	699	0.65	0.70%	5.29%	7.31%	11.17%	8.41%
259	05	SURG	Cardiac pacemaker device replacement w/o MCC	7,363	1.09	8.91%	-6.03%	-7.48%	5.35%	-8.22%
262	05	SURG	Cardiac pacemaker revision except device replacement w/o CC/MCC	3,296	0.61	0.40%	0.83%	-5.25%	15.08%	-2.20%
280	05	MED	Acute myocardial infarction, discharged alive w MCC	60,536	1.29	4.41%	-0.05%	3.53%	6.42%	3.58%
281	05	MED	Acute myocardial infarction, discharged alive w CC	62,141	0.82	3.47%	0.84%	1.67%	4.41%	3.01%
282	05	MED	Acute myocardia infarction, discharged alive w/o CC/MCC	57,628	0.58	5.58%	2.53%	7.23%	9.85%	6.54%
284	05	MED	Acute myocardial infarction, expired w CC	5,100	0.65	-3.72%	3.21%	8.92%	0.54%	4.01%
285	05	MED	Acute myocardial infarction, expired w/o CC/MCC	3,032	0.43	-3.50%	4.08%	12.45%	1.82%	5.94%
290	05	MED	Acute & subacute endocarditis w/o CC/MCC	462	0.86	1.76%	0.99%	-2.87%	3.48%	2.02%
292	05	MED	Heart failure & shock w CC	243,815	0.66	0.73%	0.53%	-5.22%	0.14%	2.09%
293	05	MED	Heart failure & shock w/o CC/MCC	204,762	0.48	0.35%	0.92%	-4.61%	0.73%	3.39%
295	05	MED	Deep vein thrombophlebitis w/o CC/MCC	1,652	0.42	-3.39%	6.97%	8.70%	9.97%	10.67%
296	05	MED	Cardiac arrest, unexplained w MCC	1,844	0.81	-5.07%	3.92%	14.87%	2.63%	5.27%
297	05	MED	Cardiac arrest, unexplained w CC	888	0.46	-5.05%	12.75%	24.64%	8.74%	12.19%
298	05	MED	Cardiac arrest, unexplained w/o CC/MCC	523	0.30	-4.46%	8.28%	19.26%	7.39%	11.07%
299	05	MED	Peripheral vascular disorders w MCC	17,060	0.98	0.91%	0.01%	0.68%	2.05%	1.71%
300	05	MED	Peripheral vascular disorders w CC	49,687	0.62	-0.08%	0.63%	1.74%	2.79%	2.44%
301	05	MED	Peripheral vascular disorders w/o CC/MCC	38,085	0.44	-0.79%	4.35%	5.10%	6.04%	5.96%
302	05	MED	Atherosclerosis w MCC	7,642	0.68	1.00%	0.86%	-2.03%	0.71%	3.58%

MS-				Number of	RELWGT1	Percent Change in Weight from RELWGT1				
DRG	MDC	Type	Description	Discharges	Weight	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
303	05	MED	Atherosclerosis w/o MCC	82,184	0.39	1.84%	0.05%	-1.59%	1.56%	4.52%
304	05	MED	Hypertension w MCC	2,050	0.72	-2.80%	1.87%	2.72%	1.07%	5.45%
305	05	MED	Hypertension w/o MCC	36,087	0.39	-2.12%	0.84%	-0.27%	0.04%	5.30%
311	05	MED	Angina pectoris	25,155	0.33	2.29%	6.79%	10.13%	12.33%	15.20%
315	05	MED	Other circulatory system diagnoses w CC	33,592	0.66	-0.56%	1.81%	-0.49%	0.74%	2.21%
316	05	MED	Other circulatory system diagnoses w/o CC/MCC	18,482	0.43	-1.23%	2.94%	0.03%	0.95%	4.57%
329	06	SURG	Major small & large bowel procedures w MCC	48,145	3.35	-1.14%	0.53%	4.83%	1.07%	1.50%
377	06	MED	G.I. hemorrhage w MCC	48,725	1.10	-1.11%	0.38%	2.23%	0.19%	2.19%
378	06	MED	G.I. hemorrhage w CC	119,317	0.67	-2.09%	2.32%	1.89%	0.24%	3.32%
440	07	MED	Disorders of pancreas except malignancy w/o CC/MCC	26,862	0.47	-5.87%	4.52%	4.84%	0.86%	6.88%
455	08	SURG	Combined anterior/posterior spinal fusion w/o CC/MCC	1,707	3.25	7.37%	0.89%	-6.66%	1.70%	-6.85%
459	08	SURG	Spinal fusion except cervical w MCC	3,179	3.77	9.18%	1.65%	-0.09%	4.05%	-0.26%
463	08	SURG	Wnd debrid & skn grft exc hand, for musculo-conn tiss dis w MCC	5,260	3.10	8.67%	-4.47%	0.37%	7.33%	-0.89%
464	08	SURG	Wnd debrid & skn grft exc hand, for musculo-conn tiss dis w CC	6,625	1.73	4.28%	-3.28%	1.25%	4.94%	-0.32%
465	08	SURG	Wnd debrid & skn grft exc hand, for musculo-conn tiss dis w/o CC/MCC	2,758	1.02	0.47%	0.38%	3.99%	4.60%	2.65%
466	08	SURG	Revision of hip or knee replacement w MCC	3,858	2.85	11.42%	1.36%	5.09%	12.70%	3.52%
467	08	SURG	Revision of hip or knee replacement w CC	14,319	1.92	7.81%	3.87%	3.47%	6.62%	2.97%
469	08	SURG	Major joint replacement or reattachment of lower extremity w MCC	29,477	2.12	7.84%	1.75%	5.31%	10.41%	4.41%
474	08	SURG	Amputation for musculoskeletal sys & conn tissue dis w MCC	2,836	2.22	6.81%	-2.42%	1.93%	8.32%	1.68%
475	08	SURG	Amputation for musculoskeletal sys & conn tissue dis w CC	3,717	1.29	3.98%	-2.31%	2.77%	7.04%	1.38%
476	08	SURG	Amputation for musculoskeletal sys & conn tissue dis w/o CC/MCC	1,567	0.71	-1.30%	3.23%	8.53%	8.08%	7.79%
480	08	SURG	Hip & femur procedures except major joint w MCC	25,570	1.91	4.23%	0.67%	3.55%	6.77%	2.86%
481	08	SURG	Hip & femur procedures except major joint w CC	74,721	1.19	4.49%	2.13%	5.10%	9.80%	5.18%
482	08	SURG	Hip & femur procedures except major joint w/o CC/MCC	50,098	0.98	3.73%	0.38%	3.66%	7.66%	3.27%
492	08	SURG	Lower extrem & humer proc except hip,foot,femur w MCC	4,675	1.81	3.22%	1.62%	3.80%	6.49%	3.72%

MS -				Number of Discharges	RELWGT1 Weight	Percent Change in Weight from RELWGT1				
DRG	MDC	Type	Description			RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
493	08	SURG	Lower extrem & humer proc except hip,foot,femur w CC	16,814	1.16	2.57%	0.95%	2.34%	4.68%	2.16%
494	08	SURG	Lower extrem & humer proc except hip,foot,femur w/o CC/MCC	29,494	0.80	0.73%	1.68%	1.35%	2.43%	1.61%
495	08	SURG	Local excision & removal int fix devices exc hip & femur w MCC	1,844	2.13	4.17%	-2.83%	0.68%	3.94%	-1.56%
496	08	SURG	Local excision & removal int fix devices exc hip & femur w CC	5,513	1.14	0.21%	-0.19%	0.52%	0.79%	-0.77%
533	08	MED	Fractures of femur w MCC	826	0.96	1.34%	-2.02%	1.20%	3.39%	0.62%
534	08	MED	Fractures of femur w/o MCC	3,655	0.47	2.16%	3.53%	6.16%	10.67%	5.12%
535	08	MED	Fractures of hip & pelvis w MCC	6,778	0.92	0.72%	0.82%	1.49%	2.14%	1.54%
536	08	MED	Fractures of hip & pelvis w/o MCC	34,617	0.46	0.03%	2.67%	2.98%	3.76%	3.05%
538	08	MED	Sprains, strains, & dislocations of hip, pelvis & thigh w/o CC/MCC	1,145	0.37	-2.98%	5.14%	3.02%	0.45%	3.57%
539	08	MED	Osteomyelitis w MCC	3,344	1.34	4.47%	-2.03%	0.39%	4.41%	1.33%
540	08	MED	Osteomyelitis w CC	4,342	0.87	3.25%	-3.89%	1.35%	3.61%	0.73%
541	08	MED	Osteomyelitis w/o CC/MCC	1,814	0.62	0.22%	-0.28%	4.63%	6.63%	5.62%
542	08	MED	Pathological fractures & musculoskelet & conn tiss malig w MCC	5,763	1.24	1.66%	0.19%	-0.70%	1.48%	0.27%
543	08	MED	Pathological fractures & musculoskelet & conn tiss malig w CC	19,050	0.75	0.33%	1.88%	0.03%	2.30%	1.85%
544	08	MED	Pathological fractures & musculoskelet & conn tiss malig w/o CC/MCC	12,610	0.52	-1.47%	2.27%	0.56%	1.68%	2.55%
546	08	MED	Connective tissue disorders w CC	5,934	0.71	-1.10%	2.39%	1.42%	2.15%	2.70%
550	08	MED	Septic arthritis w/o CC/MCC	868	0.51	0.09%	-2.19%	1.73%	3.26%	2.75%
551	08	MED	Medical back problems w MCC	9,307	1.01	-0.08%	4.23%	3.85%	3.57%	4.28%
556	08	MED	Signs & symptoms of musculoskeletal system & conn tissue w/o MCC	19,392	0.39	-3.10%	5.43%	3.02%	2.22%	5.71%
559	08	MED	Aftercare, musculoskeletal system & connective tissue w MCC	1,604	1.09	4.45%	-0.96%	1.04%	2.98%	0.14%
562	08	MED	Fx, sprn, strn & disl except femur, hip, pelvis & thigh w MCC	4,932	0.94	1.26%	0.45%	0.87%	3.25%	2.43%
563	08	MED	Fx, sprn, strn & disl except femur, hip, pelvis & thigh w/o MCC	36,488	0.45	-1.67%	0.57%	-0.18%	0.99%	1.50%

MS-		Type	Description	Number of Discharges	RELWGT1 Weight	Percent Change in Weight from RELWGT1				
DRG	MDC					RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
573	09	SURG	Skin graft &/or debrid for skn ulcer or cellulitis w MCC	5,632	2.17	5.76%	-3.65%	1.09%	6.43%	0.59%
574	09	SURG	Skin graft &/or debrid for skn ulcer or cellulitis w CC	12,499	1.27	3.31%	-4.99%	1.63%	4.66%	-0.27%
575	09	SURG	Skin graft &/or debrid for skn ulcer or cellulitis w/o CC/MCC	6,272	0.75	-0.20%	-1.44%	5.33%	5.73%	3.99%
579	09	SURG	Other skin, subcut tiss & breast proc w MCC	3,273	1.88	1.88%	-3.37%	1.12%	1.54%	-0.54%
592	09	MED	Skin ulcers w MCC	3,932	1.17	2.33%	-1.95%	-0.39%	1.77%	0.27%
593	09	MED	Skin ulcers w CC	13,147	0.71	0.68%	-2.81%	2.74%	3.99%	2.18%
594	09	MED	Skin ulcers w/o CC/MCC	2,855	0.48	0.34%	1.47%	7.32%	10.53%	8.93%
598	09	MED	Malignant breast disorders w CC	1,545	0.69	-3.72%	-0.08%	6.79%	3.85%	1.18%
599	09	MED	Malignant breast disorders w/o CC/MCC	354	0.42	-3.09%	1.32%	0.22%	0.22%	4.29%
602	09	MED	Cellulitis w MCC	20,201	0.94	0.36%	-1.43%	-0.02%	0.44%	0.30%
616	10	SURG	Amputat of lower limb for endocrine,nutrit,& metabol dis w MCC	1,115	2.59	7.81%	0.58%	7.23%	15.54%	7.81%
617	10	SURG	Amputat of lower limb for endocrine,nutrit,& metabol dis w CC	6,973	1.39	3.16%	-2.88%	0.51%	4.18%	0.13%
618	10	SURG	Amputat of lower limb for endocrine,nutrit,& metabol dis w/o CC/MCC	272	0.79	0.21%	8.14%	10.08%	13.89%	13.94%
623	10	SURG	Skin grafts & wound debrid for endoc, nutrit & metab dis w CC	3,401	1.24	2.76%	-4.37%	-0.99%	2.47%	-0.67%
624	10	SURG	Skin grafts & wound debrid for endoc, nutrit & metab dis w/o CC/MCC	394	0.71	-1.96%	3.58%	8.73%	10.57%	11.35%
630	10	SURG	Other endocrine, nutrit & metab O.R. proc w/o CC/MCC	555	0.94	0.29%	3.66%	0.64%	2.48%	3.76%
642	10	MED	Inborn errors of metabolism	1,568	0.70	-2.86%	10.22%	8.69%	12.97%	11.01%
653	11	SURG	Major bladder procedures w MCC	1,580	3.70	3.01%	-0.08%	3.72%	5.57%	-0.05%
654	11	SURG	Major bladder procedures w CC	3,385	1.96	-2.55%	1.28%	2.62%	0.78%	0.41%
682	11	MED	Renal failure w MCC	74,308	1.12	-0.66%	1.05%	0.54%	0.42%	2.62%
683	11	MED	Renal failure w CC	129,714	0.77	-0.16%	0.62%	-0.73%	1.14%	2.15%
684	11	MED	Renal failure w/o CC/MCC	28,994	0.48	-1.34%	2.70%	1.19%	2.56%	5.63%
691	11	MED	Urinary stones w esw lithotripsy w CC/MCC	907	1.01	-4.15%	13.64%	12.63%	7.95%	12.36%
692	11	MED	Urinary stones w esw lithotripsy w/o CC/MCC	655	0.73	-4.67%	27.25%	28.49%	24.24%	28.07%

MS-				Number of	RELWGT1	Percent Change in Weight from RELWGT1				
DRG	MDC	Type	Description	Discharges	Weight	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
698	11	MED	Other kidney & urinary tract diagnoses w MCC	20,953	0.99	-0.86%	-0.48%	0.77%	0.20%	0.66%
699	11	MED	Other kidney & urinary tract diagnoses w CC	27,182	0.65	-1.61%	1.60%	1.09%	0.98%	3.05%
700	11	MED	Other kidney & urinary tract diagnoses w/o CC/MCC	11,333	0.44	-3.04%	2.15%	2.53%	1.73%	4.35%
716	12	SURG	Other male reproductive system O.R. proc for malignancy w/o CC/MCC	1,369	0.64	5.67%	3.07%	-3.36%	1.89%	-3.49%
724	12	MED	Malignancy, male reproductive system w/o CC/MCC	659	0.41	-2.58%	1.37%	2.79%	3.93%	4.75%
728	12	MED	Inflammation of the male reproductive system w/o MCC	6,264	0.46	-4.30%	0.22%	2.53%	0.12%	2.94%
745	13	SURG	D&C, conization, laparoscopy & tubal interruption w/o CC/MCC	2,108	0.48	-0.74%	-0.32%	1.46%	0.12%	1.31%
765	14	SURG	Cesarean section w CC/MCC	2,601	0.75	-6.05%	-8.37%	9.30%	5.33%	-4.52%
766	14	SURG	Cesarean section w/o CC/MCC	2,662	0.52	-5.77%	-14.53%	5.29%	0.58%	-12.09%
767	14	SURG	Vaginal delivery w sterilization &/or D&C	123	0.52	-2.01%	-7.82%	14.50%	10.34%	-7.04%
774	14	MED	Vaginal delivery w complicating diagnoses	1,473	0.43	-4.40%	-6.23%	13.60%	8.97%	-1.31%
775	14	MED	Vaginal delivery w/o complicating diagnoses	5,343	0.33	-5.88%	-9.73%	13.16%	7.83%	-6.08%
776	14	MED	Postpartum & post abortion diagnoses w/o O.R. procedure	495	0.44	-5.07%	6.96%	14.70%	7.75%	8.09%
777	14	MED	Ectopic pregnancy	180	0.47	-5.18%	1.13%	9.00%	1.79%	7.48%
778	14	MED	Threatened abortion	494	0.26	-1.17%	10.87%	21.85%	24.10%	15.51%
779	14	MED	Abortion w/o D&C	107	0.40	-12.24%	9.07%	22.15%	1.29%	10.84%
780	14	MED	False labor	50	0.20	-5.74%	20.78%	31.31%	35.09%	23.32%
781	14	MED	Other antepartum diagnoses w medical complications	3,061	0.39	-2.25%	5.76%	16.89%	14.52%	11.12%
800	16	SURG	Splenectomy w CC	723	1.69	-3.58%	5.55%	5.41%	0.68%	4.01%
801	16	SURG	Splenectomy w/o CC/MCC	599	1.06	-5.98%	5.17%	5.62%	0.74%	4.35%
808	16	MED	Major hematol/immun diag exc sickle cell crisis & coagul w MCC	612	1.58	-0.63%	5.00%	9.11%	5.24%	6.19%
810	16	MED	Major hematol/immun diag exc sickle cell crisis & coagul w/o CC/MCC	1,099	0.62	-2.27%	2.86%	3.88%	3.39%	3.68%
813	16	MED	Coagulation disorders	15,113	0.88	-3.07%	2.21%	4.34%	0.76%	3.95%
838	17	MED	Chemo w acute leukemia as sdx w CC or high dose chemo agent	1,331	2.34	-2.19%	2.19%	4.43%	2.53%	0.14%
848	17	MED	Chemotherapy w/o acute leukemia as secondary diagnosis w/o CC/MCC	1,816	0.51	-0.22%	-0.68%	3.12%	1.85%	0.24%

MS-				Number of	RELWGT1	Percent Change in Weight from RELWGT1				
DRG	MDC	Type	Description	Discharges	Weight	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
854	18	SURG	Infectious & parasitic diseases w O.R. procedure w CC	7,058	1.92	1.09%	-2.52%	-0.93%	0.43%	-0.51%
856	18	SURG	Postoperative or post-traumatic infections w O.R. proc w MCC	6,010	3.25	7.42%	-0.01%	4.63%	10.59%	1.28%
857	18	SURG	Postoperative or post-traumatic infections w O.R. proc w CC	10,198	1.40	3.42%	-1.51%	0.91%	4.70%	-0.64%
858	18	SURG	Postoperative or post-traumatic infections w O.R. proc w/o CC/MCC	3,370	0.89	0.05%	0.30%	1.58%	2.55%	1.53%
862	18	MED	Postoperative & post-traumatic infections w MCC	7,383	1.27	-0.64%	-0.58%	1.19%	0.15%	0.15%
863	18	MED	Postoperative & post-traumatic infections w/o MCC	22,051	0.63	-0.49%	-0.50%	0.05%	0.26%	-0.51%
868	18	MED	Other infectious & parasitic diseases diagnoses w CC	2,030	0.85	-2.31%	4.26%	2.42%	2.25%	5.78%
872	18	MED	Septicemia w/o MV 96+ hours w/o MCC	95,438	0.76	-1.86%	0.28%	0.89%	0.54%	2.72%
880	19	MED	Acute adjustment reaction & psychosocial dysfunction	10,578	0.41	-3.46%	7.75%	4.48%	4.56%	8.67%
881	19	MED	Depressive neuroses	4,636	0.37	-2.12%	12.83%	15.31%	17.08%	16.04%
882	19	MED	Neuroses except depressive	1,673	0.41	-2.31%	13.22%	11.30%	15.08%	12.90%
883	19	MED	Disorders of personality & impulse control	799	0.66	-6.84%	7.91%	4.42%	2.96%	8.56%
884	19	MED	Organic disturbances & mental retardation	21,750	0.57	-1.97%	2.61%	0.85%	2.77%	4.30%
885	19	MED	Psychoses	78,951	0.56	-3.41%	7.20%	22.34%	21.02%	17.06%
886	19	MED	Behavioral & developmental disorders	377	0.51	-1.59%	5.53%	11.79%	15.52%	12.42%
894	20	MED	Alcohol/drug abuse or dependence, left ama	4,627	0.26	-2.83%	-5.15%	0.74%	3.22%	4.54%
895	20	MED	Alcohol/drug abuse or dependence w rehabilitation therapy	6,777	0.58	-3.21%	3.15%	8.70%	18.04%	17.34%
896	20	MED	Alcohol/drug abuse or dependence w/o rehabilitation therapy w MCC	5,099	0.89	-2.16%	3.40%	6.01%	2.76%	5.05%
897	20	MED	Alcohol/drug abuse or dependence w/o rehabilitation therapy w/o MCC	37,217	0.41	-2.17%	2.38%	4.38%	5.60%	7.88%
907	21	SURG	Other O.R. procedures for injuries w MCC	8,099	2.40	-0.77%	1.38%	3.12%	0.67%	1.49%
908	21	SURG	Other O.R. procedures for injuries w CC	8,546	1.24	-1.23%	2.60%	3.06%	2.98%	2.10%
915	21	MED	Allergic reactions w MCC	917	0.80	-4.25%	2.84%	8.04%	1.00%	3.71%
918	21	MED	Poisoning & toxic effects of drugs w/o MCC	33,940	0.39	-2.12%	2.51%	7.39%	1.54%	5.21%
929	22	SURG	Full thickness burn w skin graft or inhal inj w/o CC/MCC	448	1.25	-3.71%	-3.63%	8.01%	0.99%	2.34%
934	22	MED	Full thickness burn w/o skin grft or inhal inj	702	0.95	-0.16%	-3.59%	3.21%	3.15%	1.84%

MS-				Number of	RELWGT1	Percent Change in Weight from RELWGT1				
DRG	MDC	Type	Description	Discharges	Weight	RELWGT2	RELWGT3	RELWGT4	RELWGT5	RELWGT6
945	23	MED	Rehabilitation w CC/MCC	5,471	0.82	0.46%	54.67%	42.18%	53.05%	51.61%
946	23	MED	Rehabilitation w/o CC/MCC	2,769	0.72	4.16%	17.30%	9.23%	17.22%	23.16%
947	23	MED	Signs & symptoms w MCC	5,817	0.69	-0.36%	-0.07%	-0.63%	0.47%	2.10%
948	23	MED	Signs & symptoms w/o MCC	33,504	0.42	-2.57%	3.05%	0.59%	1.31%	4.84%
956	24	SURG	Limb reattachment, hip & femur proc for multiple significant trauma	3,769	2.26	2.08%	1.63%	7.24%	7.74%	5.34%
959	24	SURG	Other O.R. procedures for multiple significant trauma w/o CC/MCC	297	1.58	-4.53%	1.44%	4.14%	39.15%	5.55%
963	24	MED	Other multiple significant trauma w MCC	1,496	1.83	-5.82%	4.33%	12.06%	1.61%	6.29%
964	24	MED	Other multiple significant trauma w CC	2,538	1.05	-6.01%	3.64%	7.67%	0.02%	5.49%
981	0	SURG	Extensive O.R. procedure unrelated to principal diagnosis w MCC	26,075	3.29	2.51%	-2.45%	0.15%	2.28%	-1.21%
982	0	SURG	Extensive O.R. procedure unrelated to principal diagnosis w CC	19,328	2.06	3.47%	-2.00%	-3.87%	0.92%	-2.75%

B. PAYMENT-TO-COST RATIOS BY MS-DRG

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
001	Heart transplant or implant of heart assist system w MCC	113	625	16.9386	1.19	1.13	1.18	1.17	1.10	1.13
002	Heart transplant or implant of heart assist system w/o MCC	84	323	7.8745	1.12	1.10	1.16	1.11	1.07	1.09
003	ECMO or trach w MV 96+ hrs or PDX exc face, mouth & neck w maj O.R.	2,081	20,108	11.8682	1.13	1.16	1.11	1.21	1.20	1.14
004	Trach w MV 96+ hrs or PDX exc face, mouth & neck w/o maj O.R.	2,382	18,185	7.2426	1.13	1.18	1.09	1.22	1.22	1.13
005	Liver transplant w MCC or intestinal transplant	87	823	7.3165	1.34	1.30	1.31	1.32	1.26	1.30
006	Liver transplant w/o MCC	85	494	3.2944	1.24	1.23	1.24	1.25	1.23	1.23
007	Lung transplant	45	415	5.3365	1.32	1.31	1.26	1.28	1.27	1.24
008	Simultaneous pancreas/kidney transplant	113	549	3.3681	1.50	1.51	1.49	1.50	1.49	1.48
009	Bone marrow transplant	151	1,296	4.2992	1.17	1.13	1.15	1.21	1.16	1.15
010	Pancreas transplant	65	176	2.5373	1.24	1.21	1.26	1.29	1.24	1.26
011	Tracheostomy for face,mouth & neck diagnoses w MCC	642	1,204	3.2535	1.14	1.11	1.11	1.15	1.09	1.10
012	Tracheostomy for face,mouth & neck diagnoses w CC	738	1,891	2.0518	1.03	0.99	1.03	1.05	1.01	1.02
013	Tracheostomy for face,mouth & neck diagnoses w/o CC/MCC	629	1,418	1.2934	0.96	0.93	0.97	1.02	0.97	0.97
020	Intracranial vascular procedures w PDX hemorrhage w MCC	336	878	5.5308	1.07	1.05	1.08	1.13	1.07	1.07
021	Intracranial vascular procedures w PDX hemorrhage w CC	235	559	4.2511	1.01	1.00	1.03	1.07	1.01	1.01
022	Intracranial vascular procedures w PDX hemorrhage w/o CC/MCC	153	241	2.7479	0.96	0.96	1.00	1.06	1.00	1.00
023	Cranio w major dev impl/acute complex CNS PDX w MCC or chemo implant	919	3,416	3.2717	1.09	1.06	1.07	1.11	1.05	1.05
024	Cranio w major dev impl/acute complex CNS PDX w/o MCC	756	2,096	2.2530	1.02	1.01	1.03	1.06	1.01	1.01
025	Craniotomy & endovascular intracranial procedures w MCC	1,198	7,399	3.2726	1.06	1.06	1.04	1.08	1.06	1.03
026	Craniotomy & endovascular intracranial procedures w CC	1,238	11,078	1.9656	1.00	0.99	0.99	1.01	0.98	0.97
027	Craniotomy & endovascular intracranial procedures w/o CC/MCC	1,218	13,772	1.3722	0.97	0.95	0.98	1.00	0.95	0.96
028	Spinal procedures w MCC	731	1,562	3.3349	1.12	1.09	1.11	1.12	1.06	1.08
029	Spinal procedures w CC or spinal neurostimulators	1,049	3,002	1.7828	1.03	1.02	1.03	1.01	0.97	0.99
030	Spinal procedures w/o CC/MCC	1,061	3,476	0.9885	0.99	0.98	0.99	0.97	0.93	0.95
031	Ventricular shunt procedures w MCC	514	1,011	2.6335	1.10	1.07	1.09	1.13	1.06	1.07
032	Ventricular shunt procedures w CC	837	2,969	1.1932	1.00	0.98	1.00	1.00	0.96	0.97
033	Ventricular shunt procedures w/o CC/MCC	928	4,150	0.8634	0.96	0.95	0.98	0.95	0.92	0.93
034	Carotid artery stent procedure w MCC	343	721	2.1966	1.03	0.99	1.04	1.02	0.99	1.00

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
035	Carotid artery stent procedure w CC	573	2,721	1.3251	1.00	0.98	0.99	0.96	0.94	0.95
036	Carotid artery stent procedure w/o CC/MCC	674	7,047	1.0522	0.97	0.96	0.98	0.93	0.93	0.93
037	Extracranial procedures w MCC	1,476	4,564	2.0292	1.04	1.01	1.04	1.03	0.99	1.02
038	Extracranial procedures w CC	1,913	16,043	1.0058	0.99	0.96	0.98	0.95	0.91	0.95
039	Extracranial procedures w/o CC/MCC	2,129	52,758	0.6646	0.97	0.93	0.97	0.94	0.89	0.94
040	Periph/cranial nerve & other nerv syst proc w MCC	1,593	4,003	2.5931	1.06	1.08	1.04	1.05	1.06	1.05
041	Periph/cranial nerve & other nerv syst proc w CC or periph neurostim	2,017	7,433	1.4446	0.99	1.02	0.98	0.96	1.00	0.97
042	Periph/cranial nerve & other nerv syst proc w/o CC/MCC	1,557	5,031	1.1162	0.94	1.00	0.97	0.93	0.98	0.95
052	Spinal disorders & injuries w CC/MCC	750	1,100	1.0247	1.00	0.96	1.03	1.06	1.00	1.02
053	Spinal disorders & injuries w/o CC/MCC	432	562	0.5981	0.94	0.91	0.96	0.95	0.93	0.95
054	Nervous system neoplasms w MCC	1,616	4,046	1.0795	1.03	1.03	1.00	0.99	0.99	0.99
055	Nervous system neoplasms w/o MCC	2,504	15,943	0.7067	0.97	0.96	0.97	0.94	0.94	0.96
056	Degenerative nervous system disorders w MCC	2,101	6,404	1.0830	1.02	1.05	1.00	1.01	1.04	1.02
057	Degenerative nervous system disorders w/o MCC	3,102	44,221	0.5723	0.97	0.95	0.97	0.95	0.96	0.98
058	Multiple sclerosis & cerebellar ataxia w MCC	540	719	1.0982	1.07	1.03	1.07	1.07	1.03	1.05
059	Multiple sclerosis & cerebellar ataxia w CC	1,173	2,566	0.6401	0.99	0.95	0.99	0.99	0.96	0.99
060	Multiple sclerosis & cerebellar ataxia w/o CC/MCC	1,479	4,129	0.4924	1.00	0.96	0.98	0.97	0.95	0.98
061	Acute ischemic stroke w use of thrombolytic agent w MCC	694	1,310	1.9574	1.03	1.00	1.02	1.08	1.02	1.03
062	Acute ischemic stroke w use of thrombolytic agent w CC	968	2,256	1.3350	0.99	0.97	0.98	1.00	0.94	0.96
063	Acute ischemic stroke w use of thrombolytic agent w/o CC/MCC	616	1,127	1.0251	0.96	0.93	0.97	1.01	0.94	0.97
064	Intracranial hemorrhage or cerebral infarction w MCC	3,143	49,809	1.2505	0.99	0.98	0.99	1.01	1.00	1.01
065	Intracranial hemorrhage or cerebral infarction w CC	3,243	104,918	0.7767	0.93	0.92	0.95	0.94	0.95	0.97
066	Intracranial hemorrhage or cerebral infarction w/o CC/MCC	3,231	88,162	0.5647	0.92	0.89	0.96	0.93	0.92	0.97
067	Nonspecific cva & precerebral occlusion w/o infarct w MCC	853	1,312	1.0050	1.03	1.01	0.98	0.96	0.96	1.00
068	Nonspecific cva & precerebral occlusion w/o infarct w/o MCC	2,485	12,129	0.5791	0.96	0.94	0.97	0.93	0.94	0.99
069	Transient ischemia	3,246	101,076	0.4853	0.97	0.93	0.97	0.92	0.92	0.98
070	Nonspecific cerebrovascular disorders w MCC	1,873	6,164	1.2388	1.01	1.01	0.99	0.98	0.99	1.00
071	Nonspecific cerebrovascular disorders w CC	2,163	9,452	0.7727	0.99	0.98	0.96	0.93	0.94	0.96
072	Nonspecific cerebrovascular disorders w/o CC/MCC	1,896	5,666	0.5493	1.02	0.98	0.97	0.94	0.91	0.97
073	Cranial & peripheral nerve disorders w MCC	1,974	8,024	0.9034	0.99	0.96	1.01	0.98	0.95	1.00
074	Cranial & peripheral nerve disorders w/o MCC	3,037	31,866	0.5682	0.97	0.94	0.98	0.96	0.94	0.98
075	Viral meningitis w CC/MCC	787	1,164	1.1191	0.99	0.95	1.01	1.02	0.99	1.02

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
076	Viral meningitis w/o CC/MCC	626	854	0.5962	0.98	0.95	0.98	0.99	0.95	0.99
077	Hypertensive encephalopathy w MCC	706	1,043	1.1664	0.97	0.94	1.02	1.05	1.00	1.04
078	Hypertensive encephalopathy w CC	895	1,350	0.6817	0.95	0.92	0.97	0.96	0.93	0.98
079	Hypertensive encephalopathy w/o CC/MCC	656	880	0.5181	0.95	0.91	0.96	0.94	0.90	0.97
080	Nontraumatic stupor & coma w MCC	1,107	1,967	0.7051	0.96	0.93	1.01	1.00	0.97	1.03
081	Nontraumatic stupor & coma w/o MCC	2,242	8,125	0.4548	0.95	0.91	0.98	0.95	0.93	0.99
082	Traumatic stupor & coma, coma >1 hr w MCC	729	1,563	1.3425	1.06	0.99	1.03	1.07	1.00	1.03
083	Traumatic stupor & coma, coma >1 hr w CC	820	2,028	0.8984	0.98	0.92	0.96	0.99	0.92	0.96
084	Traumatic stupor & coma, coma >1 hr w/o CC/MCC	926	2,486	0.5937	0.96	0.89	0.95	0.96	0.87	0.96
085	Traumatic stupor & coma, coma <1 hr w MCC	1,477	4,624	1.3850	1.02	1.01	1.01	1.03	1.01	1.01
086	Traumatic stupor & coma, coma <1 hr w CC	1,973	10,062	0.7998	0.97	0.93	0.96	0.96	0.92	0.95
087	Traumatic stupor & coma, coma <1 hr w/o CC/MCC	2,064	11,482	0.5447	0.97	0.92	0.96	0.94	0.89	0.95
088	Concussion w MCC	507	688	1.0990	1.09	1.02	1.01	1.01	0.94	1.01
089	Concussion w CC	1,329	2,710	0.6354	0.98	0.88	0.95	0.91	0.83	0.95
090	Concussion w/o CC/MCC	1,461	3,183	0.4416	0.97	0.88	0.95	0.90	0.84	0.97
091	Other disorders of nervous system w MCC	1,877	5,823	1.0890	1.04	1.03	1.02	1.04	1.01	1.02
092	Other disorders of nervous system w CC	2,516	14,343	0.6127	0.99	0.97	0.96	0.93	0.93	0.96
093	Other disorders of nervous system w/o CC/MCC	2,583	14,489	0.4564	0.98	0.95	0.97	0.93	0.92	0.97
094	Bacterial & tuberculous infections of nervous system w MCC	937	1,409	2.2970	1.05	1.05	1.06	1.10	1.08	1.07
095	Bacterial & tuberculous infections of nervous system w CC	731	1,028	1.5333	0.98	0.98	1.01	1.02	1.03	1.02
096	Bacterial & tuberculous infections of nervous system w/o CC/MCC	561	708	1.2215	1.01	1.04	1.00	1.02	1.03	1.01
097	Non-bacterial infect of nervous sys exc viral meningitis w MCC	774	1,085	2.0141	1.03	1.02	1.05	1.08	1.05	1.05
098	Non-bacterial infect of nervous sys exc viral meningitis w CC	688	930	1.2493	0.98	0.96	1.00	1.00	0.98	1.00
099	Non-bacterial infect of nervous sys exc viral meningitis w/o CC/MCC	479	571	0.8997	0.98	0.95	0.99	0.98	0.98	1.00
100	Seizures w MCC	2,579	14,125	0.9952	1.04	1.03	1.01	1.04	1.02	1.04
101	Seizures w/o MCC	3,178	54,921	0.5083	1.00	0.97	0.98	0.96	0.95	1.00
102	Headaches w MCC	827	1,279	0.7008	0.98	0.93	1.04	1.02	0.98	1.03
103	Headaches w/o MCC	2,649	14,932	0.4303	0.96	0.91	0.98	0.96	0.93	0.99
113	Orbital procedures w CC/MCC	366	563	1.0824	1.05	1.01	1.02	1.06	1.03	1.03
114	Orbital procedures w/o CC/MCC	355	588	0.5594	0.99	0.95	0.97	0.99	0.97	0.99
115	Extraocular procedures except orbit	498	1,089	0.7611	1.10	1.07	1.00	1.08	1.05	1.07
116	Intraocular procedures w CC/MCC	331	669	0.6837	1.02	0.99	1.00	1.05	1.08	1.03

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
117	Intraocular procedures w/o CC/MCC	403	1,394	0.4448	0.96	0.91	0.95	1.04	1.00	1.03
121	Acute major eye infections w CC/MCC	456	565	0.6822	1.04	1.00	0.98	1.02	1.00	1.02
122	Acute major eye infections w/o CC/MCC	512	658	0.3796	0.95	0.92	0.97	1.05	1.01	1.04
123	Neurological eye disorders	1,348	2,788	0.4728	0.97	0.93	0.97	0.91	0.90	0.97
124	Other disorders of the eye w MCC	508	625	0.7596	1.03	1.02	1.01	0.97	0.97	1.00
125	Other disorders of the eye w/o MCC	1,920	4,611	0.4413	0.98	0.94	0.97	0.96	0.94	0.99
129	Major head & neck procedures w CC/MCC or major device	572	1,350	1.3189	1.01	0.99	1.03	1.05	1.02	0.99
130	Major head & neck procedures w/o CC/MCC	500	1,049	0.7779	0.96	0.93	0.98	0.97	0.93	0.95
131	Cranial/facial procedures w CC/MCC	510	850	1.2789	1.05	1.01	1.06	1.07	1.02	1.06
132	Cranial/facial procedures w/o CC/MCC	491	872	0.7238	0.98	0.95	0.99	0.99	0.95	0.98
133	Other ear, nose, mouth & throat O.R. procedures w CC/MCC	983	1,954	1.1259	1.07	1.03	1.05	1.06	1.01	1.04
134	Other ear, nose, mouth & throat O.R. procedures w/o CC/MCC	1,293	3,634	0.5379	0.99	0.95	0.97	0.98	0.93	0.97
135	Sinus & mastoid procedures w CC/MCC	300	389	1.1588	1.07	1.03	1.04	1.07	1.01	1.02
136	Sinus & mastoid procedures w/o CC/MCC	329	462	0.5929	1.03	0.97	0.98	0.98	0.94	0.97
137	Mouth procedures w CC/MCC	543	757	0.8833	1.06	1.02	1.02	1.03	0.99	1.01
138	Mouth procedures w/o CC/MCC	540	890	0.4842	1.01	0.96	0.99	0.98	0.93	0.97
139	Salivary gland procedures	861	1,683	0.5463	1.04	0.99	0.99	0.99	0.94	0.98
146	Ear, nose, mouth & throat malignancy w MCC	477	627	1.5135	1.16	1.13	1.09	1.12	1.07	1.09
147	Ear, nose, mouth & throat malignancy w CC	913	1,448	0.8001	1.03	1.01	1.01	1.02	1.00	1.02
148	Ear, nose, mouth & throat malignancy w/o CC/MCC	632	913	0.4915	0.96	0.93	0.98	1.01	0.99	1.00
149	Dysequilibrium	3,047	38,362	0.4097	0.99	0.95	0.98	0.91	0.91	0.98
150	Epistaxis w MCC	643	837	0.9198	1.05	1.04	1.01	1.03	1.02	1.01
151	Epistaxis w/o MCC	2,162	6,713	0.4015	0.98	0.96	0.97	0.95	0.94	0.97
152	Otitis media & URI w MCC	1,153	2,099	0.6456	0.97	0.93	1.01	0.99	0.95	1.00
153	Otitis media & URI w/o MCC	2,867	15,975	0.4047	0.92	0.89	0.98	0.96	0.95	0.99
154	Nasal trauma & deformity w MCC	1,097	1,675	0.9506	1.03	0.99	0.99	1.01	0.97	1.01
155	Nasal trauma & deformity w CC	1,856	4,151	0.5921	0.97	0.93	0.97	0.97	0.94	0.98
156	Nasal trauma & deformity w/o CC/MCC	1,964	4,663	0.4233	0.99	0.94	0.97	0.96	0.94	0.99
157	Dental & Oral Diseases w MCC	551	723	0.9076	1.07	1.05	1.03	1.02	1.01	1.04
158	Dental & Oral Diseases w CC	1,411	2,531	0.5542	1.00	0.96	0.99	0.97	0.93	0.98
159	Dental & Oral Diseases w/o CC/MCC	1,246	2,095	0.3990	0.98	0.94	0.97	0.96	0.92	0.98
163	Major chest procedures w MCC	1,829	9,328	3.3903	1.07	1.07	1.05	1.07	1.06	1.04

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
164	Major chest procedures w CC	1,790	10,762	1.7223	0.99	0.97	0.99	0.98	0.97	0.97
165	Major chest procedures w/o CC/MCC	1,580	8,866	1.1158	0.97	0.93	0.98	0.96	0.94	0.96
166	Other resp system O.R. procedures w MCC	2,466	19,600	2.5175	1.07	1.08	1.05	1.07	1.07	1.05
167	Other resp system O.R. procedures w CC	2,463	24,214	1.4378	0.98	0.98	0.98	0.96	0.96	0.97
168	Other resp system O.R. procedures w/o CC/MCC	1,913	8,399	1.0678	0.96	0.93	0.97	0.95	0.93	0.95
175	Pulmonary embolism w MCC	2,523	10,755	1.0659	0.91	0.91	0.97	0.94	0.96	0.97
176	Pulmonary embolism w/o MCC	3,022	38,227	0.7315	0.89	0.88	0.96	0.91	0.93	0.95
177	Respiratory infections & inflammations w MCC	3,153	50,422	1.3451	0.99	1.00	0.99	0.99	1.01	1.01
178	Respiratory infections & inflammations w CC	3,234	65,870	0.9875	0.95	0.96	0.96	0.96	1.00	0.98
179	Respiratory infections & inflammations w/o CC/MCC	3,123	25,084	0.6946	0.92	0.91	0.96	0.95	0.97	0.99
180	Respiratory neoplasms w MCC	2,820	21,844	1.1776	1.00	0.97	1.01	0.99	0.97	1.00
181	Respiratory neoplasms w CC	2,964	34,038	0.8733	0.97	0.94	0.99	0.95	0.93	0.97
182	Respiratory neoplasms w/o CC/MCC	2,188	7,807	0.7536	0.96	0.92	0.97	0.96	0.93	0.97
183	Major chest trauma w MCC	1,105	1,616	1.0225	0.95	0.91	0.99	0.96	0.92	0.98
184	Major chest trauma w CC	1,809	4,166	0.6151	0.91	0.86	0.96	0.92	0.89	0.95
185	Major chest trauma w/o CC/MCC	1,445	2,582	0.4282	0.93	0.87	0.97	0.92	0.89	0.96
186	Pleural effusion w MCC	2,311	7,622	1.0883	0.96	0.96	0.99	0.96	0.99	1.00
187	Pleural effusion w CC	2,464	9,742	0.7495	0.94	0.94	0.97	0.92	0.95	0.96
188	Pleural effusion w/o CC/MCC	2,016	4,919	0.5546	0.94	0.93	0.97	0.92	0.94	0.98
189	Pulmonary edema & respiratory failure	3,180	101,737	0.9120	0.94	0.91	0.99	1.00	0.96	0.99
190	Chronic obstructive pulmonary disease w MCC	3,202	51,175	0.8887	0.97	0.97	0.98	0.97	0.98	1.00
191	Chronic obstructive pulmonary disease w CC	3,280	119,346	0.6576	0.95	0.94	0.97	0.94	0.96	0.98
192	Chronic obstructive pulmonary disease w/o CC/MCC	3,304	188,906	0.4895	0.94	0.92	0.97	0.96	0.98	1.01
193	Simple pneumonia & pleurisy w MCC	3,263	77,895	0.9744	0.98	0.97	0.98	0.97	0.99	1.00
194	Simple pneumonia & pleurisy w CC	3,327	261,598	0.6767	0.94	0.92	0.97	0.95	0.97	0.99
195	Simple pneumonia & pleurisy w/o CC/MCC	3,320	140,407	0.4927	0.92	0.89	0.97	0.95	0.96	1.00
196	Interstitial lung disease w MCC	1,893	4,685	1.0404	0.96	0.96	0.98	0.96	0.97	0.98
197	Interstitial lung disease w CC	2,188	6,731	0.7421	0.96	0.95	0.97	0.93	0.95	0.96
198	Interstitial lung disease w/o CC/MCC	1,975	4,777	0.5647	0.93	0.91	0.97	0.93	0.94	0.97
199	Pneumothorax w MCC	1,635	3,118	1.2023	0.96	0.94	1.00	0.99	0.97	1.00
200	Pneumothorax w CC	2,314	8,120	0.6853	0.91	0.87	0.97	0.94	0.92	0.96
201	Pneumothorax w/o CC/MCC	1,645	3,400	0.4928	0.89	0.87	0.97	0.94	0.94	0.98

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
202	Bronchitis & asthma w CC/MCC	3,126	31,095	0.5497	0.97	0.94	0.98	0.96	0.96	1.00
203	Bronchitis & asthma w/o CC/MCC	3,191	40,111	0.3969	0.96	0.93	0.98	0.99	1.00	1.03
204	Respiratory signs & symptoms	3,019	25,350	0.4402	0.95	0.93	0.98	0.93	0.95	0.98
205	Other respiratory system diagnoses w MCC	2,020	5,136	0.8211	0.95	0.94	0.99	0.98	0.98	1.00
206	Other respiratory system diagnoses w/o MCC	3,013	21,729	0.4967	0.95	0.93	0.97	0.94	0.94	0.97
207	Respiratory system diagnosis w ventilator support 96+ hours	2,835	42,208	3.3293	1.07	1.08	1.05	1.16	1.10	1.08
208	Respiratory system diagnosis w ventilator support <96 hours	3,092	76,547	1.4746	1.00	0.98	1.01	1.09	1.03	1.03
215	Other heart assist system implant	113	138	7.8696	1.19	1.16	1.22	1.23	1.18	1.19
216	Cardiac valve & oth maj cardiothoracic proc w card cath w MCC	987	7,423	6.6222	1.07	1.09	1.04	1.07	1.09	1.04
217	Cardiac valve & oth maj cardiothoracic proc w card cath w CC	965	7,296	4.4425	1.01	1.04	0.99	1.00	1.03	0.97
218	Cardiac valve & oth maj cardiothoracic proc w card cath w/o CC/MCC	745	2,812	3.5446	1.00	1.02	0.98	0.98	0.99	0.96
219	Cardiac valve & oth maj cardiothoracic proc w/o card cath w MCC	1,000	9,112	5.4310	1.06	1.07	1.05	1.07	1.07	1.04
220	Cardiac valve & oth maj cardiothoracic proc w/o card cath w CC	1,043	13,377	3.5115	0.98	0.99	0.99	0.99	0.99	0.96
221	Cardiac valve & oth maj cardiothoracic proc w/o card cath w/o CC/MCC	950	7,353	2.8787	0.96	0.97	0.97	0.96	0.96	0.93
222	Cardiac defib implant w cardiac cath w AMI/HF/shock w MCC	843	2,774	5.9022	1.06	1.12	1.04	1.02	1.06	1.00
223	Cardiac defib implant w cardiac cath w AMI/HF/shock w/o MCC	998	5,667	4.3637	1.04	1.14	1.01	0.97	1.06	0.96
224	Cardiac defib implant w cardiac cath w/o AMI/HF/shock w MCC	761	1,866	5.4221	1.06	1.12	1.04	1.03	1.08	1.00
225	Cardiac defib implant w cardiac cath w/o AMI/HF/shock w/o MCC	1,044	5,779	4.0484	1.02	1.12	1.01	0.97	1.06	0.95
226	Cardiac defibrillator implant w/o cardiac cath w MCC	1,128	6,783	4.5203	1.03	1.11	1.02	0.99	1.06	0.98
227	Cardiac defibrillator implant w/o cardiac cath w/o MCC	1,419	49,904	3.3440	0.99	1.12	1.00	0.96	1.06	0.95
228	Other cardiothoracic procedures w MCC	789	2,716	5.0056	1.05	1.05	1.05	1.07	1.06	1.04
229	Other cardiothoracic procedures w CC	824	4,035	3.2206	0.98	0.95	0.99	0.97	0.95	0.95
230	Other cardiothoracic procedures w/o CC/MCC	597	1,727	2.5451	0.97	0.93	0.98	0.96	0.92	0.95
231	Coronary bypass w PTCA w MCC	663	1,443	5.1845	1.10	1.06	1.08	1.10	1.05	1.06
232	Coronary bypass w PTCA w/o MCC	713	1,778	3.7238	1.02	0.98	1.01	0.99	0.96	0.97
233	Coronary bypass w cardiac cath w MCC	1,104	15,022	4.5342	1.03	1.04	1.01	1.05	1.06	1.02
234	Coronary bypass w cardiac cath w/o MCC	1,121	37,174	2.9773	0.98	0.96	0.96	0.97	0.95	0.95
235	Coronary bypass w/o cardiac cath w MCC	1,039	8,486	3.7493	1.02	1.03	1.02	1.04	1.04	1.01
236	Coronary bypass w/o cardiac cath w/o MCC	1,108	31,409	2.3312	0.96	0.92	0.96	0.95	0.92	0.94
237	Major cardiovasc procedures w MCC or thoracic aortic aneurysm repair	1,930	22,044	3.4193	1.08	1.07	1.07	1.10	1.07	1.05
238	Major cardiovasc procedures w/o MCC	2,023	42,950	1.8997	0.98	0.99	0.99	0.97	0.97	0.96

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
239	Amputation for circ sys disorders exc upper limb & toe w MCC	2,253	10,995	2.9154	1.03	1.10	1.02	1.05	1.11	1.05
240	Amputation for circ sys disorders exc upper limb & toe w CC	2,475	11,247	1.6871	0.98	1.05	0.97	1.02	1.10	1.02
241	Amputation for circ sys disorders exc upper limb & toe w/o CC/MCC	1,287	2,514	1.0080	0.91	0.95	0.94	0.99	1.05	1.00
242	Permanent cardiac pacemaker implant w MCC	2,224	15,519	2.4953	1.01	1.07	1.00	0.99	1.08	0.99
243	Permanent cardiac pacemaker implant w CC	2,434	38,987	1.7340	0.98	1.05	0.98	0.93	1.06	0.94
244	Permanent cardiac pacemaker implant w/o CC/MCC	2,460	64,979	1.3526	0.98	1.07	0.97	0.93	1.08	0.94
245	AICD lead & generator procedures	1,081	5,981	2.1516	1.03	1.13	1.01	0.98	1.06	0.97
246	Perc cardiovasc proc w drug-eluting stent w MCC or 4+ vessels/stents	1,373	39,929	2.1977	1.02	1.05	1.01	0.99	1.01	0.97
247	Perc cardiovasc proc w drug-eluting stent w/o MCC	1,441	267,418	1.3123	1.00	1.03	0.98	0.96	0.98	0.93
248	Perc cardiovasc proc w non-drug-eluting stent w MCC or 4+ ves/stents	1,081	5,369	1.9167	1.02	1.01	1.01	1.02	1.01	0.98
249	Perc cardiovasc proc w non-drug-eluting stent w/o MCC	1,347	29,006	1.1185	0.99	0.98	0.97	0.96	0.96	0.93
250	Perc cardiovasc proc w/o coronary artery stent or AMI w MCC	1,117	5,543	1.9013	1.06	1.03	1.03	1.03	1.01	1.00
251	Perc cardiovasc proc w/o coronary artery stent or AMI w/o MCC	1,417	39,467	1.0591	1.01	0.96	0.98	0.96	0.95	0.94
252	Other vascular procedures w MCC	2,302	43,270	1.9718	1.07	1.05	1.05	1.03	1.01	1.04
253	Other vascular procedures w CC	2,378	51,257	1.4813	1.00	0.99	1.00	0.97	0.96	0.98
254	Other vascular procedures w/o CC/MCC	2,262	53,108	1.0074	0.96	0.96	0.98	0.93	0.94	0.96
255	Upper limb & toe amputation for circ system disorders w MCC	1,218	2,209	1.6372	1.02	1.06	1.01	1.02	1.06	1.04
256	Upper limb & toe amputation for circ system disorders w CC	1,697	3,474	1.0260	0.99	1.02	0.96	1.00	1.04	1.01
257	Upper limb & toe amputation for circ system disorders w/o CC/MCC	524	626	0.6453	0.90	0.91	0.95	0.96	1.00	0.97
258	Cardiac pacemaker device replacement w MCC	444	563	1.9854	1.10	1.14	1.01	0.99	1.08	0.99
259	Cardiac pacemaker device replacement w/o MCC	1,637	7,301	1.0911	1.04	1.13	0.98	0.96	1.10	0.96
260	Cardiac pacemaker revision except device replacement w MCC	544	821	2.0229	1.07	1.06	1.05	1.03	1.02	1.04
261	Cardiac pacemaker revision except device replacement w CC	1,101	2,852	0.8813	0.98	0.99	0.97	0.91	0.95	0.94
262	Cardiac pacemaker revision except device replacement w/o CC/MCC	1,224	3,245	0.6143	0.95	0.96	0.96	0.90	1.10	0.93
263	Vein ligation & stripping	545	762	1.0091	1.05	1.02	1.02	1.04	1.00	1.03
264	Other circulatory system O.R. procedures	2,613	27,271	1.6626	1.08	1.08	1.05	1.04	1.04	1.06
280	Acute myocardial infarction, discharged alive w MCC	3,122	53,204	1.2884	0.98	1.02	0.98	1.01	1.04	1.01
281	Acute myocardial infarction, discharged alive w CC	3,134	56,540	0.8151	0.94	0.98	0.95	0.96	0.99	0.97
282	Acute myocardia infarction, discharged alive w/o CC/MCC	3,196	51,817	0.5752	0.92	0.97	0.94	0.99	1.01	0.98
283	Acute myocardial infarction, expired w MCC	2,726	15,653	1.1360	1.05	1.01	1.03	1.11	1.02	1.05
284	Acute myocardial infarction, expired w CC	2,057	5,013	0.6503	0.96	0.93	0.99	1.04	0.97	1.00
285	Acute myocardial infarction, expired w/o CC/MCC	1,638	2,999	0.4265	0.93	0.90	0.97	1.05	0.95	0.99

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
286	Circulatory disorders except AMI, w card cath w MCC	1,870	21,899	1.3499	1.04	1.03	1.01	0.98	0.99	0.99
287	Circulatory disorders except AMI, w card cath w/o MCC	2,059	168,678	0.6914	1.02	1.01	0.97	0.94	0.96	0.95
288	Acute & subacute endocarditis w MCC	1,404	2,758	2.0844	1.05	1.09	1.01	1.01	1.05	1.03
289	Acute & subacute endocarditis w CC	927	1,296	1.2987	1.01	1.05	0.95	0.93	1.00	0.97
290	Acute & subacute endocarditis w/o CC/MCC	383	406	0.8554	0.96	0.97	0.97	0.93	0.99	0.98
291	Heart failure & shock w MCC	3,283	165,609	0.9921	0.99	1.00	0.99	0.96	0.99	1.00
292	Heart failure & shock w CC	3,317	228,685	0.6648	0.96	0.97	0.96	0.91	0.96	0.98
293	Heart failure & shock w/o CC/MCC	3,298	197,371	0.4816	0.96	0.96	0.97	0.91	0.97	0.99
294	Deep vein thrombophlebitis w CC/MCC	1,003	1,675	0.6543	0.97	0.92	0.98	0.96	0.94	0.98
295	Deep vein thrombophlebitis w/o CC/MCC	950	1,616	0.4195	0.89	0.86	0.96	0.97	0.98	0.99
296	Cardiac arrest, unexplained w MCC	1,069	1,776	0.8150	0.99	0.95	1.02	1.12	1.02	1.04
297	Cardiac arrest, unexplained w CC	679	867	0.4650	0.87	0.83	0.98	1.08	0.94	0.97
298	Cardiac arrest, unexplained w/o CC/MCC	419	512	0.3030	0.90	0.86	0.98	1.08	0.97	1.00
299	Peripheral vascular disorders w MCC	2,727	15,197	0.9828	1.00	1.00	0.99	1.00	1.02	1.01
300	Peripheral vascular disorders w CC	3,208	46,068	0.6206	0.96	0.96	0.96	0.97	0.98	0.98
301	Peripheral vascular disorders w/o CC/MCC	3,174	36,198	0.4423	0.92	0.92	0.96	0.97	0.98	0.98
302	Atherosclerosis w MCC	2,209	7,116	0.6826	0.98	0.99	0.99	0.96	0.98	1.01
303	Atherosclerosis w/o MCC	3,195	78,031	0.3868	0.97	0.98	0.97	0.95	0.98	1.01
304	Hypertension w MCC	1,211	1,943	0.7195	0.98	0.95	1.00	1.01	0.99	1.03
305	Hypertension w/o MCC	3,127	35,112	0.3869	0.97	0.95	0.98	0.97	0.97	1.02
306	Cardiac congenital & valvular disorders w MCC	857	1,234	1.0026	1.08	1.00	1.17	1.13	1.00	1.14
307	Cardiac congenital & valvular disorders w/o MCC	2,095	6,253	0.5158	0.99	0.99	0.97	0.90	0.93	0.97
308	Cardiac arrhythmia & conduction disorders w MCC	3,014	31,108	0.9076	0.99	0.98	1.00	0.98	0.97	1.01
309	Cardiac arrhythmia & conduction disorders w CC	3,246	82,034	0.5603	0.96	0.96	0.97	0.91	0.93	0.97
310	Cardiac arrhythmia & conduction disorders w/o CC/MCC	3,273	153,157	0.3931	0.95	0.96	0.97	0.91	0.94	0.97
311	Angina pectoris	3,012	23,597	0.3321	0.91	0.93	0.97	1.00	1.02	1.05
312	Syncope & collapse	3,282	164,503	0.4819	1.01	0.99	0.98	0.90	0.93	0.98
313	Chest pain	3,265	213,127	0.3571	0.99	1.00	0.98	0.91	0.96	0.99
314	Other circulatory system diagnoses w MCC	2,907	53,996	1.1693	1.02	1.01	1.02	1.02	1.01	1.03
315	Other circulatory system diagnoses w CC	3,059	31,426	0.6623	0.96	0.95	0.97	0.95	0.96	0.98
316	Other circulatory system diagnoses w/o CC/MCC	2,954	17,877	0.4333	0.94	0.93	0.97	0.94	0.95	0.98
326	Stomach, esophageal & duodenal proc w MCC	2,378	10,288	3.8535	1.11	1.10	1.10	1.14	1.11	1.10

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
327	Stomach, esophageal & duodenal proc w CC	2,264	10,639	1.9131	1.01	0.98	1.02	1.03	0.99	1.01
328	Stomach, esophageal & duodenal proc w/o CC/MCC	1,994	8,790	0.9708	0.97	0.91	0.98	0.97	0.92	0.96
329	Major small & large bowel procedures w MCC	2,987	42,774	3.3500	1.07	1.06	1.07	1.11	1.08	1.08
330	Major small & large bowel procedures w CC	3,069	64,321	1.7033	0.98	0.95	1.00	1.00	0.97	0.99
331	Major small & large bowel procedures w/o CC/MCC	2,873	28,981	1.0758	0.95	0.89	0.98	0.97	0.92	0.97
332	Rectal resection w MCC	1,063	1,660	3.0516	1.06	1.06	1.04	1.08	1.06	1.05
333	Rectal resection w CC	1,891	6,139	1.6259	0.99	0.95	0.98	0.97	0.94	0.97
334	Rectal resection w/o CC/MCC	1,416	3,651	1.0708	0.99	0.93	0.98	0.97	0.92	0.95
335	Peritoneal adhesiolysis w MCC	2,198	6,484	2.7480	1.04	1.03	1.05	1.08	1.04	1.05
336	Peritoneal adhesiolysis w CC	2,607	11,983	1.4931	0.96	0.93	0.99	0.98	0.95	0.98
337	Peritoneal adhesiolysis w/o CC/MCC	2,372	8,543	0.9859	0.96	0.91	0.98	0.97	0.92	0.97
338	Appendectomy w complicated principal diag w MCC	1,019	1,470	2.1905	1.06	1.01	1.06	1.07	1.01	1.05
339	Appendectomy w complicated principal diag w CC	1,657	3,200	1.2260	0.96	0.89	0.98	0.97	0.90	0.97
340	Appendectomy w complicated principal diag w/o CC/MCC	1,703	3,516	0.8306	0.97	0.88	0.98	0.97	0.88	0.97
341	Appendectomy w/o complicated principal diag w MCC	675	829	1.5728	1.09	1.02	1.06	1.07	0.99	1.06
342	Appendectomy w/o complicated principal diag w CC	1,493	2,580	0.8885	0.97	0.89	0.98	0.96	0.89	0.97
343	Appendectomy w/o complicated principal diag w/o CC/MCC	2,265	6,714	0.6082	0.98	0.88	0.98	0.95	0.87	0.96
344	Minor small & large bowel procedures w MCC	649	851	2.1642	1.08	1.04	1.08	1.09	1.03	1.07
345	Minor small & large bowel procedures w CC	1,396	3,019	1.0903	0.96	0.91	0.99	0.98	0.94	0.97
346	Minor small & large bowel procedures w/o CC/MCC	1,359	2,750	0.7813	0.96	0.91	0.98	0.98	0.94	0.97
347	Anal & stomal procedures w MCC	972	1,459	1.4816	1.13	1.09	1.07	1.09	1.04	1.07
348	Anal & stomal procedures w CC	1,835	4,208	0.8478	1.00	0.96	1.00	0.99	0.95	0.99
349	Anal & stomal procedures w/o CC/MCC	2,029	5,471	0.5037	0.96	0.91	0.97	0.97	0.93	0.98
350	Inguinal & femoral hernia procedures w MCC	1,127	1,726	1.6013	1.10	1.04	1.05	1.06	1.00	1.04
351	Inguinal & femoral hernia procedures w CC	1,933	4,482	0.8218	1.00	0.96	0.98	0.97	0.94	0.97
352	Inguinal & femoral hernia procedures w/o CC/MCC	2,424	8,779	0.5305	1.00	0.95	0.97	0.97	0.93	0.97
353	Hernia procedures except inguinal & femoral w MCC	1,459	2,948	1.7350	1.05	1.01	1.06	1.07	1.01	1.04
354	Hernia procedures except inguinal & femoral w CC	2,253	8,746	0.9316	0.98	0.94	0.99	0.98	0.94	0.97
355	Hernia procedures except inguinal & femoral w/o CC/MCC	2,698	16,474	0.6255	0.97	0.93	0.97	0.97	0.94	0.96
356	Other digestive system O.R. procedures w MCC	2,089	7,294	2.5501	1.07	1.08	1.06	1.07	1.06	1.06
357	Other digestive system O.R. procedures w CC	2,213	7,704	1.4245	1.00	0.98	1.00	1.00	0.99	1.00
358	Other digestive system O.R. procedures w/o CC/MCC	1,342	2,491	0.9138	0.95	0.91	0.97	0.95	0.92	0.95

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
368	Major esophageal disorders w MCC	1,414	2,778	1.1033	1.01	0.97	1.03	1.05	1.00	1.04
369	Major esophageal disorders w CC	1,950	4,794	0.7004	0.95	0.92	0.98	0.99	0.95	0.98
370	Major esophageal disorders w/o CC/MCC	1,604	3,130	0.5258	0.95	0.92	0.97	0.96	0.92	0.97
371	Major gastrointestinal disorders & peritoneal infections w MCC	2,540	14,509	1.2815	1.05	1.06	1.02	1.02	1.01	1.02
372	Major gastrointestinal disorders & peritoneal infections w CC	2,857	21,695	0.8530	0.98	0.97	0.97	0.96	0.96	0.97
373	Major gastrointestinal disorders & peritoneal infections w/o CC/MCC	2,688	13,948	0.5929	0.99	0.96	0.96	0.95	0.93	0.96
374	Digestive malignancy w MCC	2,272	8,345	1.3309	1.06	1.05	1.03	1.04	1.02	1.03
375	Digestive malignancy w CC	2,847	19,179	0.8353	1.00	0.98	0.99	0.98	0.96	0.99
376	Digestive malignancy w/o CC/MCC	1,944	4,572	0.5834	0.99	0.95	0.98	0.98	0.95	0.99
377	G.I. hemorrhage w MCC	3,142	44,697	1.0953	1.00	0.99	1.00	1.02	1.00	1.02
378	G.I. hemorrhage w CC	3,271	113,815	0.6712	0.95	0.93	0.97	0.96	0.95	0.98
379	G.I. hemorrhage w/o CC/MCC	3,261	94,353	0.5090	0.96	0.94	0.97	0.96	0.94	0.98
380	Complicated peptic ulcer w MCC	1,429	2,615	1.1536	1.04	1.01	1.03	1.04	1.02	1.03
381	Complicated peptic ulcer w CC	2,043	5,463	0.7510	0.98	0.96	0.98	0.97	0.95	0.98
382	Complicated peptic ulcer w/o CC/MCC	1,906	4,603	0.5293	0.97	0.93	0.96	0.96	0.93	0.97
383	Uncomplicated peptic ulcer w MCC	847	1,216	0.8544	1.01	0.97	1.00	0.98	0.96	1.02
384	Uncomplicated peptic ulcer w/o MCC	2,422	8,613	0.5350	0.97	0.92	0.97	0.97	0.94	1.00
385	Inflammatory bowel disease w MCC	1,160	1,941	1.2796	1.07	1.03	1.05	1.05	1.01	1.04
386	Inflammatory bowel disease w CC	2,196	7,177	0.7146	0.96	0.92	0.98	0.97	0.93	0.97
387	Inflammatory bowel disease w/o CC/MCC	1,927	5,046	0.5386	0.97	0.92	0.97	0.96	0.92	0.98
388	G.I. obstruction w MCC	2,911	16,258	1.0468	1.02	1.00	1.02	1.03	1.01	1.03
389	G.I. obstruction w CC	3,196	45,141	0.6222	0.96	0.92	0.97	0.97	0.94	0.97
390	G.I. obstruction w/o CC/MCC	3,214	46,431	0.4289	0.94	0.89	0.97	0.96	0.91	0.97
391	Esophagitis, gastroent & misc digest disorders w MCC	3,150	42,787	0.7498	1.00	0.96	1.01	1.00	0.97	1.02
392	Esophagitis, gastroent & misc digest disorders w/o MCC	3,337	298,565	0.4542	0.96	0.91	0.97	0.96	0.93	0.99
393	Other digestive system diagnoses w MCC	2,798	22,453	1.0367	1.06	1.02	1.05	1.05	1.00	1.06
394	Other digestive system diagnoses w CC	3,127	46,926	0.6468	0.99	0.95	0.98	0.98	0.94	0.98
395	Other digestive system diagnoses w/o CC/MCC	2,972	24,483	0.4567	1.01	0.96	0.98	0.97	0.93	0.99
405	Pancreas, liver & shunt procedures w MCC	1,121	3,480	3.8094	1.15	1.15	1.14	1.16	1.15	1.13
406	Pancreas, liver & shunt procedures w CC	1,179	4,997	1.8823	1.04	1.01	1.03	1.04	1.01	1.01
407	Pancreas, liver & shunt procedures w/o CC/MCC	718	2,240	1.1903	1.02	0.97	0.99	1.00	0.96	0.97
408	Biliary tract proc except only cholecyst w or w/o c.d.e. w MCC	943	1,588	2.8368	1.14	1.10	1.10	1.12	1.07	1.10

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
409	Biliary tract proc except only cholecyst w or w/o c.d.e. w CC	955	1,695	1.6701	1.03	0.99	1.01	1.03	0.99	1.01
410	Biliary tract proc except only cholecyst w or w/o c.d.e. w/o CC/MCC	543	685	1.1389	0.98	0.93	0.97	0.98	0.95	0.98
411	Cholecystectomy w c.d.e. w MCC	702	954	2.5940	1.07	1.04	1.04	1.06	1.01	1.05
412	Cholecystectomy w c.d.e. w CC	788	1,076	1.5836	0.98	0.93	0.98	0.97	0.93	0.98
413	Cholecystectomy w c.d.e. w/o CC/MCC	639	846	1.1342	0.97	0.91	0.98	0.97	0.93	0.99
414	Cholecystectomy except by laparoscope w/o c.d.e. w MCC	2,052	5,088	2.3823	1.07	1.05	1.04	1.07	1.05	1.06
415	Cholecystectomy except by laparoscope w/o c.d.e. w CC	2,217	6,753	1.3508	0.97	0.94	0.98	0.98	0.95	0.99
416	Cholecystectomy except by laparoscope w/o c.d.e. w/o CC/MCC	2,128	5,929	0.8707	0.95	0.90	0.97	0.98	0.94	0.99
417	Laparoscopic cholecystectomy w/o c.d.e. w MCC	2,680	16,169	1.6425	1.04	0.99	1.03	1.03	0.98	1.02
418	Laparoscopic cholecystectomy w/o c.d.e. w CC	2,924	28,029	1.0928	0.98	0.93	0.98	0.96	0.92	0.97
419	Laparoscopic cholecystectomy w/o c.d.e. w/o CC/MCC	3,017	37,134	0.7397	1.00	0.93	0.97	0.97	0.91	0.97
420	Hepatobiliary diagnostic procedures w MCC	505	665	2.7506	1.19	1.11	1.15	1.18	1.10	1.16
421	Hepatobiliary diagnostic procedures w CC	652	1,032	1.3201	1.06	1.00	1.04	1.06	1.00	1.04
422	Hepatobiliary diagnostic procedures w/o CC/MCC	317	401	0.8175	0.99	0.93	1.00	1.03	0.97	1.02
423	Other hepatobiliary or pancreas O.R. procedures w MCC	816	1,438	2.8859	1.15	1.10	1.14	1.13	1.08	1.13
424	Other hepatobiliary or pancreas O.R. procedures w CC	637	907	1.6583	1.04	1.01	1.03	1.01	0.98	1.01
425	Other hepatobiliary or pancreas O.R. procedures w/o CC/MCC	140	165	1.0530	1.02	0.98	0.98	1.00	0.96	0.98
432	Cirrhosis & alcoholic hepatitis w MCC	2,540	14,928	1.1144	1.06	1.02	1.04	1.07	1.02	1.05
433	Cirrhosis & alcoholic hepatitis w CC	2,307	7,915	0.6614	1.01	0.98	0.99	1.00	0.98	1.01
434	Cirrhosis & alcoholic hepatitis w/o CC/MCC	1,469	2,915	0.4638	1.01	0.97	0.99	1.00	0.99	1.02
435	Malignancy of hepatobiliary system or pancreas w MCC	2,271	11,296	1.1615	1.05	1.01	1.01	1.01	0.97	1.00
436	Malignancy of hepatobiliary system or pancreas w CC	2,554	13,621	0.8115	1.00	0.95	0.98	0.96	0.93	0.97
437	Malignancy of hepatobiliary system or pancreas w/o CC/MCC	1,796	4,630	0.6328	0.99	0.95	0.98	0.97	0.93	0.97
438	Disorders of pancreas except malignancy w MCC	2,650	13,324	1.1743	1.05	1.01	1.07	1.08	1.03	1.08
439	Disorders of pancreas except malignancy w CC	3,069	24,944	0.6949	0.96	0.91	0.99	0.99	0.95	1.00
440	Disorders of pancreas except malignancy w/o CC/MCC	3,113	26,203	0.4683	0.93	0.87	0.97	0.97	0.94	0.99
441	Disorders of liver except malig,cirr,alc hepa w MCC	2,463	11,441	1.0965	1.04	1.02	1.03	1.06	1.03	1.05
442	Disorders of liver except malig,cirr,alc hepa w CC	2,593	12,270	0.6746	0.99	0.96	0.98	0.99	0.97	1.00
443	Disorders of liver except malig,cirr,alc hepa w/o CC/MCC	2,350	7,784	0.4762	0.97	0.94	0.97	0.98	0.96	1.00
444	Disorders of the biliary tract w MCC	2,639	11,609	1.0450	1.02	0.99	1.01	1.01	0.98	1.02
445	Disorders of the biliary tract w CC	2,890	16,684	0.6915	0.96	0.93	0.97	0.96	0.95	0.98
446	Disorders of the biliary tract w/o CC/MCC	2,947	16,169	0.4969	0.96	0.93	0.96	0.96	0.94	0.98

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
453	Combined anterior/posterior spinal fusion w MCC	416	829	6.9322	1.10	1.13	1.09	1.05	1.03	1.04
454	Combined anterior/posterior spinal fusion w CC	543	1,642	4.4516	1.04	1.09	1.04	1.00	1.01	0.98
455	Combined anterior/posterior spinal fusion w/o CC/MCC	543	1,697	3.2550	1.01	1.07	1.02	0.96	1.03	0.95
456	Spinal fus exc cerv w spinal curv/malig/infec or 9+ fus w MCC	430	726	5.6433	1.04	1.07	1.07	1.03	1.01	1.03
457	Spinal fus exc cerv w spinal curv/malig/infec or 9+ fus w CC	660	1,996	3.7843	1.00	1.06	1.04	0.99	0.98	0.99
458	Spinal fus exc cerv w spinal curv/malig/infec or 9+ fus w/o CC/MCC	501	1,269	3.0520	0.99	1.04	1.03	0.95	0.94	0.95
459	Spinal fusion except cervical w MCC	1,016	2,739	3.7730	0.99	1.07	1.01	1.00	1.03	0.99
460	Spinal fusion except cervical w/o MCC	1,792	49,221	2.3027	0.97	1.03	1.00	0.93	0.94	0.94
461	Bilateral or multiple major joint procs of lower extremity w MCC	581	1,040	3.0240	1.03	1.04	1.03	1.01	0.98	1.00
462	Bilateral or multiple major joint procs of lower extremity w/o MCC	1,581	14,075	2.0691	0.95	0.99	0.98	0.92	0.90	0.92
463	Wnd debrid & skn grft exc hand, for musculo-conn tiss dis w MCC	1,716	3,989	3.0969	1.10	1.17	1.06	1.10	1.16	1.09
464	Wnd debrid & skn grft exc hand, for musculo-conn tiss dis w CC	2,021	5,513	1.7269	1.03	1.07	1.00	1.04	1.08	1.03
465	Wnd debrid & skn grft exc hand, for musculo-conn tiss dis w/o CC/MCC	1,325	2,490	1.0169	0.96	0.97	0.97	1.00	1.01	0.99
466	Revision of hip or knee replacement w MCC	1,424	3,135	2.8538	0.96	1.05	0.97	1.00	1.06	0.99
467	Revision of hip or knee replacement w CC	2,060	12,744	1.9175	0.91	0.98	0.95	0.94	0.97	0.94
468	Revision of hip or knee replacement w/o CC/MCC	2,227	20,738	1.5666	0.94	0.99	0.96	0.94	0.93	0.93
469	Major joint replacement or reattachment of lower extremity w MCC	2,740	24,930	2.1188	0.95	1.01	0.96	0.99	1.04	0.98
470	Major joint replacement or reattachment of lower extremity w/o MCC	3,036	399,968	1.3137	0.93	0.96	0.96	0.93	0.93	0.93
471	Cervical spinal fusion w MCC	905	2,141	2.9269	1.06	1.05	1.06	1.05	1.02	1.03
472	Cervical spinal fusion w CC	1,276	6,387	1.7099	0.97	1.00	0.99	0.94	0.94	0.94
473	Cervical spinal fusion w/o CC/MCC	1,668	22,298	1.2356	0.98	1.03	0.97	0.92	0.92	0.93
474	Amputation for musculoskeletal sys & conn tissue dis w MCC	1,237	2,257	2.2222	1.04	1.09	1.01	1.05	1.11	1.05
475	Amputation for musculoskeletal sys & conn tissue dis w CC	1,567	3,120	1.2938	0.99	1.02	0.97	1.01	1.05	1.00
476	Amputation for musculoskeletal sys & conn tissue dis w/o CC/MCC	907	1,435	0.7065	0.92	0.91	0.95	1.00	0.99	0.99
477	Biopsies of musculoskeletal system & connective tissue w MCC	1,003	1,976	2.2641	1.03	1.02	1.02	1.01	1.00	1.01
478	Biopsies of musculoskeletal system & connective tissue w CC	1,660	6,867	1.3787	0.96	0.93	0.96	0.94	0.93	0.94
479	Biopsies of musculoskeletal system & connective tissue w/o CC/MCC	1,513	9,868	0.9735	0.96	0.90	0.95	0.92	0.88	0.92
480	Hip & femur procedures except major joint w MCC	2,737	22,670	1.9108	0.98	1.01	0.98	1.01	1.04	1.00
481	Hip & femur procedures except major joint w CC	2,923	67,482	1.1909	0.91	0.95	0.93	0.96	1.00	0.96
482	Hip & femur procedures except major joint w/o CC/MCC	2,896	46,295	0.9783	0.93	0.96	0.93	0.96	1.00	0.96
483	Major joint & limb reattachment proc of upper extremity w CC/MCC	1,721	6,371	1.4515	0.95	0.97	0.98	0.94	0.93	0.94
484	Major joint & limb reattachment proc of upper extremity w/o CC/MCC	2,218	17,059	1.1284	0.93	0.97	0.97	0.92	0.91	0.92

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
485	Knee procedures w pdx of infection w MCC	721	1,089	2.2084	1.04	0.99	1.05	1.04	1.00	1.03
486	Knee procedures w pdx of infection w CC	1,140	2,036	1.4321	0.99	0.96	0.98	0.98	0.94	0.96
487	Knee procedures w pdx of infection w/o CC/MCC	905	1,331	1.0135	0.94	0.90	0.97	0.96	0.93	0.96
488	Knee procedures w/o pdx of infection w CC/MCC	1,273	2,431	1.0876	0.99	0.97	1.01	0.99	0.96	0.98
489	Knee procedures w/o pdx of infection w/o CC/MCC	1,915	6,113	0.7626	0.95	0.93	0.97	0.95	0.95	0.95
490	Back & neck proc exc spinal fusion w CC/MCC or disc device/neurostim	1,817	19,582	1.1161	1.01	0.97	1.00	0.96	0.93	0.95
491	Back & neck proc exc spinal fusion w/o CC/MCC	2,010	57,038	0.6294	0.97	0.93	0.96	0.92	0.88	0.92
492	Lower extrem & humer proc except hip,foot,femur w MCC	1,761	4,152	1.8077	0.98	1.01	0.99	1.01	1.03	1.01
493	Lower extrem & humer proc except hip,foot,femur w CC	2,597	15,264	1.1596	0.94	0.96	0.95	0.96	0.98	0.96
494	Lower extrem & humer proc except hip,foot,femur w/o CC/MCC	2,839	27,971	0.7975	0.94	0.94	0.95	0.95	0.96	0.95
495	Local excision & removal int fix devices exc hip & femur w MCC	1,023	1,522	2.1260	1.04	1.08	1.02	1.05	1.08	1.03
496	Local excision & removal int fix devices exc hip & femur w CC	1,766	4,960	1.1422	0.97	0.97	0.96	0.97	0.97	0.96
497	Local excision & removal int fix devices exc hip & femur w/o CC/MCC	1,869	6,949	0.7500	0.96	0.94	0.97	0.95	0.92	0.94
498	Local excision & removal int fix devices of hip & femur w CC/MCC	784	1,211	1.3709	1.05	1.02	1.04	1.04	1.00	1.02
499	Local excision & removal int fix devices of hip & femur w/o CC/MCC	784	1,164	0.6019	0.95	0.91	0.97	0.95	0.92	0.96
500	Soft tissue procedures w MCC	838	1,191	2.0843	1.11	1.09	1.09	1.10	1.09	1.09
501	Soft tissue procedures w CC	1,676	3,631	0.9980	0.99	0.97	0.99	1.00	0.97	0.98
502	Soft tissue procedures w/o CC/MCC	1,939	6,362	0.6288	0.97	0.95	0.96	0.96	0.96	0.95
503	Foot procedures w MCC	540	708	1.4722	1.09	1.06	1.02	1.03	0.99	1.01
504	Foot procedures w CC	1,284	2,205	1.0031	1.03	0.99	0.98	0.98	0.94	0.97
505	Foot procedures w/o CC/MCC	1,505	3,109	0.6593	0.97	0.95	0.97	0.96	0.93	0.96
506	Major thumb or joint procedures	585	908	0.6677	0.95	0.94	0.98	0.97	0.95	0.96
507	Major shoulder or elbow joint procedures w CC/MCC	612	811	1.0964	1.01	0.98	1.00	0.99	0.96	0.98
508	Major shoulder or elbow joint procedures w/o CC/MCC	1,164	2,699	0.6927	0.96	0.94	0.97	0.94	0.92	0.94
509	Arthroscopy	443	660	0.7068	0.99	0.95	0.99	0.96	0.92	0.96
510	Shoulder,elbow or forearm proc,exc major joint proc w MCC	731	964	1.3660	1.02	1.00	1.01	0.99	0.96	1.00
511	Shoulder,elbow or forearm proc,exc major joint proc w CC	1,738	4,081	0.8727	0.98	0.94	0.97	0.94	0.91	0.95
512	Shoulder,elbow or forearm proc,exc major joint proc w/o CC/MCC	2,377	11,940	0.6144	0.99	0.97	0.97	0.94	0.92	0.95
513	Hand or wrist proc, except major thumb or joint proc w CC/MCC	760	1,078	0.8456	0.98	0.94	0.98	0.98	0.94	0.98
514	Hand or wrist proc, except major thumb or joint proc w/o CC/MCC	785	1,156	0.5148	0.98	0.95	0.97	0.98	0.95	0.97
515	Other musculoskelet sys & conn tiss O.R. proc w MCC	1,251	3,145	2.0864	1.02	1.02	1.02	1.02	1.02	1.01
516	Other musculoskelet sys & conn tiss O.R. proc w CC	1,835	10,679	1.2221	0.94	0.92	0.96	0.94	0.93	0.94

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
517	Other musculoskelet sys & conn tiss O.R. proc w/o CC/MCC	2,033	17,647	0.8863	0.95	0.91	0.96	0.94	0.91	0.94
533	Fractures of femur w MCC	640	710	0.9612	0.99	1.00	0.97	1.00	1.02	0.99
534	Fractures of femur w/o MCC	1,805	3,301	0.4651	0.92	0.94	0.95	0.97	1.02	0.97
535	Fractures of hip & pelvis w MCC	2,276	5,833	0.9189	0.98	0.99	0.99	1.00	1.00	0.99
536	Fractures of hip & pelvis w/o MCC	3,107	32,050	0.4604	0.93	0.93	0.95	0.95	0.96	0.95
537	Sprains, strains, & dislocations of hip, pelvis & thigh w CC/MCC	538	663	0.5816	0.95	0.92	0.97	0.92	0.92	0.95
538	Sprains, strains, & dislocations of hip, pelvis & thigh w/o CC/MCC	814	1,106	0.3711	0.91	0.89	0.96	0.94	0.92	0.95
539	Osteomyelitis w MCC	1,423	2,706	1.3447	1.02	1.06	1.00	1.03	1.06	1.03
540	Osteomyelitis w CC	1,837	3,795	0.8738	1.00	1.03	0.96	1.01	1.03	1.01
541	Osteomyelitis w/o CC/MCC	1,150	1,646	0.6176	0.96	0.96	0.96	1.01	1.02	1.01
542	Pathological fractures & musculoskelet & conn tiss malig w MCC	1,932	5,040	1.2447	0.99	1.01	0.99	0.99	1.01	0.99
543	Pathological fractures & musculoskelet & conn tiss malig w CC	2,729	17,180	0.7463	0.94	0.95	0.96	0.95	0.97	0.96
544	Pathological fractures & musculoskelet & conn tiss malig w/o CC/MCC	2,598	11,786	0.5168	0.94	0.92	0.96	0.94	0.95	0.96
545	Connective tissue disorders w MCC	1,415	3,101	1.5746	1.06	1.05	1.10	1.06	1.05	1.09
546	Connective tissue disorders w CC	2,026	5,510	0.7094	0.97	0.96	1.00	0.99	0.99	1.00
547	Connective tissue disorders w/o CC/MCC	1,952	4,611	0.4992	0.98	0.96	0.98	0.99	0.98	1.00
548	Septic arthritis w MCC	456	524	1.2751	1.05	1.03	1.04	1.03	1.02	1.05
549	Septic arthritis w CC	866	1,097	0.7747	0.98	0.96	0.96	0.97	0.97	0.96
550	Septic arthritis w/o CC/MCC	688	838	0.5073	0.98	0.99	0.96	1.00	1.02	1.01
551	Medical back problems w MCC	2,348	8,164	1.0114	0.96	0.96	0.99	0.99	0.99	0.99
552	Medical back problems w/o MCC	3,282	85,383	0.5148	0.94	0.91	0.96	0.94	0.93	0.95
553	Bone diseases & arthropathies w MCC	1,328	2,608	0.7574	1.00	0.97	1.01	1.00	0.99	1.01
554	Bone diseases & arthropathies w/o MCC	2,918	19,826	0.4273	0.97	0.94	0.98	0.97	0.96	0.98
555	Signs & symptoms of musculoskeletal system & conn tissue w MCC	1,080	1,806	0.6606	0.96	0.93	1.00	0.98	0.95	1.00
556	Signs & symptoms of musculoskeletal system & conn tissue w/o MCC	2,900	18,669	0.3906	0.93	0.90	0.98	0.96	0.95	0.98
557	Tendonitis, myositis & bursitis w MCC	1,545	2,728	1.0218	1.02	1.02	0.99	1.00	1.01	1.02
558	Tendonitis, myositis & bursitis w/o MCC	2,749	13,617	0.5350	0.97	0.95	0.97	0.95	0.95	0.98
559	Aftercare, musculoskeletal system & connective tissue w MCC	1,034	1,310	1.0945	1.03	1.08	1.02	1.04	1.06	1.03
560	Aftercare, musculoskeletal system & connective tissue w CC	1,765	3,727	0.6250	0.99	1.00	0.97	0.98	0.98	0.96
561	Aftercare, musculoskeletal system & connective tissue w/o CC/MCC	2,141	7,124	0.3859	0.97	0.95	0.96	0.97	0.96	0.95
562	Fx, sprn, strn & disl except femur, hip, pelvis & thigh w MCC	1,939	4,170	0.9358	0.99	1.01	1.00	1.00	1.02	1.02
563	Fx, sprn, strn & disl except femur, hip, pelvis & thigh w/o MCC	3,100	34,224	0.4519	0.95	0.94	0.96	0.95	0.96	0.97

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
564	Other musculoskeletal sys & connective tissue diagnoses w MCC	980	1,503	0.9539	1.01	0.99	1.02	1.04	1.00	1.04
565	Other musculoskeletal sys & connective tissue diagnoses w CC	1,627	3,257	0.6000	0.99	0.96	0.99	1.00	0.97	0.99
566	Other musculoskeletal sys & connective tissue diagnoses w/o CC/MCC	1,471	2,640	0.4336	0.97	0.94	0.97	0.98	0.95	0.99
573	Skin graft &/or debrid for skn ulcer or cellulitis w MCC	1,921	4,374	2.1727	1.07	1.12	1.04	1.08	1.13	1.08
574	Skin graft &/or debrid for skn ulcer or cellulitis w CC	2,599	10,323	1.2727	1.02	1.05	0.97	1.04	1.07	1.02
575	Skin graft &/or debrid for skn ulcer or cellulitis w/o CC/MCC	2,157	5,608	0.7474	0.96	0.96	0.94	1.01	1.01	1.00
576	Skin graft &/or debrid exc for skin ulcer or cellulitis w MCC	403	530	2.2107	1.13	1.11	1.09	1.07	1.04	1.07
577	Skin graft &/or debrid exc for skin ulcer or cellulitis w CC	1,094	2,233	1.0778	1.06	1.02	1.01	1.01	0.97	0.99
578	Skin graft &/or debrid exc for skin ulcer or cellulitis w/o CC/MCC	1,300	3,125	0.6336	0.98	0.94	0.97	0.96	0.93	0.96
579	Other skin, subcut tiss & breast proc w MCC	1,519	2,770	1.8817	1.07	1.09	1.04	1.08	1.08	1.06
580	Other skin, subcut tiss & breast proc w CC	2,494	10,023	0.9123	1.00	0.99	0.98	1.00	0.99	0.99
581	Other skin, subcut tiss & breast proc w/o CC/MCC	2,521	11,789	0.5509	0.99	0.94	0.98	0.98	0.94	0.97
582	Mastectomy for malignancy w CC/MCC	2,033	5,675	0.6440	1.02	0.97	0.99	0.98	0.94	0.99
583	Mastectomy for malignancy w/o CC/MCC	2,382	9,232	0.4746	0.99	0.93	0.98	0.97	0.92	0.98
584	Breast biopsy, local excision & other breast procedures w CC/MCC	612	761	0.9816	1.08	1.06	1.03	1.02	0.99	1.03
585	Breast biopsy, local excision & other breast procedures w/o CC/MCC	971	1,650	0.5539	1.03	0.99	0.97	0.97	0.93	0.96
592	Skin ulcers w MCC	1,673	3,282	1.1740	1.02	1.04	1.00	1.02	1.04	1.02
593	Skin ulcers w CC	2,735	11,541	0.7140	0.99	0.99	0.96	1.01	1.02	1.01
594	Skin ulcers w/o CC/MCC	1,548	2,583	0.4849	0.94	0.94	0.96	1.01	1.04	1.03
595	Major skin disorders w MCC	692	961	1.2219	1.09	1.08	1.05	1.10	1.07	1.07
596	Major skin disorders w/o MCC	2,133	5,729	0.5516	0.99	0.96	0.98	1.00	0.97	1.00
597	Malignant breast disorders w MCC	395	489	1.1167	1.05	1.00	1.04	1.03	0.99	1.04
598	Malignant breast disorders w CC	976	1,522	0.6876	0.99	0.95	0.99	1.06	1.03	1.00
599	Malignant breast disorders w/o CC/MCC	297	351	0.4205	0.98	0.95	0.99	0.98	0.98	1.02
600	Non-malignant breast disorders w CC/MCC	481	585	0.6423	1.02	1.00	1.00	1.02	1.02	1.04
601	Non-malignant breast disorders w/o CC/MCC	667	824	0.4079	0.99	0.96	0.98	1.00	0.98	1.01
602	Cellulitis w MCC	2,865	18,062	0.9370	1.01	1.01	1.00	1.01	1.01	1.01
603	Cellulitis w/o MCC	3,338	126,271	0.5302	0.98	0.96	0.97	0.99	0.98	0.99
604	Trauma to the skin, subcut tiss & breast w MCC	1,372	2,464	0.7889	0.99	0.94	1.00	0.98	0.93	0.99
605	Trauma to the skin, subcut tiss & breast w/o MCC	2,969	22,421	0.4479	0.96	0.91	0.97	0.94	0.92	0.98
606	Minor skin disorders w MCC	804	1,218	0.7460	1.04	0.99	1.07	1.08	1.02	1.07
607	Minor skin disorders w/o MCC	2,350	7,099	0.4245	0.99	0.96	0.98	0.99	0.97	1.00

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
614	Adrenal & pituitary procedures w CC/MCC	603	1,360	1.6709	1.10	1.06	1.07	1.11	1.05	1.06
615	Adrenal & pituitary procedures w/o CC/MCC	608	1,588	0.9245	1.00	0.95	0.99	1.00	0.94	0.96
616	Amputat of lower limb for endocrine,nutrit,& metabol dis w MCC	757	904	2.5910	1.00	1.06	1.00	1.06	1.12	1.06
617	Amputat of lower limb for endocrine,nutrit,& metabol dis w CC	2,008	6,075	1.3885	1.00	1.03	0.97	1.01	1.04	1.00
618	Amputat of lower limb for endocrine,nutrit,& metabol dis w/o CC/MCC	225	251	0.7885	0.90	0.90	0.97	0.98	1.02	1.02
619	O.R. procedures for obesity w MCC	324	643	2.4659	1.12	1.06	1.14	1.15	1.08	1.11
620	O.R. procedures for obesity w CC	569	1,947	1.3615	1.03	0.97	1.02	0.99	0.93	0.99
621	O.R. procedures for obesity w/o CC/MCC	808	6,388	1.0381	1.01	0.94	0.99	0.93	0.87	0.94
622	Skin grafts & wound debrid for endoc, nutrit & metab dis w MCC	799	952	2.1817	1.17	1.22	1.04	1.09	1.14	1.09
623	Skin grafts & wound debrid for endoc, nutrit & metab dis w CC	1,549	2,927	1.2442	1.04	1.06	0.99	1.03	1.06	1.03
624	Skin grafts & wound debrid for endoc, nutrit & metab dis w/o CC/MCC	333	362	0.7081	0.93	0.92	0.97	1.02	1.03	1.04
625	Thyroid, parathyroid & thyroglossal procedures w MCC	656	1,074	1.5195	1.09	1.07	1.06	1.07	1.04	1.06
626	Thyroid, parathyroid & thyroglossal procedures w CC	1,124	2,677	0.7592	1.01	0.96	0.98	0.97	0.93	0.97
627	Thyroid, parathyroid & thyroglossal procedures w/o CC/MCC	2,126	13,906	0.4862	1.03	0.98	0.98	0.97	0.92	0.97
628	Other endocrine, nutrit & metab O.R. proc w MCC	1,309	2,862	2.2547	1.10	1.07	1.07	1.06	1.04	1.07
629	Other endocrine, nutrit & metab O.R. proc w CC	1,603	3,700	1.4967	1.03	1.05	0.99	1.01	1.03	1.01
630	Other endocrine, nutrit & metab O.R. proc w/o CC/MCC	441	528	0.9436	0.97	0.97	1.00	0.97	0.99	1.00
637	Diabetes w MCC	2,771	14,375	0.9280	1.03	1.02	1.01	1.05	1.03	1.05
638	Diabetes w CC	3,217	43,590	0.5442	1.00	0.98	0.98	0.99	0.99	1.02
639	Diabetes w/o CC/MCC	3,162	35,319	0.3716	1.00	0.98	0.99	1.02	1.00	1.04
640	Nutritional & misc metabolic disorders w MCC	3,203	48,978	0.7647	1.01	0.99	1.00	0.99	0.99	1.02
641	Nutritional & misc metabolic disorders w/o MCC	3,344	182,182	0.4621	0.96	0.93	0.97	0.95	0.96	0.99
642	Inborn errors of metabolism	807	1,484	0.6984	1.00	0.97	1.08	1.07	1.11	1.09
643	Endocrine disorders w MCC	1,689	3,715	1.1477	1.03	1.02	1.00	1.00	1.00	1.01
644	Endocrine disorders w CC	2,451	9,981	0.6981	0.98	0.97	0.97	0.95	0.96	0.98
645	Endocrine disorders w/o CC/MCC	2,304	7,533	0.5001	0.99	0.97	0.98	0.94	0.96	0.98
652	Kidney transplant	202	10,382	2.0059	1.24	1.25	1.24	1.25	1.25	1.24
653	Major bladder procedures w MCC	788	1,355	3.7021	1.08	1.10	1.07	1.11	1.12	1.08
654	Major bladder procedures w CC	1,116	3,096	1.9595	0.97	0.95	0.98	1.00	0.98	0.98
655	Major bladder procedures w/o CC/MCC	747	1,473	1.3499	0.95	0.91	0.96	0.95	0.92	0.94
656	Kidney & ureter procedures for neoplasm w MCC	1,310	3,627	2.2654	1.07	1.03	1.07	1.07	1.03	1.05
657	Kidney & ureter procedures for neoplasm w CC	1,756	7,767	1.2468	0.98	0.92	0.99	0.97	0.93	0.96

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
658	Kidney & ureter procedures for neoplasm w/o CC/MCC	1,668	7,831	0.9175	0.97	0.90	0.98	0.96	0.90	0.95
659	Kidney & ureter procedures for non-neoplasm w MCC	1,245	4,006	2.2172	1.12	1.12	1.09	1.09	1.08	1.08
660	Kidney & ureter procedures for non-neoplasm w CC	1,711	7,471	1.2453	1.01	0.99	0.99	0.98	0.97	0.98
661	Kidney & ureter procedures for non-neoplasm w/o CC/MCC	1,237	4,159	0.8097	0.95	0.90	0.98	0.96	0.93	0.96
662	Minor bladder procedures w MCC	712	953	1.7559	1.11	1.07	1.08	1.11	1.06	1.09
663	Minor bladder procedures w CC	1,211	2,239	0.9380	1.02	0.99	0.99	1.00	0.96	0.99
664	Minor bladder procedures w/o CC/MCC	1,526	4,491	0.6298	0.95	0.94	0.97	0.94	0.94	0.94
665	Prostatectomy w MCC	505	651	1.9354	1.09	1.04	1.02	1.00	0.95	1.01
666	Prostatectomy w CC	1,226	2,355	1.0326	1.05	1.00	0.98	0.98	0.94	0.98
667	Prostatectomy w/o CC/MCC	1,504	3,718	0.5185	1.01	0.94	0.97	0.99	0.94	0.97
668	Transurethral procedures w MCC	1,552	3,541	1.4858	1.07	1.03	1.02	1.02	0.99	1.02
669	Transurethral procedures w CC	2,361	13,061	0.8038	1.01	0.96	0.98	0.96	0.92	0.97
670	Transurethral procedures w/o CC/MCC	2,303	12,529	0.5052	1.02	0.96	0.98	0.97	0.93	0.97
671	Urethral procedures w CC/MCC	625	885	0.9349	1.06	1.03	1.01	1.02	0.99	1.02
672	Urethral procedures w/o CC/MCC	591	918	0.4919	1.01	0.97	0.97	0.99	0.95	0.97
673	Other kidney & urinary tract procedures w MCC	2,099	12,118	1.9576	1.13	1.08	1.09	1.06	1.03	1.08
674	Other kidney & urinary tract procedures w CC	2,069	13,661	1.3804	1.01	1.00	1.00	0.95	0.95	0.98
675	Other kidney & urinary tract procedures w/o CC/MCC	1,553	8,271	0.8393	0.97	0.99	0.98	0.93	0.96	0.96
682	Renal failure w MCC	3,107	67,810	1.1233	1.01	1.01	1.02	1.02	1.02	1.03
683	Renal failure w CC	3,229	120,508	0.7657	0.97	0.97	0.97	0.96	0.98	0.99
684	Renal failure w/o CC/MCC	3,080	27,844	0.4825	0.95	0.94	0.98	0.96	0.97	1.00
685	Admit for renal dialysis	737	2,431	0.5913	0.99	0.96	1.01	0.97	0.95	1.02
686	Kidney & urinary tract neoplasms w MCC	982	1,474	1.1497	1.05	1.01	1.03	1.02	0.99	1.02
687	Kidney & urinary tract neoplasms w CC	1,631	3,376	0.7126	0.99	0.94	0.98	0.96	0.92	0.97
688	Kidney & urinary tract neoplasms w/o CC/MCC	822	1,099	0.4605	0.99	0.93	0.99	0.96	0.93	0.99
689	Kidney & urinary tract infections w MCC	3,198	47,767	0.8267	1.01	1.01	0.98	0.99	1.00	1.00
690	Kidney & urinary tract infections w/o MCC	3,327	191,761	0.5087	0.97	0.94	0.96	0.97	0.96	0.99
691	Urinary stones w esw lithotripsy w CC/MCC	585	895	1.0051	0.88	0.85	1.00	0.99	0.95	0.99
692	Urinary stones w esw lithotripsy w/o CC/MCC	436	652	0.7329	0.78	0.74	0.99	1.00	0.97	0.99
693	Urinary stones w/o esw lithotripsy w MCC	1,253	2,081	0.8493	1.01	0.97	1.00	0.99	0.95	1.00
694	Urinary stones w/o esw lithotripsy w/o MCC	2,935	18,990	0.4362	0.97	0.90	0.97	0.97	0.91	0.98
695	Kidney & urinary tract signs & symptoms w MCC	658	856	0.8298	1.08	1.05	1.01	1.02	0.98	1.01

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
696	Kidney & urinary tract signs & symptoms w/o MCC	2,558	10,412	0.4140	1.03	0.98	0.98	0.98	0.94	0.99
697	Urethral stricture	464	572	0.4817	1.05	1.02	1.02	1.07	1.03	1.06
698	Other kidney & urinary tract diagnoses w MCC	2,526	18,741	0.9914	1.04	1.03	1.03	1.05	1.04	1.04
699	Other kidney & urinary tract diagnoses w CC	2,930	25,406	0.6488	0.96	0.95	0.98	0.97	0.97	0.99
700	Other kidney & urinary tract diagnoses w/o CC/MCC	2,653	10,900	0.4402	0.96	0.93	0.98	0.98	0.97	1.00
707	Major male pelvic procedures w CC/MCC	1,511	5,931	1.0831	1.01	0.95	1.00	0.98	0.93	0.97
708	Major male pelvic procedures w/o CC/MCC	1,796	15,753	0.7661	0.96	0.89	0.97	0.93	0.88	0.93
709	Penis procedures w CC/MCC	550	774	1.2376	1.08	1.06	1.06	1.11	1.06	1.08
710	Penis procedures w/o CC/MCC	954	1,973	0.8113	1.05	1.09	0.99	0.99	1.02	0.97
711	Testes procedures w CC/MCC	706	912	1.2444	1.06	0.99	1.06	1.07	1.03	1.08
712	Testes procedures w/o CC/MCC	588	777	0.5395	1.00	0.94	0.98	0.99	0.95	0.99
713	Transurethral prostatectomy w CC/MCC	2,189	11,652	0.7429	1.03	0.98	1.00	1.00	0.96	0.99
714	Transurethral prostatectomy w/o CC/MCC	2,501	32,221	0.4205	0.99	0.93	0.97	0.97	0.92	0.97
715	Other male reproductive system O.R. proc for malignancy w CC/MCC	491	640	1.2110	1.09	1.06	1.03	1.01	0.98	1.00
716	Other male reproductive system O.R. proc for malignancy w/o CC/MCC	421	1,339	0.6373	0.97	1.02	1.00	0.93	0.98	0.93
717	Other male reproductive system O.R. proc exc malignancy w CC/MCC	513	636	1.2222	1.10	1.08	1.08	1.10	1.08	1.10
718	Other male reproductive system O.R. proc exc malignancy w/o CC/MCC	464	595	0.5076	1.04	0.96	0.97	1.00	0.95	0.99
722	Malignancy, male reproductive system w MCC	627	779	0.9981	1.00	0.97	1.01	1.02	1.00	1.03
723	Malignancy, male reproductive system w CC	1,243	2,083	0.7015	1.00	0.96	0.97	0.96	0.94	0.97
724	Malignancy, male reproductive system w/o CC/MCC	525	642	0.4139	0.94	0.92	0.96	0.97	0.98	0.99
725	Benign prostatic hypertrophy w MCC	610	752	0.7212	1.04	1.01	1.02	1.01	1.00	1.03
726	Benign prostatic hypertrophy w/o MCC	1,805	3,864	0.4494	1.04	0.99	0.99	0.98	0.96	1.00
727	Inflammation of the male reproductive system w MCC	768	1,018	0.8437	1.03	1.00	1.02	1.06	1.01	1.04
728	Inflammation of the male reproductive system w/o MCC	2,285	6,134	0.4629	0.97	0.93	0.97	0.99	0.97	1.00
729	Other male reproductive system diagnoses w CC/MCC	469	565	0.7370	1.08	1.02	1.03	1.04	0.98	1.03
730	Other male reproductive system diagnoses w/o CC/MCC	454	537	0.3902	0.99	0.91	1.00	1.02	0.95	1.01
734	Pelvic evisceration, rad hysterectomy & rad vulvectomy w CC/MCC	380	1,017	1.5378	1.14	1.09	1.08	1.07	1.03	1.04
735	Pelvic evisceration, rad hysterectomy & rad vulvectomy w/o CC/MCC	374	929	0.6646	1.00	0.94	0.97	0.98	0.93	0.94
736	Uterine & adnexa proc for ovarian or adnexal malignancy w MCC	463	824	2.8500	1.11	1.06	1.07	1.10	1.05	1.07
737	Uterine & adnexa proc for ovarian or adnexal malignancy w CC	964	3,400	1.3651	1.02	0.98	1.01	1.01	0.97	0.98
738	Uterine & adnexa proc for ovarian or adnexal malignancy w/o CC/MCC	565	968	0.7776	0.98	0.93	0.97	0.98	0.94	0.97
739	Uterine,adnexa proc for non-ovarian/adnexal malig w MCC	524	974	1.9816	1.09	1.04	1.08	1.10	1.04	1.07

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
740	Uterine,adnexa proc for non-ovarian/adnexal malig w CC	1,170	4,679	0.9544	0.99	0.95	0.98	0.98	0.94	0.96
741	Uterine,adnexa proc for non-ovarian/adnexal malig w/o CC/MCC	1,539	6,333	0.6535	0.98	0.93	0.97	0.98	0.92	0.95
742	Uterine & adnexa proc for non-malignancy w CC/MCC	2,316	10,875	0.9038	1.01	0.96	1.02	1.02	0.97	1.00
743	Uterine & adnexa proc for non-malignancy w/o CC/MCC	2,861	32,948	0.5563	0.97	0.92	0.97	0.97	0.93	0.96
744	D&C, conization, laparoscopy & tubal interruption w CC/MCC	977	1,577	0.9284	1.06	1.03	1.02	1.02	1.00	1.03
745	D&C, conization, laparoscopy & tubal interruption w/o CC/MCC	1,015	2,074	0.4777	0.97	0.96	0.97	0.98	0.97	0.98
746	Vagina, cervix & vulva procedures w CC/MCC	1,189	2,535	0.8122	0.99	0.95	1.01	0.98	0.94	0.98
747	Vagina, cervix & vulva procedures w/o CC/MCC	2,032	10,875	0.5430	0.98	0.95	0.97	0.95	0.92	0.95
748	Female reproductive system reconstructive procedures	2,532	21,223	0.5275	0.99	0.96	0.98	0.96	0.95	0.96
749	Other female reproductive system O.R. procedures w CC/MCC	750	1,168	1.6279	1.07	1.03	1.07	1.09	1.05	1.06
750	Other female reproductive system O.R. procedures w/o CC/MCC	536	707	0.6133	0.99	0.94	0.97	1.01	0.96	0.99
754	Malignancy, female reproductive system w MCC	708	977	1.2804	1.08	1.05	1.05	1.06	1.03	1.05
755	Malignancy, female reproductive system w CC	1,418	2,990	0.7510	1.00	0.97	1.00	1.00	0.97	0.99
756	Malignancy, female reproductive system w/o CC/MCC	701	1,031	0.4484	0.98	0.95	0.99	1.01	0.98	1.00
757	Infections, female reproductive system w MCC	813	1,239	1.1487	1.07	1.04	1.02	1.02	0.99	1.03
758	Infections, female reproductive system w CC	1,053	1,611	0.7185	1.00	0.96	0.99	1.02	0.97	1.00
759	Infections, female reproductive system w/o CC/MCC	828	1,116	0.5048	0.95	0.91	0.97	1.00	0.95	0.98
760	Menstrual & other female reproductive system disorders w CC/MCC	1,217	1,955	0.5282	1.01	0.97	0.98	0.99	0.95	1.00
761	Menstrual & other female reproductive system disorders w/o CC/MCC	1,559	2,760	0.3818	0.97	0.91	0.97	1.00	0.94	1.00
765	Cesarean section w CC/MCC	1,166	2,548	0.7462	1.10	1.04	1.01	1.20	1.16	1.05
766	Cesarean section w/o CC/MCC	1,388	2,628	0.5222	1.14	1.08	0.98	1.20	1.15	1.00
767	Vaginal delivery w sterilization &/or D&C	99	115	0.5180	1.02	1.00	0.94	1.17	1.13	0.95
768	Vaginal delivery w O.R. proc except steril &/or D&C	10	10	1.1916	0.98		0.97	1.09		0.97
769	Abortion w D&C, aspiration curettage or hysterotomy	82	85	1.2752	1.24	1.18	1.21	1.21	1.20	1.19
770	Vaginal delivery w complicating diagnoses	159	177	0.4894	1.09	1.02	1.06	1.06	1.02	1.08
774	Vaginal delivery w/o complicating diagnoses	806	1,462	0.4296	1.04	1.00	0.98	1.18	1.13	1.03
775	Postpartum & post abortion diagnoses w/o O.R. procedure	1,808	5,266	0.3275	1.08	1.02	0.98	1.22	1.16	1.02
776	Ectopic pregnancy	373	483	0.4362	0.97	0.93	1.03	1.10	1.04	1.04
777	Threatened abortion	152	175	0.4688	0.97	0.92	0.98	1.06	0.99	1.04
778	Abortion w/o D&C	348	479	0.2616	0.87	0.86	0.96	1.06	1.08	1.00
779	False labor	88	93	0.3967	1.07	0.96	1.15	1.26	1.08	1.16
780	Other antepartum diagnoses w medical complications	46	49	0.2012	0.81	0.77	0.97	1.06	1.09	0.99

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
781	Other antepartum diagnoses w/o medical complications	1,077	2,927	0.3934	0.94	0.92	0.99	1.09	1.07	1.04
782	Splenectomy w MCC	112	122	0.3022	1.05	0.75	0.98	1.10	0.92	0.99
799	Splenectomy w CC	453	559	3.3104	1.11	1.07	1.12	1.14	1.09	1.11
800	Splenectomy w/o CC/MCC	534	706	1.6881	1.01	0.98	1.06	1.06	1.02	1.04
801	Other O.R. proc of the blood & blood forming organs w MCC	451	587	1.0644	0.95	0.90	1.00	1.00	0.96	0.99
802	Other O.R. proc of the blood & blood forming organs w CC	465	581	2.3747	1.21	1.17	1.14	1.14	1.10	1.14
803	Other O.R. proc of the blood & blood forming organs w/o CC/MCC	704	958	1.1296	1.06	1.02	1.01	1.01	0.97	1.00
804	Major hematom/immun diag exc sickle cell crisis & coagul w MCC	631	965	0.6540	0.98	0.94	0.97	0.96	0.92	0.96
808	Major hematom/immun diag exc sickle cell crisis & coagul w CC	427	540	1.5819	1.10	1.10	1.14	1.18	1.14	1.15
809	Major hematom/immun diag exc sickle cell crisis & coagul w/o CC/MCC	898	1,487	0.9625	1.05	1.01	1.06	1.06	1.02	1.06
810	Red blood cell disorders w MCC	749	1,055	0.6221	0.97	0.95	0.99	1.00	1.00	1.00
811	Red blood cell disorders w/o MCC	2,855	17,266	0.7994	1.02	0.98	1.01	1.01	0.98	1.03
812	Coagulation disorders	3,280	79,656	0.4980	0.99	0.94	0.98	0.99	0.96	1.01
813	Reticuloendothelial & immunity disorders w MCC	2,721	14,639	0.8850	1.07	1.05	1.09	1.11	1.08	1.10
814	Reticuloendothelial & immunity disorders w CC	990	1,478	1.0653	1.02	0.99	1.03	1.02	0.99	1.04
815	Reticuloendothelial & immunity disorders w/o CC/MCC	1,614	3,330	0.6564	0.96	0.91	0.98	0.97	0.94	0.98
816	Lymphoma & leukemia w major O.R. procedure w MCC	1,395	2,346	0.4568	0.95	0.90	0.97	0.98	0.95	0.99
820	Lymphoma & leukemia w major O.R. procedure w CC	756	1,256	3.8770	1.16	1.13	1.14	1.14	1.10	1.12
821	Lymphoma & leukemia w major O.R. procedure w/o CC/MCC	1,164	2,579	1.5352	1.05	1.01	1.04	1.04	1.01	1.03
822	Lymphoma & non-acute leukemia w other O.R. proc w MCC	987	2,107	0.8328	1.00	0.95	0.99	0.97	0.93	0.96
823	Lymphoma & non-acute leukemia w other O.R. proc w CC	1,112	2,064	2.7760	1.10	1.07	1.07	1.06	1.03	1.05
824	Lymphoma & non-acute leukemia w other O.R. proc w/o CC/MCC	1,378	3,095	1.4678	1.03	1.00	1.03	1.00	0.98	1.00
825	Myeloprolif disord or poorly diff neopl w maj O.R. proc w MCC	1,078	1,964	0.8737	1.01	0.96	0.99	0.97	0.92	0.96
826	Myeloprolif disord or poorly diff neopl w maj O.R. proc w CC	414	527	3.4514	1.15	1.10	1.13	1.14	1.08	1.11
827	Myeloprolif disord or poorly diff neopl w maj O.R. proc w/o CC/MCC	739	1,317	1.4367	1.02	0.97	1.01	1.00	0.97	0.99
828	Myeloprolif disord or poorly diff neopl w other O.R. proc w CC/MCC	535	843	0.8200	0.97	0.92	0.96	0.96	0.91	0.94
829	Myeloprolif disord or poorly diff neopl w other O.R. proc w/o CC/MCC	811	1,340	1.8108	1.13	1.10	1.11	1.10	1.07	1.08
830	Acute leukemia w/o major O.R. procedure w MCC	363	514	0.6833	0.96	0.93	0.98	0.95	0.92	0.96
834	Acute leukemia w/o major O.R. procedure w CC	1,352	3,466	2.9727	1.19	1.18	1.19	1.21	1.18	1.17
835	Acute leukemia w/o major O.R. procedure w/o CC/MCC	1,113	2,233	1.8238	1.14	1.12	1.15	1.16	1.13	1.14
836	Chemo w acute leukemia as sdx or w high dose chemo agent w MCC	1,134	2,144	0.9829	1.10	1.08	1.09	1.11	1.09	1.08
837	Chemo w acute leukemia as sdx w CC or high dose chemo agent	382	860	4.7069	1.15	1.12	1.13	1.15	1.12	1.12

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
838	Chemo w acute leukemia as sdx w/o CC/MCC	393	1,304	2.3448	1.13	1.12	1.15	1.17	1.15	1.13
839	Lymphoma & non-acute leukemia w MCC	487	1,705	1.1288	1.10	1.09	1.09	1.11	1.10	1.07
840	Lymphoma & non-acute leukemia w CC	2,103	8,370	1.8091	1.09	1.07	1.09	1.09	1.07	1.08
841	Lymphoma & non-acute leukemia w/o CC/MCC	2,281	9,700	1.0633	1.01	0.99	1.01	1.00	0.99	1.00
842	Other myeloprolif dis or poorly diff neopl diag w MCC	1,939	5,949	0.7283	0.99	0.96	1.00	0.99	0.97	0.99
843	Other myeloprolif dis or poorly diff neopl diag w CC	921	1,347	1.2713	1.07	1.04	1.03	1.02	0.99	1.02
844	Other myeloprolif dis or poorly diff neopl diag w/o CC/MCC	1,433	2,775	0.7925	0.97	0.93	1.01	0.99	0.95	0.98
845	Chemotherapy w/o acute leukemia as secondary diagnosis w MCC	792	1,072	0.5568	0.98	0.94	0.98	0.98	0.94	0.98
846	Chemotherapy w/o acute leukemia as secondary diagnosis w CC	695	1,785	1.5326	1.17	1.14	1.14	1.16	1.12	1.12
847	Chemotherapy w/o acute leukemia as secondary diagnosis w/o CC/MCC	1,481	23,599	0.6431	1.05	1.04	1.02	1.04	1.02	1.01
848	Radiotherapy	544	1,708	0.5127	1.04	1.03	1.03	1.07	1.05	1.04
849	Infectious & parasitic diseases w O.R. procedure w MCC	533	1,493	0.8379	1.08	1.10	1.03	1.01	1.03	1.01
853	Infectious & parasitic diseases w O.R. procedure w CC	2,707	26,562	3.5344	1.12	1.12	1.08	1.12	1.11	1.10
854	Infectious & parasitic diseases w O.R. procedure w/o CC/MCC	2,104	6,288	1.9168	1.03	1.04	1.01	1.03	1.04	1.03
855	Postoperative or post-traumatic infections w O.R. proc w MCC	386	418	1.2319	0.98	0.96	0.99	0.98	0.96	0.98
856	Postoperative or post-traumatic infections w O.R. proc w CC	1,716	4,810	3.2461	1.08	1.14	1.08	1.12	1.17	1.09
857	Postoperative or post-traumatic infections w O.R. proc w/o CC/MCC	2,208	8,665	1.3974	1.00	1.03	0.99	1.01	1.05	1.00
858	Postoperative & post-traumatic infections w MCC	1,402	3,045	0.8887	0.96	0.96	0.96	0.97	0.98	0.97
862	Postoperative & post-traumatic infections w/o MCC	2,035	6,350	1.2683	1.04	1.04	1.03	1.05	1.04	1.04
863	Fever of unknown origin	2,892	20,083	0.6287	0.97	0.97	0.97	0.97	0.98	0.97
864	Viral illness w MCC	2,828	19,476	0.5514	0.98	0.94	0.99	0.96	0.94	0.98
865	Viral illness w/o MCC	1,003	1,763	1.0907	1.10	1.07	1.10	1.09	1.05	1.07
866	Other infectious & parasitic diseases diagnoses w MCC	2,444	9,465	0.4559	0.97	0.93	0.98	0.97	0.94	0.98
867	Other infectious & parasitic diseases diagnoses w CC	1,533	3,441	1.9446	1.09	1.09	1.09	1.09	1.08	1.09
868	Other infectious & parasitic diseases diagnoses w/o CC/MCC	1,052	1,921	0.8463	0.97	0.95	1.00	0.99	0.99	1.02
869	Septicemia w MV 96+ hours	782	1,180	0.5673	0.97	0.95	0.98	0.95	0.96	1.00
870	Septicemia w/o MV 96+ hours w MCC	2,017	12,261	3.7320	1.15	1.14	1.08	1.18	1.14	1.11
871	Septicemia w/o MV 96+ hours w/o MCC	3,257	183,862	1.2376	1.03	1.01	1.01	1.04	1.01	1.03
872	O.R. procedure w principal diagnoses of mental illness	3,258	88,687	0.7602	0.97	0.95	0.97	0.98	0.97	0.99
876	Acute adjustment reaction & psychosocial dysfunction	618	921	1.6977	1.05	1.03	1.04	1.04	1.02	1.03
880	Depressive neuroses	2,469	10,170	0.4078	0.91	0.88	0.98	0.95	0.95	0.99
881	Neuroses except depressive	1,303	4,220	0.3695	0.88	0.86	0.99	1.01	1.03	1.02

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
882	Disorders of personality & impulse control	591	1,555	0.4064	0.89	0.87	1.00	0.99	1.02	1.00
883	Organic disturbances & mental retardation	368	721	0.6586	0.98	0.92	1.05	1.02	1.01	1.06
884	Psychoses	2,818	19,248	0.5729	0.95	0.93	0.97	0.95	0.97	0.98
885	Behavioral & developmental disorders	2,635	70,532	0.5643	0.94	0.91	1.00	1.14	1.13	1.09
886	Other mental disorder diagnoses	196	355	0.5086	0.96	0.95	1.01	1.07	1.11	1.08
887	Alcohol/drug abuse or dependence, left ama	322	397	0.5779	1.07	1.01	1.03	1.00	1.00	1.04
894	Alcohol/drug abuse or dependence w rehabilitation therapy	986	4,785	0.2574	1.09	1.06	1.04	1.10	1.13	1.14
895	Alcohol/drug abuse or dependence w/o rehabilitation therapy w MCC	209	10,135	0.5833	1.08	1.05	1.12	1.18	1.28	1.27
896	Alcohol/drug abuse or dependence w/o rehabilitation therapy w/o MCC	1,817	4,658	0.8902	1.01	0.99	1.04	1.06	1.03	1.05
897	Wound debridements for injuries w MCC	2,955	36,952	0.4077	1.00	0.97	1.02	1.04	1.05	1.07
901	Wound debridements for injuries w CC	644	874	2.5322	1.17	1.12	1.15	1.16	1.10	1.13
902	Wound debridements for injuries w/o CC/MCC	1,171	2,151	1.1931	1.03	0.98	1.00	0.99	0.95	0.98
903	Skin grafts for injuries w CC/MCC	1,004	1,658	0.6879	0.95	0.91	0.97	0.98	0.94	0.96
904	Skin grafts for injuries w/o CC/MCC	560	948	2.0074	1.16	1.06	1.14	1.14	1.03	1.12
905	Hand procedures for injuries	495	768	0.7296	0.97	0.93	0.97	1.00	0.96	0.97
906	Other O.R. procedures for injuries w MCC	525	739	0.6530	1.05	1.02	1.02	1.05	1.02	1.04
907	Other O.R. procedures for injuries w CC	1,995	7,257	2.4020	1.10	1.09	1.11	1.12	1.10	1.11
908	Other O.R. procedures for injuries w/o CC/MCC	2,206	7,758	1.2422	0.99	0.98	1.01	1.02	1.02	1.01
909	Traumatic injury w MCC	1,915	5,242	0.7353	0.96	0.93	0.97	0.97	0.94	0.96
913	Traumatic injury w/o MCC	608	770	0.9087	1.01	0.97	1.00	0.98	0.94	0.99
914	Allergic reactions w MCC	2,293	6,912	0.4414	0.97	0.92	0.97	0.96	0.93	1.00
915	Allergic reactions w/o MCC	628	871	0.7956	0.99	0.95	1.01	1.06	1.00	1.02
916	Poisoning & toxic effects of drugs w MCC	2,067	5,251	0.3040	0.98	0.96	0.97	1.01	0.96	1.00
917	Poisoning & toxic effects of drugs w/o MCC	2,525	13,177	0.9549	1.03	1.01	1.02	1.08	1.02	1.03
918	Complications of treatment w MCC	3,111	32,759	0.3892	0.95	0.93	0.97	1.02	0.96	0.99
919	Complications of treatment w CC	2,152	10,016	1.0069	1.03	1.00	1.04	1.03	1.00	1.03
920	Complications of treatment w/o CC/MCC	2,569	13,777	0.6140	0.98	0.94	0.99	0.98	0.95	0.98
921	Other injury, poisoning & toxic effect diag w MCC	2,354	9,594	0.4063	0.96	0.92	0.97	0.97	0.94	0.96
922	Other injury, poisoning & toxic effect diag w/o MCC	696	961	0.9714	1.06	1.04	1.04	1.09	1.05	1.07
923	Extensive burns or full thickness burns w MV 96+ hrs w skin graft	1,861	4,173	0.4323	0.98	0.94	0.98	0.97	0.95	1.01
927	Full thickness burn w skin graft or inhal inj w CC/MCC	81	184	8.3683	1.22	1.19	1.19	1.32	1.21	1.24
928	Full thickness burn w skin graft or inhal inj w/o CC/MCC	238	811	3.2736	1.18	1.14	1.11	1.22	1.13	1.16

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
929	Extensive burns or full thickness burns w MV 96+ hrs w/o skin graft	202	445	1.2540	1.00	0.97	0.97	1.07	1.01	1.02
933	Full thickness burn w/o skin grft or inhal inj	82	156	1.7649	1.39	1.31	1.27	1.42	1.23	1.31
934	Non-extensive burns	488	664	0.9538	1.05	1.05	1.02	1.08	1.08	1.07
935	O.R. proc w diagnoses of other contact w health services w MCC	1,034	2,129	0.8024	1.10	1.08	1.05	1.12	1.09	1.10
939	O.R. proc w diagnoses of other contact w health services w CC	284	340	1.8247	1.04	1.01	1.09	1.07	0.99	1.04
940	O.R. proc w diagnoses of other contact w health services w/o CC/MCC	480	622	1.1839	1.01	0.97	1.07	1.01	1.00	1.02
941	Rehabilitation w CC/MCC	613	1,002	0.7280	0.99	0.97	0.98	0.97	0.95	0.95
945	Rehabilitation w/o CC/MCC	298	1,279	0.8220	0.77	0.78	1.18	1.09	1.17	1.16
946	Signs & symptoms w MCC	166	2,357	0.7206	1.01	1.05	1.19	1.10	1.18	1.25
947	Signs & symptoms w/o MCC	1,879	5,193	0.6903	0.98	0.98	0.98	0.98	0.99	1.00
948	Aftercare w CC/MCC	3,038	31,646	0.4177	0.94	0.92	0.97	0.95	0.95	0.99
949	Aftercare w/o CC/MCC	434	793	0.5212	0.94	0.89	0.96	0.95	0.90	0.95
950	Other factors influencing health status	337	488	0.3533	0.95	0.89	0.98	0.98	0.93	1.01
951	Craniotomy for multiple significant trauma	586	877	0.4174	1.17	1.02	1.33	1.26	1.05	1.33
955	Limb reattachment, hip & femur proc for multiple significant trauma	285	443	3.3854	1.08	1.04	1.07	1.13	1.06	1.07
956	Other O.R. procedures for multiple significant trauma w MCC	1,519	3,247	2.2560	1.02	1.04	1.03	1.08	1.08	1.06
957	Other O.R. procedures for multiple significant trauma w CC	507	1,255	4.3621	1.10	1.07	1.12	1.16	1.09	1.11
958	Other O.R. procedures for multiple significant trauma w/o CC/MCC	509	1,175	2.6326	1.03	0.99	1.04	1.07	1.01	1.06
959	Other multiple significant trauma w MCC	229	292	1.5844	0.98	0.95	1.00	1.02	1.33	1.03
963	Other multiple significant trauma w CC	756	1,440	1.8307	1.02	0.97	1.05	1.12	1.03	1.07
964	Other multiple significant trauma w/o CC/MCC	1,086	2,428	1.0456	0.94	0.89	0.97	1.01	0.94	0.99
965	HIV w extensive O.R. procedure w MCC	744	1,080	0.6504	0.92	0.85	0.95	0.99	0.91	0.97
969	HIV w extensive O.R. procedure w/o MCC	386	628	3.6772	1.28	1.22	1.15	1.18	1.12	1.15
970	HIV w major related condition w MCC	142	167	1.7365	1.15	1.09	1.06	1.13	1.06	1.06
974	HIV w major related condition w CC	1,258	5,284	1.6898	1.16	1.13	1.11	1.18	1.13	1.15
975	HIV w major related condition w/o CC/MCC	1,201	4,726	0.9808	1.16	1.11	1.04	1.11	1.06	1.09
976	HIV w or w/o other related condition	995	2,948	0.6170	1.10	1.06	1.01	1.11	1.06	1.08
977	Extensive O.R. procedure unrelated to principal diagnosis w MCC	1,265	4,684	0.6879	1.09	1.05	1.04	1.09	1.05	1.09
981	Extensive O.R. procedure unrelated to principal diagnosis w CC	2,652	22,608	3.2925	1.07	1.09	1.05	1.07	1.09	1.06
982	Extensive O.R. procedure unrelated to principal diagnosis w/o CC/MCC	2,623	17,428	2.0623	1.01	1.05	0.99	0.98	1.02	0.99
983	Prostatic O.R. procedure unrelated to principal diagnosis w MCC	2,007	5,838	1.3230	1.00	1.02	0.99	0.95	0.99	0.96
984	Prostatic O.R. procedure unrelated to principal diagnosis w CC	469	624	2.2691	1.08	1.05	1.01	1.01	0.98	1.02

MS-DRG	MS-DRG Title	Number of Hospitals	Number of Discharges	RELWGT1 Weight	RELWGT1 PTC	RELWGT2 PTC	RELWGT3 PTC	RELWGT4 PTC	RELWGT5 PTC	RELWGT6 PTC
985	Prostatic O.R. procedure unrelated to principal diagnosis w/o CC/MCC	737	1,085	1.3944	1.02	0.98	0.98	0.95	0.94	0.98
986	Non-extensive O.R. proc unrelated to principal diagnosis w MCC	593	819	0.8263	0.97	0.92	0.96	0.93	0.91	0.95
987	Non-extensive O.R. proc unrelated to principal diagnosis w CC	2,166	6,905	2.3298	1.08	1.08	1.04	1.06	1.05	1.05
988	Non-extensive O.R. proc unrelated to principal diagnosis w/o CC/MCC	2,608	11,373	1.2409	1.01	0.99	0.99	0.98	1.00	1.00
989	Principal diagnosis invalid as discharge diagnosis	2,185	6,021	0.7363	0.99	0.96	0.98	0.97	0.98	0.98

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