

July 30, 1999

Nancy-Ann Min DeParle, Administrator
Health Care Financing Administration
Department of Health and Human Services
Attention: HCFA-1005-P
Room 309-G
Hubert H. Humphrey Building
200 Independence Avenue SW
Washington, DC 20201

Dear Administrator Min DeParle:

The Association of American Medical Colleges (AAMC or the Association) welcomes this opportunity to comment on the Health Care Financing Administration's (HCFA or the Agency) proposed rule entitled "*Medicare Program; Prospective Payment System for Hospital Outpatient Services,*" 63 Fed. Reg. 47552 (September 8, 1998), and the subsequent correction notice, 64 Fed. Reg. 35258 (June 30, 1999). The AAMC represents approximately 400 major teaching hospitals; all 125 accredited U.S. medical schools; 86 professional and academic societies; and the nation's medical students and residents.

The AAMC has been closely monitoring the development of the prospective payment system (PPS) for hospital outpatient services. As part of our efforts to better understand the components and implications of such a system, the Association obtained the 1996 Medicare outpatient claims data public use file. We also engaged The Lewin Group to help us simulate the proposed system and analyze its impact on teaching hospitals. This database has been useful in helping us to evaluate the proposed system and identify needed changes.

Before addressing the proposed rule, I would like to express the Association's appreciation to the HCFA staff in the Center for Health Plans and Providers. Our analytical efforts in assessing the proposed rule could not have been accomplished without their invaluable assistance. In addition to providing needed data and instructions, they have been extremely cordial in their interactions with AAMC staff. They also have been as responsive as possible given the difficulties that accompany any regulation of this magnitude.



The first part of this letter addresses the proposed outpatient PPS that was mandated by the Balanced Budget Act of 1997 (BBA). The AAMC sets forth a number of changes that need to be implemented to ensure that the PPS provides fair payments to teaching hospitals, without compromising Medicare's goal of moving to a prospective system for outpatient facility payments. Afterwards, we present our comments concerning HCFA's proposed changes to the definition of provider-based entities. Finally, we address the need for HCFA to re-propose the outpatient rule.

OUTPATIENT PPS

The AAMC understands the rationale for moving to a prospective payment system for outpatient services. Such a system has the potential to replace a structure of multiple and complex payment computations with a system that is predictable, easy to administer, and fair. Unfortunately, as proposed, the system falls far short of these goals. Even more disturbing, it contains serious flaws that--if not addressed--will severely compromise the ability of teaching hospitals to provide needed services and fulfill their multiple missions of clinical care, education, and research, as well as the provision of unique standby capacity.

We also are very concerned about the impact of implementing the system as proposed because Medicare often is used as a standard for other payors. Any flaws in the Medicare proposed system that are not addressed could be replicated by other payors that use this system as a model. This would exacerbate already significant outpatient losses for teaching hospitals.

The AAMC believes the modifications discussed in the following sections should be included in the final rule. Such changes will help create an outpatient system that is fair to providers, without diminishing Medicare's general policy that payments be consistent with the level of resources required by an efficient provider to deliver high quality services.

I. THE OUTPATIENT PPS SHOULD INCLUDE PAYMENT ADJUSTMENTS TO ENSURE EQUITABLE PAYMENTS FOR TEACHING HOSPITALS

The outpatient PPS should include payment adjustments for teaching hospitals to enable them to continue to provide high quality outpatient services.

In setting forth the requirements of an outpatient PPS, the BBA required the inclusion of a wage index. The statute also *required* the Secretary to include adjustments to the system "determined to be necessary to ensure equitable payments, such as outlier adjustments or adjustments for certain classes of hospitals." BBA section 4523(a). In the proposed rule, HCFA stated that "[t]he appropriateness of potential payment adjustments must be based on both cost effects estimated by regression analysis and other factors including simulated payment impacts." Fed. Reg. at 47581. Despite discovering



payment impacts on major teaching hospitals that were more than twice that of non-teaching hospitals, and regression results that showed statistically significant differences in costs, HCFA ignored the statutory requirement of equitable payments and chose not to propose any payment adjustments for teaching hospitals. Such a decision ignores the facts and statutory mandate, and should be reversed.

A. Outpatient Departments Are Critical Components of the Teaching Hospital Delivery System.

The outpatient department is critical to fulfilling the missions of teaching hospitals. In addition to providing a site for clinical education for all types of health professional trainees, teaching hospital outpatient departments provide an environment in which clinical research can flourish, and are a source for specialized, unique, and referral/standby services. Because of their education and research missions, teaching hospitals offer the newest and most advanced services and equipment, and care for the nation's sickest patients.

Teaching hospital outpatient departments often serve as a primary source of health care for low-income Medicare beneficiaries and other individuals. Clinic and emergency room services comprise a significant share of outpatient services provided by teaching hospitals. According to our analysis of the 1996 Medicare outpatient claims database, clinic and emergency room visits comprised 31 percent of all outpatient services provided by members of the AAMC Council of Teaching Hospitals (COTH), compared to the national average of 23 percent. Access to these services, as well as all services teaching hospitals provide, is critical to Medicare beneficiaries and others.

Medicare payments for hospital outpatient services represent an important source of reimbursement for teaching hospitals. This is especially true today, when teaching hospitals are suffering financially from payment reductions contained in the BBA, as well as incurring financial stress from other payors in the health care marketplace. Medicare outpatient payments are critical for teaching hospitals to continue their missions in the outpatient setting, including serving important access roles for outpatient services that range from technically-advanced innovations to clinic and emergency room services. However, as discussed in the next section, the ability of teaching hospitals to continue their important missions in the outpatient arena may be severely compromised if the financial impact of the proposed outpatient PPS is not ameliorated.

B. As Proposed, the Outpatient PPS Would be Financially Damaging to Major Teaching Hospitals

According to the June 30 correction notice, major teaching hospitals (those with 100 or more residents), will face losses under the outpatient PPS, on average, that are more than double non-teaching hospitals. Major teaching hospitals will receive 10.6 percent less in outpatient payments, compared to 5.1 percent for non-teaching hospitals, and 5.7 percent for all hospitals. 64 Fed. Reg. at 35261-62. Even more disturbing, these reductions are



on top of other outpatient payment losses that result from changing the current payment formulas and extending operating and capital cost reductions.

An examination of the relationship between proposed outpatient PPS payments and the costs required to deliver outpatient services reveals a similar sobering impact. According to data provided by HCFA, if the PPS is implemented as proposed, payments will cover only 75 percent of outpatient costs for major teaching hospitals. This gap could expand even further over the next several years if, as anticipated, scheduled payment rate updates are less than the hospital market basket.

It is important to recognize that these financial impacts are based on the mix of outpatient services that hospitals provided in 1996, the base year used to develop the outpatient PPS classification system and payment weights. However, this service mix almost certainly has changed since the base year, and will continue to change in the future. We believe that the nature of these changes could further worsen the impact for teaching hospitals.

As discussed below, the proposed payment rates for a number of important outpatient services are significantly less than the costs required to produce these services. This is especially troublesome for teaching hospitals, because their commitment to teaching and their service role within their communities requires that they provide all types of outpatient services, regardless of payment levels. In addition, the disparity between payments and costs provides a financial incentive for many hospitals to avoid treating certain cases. This will likely increase the number of high cost cases that are referred to teaching hospitals without adequate levels of reimbursement. Such a scenario could have devastating effects on the ability of teaching hospitals to sustain their important roles as outpatient care providers. It will further weaken the financial status of major teaching hospitals and broaden the financial impact gap between these institutions and other hospital types.

C. Major Teaching Hospitals Provide More Resource-Intensive Services Than Other Hospital Types

Several factors may account for the disparate financial impacts among major teaching hospitals and other hospital groups. An analysis conducted by The Lewin Group indicates that the mix of services performed in major teaching hospitals is one such contributing factor.

Under the outpatient PPS system, groups of services are categorized under a single ambulatory payment classification (APC). Each APC's relative payment weight is determined according to the median costs of those services. The payment amount for each APC is equal to its relative payment weight multiplied by a common conversion factor.¹ Each time a service within the APC is performed, it receives the same payment

¹ Payment amounts also are adjusted to reflect differences in hospitals' wages, as measured by the hospital wage index. Payment amounts may also be reduced for multiple procedures that are subject to the outpatient PPS multiple procedure payment discounting rules.

as all other services in the APC. Consequently, for certain services the APC payment will be higher than their median or average costs, while for others, the payment rate will be lower. Similar to the inpatient PPS, the concept is that, on average, hospitals will perform similar numbers of “winner” and “loser” services within and across payment categories, such that the overall financial impact is minimal.

Under the outpatient PPS, there is wide variation in the costs of the services included in each APC. To test the impact of this variation on teaching hospitals, The Lewin Group constructed a service mix index for each APC (APC-SMI) for various groups of hospitals, including COTH members, other teaching hospitals and non-teaching hospitals.² The APC-SMI reflects the average costliness of each service within each APC as well as the mix of the APC services performed within each hospital group.³ If a group of hospitals performs about the same number of winner and loser services within an APC, the service mix index for that APC would be one. If the hospitals perform more loser services, the APC-SMI would be greater than one; more winner services would equate to an APC-SMI of less than one.

According to Lewin’s analysis, almost half, 47 percent, of the outpatient services performed in COTH hospitals were in APCs that had service mix indices greater than one (that is, “loser” APCs). By contrast, only 16 percent of services performed in urban non-teaching hospitals were in APCs with APC-SMIs higher than one. The shares of outpatient services with APC-SMIs greater than one for other urban teaching hospitals and rural non-teaching hospitals were 28 percent and 31 percent, respectively. It is important to keep in mind that this analysis reflected costs for each service that were based on the average across all hospitals; thus, it does not reflect the higher costs

² The APC service mix indices can be calculated using the following equation:

$$SMI_{ij} = \frac{\sum_{k \in j} Vol_{ki} * (CPT Cost_k)}{(APC Cost_j)}$$

where SMI_{ij} is the service mix index for hospital group i and APC j , Vol_{ki} is the volume of the CPT k for hospital group i (where all CPT k map into APC j), $CPT Cost_k$ is the average cost of CPT k , and $APC Cost_j$ is the mean cost of APC j . The Vol_{ki} include each occurrence of CPT k from both singleton and multiple claims.

The $CPT Cost_k$ were constructed as follows. One of the public use files released by HCFA provided average costs for each CPT. These average costs were computed for claims with only one significant procedure (e.g., “singleton” claims). In addition, that file provided a mapping from each CPT to its corresponding APC. Where possible, we used these cost estimates to calculate the service mix indices.

The last step was to calculate the $APC Cost_j$ values. These were calculated by sorting all CPTs (both singleton and other [“multiple”] claims) into APCs, and then calculating a mean cost for each APC.

³ The cost values represent average costs based on all services in the database, regardless of the hospital that performed them. Consequently, differences in the service mix index are attributable only to the types of services performed by the hospitals in each grouping; it does not reflect cost differences unique to a class of hospitals.

associated with teaching hospitals. If these higher costs were recognized, the results would be even more striking.

This analysis demonstrates conclusively that the outpatient PPS penalizes major teaching hospitals for circumstances beyond their control. Major teaching hospitals will consistently face payment losses under the outpatient PPS because they provide a disproportionate share of services that are undercompensated under the proposed system and, as discussed earlier, the volume of these services is likely to increase if the system is implemented. It is for this type of situation that Congress intended, and Medicare historically included, adjustments to its payment systems. This is one of the most important reasons why a teaching adjustment should be part of the outpatient PPS.

D. Regression Analyses Support the Inclusion of IME and DSH Adjustments

The teaching, research, and clinical care missions of teaching hospitals increase the costs of patient care at these institutions compared to other institutions. In addition, many teaching hospitals also serve a disproportionate share of low-income individuals and provide important standby capacity to their local communities, which also increase their costs. The inpatient PPS system recognizes these disparities and includes indirect medical education (IME) and disproportionate share (DSH) adjustments to offset the inequity that would otherwise exist in that payment system. These rationales also apply in the hospital outpatient setting. Consequently, IME and DSH adjustments should be included as part of the outpatient PPS.

As part of the development of the outpatient PPS, HCFA conducted regression analyses to examine differences in costs between teaching and non-teaching hospitals, as well as hospitals that serve disproportionate shares of low income individuals (DSH). In the September 8, 1998 proposed rule and June 30, 1999 correction notice, HCFA described its analytical approach. To represent teaching intensity, HCFA created several variables: interns and residents to average daily census (IRADC) (the same variable used under capital PPS), and this same ratio adjusted to reflect outpatient utilization (IRADCA). For a DSH variable, HCFA relied on the variable used for the inpatient PPS: the share of Medicare inpatient days accounted for by Medicare patients receiving Supplemental Security Income added to the share of total inpatient days accounted for by Medicaid patients (DSH percentage).

The preamble discussion in the September 8 proposed rule indicated that HCFA's regression analyses showed positive and significant effects for both the teaching and DSH variables that would dictate the inclusion of both an IME and a DSH adjustment. In the June 30 correction notice, HCFA reversed its position concerning the significance of a DSH effect, but reaffirmed the teaching intensity findings. According to the fiscal impact included in the June 30 notice, including a teaching adjustment according to HCFA's specifications would reduce the magnitude of payment reductions under the outpatient PPS for major teaching hospitals by about a quarter, from -10.6 percent to -7.9 percent. 64 Fed. Reg. at 35262.



Using the same data that HCFA used in its analyses, Lewin conducted a series of regression analyses to determine whether teaching and DSH adjustments are warranted. These analyses are described in detail in the Technical Appendix attached to this letter. In brief, Lewin first attempted to replicate HCFA's results. This process revealed several technical decisions made by HCFA that we and Lewin question. Most important, perhaps, is that HCFA calculated unweighted regression estimates to determine whether IME and DSH variables have significant impacts on outpatient costs. HCFA then appears to have used these results when simulating the impact of including an IME adjustment in the outpatient PPS. As Lewin describes in the technical appendix, the more correct approach for a payment system like the outpatient PPS is to use weighted regressions. Indeed, the IME and DSH payment adjustments in both the inpatient and capital prospective payment systems are based on weighted regressions. Both Lewin's and HCFA's weighted regressions demonstrate statistically significant results associated with the DSH variable.

Lewin also considered a number of other potential variables for describing teaching intensity. These included an intern/resident to bed ratio (IRB) (the variable used under the inpatient PPS), an intern/resident to average daily census not adjusted for outpatient utilization, and a variable that categorized teaching hospitals into groups based on resident counts (for example, more than 100 residents). All of the variables examined indicated that both teaching intensity and DSH status had positive and statistically significant impacts related to outpatient costs.

As Lewin's technical appendix demonstrates, there are a number of issues to be resolved regarding the precise level and parameters of IME and DSH adjustments based on regression results. However, there can be no dispute that such adjustments are statistically justified. The AAMC would be happy to work with HCFA to determine the precise parameters for these adjustments.

E. The PPS Should Include a Payment Adjustment That Treats Major Teaching Hospitals Equitably

As demonstrated above, regression analyses dictate that the outpatient PPS include both teaching and DSH adjustments. Such adjustments will partially offset payment reductions that major teaching hospitals incur. However, they will not fully address the payment disparities between these and other institutions. According to HCFA's own estimates, even with a teaching adjustment, major teaching hospitals would lose 7.9 percent under the outpatient PPS, compared to losses of 5.1 percent for non-teaching hospitals.⁴ Such a disparity violates the fundamental principles of equity and fairness.

To comply with the statutory requirement of equitable payments, a payment adjustment that eliminates the financial disparity between major teaching hospitals and other hospitals is necessary. Specifically, major teaching hospitals' payments should be

⁴ As discussed in the technical appendix, Lewin's analysis results in an even greater disparity.

adjusted such that the financial impact, on average, approximates the national average. On page 11 of its technical appendix, The Lewin Group, describes one type of adjustment that would accomplish this objective.

The AAMC recognizes if a payment adjustment of this level was made in a budget-neutral manner, its impact on other providers would need to be addressed. The AAMC would be happy to work with HCFA to develop a solution to this issue that will result in an equitable payment system across all hospitals.

F. HCFA's Assertions for Not Including Teaching Payment Adjustments are Insufficient and Do Not Warrant Overriding Statistically Reliable Analyses

Despite the analytical findings of the regression analysis, and the payment impacts, HCFA chose not to propose any payment adjustments, beyond a wage index. In the June 30 correction notice, the Agency made six assertions for its decision:

1. The estimated effects of teaching intensity and disproportionate share patient percentage on costs are small and most often not statistically significant;
2. Payment impacts without such adjustments do not vary considerably;
3. Payment adjustments would require shifts in payments across hospitals and any payment adjustments should be based on stronger analytic results;
4. The issue of payment adjustments should be postponed until data from the initial years of implementation can be examined;
5. HCFA would like to standardize payments across settings and fewer adjustments to the outpatient system would facilitate such action; and
6. Before including adjustments, HCFA should monitor the impact of basing APC weights on medians, rather than geometric means

64 Fed. Reg. at 35260-61.

These reasons do not withstand scrutiny. HCFA should reject the first two rationales that state these adjustments are not necessary because their impacts are small and that the payment impacts without adjustments do not vary considerably. As already mentioned, the disparity in impacts between major teaching hospitals and others is more than two-fold. Second, HCFA's data analysis shows that the inclusion of an IME adjustment would lessen major teaching hospitals' payments reductions by nearly a quarter. While additional relief is necessary to ensure equitable payments for major teaching hospitals, the IME adjustment, in and of itself, is not inconsequential.



Reasons three and four focus on data concerns. The AAMC believes strongly that a payment adjustment for teaching hospitals should not be postponed because HCFA is concerned about coding patterns and would like to analyze data from the initial years of PPS implementation. The data that HCFA analyzed are the same data that were used to establish the payment rates. The Agency's confidence in this data to establish payment rates should extend to the results obtained in the regression equations. Moreover, HCFA has provided no evidence to suggest that the regression results would be different with newer data.

Even if HCFA is concerned about data quality and coding accuracy, such issues would have to be more pronounced for teaching hospitals in order to affect the regression outcomes. HCFA has presented no evidence to suggest this is the case. In fact, Lewin's analysis of the 1996 outpatient database indicates that major teaching hospitals code services as precisely, if not more precisely, than other hospital groups. As HCFA has noted, clinic and emergency room visits are most susceptible to inaccurate coding because under the current system hospitals are not penalized if they do not code these services precisely. Consequently, the overwhelming majority of all clinic visits in 1996 were documented using a "default" code of 99201. According to Lewin's analysis, however, coding of 99201 was no more frequent for COTH members than it was for other hospital types. In fact, it was slightly less. Of all the clinic visits provided by COTH members, 78 percent of those visits were coded under 99201. Across all hospitals, 81 percent of clinic visits were coded under 99201. This provides concrete evidence that disputes HCFA's claim that teaching hospitals code less precisely than other hospital types. A similar phenomenon occurred with emergency room visits.

If HCFA remains concerned about the quality of data, the only appropriate approach is to include the adjustments in the system now because they are analytically derived, are needed to address the financial disparities across hospitals, and comply with the statutory mandate to ensure equitable payments. If, in the future, data analyses show different results, HCFA has the authority to propose changes to the adjustments. Unlike the inpatient PPS, where changes to the IME or DSH adjustments require legislative action, HCFA has ample opportunities to modify the outpatient adjustments through a regulatory process, especially given that the Agency plans to propose and implement the payment update and other changes on an annual basis.

Finally, HCFA should discard the last two rationales outright. With regard to reason five, teaching and DSH hospitals should not be penalized because HCFA would like to standardize payments across settings at some unknown future time. In and of itself, such a premise would preclude implementation of the entire APC framework because it is different than payment methodologies in other settings. Instead, HCFA should include the IME and DSH adjustments in the hospital outpatient methodology because they represent a sound and analytically-driven policy. If and when an analysis of payment systems across settings occurs, all aspects of each payment system will need to be evaluated, including addressing payment equities for teaching and DSH hospitals.



Reason six is irrelevant. HCFA seems to suggest that it would prefer that the APC payment weights be based on geometric means, rather than medians. However, that option is not currently available, since the issue has been statutorily decided by the BBA.

In sum, HCFA's rationales do not outweigh the imperative for payment adjustments for teaching and DSH hospitals. These adjustments are analytically sound and are necessary to offset the financial disparity across hospitals that is due to the presence of teaching programs or providing services to low-income individuals. Such adjustments should be included as part of the final rule.

II. ADDITIONAL CHANGES TO THE PROPOSED OUTPATIENT PPS ARE NEEDED TO ENSURE APPROPRIATE PAYMENTS FOR OUTPATIENT SERVICES

The AAMC believes that a number of additional changes should be included in the outpatient PPS before it can be implemented.

A. HCFA Should Recalculate the Outpatient PPS Conversion Factor to Reflect the Proper Level of Beneficiary Coinsurance Amounts

The outpatient payment conversion factor is based, in large part, on an estimate of the total dollars that the Medicare program anticipates spending for outpatient services. This total amount reflects both program and beneficiary coinsurance payments. In determining the beneficiary portion, HCFA chose a coinsurance calculation that reflects 20 percent of the median charges for the services within each APC, rather than 20 percent of the average charges. As a result, the proposed conversion factor reflects a total payment pool that is 5.7 percent less than hospitals would otherwise receive under the current system. The AAMC does not object to lower beneficiary coinsurance amounts. However, we strongly believe that HCFA has the authority, and duty, to set the conversion factor at a level that is budget neutral.

The legislative language in the BBA establishing an outpatient PPS is complex and, in some instances, ambiguous. This is especially true in the directives regarding the calculation of the conversion factor and the level of the aggregate outpatient payment pool. In its comment letter, the American Hospital Association (AHA) convincingly demonstrates why the conversion factor should be set at a level that is budget neutral. The AAMC will not repeat these comments here, but urges HCFA to adopt the AHA's rationale and modify the conversion factor accordingly. Such action is supported by Congress, as evidenced by Congressional letters sent to HCFA, including one signed by 77 Senators.

On a related topic, we believe that HCFA should remove the behavioral offset calculation in the conversion factor determination. This offset is premised on the notion that a reduction in the beneficiary coinsurance calculations will create an "incentive" for hospitals to code services more aggressively than they otherwise would in order to help

offset the reductions due to the beneficiary coinsurance issue. First, this presumption and resulting offset is not necessary if HCFA amends its beneficiary coinsurance calculation. Second, by law, hospitals are not permitted to alter their coding behavior because of payment levels. Payment rates for all services should not be reduced arbitrarily because of anticipated inappropriate behavior.

B. The Outpatient PPS Needs Some Type of Transition

The outpatient PPS represents a major departure from the current payment system. It will have critical implications for hospitals, both financially as well as operationally. Historically, Medicare changes of this magnitude have included some type of transition phase to allow providers time to adapt to the new system. In particular, prospective payment systems for both inpatient services and capital were accompanied by a transition. Such transitions were incorporated because of the recognition of the significant upheaval caused when new systems are introduced.

The outpatient PPS is no different than these other policy changes. HCFA's own impact data demonstrate the radical changes that will result if this system is introduced overnight. A transition is needed to partially cushion the loss in payments that many hospitals are certain to incur.

A transition also is needed because of concerns about the data used to establish the outpatient PPS. HCFA acknowledges that the data used to establish the system may be flawed. Many services were excluded from the calculation of PPS payment rates because of coding concerns. It is inequitable to impose 100 percent of the risks of this new system on providers when it is based on data that HCFA believes may not be entirely accurate.

In addition, the methodology used to calculate "current payments" as used in the financial impact simulations may misrepresent providers' actual payments under the current system. Current payments were determined using a single, national technique to map charges on each outpatient claim to a cost center on the hospital's cost report. Such a "one size fits all" approach can understate or overstate providers' true costs because each hospital has its own unique accounting methodologies. Several members of the AAMC's Council of Teaching Hospitals and Health System (COTH) have told us that HCFA understates their current payment calculations and overstates their projected PPS payments, which results in an understatement of the actual losses these institutions may face under the outpatient PPS. Accordingly, a transition is needed to ensure that heretofore unrecognized data issues do not have the opportunity to further worsen already-recognized payment impacts.

A transition also has advantages for the Medicare program. Perhaps most important, a transition would enable HCFA to identify and correct problems before the system is fully implemented.

There are several options that HCFA could consider in designing a transition:

One option would be to implement the PPS, but limit a hospital's payment losses. A large number of hospitals, including teaching hospitals, face payment losses of 25 percent or more. A "payment floor" would help to cushion these extreme losses so that access to and quality of care would not suffer. This transition mechanism could be set in a variety of ways. One way would be to adjust Medicare outpatient payments so that a hospital's losses would be limited to five percent of what the hospital would otherwise have been paid under the current system. This loss limit could be increased over time.

Phasing in the PPS system over time is another transition option. Hospitals could receive a portion of their payments based on the outpatient PPS, with the remainder paid according to the current payment system. Depending upon the length of the transition, the relative shares of payments associated with each system would vary, but the outpatient PPS share would become progressively larger until it is responsible for 100 percent of the payment rate.

Regardless of the mechanism chosen, the transition must be long enough to permit accurate data to be collected and analyzed by HCFA, and to propose and finalize changes to the outpatient PPS that emanate from the data analyses. We believe that at least five years is necessary to accomplish these objectives.

C. HCFA Should Eliminate the CY 2000 Volume Expenditure Target

The BBA gives HCFA the authority "to develop a method for controlling unnecessary increases in the volume of covered [outpatient] services." BBA Section 4523(a). The proposed rule establishes an expenditure target for calendar year 2000 (anticipated as the first year of implementation) based on 1999 payment amounts, updated by estimates for inflation, as well as estimated increases in volume and intensity of outpatient services. If actual payments in 2000 exceed the expenditure target, the 2002 conversion factor would be reduced by the percentage by which the target is exceeded. HCFA states that in a future proposed rule, the Agency will propose an "appropriate" method (implying that the currently proposed method is not appropriate) for determining future expenditure targets following completion of further analysis of how that target should be computed. 63 Fed. Reg. at 47585-86.

We believe that HCFA should withdraw the currently proposed volume expenditure target for CY 2000. HCFA admits that it has not developed an appropriate method for determining a volume control measure. The current proposal is merely a crude measure to estimate future expenditures and to automatically reduce future payment rate updates if

actual expenditures exceed this estimate. This methodology should be rejected because it fails to fulfill the statutory mandate that the volume control mechanism limit only “unnecessary” utilization. We are pleased about the President’s recent announcement that the Administration is considering delaying the implementation of a volume control mechanism, but remain concerned about the fundamental soundness of such a mechanism.

The AHA’s comments raise a critical question as to whether HCFA is required to *implement* the volume control mechanism that the BBA requires the Agency to “develop.” We concur with their analysis of the statute on this question. Notwithstanding that issue, we also believe that the BBA precludes HCFA from implementing any target unless and until it contains a mechanism that identifies and isolates “unnecessary” utilization. As HCFA considers this topic, the Agency should recognize that a blanket volume cap on outpatient services contradicts current trends. As a result of medical innovations, managed care principles, new care modalities, and increased efficiencies, many health care services have migrated from the inpatient to the outpatient setting. Such trends increase the quality of life for patients, but also are cost efficient. A cap that focuses solely on the total volume of outpatient services provided would penalize the hospital industry for adopting new technologies and treatments that can be performed safely in an outpatient setting. It also has the potential to inhibit Medicare beneficiaries’ access to new types of outpatient services. Such action is counter to the goals of Medicare and to the tenets of good health care delivery.

Instead, HCFA should monitor outpatient service utilization and develop criteria for identifying the provision of unnecessary services. We agree with the AHA that a more appropriate method to control unnecessary outpatient utilization may be through improving coverage policy process rather than through a method that could reduce payments for appropriately provided services.

D. HCFA Should Reassess the APC Groups and Methodology

The BBA gives HCFA discretion to establish the classification system for outpatient services under the PPS. According to the BBA, HCFA “may establish groups of [outpatient services] . . . so that services within each group are comparable clinically and with respect to the use of resources.” BBA Section 4523.

The classification system developed by HCFA comprises 347 Ambulatory Payment Classifications (APCs). Each APC contains a group of outpatient service types that HCFA proposes are similar, both clinically and in terms of resource use (that is, costs). APC payment rates are based on the median costs of the services comprising the APC group. Payments for individual outpatient services will depend on the APC to which it is assigned.

The AAMC is very concerned about the appropriateness of many of the APC groupings. While HCFA asserts that the groups comprise services with similar costs, many high cost

cases are grouped with much lower cost services. Such groupings unfairly penalize hospitals--including many teaching hospitals--that provide these high cost but medically necessary procedures. Just one example is APC 757, "Radiation Therapy," which has a payment rate of \$116.21. This APC contains "focus radiation beam" (stereotactic radiosurgery) (code 61793)--often performed in major teaching hospitals--which has median costs of \$662.13. Consequently, every time this procedure is performed, the typical hospital will lose over \$500, and 50 percent of all hospitals will lose more. Another example is APC 369, "Blood and Blood Product Exchange," which has a payment rate of \$325.49. This payment rate is driven largely by the costs associated with a blood transfusion service (code 36430). As a consequence, however, other services often performed in teaching hospitals are severely undercompensated. These include plasma and/or cell exchange (code 36520), which has median costs of \$837.34, and photopheresis (code 36522), which has median costs of \$1,673.53. These are just two of many examples of inappropriate groupings. Other commenters with clinical expertise in particular areas will undoubtedly point out others.

It also is important to recognize that the APC groups and payment rates were based only on outpatient claims that contained a single outpatient service ("singletons"). HCFA excluded multiple procedure claims because of HCFA's inability to allocate costs to a particular procedure when more than one significant procedure or medical visit was billed on the same claim. 63 Fed. Reg. at 47572. According to The Lewin Group's analysis, HCFA's decision resulted in almost half of all claims being excluded. Diagnostic and surgery claims were particularly affected, where almost three-quarters of their claims were excluded.

HCFA's decision to exclude multiple procedure claims could mask additional flaws in the APC groupings that will not be unveiled until the system is implemented. Multiple procedure claims could reflect services that are performed on sicker patients, or that are of a more complicated nature. The costs of providing these services could be vastly different than the services reflected on singleton claims, which would result in an understatement in the median costs of providing these services.

The provision of outpatient services is dictated by the needs of patients. HCFA's proposed APCs, however, result in severe undercompensation for a number of such clinical decisions. This is especially true for major teaching hospitals. In addition, as discussed previously, the financial incentives associated with such underpayments may result in more of these cases being referred to teaching hospitals. If this occurs, the financial ramifications for teaching hospitals may be much worse than HCFA currently estimates. The AAMC recommends that HCFA reassess its APC groupings. To ensure equitable payments, it seems inevitable that additional APCs are needed to better group services of similar resource costs. The ultimate APC groupings should reflect much more limited cost variations than exists in the present groupings. In fact, a re-examination of the grouping system could indicate that the most appropriate system would determine payment rates at the individual service level, rather than groups made up of different service types. Such a decision is explicitly supported by the BBA.

1. HCFA Should Exempt Chemotherapy Procedures and Agents Until Appropriate Data are Available

Provision of chemotherapy services is an extremely important component of teaching hospitals' outpatient departments. Under the outpatient PPS, HCFA groups chemotherapy services into seven APCs: Four APCs for chemotherapeutic agents and three APCs for chemotherapy administration.

The AAMC commends HCFA for attempting to create separate APCs for chemotherapy agents. HCFA appropriately recognizes that packaging high-cost agents with administration codes could result in severe underpayments for these drugs. Unfortunately, the proposed chemotherapy groups and associated payment rates fail to resolve this problem. The payment rates and groupings generally would result in severe underpayments for many chemotherapy services, while also resulting in seeming overpayments for other chemotherapy services.

A primary reason for the difficulties associated with the chemotherapy APCs is that so little data were used in determining their groups and payment weights. As discussed earlier, HCFA determined the payment rates using only those claims that contained a single service. While this decision affects the representative nature of the data for all APCs, it is particularly detrimental for chemotherapy, where multiple services often are performed during a single session. An examination of HCFA's data show that for almost a third of all the chemotherapy codes, payment rates were based on 10 claims or less; 70 percent of the codes were represented by less than 100 claims. Thus, HCFA set its payment weights for chemotherapy services on claims that may be more reflective of billing "mistakes" rather than mainstream billing practices.

The BBA gives HCFA the authority to designate which services should be covered under the outpatient PPS. BBA Section 4523(a). The AAMC believes HCFA should use this authority to exclude all chemotherapy services (including supportive therapies) from the outpatient PPS until representative data and reasonable methodologies can be determined to ensure fair payments for these services. Until such time, these services should be paid according to the current payment methodology.

Chemotherapy services are critically important for many Medicare beneficiaries. Adequate payment rates are necessary to ensure access to these services, as well as to preserve the ability of many major teaching hospitals to continue to provide these services.

2. HCFA Should Change the Methodology for Reimbursing High Cost Pharmaceuticals

Under the proposed rule, with the exception of chemotherapeutic agents, HCFA packages the cost of pharmaceuticals and biologicals within APC groups. HCFA cannot

specifically identify these costs because hospitals historically have not coded these drugs. HCFA points out that for some expensive drugs, APC rates may not adequately cover their costs and solicits comments on this issue.

As HCFA notes, there are high-cost pharmaceuticals that, if reimbursed under the proposed framework, would impose substantial financial risk on hospitals that deliver them. These include biologicals and a number of radionucleotides. We believe that high cost pharmaceuticals should be carved out of the APC system and paid separately until an appropriate methodology can be determined. Hospitals could be required to code these drugs to obtain the data necessary to determine appropriate payment rates. Determining whether a drug is “high cost” may depend on a number of factors, including the APC rate to which these drugs are currently included. HCFA should consult with the pharmaceutical industry and others to help identify the appropriate list of these drugs.

3. HCFA Should Change the Methodology for Reimbursing New Outpatient Services and Pharmaceuticals

Under the proposed rule, notwithstanding the level of the conversion factor, the costs of outpatient services within an APC determine the payment rate for each service within that APC. However, this payment policy does not extend to new outpatient procedures. Instead, new outpatient services will be assigned to an existing APC, and will assume the same payment rate as the other procedures in the APC group. According to the proposed rule, this situation will continue for at least two years until HCFA accumulates cost data on the new procedure. 63 Fed. Reg. at 47579.

The AAMC is very concerned that the methodology HCFA has described for dealing with new outpatient services may unfairly penalize hospitals that provide these services. This is especially true for teaching hospitals, which often are the harbingers for providing the most recent advancements in patient care. According to the proposed rule, the highest rate HCFA will pay for an outpatient service is \$2,489.24, which is associated with APC 538. Even if all new outpatient services were assigned to this APC (which is unlikely if the new service is not clinically similar to the existing services in that APC), services that cost more than this amount would face payment losses every time the service is provided.

An outlier policy is not a suitable way of dealing with this problem because outlier payments are not intended to be a surrogate for appropriate reimbursement rates. Instead, HCFA should consider alternative methods of identifying the costs of providing new services, including looking at data sources beyond the Medicare cost report, to determine appropriate payment rates in a more timely fashion. Another option is to reimburse new services that are likely to have costs above the highest appropriate payment rate on a cost basis until cost report data are available. Regardless of the mechanism employed, HCFA should ensure that its payment policies are not a barrier to providing cost efficient, high quality outpatient services.

4. HCFA Should Reassess Its List of “Inpatient Only” Procedures

In the proposed rule, HCFA identifies a number of procedures that the Agency believes require inpatient care or—if not clearly defined as inpatient—are performed on an inpatient basis “virtually all the time for the Medicare population.” Fed. Reg. At 47570. These procedures are not classified into APC groups, and HCFA will deny payments if they are performed on an outpatient basis because the Agency believes it would not be “safe or appropriate.”

HCFA provides no concrete evidence to support its list of “inpatient only” procedures. In fact, a number of these procedures are currently being performed safely and cost-effectively in the outpatient setting. Examples include laparoscopic cholecystectomy, pacemaker replacement, and ligation of neck artery, among others. In certain cases, Medicare peer review organizations have required hospitals to bill services on an outpatient basis because other payers were requiring outpatient billing.

In addition to arbitrarily changing practice patterns for these services, the AAMC is concerned that HCFA’s list will suppress clinical judgement and patient choice for the future provision of services that are currently performed on an inpatient basis. To the extent the Agency has legitimate and verifiable concerns about site of service, these are more appropriately addressed through coverage policies, rather than through a payment mechanism.

5. The APC Weights and Groups Should Be Reviewed Annually

The BBA gives HCFA the authority to review and update the APC groups, relative payment weights, and other adjustments to the outpatient PPS to take into account changes in medical practice, technologies, new services, and other relevant information and factors.

HCFA states in the proposed rule that it does not intend to recalibrate the APC group weights on an annual basis. In addition, the Agency states that it will not routinely reclassify services from one APC to another, but will make these changes only when there is evidence that reassignment will improve the APC groups, either clinically or with respect to resource utilization. 63 Fed. Reg. at 47578.

A recalibration process and reassignment issues are critical to appropriate implementation of the outpatient PPS. Given that rapid advances in technology and medical practice have a large impact on the provision of services in an outpatient setting, it is imperative that HCFA have a mechanism in place to make timely changes to the outpatient payment system. This review is especially important during the first years of implementation because any flaws in the current data that could be rectified by newer data should be rectified as soon as possible. Consequently, recalibration of the APC weights should occur on an annual basis for at least several years, and perhaps permanently.



As discussed earlier, the AAMC believes that a number of services should be reclassified to other APCs, or new APCs, before a PPS can even begin. Even after these changes are incorporated, we believe that frequent assessment of the groups will be necessary to ensure appropriate levels of payment. Again, this is particularly important in the initial years of the system.

6. HCFA Should Reevaluate the APC Assignments for Clinic and Emergency Room Visits

HCFA solicits comments on three approaches it suggests for coding clinic and emergency room visits. These approaches include using diagnosis codes only, using Common Procedure Technology (CPT) codes only, and using a hybrid of CPT and diagnosis codes.

HCFA states that the hybrid approach might be most desirable because the most costly service combination is more than 10 times as costly as the least, while the CPT approach results in a cost differential of only 4.5. However, an examination of the hybrid APCs reveals that the 10-fold difference is due to only one code---95578 (high level ER visit, major signs, symptoms and findings)---which has a relative weight of 6.83. The relative weight of the second-highest code (95586---high level ER visit, immunologic and hematologic diseases) is only 3.89. When code 95578 is excluded, the cost differential of the hybrid approach parallels the CPT-only approach.

Thus, it appears that combining diagnosis with CPT codes has the potential to create additional administrative burdens, without substantially contributing to HCFA's goal of creating a wide range of group payment rates. One option may be to require coding of diagnosis and CPT code for code 95578, since its payment weight is so much higher than the other service groups, but to require CPT coding only for the other clinic and emergency room services.

E. The Outpatient PPS Should Include an Adjustment for Outlier Services

The BBA gives the Secretary explicit authority to include an outlier adjustment in the outpatient PPS. BBA Section 4523(a). HCFA chose not to include an outlier adjustment in the proposed rule for several reasons: a) the system has minimal packaging and separate APC payments can be made for multiple services provided on the same day; b) critical care services are isolated into their own APC; and c) higher payments are provided for more serious cases. 63 Fed. Reg. at 47579.

It is imperative that HCFA include an outlier adjustment in the final rule. The purpose of an outlier adjustment is to partially offset the losses hospitals incur when they treat cases that involve very high costs. These high cost cases can result even with a system that has minimal packaging, as is the case with the outpatient PPS. These high cost cases are demonstrated by HCFA's own data.



As part of its data editing process, HCFA excluded those services that had “extremely unusual costs that appeared to be errors in the data” so that the remaining services represented a range of appropriate cost levels. 63 Fed. Reg. at 47572. An examination of the services remaining in the database show a large number of procedures where the per service maximum costs are much higher than the corresponding payment rates. According to the outpatient data that HCFA has released, 20 percent of outpatient services subject to the PPS (excluding clinic and emergency room visits) include maximum costs that are at least 10 times higher than the corresponding rate; 100 services have maximum costs that are at least 40 times higher than the corresponding payment rate. In fact, there are many procedures that reported costs much greater than the highest APC payment level of \$2,489 (APC 538).

These data demonstrate that an outlier policy is necessary to ensure equitable payments. Undoubtedly, hospitals will provide outpatient services that will involve extremely high costs compared to the payment rates. Like the policy under the inpatient PPS, the outpatient PPS should include an outlier adjustment that will help offset the losses hospitals incur when they treat these cases.

F. Sufficient “Lead Time” is Necessary Before the System Can be Implemented

Converting to an outpatient PPS from the current system involves numerous implementation issues. HCFA recognizes that the new system will require significant changes to computer processing software, as well as new billing and coding instructions. Hospitals will also need to incorporate changes into their billing processes and to become familiar with the new requirements. In addition, Medicare fiscal intermediaries will need to learn and implement a new payment system that is dramatically different from the current system.

To ensure a smooth operational transition to the new system, the AAMC urges HCFA to provide sufficient time between when the PPS final rule is published and its effective date. While difficult to quantify precisely, we believe that period should encompass sufficient time after providers and intermediaries have received billing and coding instructions, and computer systems have been thoroughly tested.

DEFINITION OF PROVIDER-BASED ENTITY

To implement the outpatient prospective payment system, HCFA has acknowledged that it must be able to determine which entities are provider-based. To that end, HCFA has proposed numerous criteria, some of which are currently in effect in Program Memorandum A-96-7, others of which are new. Further, HCFA has proposed that the new requirements go into effect 30 days after the regulation is published as final.

The AAMC appreciates HCFA’s goal of ensuring that a provider-based entity is fully integrated into the main provider. However, HCFA seems to have taken a “one size fits all” approach that should be modified to take into account certain legitimate differences among providers. HCFA also should delay implementation of the change in definition.



I. HCFA Should Change the Effective Date and Set a Time Limit for Designation Determinations

HCFA proposes that the effective date of the provider-based provisions will be 30 days after publication of the final regulation. HCFA also proposes that it must make a determination that an entity is provider-based before the main provider begins billing for services as if they were furnished in a provider-based facility. HCFA should extend the effective date to provide ample time for the agency to issue instructions about the application process, for applications to be submitted, and for the agency to make determinations as to which entities qualify.

In the final rule HCFA should set a time limit for making determinations about provider-based status—perhaps 30 to 60 days after receipt of the completed application. Payment as a provider-based entity should be retroactive to the date of the application to HCFA. It is essential that the final rule not penalize providers because of the length of the determination process, something that is totally out of their control.

II. HCFA Should Modify the Definition of “Provider-Based Entity”

The following changes in the definition of “provider-based entity” should be made:

Definition of “main provider.” The definition of “main provider” should be clarified to state that either a hospital or a health system can qualify.

Compliance with a majority of requirements. Rather than requiring that a provider-based entity comply with **all** requirements listed in the regulation, HCFA should either require compliance with the **majority of** requirements or **all applicable requirements**. For instance, HCFA should make a provision for certain providers that are unable to meet some requirements, such as those concerning licensure, because of their state laws. There should be no penalty for a provider’s inability to meet requirements that are beyond its control.

Licensure. Licensure should not be required for entities located in any state that does not license hospitals (such as Ohio). Likewise, if a state does not license off-site entities, there should be no requirement that these entities be included on the main provider’s license. To retain the licensure requirement as proposed would bar a facility located in a different state from the main provider from ever being considered a provider-based entity, even if all other requirements were met.

Compliance with EMTALA. It is not appropriate, nor is it in the best interest of patients, to require provider-based entities to comply with EMTALA as though they were hospital emergency departments. The uncertainty about the type of personnel who will be available at a provider-based entity, and the fact that many of these entities may not have available the appropriate equipment, make it unreasonable to hold them to the same EMTALA standards as emergency departments. Indeed, to require that a provider-based

entity comply with EMTALA may not provide the best care for a patient. Instead, a provider-based entity should be required to ensure that the patient is directed to the nearest appropriate emergency department.

Location of patient population served. The rule proposes that the main provider and provider-based entity be either on the same campus or serve the same patient population. This requirement does not allow for a provider-based entity to operate in a different state from the main provider. It also precludes the opening of a new provider-based entity except on the same campus, as no data would be available to demonstrate that the same patient population is served. HCFA should not require all entities to comply with this criterion.

A single entity. HCFA should clarify the requirement that the main provider and the hospital outpatient department be held out to other payers as a single entity. A hospital outpatient department and the main provider may meet the HCFA requirements set forth in paragraph (d)(6), yet payers other than Medicare may pay for outpatient services as physicians' services. The payment choices made by non-Medicare providers should not be determinative of a hospital outpatient department's status. It should be sufficient that the main provider and hospital outpatient department present themselves as a single entity under all circumstances.

Day-to-day reporting relationship. In the preamble to the regulation, and in paragraph (d)(3), HCFA proposes that the provider-based entity's "reporting relationship to the main provider [be] characterized by the same frequency, intensity and level of accountability that exists in the relationship between the main provider and one of its departments." One of the criteria for meeting this requirement is that there be a "day-to-day reporting relationship with a manager at the main provider." In fact, in many organizations there is no day-to-day contact. HCFA should delete the "day-to-day" requirement.

Recovery of money if provider-based designation denied. HCFA proposes that if an entity is denied a designation as provider-based, then the agency will recover the difference in payments retroactive to the effective date of the final rule, or earlier if the provider has not made a good faith effort to comply with the standards. Based on past experience, providers anticipate that there will be a long delay in HCFA making provider-based determinations. Providers should not be penalized for any delays that are caused by the agency. If a provider makes a good faith attempt to comply with the regulation, but is not given a provider-based designation by HCFA, then the recovery of the overpayment should go back to the date on which the entity submitted its application. However, if HCFA does not make the designation in a specified amount of time—30 to 60 days from the date a completed application is received—then the recovery, if any, should be from the date on which HCFA makes the determination and notifies the provider.

III. HCFA Should Clarify "Incident To" Billing In a Hospital Outpatient Department

HCFA also has proposed changes in the regulation regarding “incident to” billing for services provided in a hospital outpatient department or a provider-based entity. HCFA proposes that there be “direct physician supervision,” but does not define the meaning of that term. In the final rule HCFA should clarify what is required for “direct physician supervision.” Is it sufficient that the physician to whose service the “incident to” billing occurs be present in the hospital outpatient department or provider based entity and immediately available to provide assistance and direction?

HCFA SHOULD ISSUE ANOTHER PROPOSED RULE

This letter specifies the numerous problems associated with the proposed rule. The magnitude of the changes that are needed before this outpatient system can be appropriately implemented requires that HCFA issue another proposed rule. The desire to avoid a delay in implementation of the new system is more than offset by the need to ensure an outpatient system that is fair to providers and ensures high quality care for Medicare beneficiaries. A much less appropriate alternative would be to issue an interim final rule, or final rule with comment period.

CONCLUSION

The outpatient department is, and will continue to be, an important site of care for Medicare beneficiaries. Outpatient departments of major teaching hospitals play an especially critical role in the health care delivery system.

The Medicare outpatient PPS will have a significant impact on the teaching hospitals. Consequently, it should be implemented in a way that protects access and quality of care to Medicare beneficiaries and that is fair to providers. We believe it is essential that the system contain payment adjustments that ensure equitable payments for major teaching hospitals. Such adjustments, in conjunction with the other policy changes we have discussed, will go a long way to maintaining a stable outpatient delivery system for Medicare beneficiaries.

If you have questions regarding our comments, please contact Robert Dickler, Senior Vice President of the Association, at (202) 828-0491, Karen Fisher (PPS issues) at 202-862-6140, or Ivy Baer (provider-based definition) at 202-828-0490.

Sincerely,

Jordan J. Cohen, M.D.

Technical Appendix on the Medicare Hospital Outpatient Prospective Payment System

*Prepared by:
The Lewin Group
July 1999*

Introduction

At the request of the Association of American Medical Colleges (AAMC), The Lewin Group reviewed the regression analyses and payment simulations HCFA conducted for the Medicare hospital outpatient prospective payment system (OPPS). HCFA's analyses were conducted to determine:

- whether statistically significant evidence exists that would support including an indirect medical education (IME), disproportionate share hospital (DSH), and/or rural status adjustment to the OPPS; and
- the impact of including a budget neutral IME adjustment on the distribution of OPPS payments.

The regression analysis and payment simulations were first described in the September 8, 1998 *OPPS Notice of Proposed Rule Making*. Because of substantial changes to outpatient data underlying these analyses, HCFA revised this analysis and discussed the new results in a May 17, 1999 meeting with representatives of interested professional associations and other policy researchers. Some of the results described at this meeting were then included in the June 30, 1999 *Corrections Notice*. Finally, further information regarding some of the technical details associated with these analyses was learned through personal communications with HCFA staff members.

The remainder of this appendix is organized into four sections. The HCFA regression analyses and payment simulations are reviewed in Section I. The Lewin Group conducted its own regression analysis and prepared new payment simulations that are discussed in Section II. IME and DSH budget payment adjustments that would reduce the average loss for major teaching hospitals to the average payment reduction (5.7 percent) experienced by all hospitals under the OPPS are described in Section III. We summarize our analysis in a brief conclusion.

Section I: Review of HCFA's Regression Analysis and Payment Simulations

A. HCFA's Regression Analysis

In the *Corrections Notice*, HCFA indicated that it found statistically significant relationships between teaching and rural status and outpatient costs but found no such relationship for DSH status. It reached this conclusion by estimating a regression equation of the following specification:

$$\log(\text{Adjusted CPU}_i) = \mathbf{a}_0 + \mathbf{a}_1 * \log(\text{Wage Index}_i) + \mathbf{a}_2 * \log(1 + \text{IRADCA}_i) + \mathbf{a}_3 * \log(1 + \text{DSH}_i) + \mathbf{a}_4 \text{Rural}_i + \mathbf{a}_5 * \text{Lurban}_i + \mathbf{e}_i$$

where “log” indicates that variable is transformed using a natural logarithmic function, “i” is an index for each hospital, the “α” are coefficients to be estimated, and “ε” is an additive error term. The other variables in the model include:

- Adjusted CPU – the hospital’s outpatient cost per unit. “Adjusted” indicates that cost per unit has been standardized for the service mix index by dividing cost per unit by the service mix index;
- Wage Index – the hospital’s Medicare wage index;
- 1 + IRADCA – one plus the hospital’s intern and resident to average daily census ratio adjusted for outpatient visits. One is added to the IRADCA variable before taking logs because the IRADCA variable may be zero for a hospital;
- 1 + DSH – one plus the sum of two ratios: the share of Medicare inpatient days accounted for by Medicare patients receiving Supplemental Security Income and the share of total inpatient days accounted for by Medicaid patients. One is added to the DSH variable again because of zero values for some hospitals; and
- Rural and Lurban – these are rural and large urban dummy variables, with “other urban” being the excluded category.

This is a standard double log regression model. This equation was then estimated using an unweighted, ordinary least squares procedure. HCFA presented the following estimates for this equation during the May 17th meeting:

**Table A-One:
HCFA’s Unweighted Regression Estimates**

Independent Variable	Coefficient	Standard Error
Constant	**4.08	0.01
Log(Wage Index)	**0.54	0.03
Log(1 + IRADCA)	**0.14	0.04
Log(1 + DSH)	0.02	0.03
Rural indicator	**0.12	0.01
Large urban indicator	0.02	0.01
R square		0.07
Number of hospitals		5,335

The “**” indicates the variable is statistically significant at the one percent level. Thus, this equation indicates that there is a statistically significant relationship between teaching or rural status and outpatient cost per unit, but that there is no statistically significant relationship associated with DSH status.

There are two problems, however, with these results. First and most importantly, these estimates are unweighted. The unit of observation in this equation is the hospital. In an unweighted regression, each hospital's data is given the same impact on the equation's results. Thus, for example, a hospital with 100 outpatient units has the same impact on an unweighted regression's results as does a hospital with 100,000 outpatient units. The OPSS, however, makes payments at the claim, or unit level. Accordingly, we believe the proper regression approach is to use a weighted least squares estimation technique, where the weights are each hospital's outpatient units. In a weighted regression, the hospital with 100,000 outpatient units has 1,000 times the impact the hospital with only 100 units has on the regression equation estimates.

HCFA did estimate this equation using outpatient units as weights. These results were distributed at the May 17 meeting and are presented below in **Table A-Two**. The weighted results are considerably different from the unweighted results. In particular, the DSH variable is now statistically significant. This means that the statement in the *Corrections Notice* that there is no significant relationship between outpatient costs per units and DSH status is not consistent with HCFA's prior analyses using weighted regressions.

**Table A-Two
HCFA's Weighted Regression Estimates**

Independent Variable	Coefficient	Standard Error
Constant	**4.03	0.01
Log(Wage Index)	**0.57	0.02
Log(1 + IRADCA)	**0.08	0.02
Log(1 + DSH)	**0.06	0.02
Rural indicator	**0.06	0.01
Large urban indicator	**0.03	0.01
R square		0.17
Number of hospitals		5,335

The "***" indicates the variable is statistically significant at the one percent level

The second problem with HCFA's regression analysis is that it did not standardize for the wage index. Under the proposed OPSS, each hospital's APC payments are adjusted to reflect the wage index for the area in which the hospital is located. Thus, each hospital's total OPSS payments depends on both the mix of outpatient services it delivers and its wage index. According to HCFA's payment formula, each 10 percent increase in a hospital's service mix index results in a 10 percent increase in its total OPSS payments, and each 10 percent increase in its wage index corresponds to a six percent increase in its total OPSS payments. The main purpose of the regression analysis is to determine whether other factors (for example, teaching, DSH, and rural status) significantly affect outpatient cost per unit after accounting for the effects of the service mix and wage indices.

In its regression analyses, HCFA standardized for each hospital's service mix index by dividing cost per unit by the service mix index, but it did not standardize for the wage



index. Including the wage index would involve making the following adjustments to cost per unit:

$$\frac{\text{Cost per Unit}_i}{\text{Service Mix Index}_i} \\ (0.4 + 0.6 * \text{Wage Index}_i)$$

As a practical matter, failing to standardize the cost per unit for the wage index does not substantially affect the regression equation results.¹ As discussed below in Section II, however, standardizing for the wage index does affect the distribution of OPSS payments across hospitals when different adjustments are included in payment simulations.

HCFA then extended its analysis of potential teaching adjustments. Using an IRADCA variable as the teaching variable in a regression model implicitly assumes that the relationship between teaching intensity and outpatient cost per unit is a linear (i.e., straight line) relationship. It is possible that a more complex relationship exists between teaching intensity and outpatient cost per unit. To explore this possibility, HCFA conducted a “threshold” analysis. In a threshold analysis, it is assumed that there is no relationship between teaching intensity and outpatient cost per unit until some threshold level is achieved. Above that threshold, the relationship between outpatient cost per unit and teaching intensity then assumes a straight line relationship.

In the June 30 *Corrections Notice*, HCFA indicated that its threshold analysis determined that there was no significant relationship between teaching intensity (the IRADCA ratio) and outpatient cost per unit until a hospital had a IRADCA ratio of 0.28 or more. As discussed in the next subsection, HCFA then used this 0.28 IRADCA threshold as the basis of the teaching adjustment included in its payment simulations.

It is difficult to assess HCFA’s IRADCA threshold. At the May 17th meeting, no threshold results were discussed and no regression equation results for threshold models were handed out. In the *Corrections Notice*, the coefficient in the teaching adjustment equation was 0.14, suggesting that this is the coefficient on the threshold variable in a regression equation where the IRADCA threshold served as the teaching variable. We estimated several different models (unweighted, standardized for the service mix only) with the 0.28 threshold. These results are presented in **Table A-Three**.

We were not able to estimate a 0.14 coefficient for the 0.28 IRADCA threshold. We did come close – a 0.15 coefficient in a model including the wage index, the 0.28 IRADCA threshold, and a DSH variable, and a 0.16 coefficient in a model including the wage index and the threshold variable. In these two equations, however, the 0.28 IRADCA threshold

¹ This is because the coefficient on the wage index variable in service-mix adjusted only models tends to vary from 0.54 to 0.58. If the coefficient on the wage index was exactly 0.60, other coefficient estimations would not be affected whether cost per unit is or is not standardized for the wage index.

variable is less significant (significant at the five percent, not one percent, level). In addition, the coefficient on the wage index is much lower – 0.40, not 0.55 or higher. This is troubling when the OPSS includes a 60 percent adjustment for wages.

One factor that has already been mentioned – using unweighted regression equations – has a substantial impact on the threshold analysis. As is discussed in more detail below, the 0.28 IRADCA threshold usually is not significant in weighted regression equations. A threshold analysis using weighted regression equations indicates instead the “best” threshold is considerably lower – nearer to 0.08.

Table A-Three
Unweighted Regression Equations Standardized Only for the Service Mix Index
That Include a 0.28 IRADCA Threshold Variable

Independent Variables	Model One	Model Two	Model Three
I. Constant	**4.08 (0.02)	**4.12 (0.01)	**4.13 (0.01)
Log(1 + Wage Index)	**0.55 (0.03)	**0.40 (0.03)	**0.40 (0.03)
Log(1 + 0.28 IRADCA Threshold Variable) [“Threshold”]	**0.20 (0.07)	*0.15 (0.07)	*0.16 (0.07)
Log(1 + DSH)	0.02 (0.03)	0.05 (0.03)	
Rural indicator	**0.12 (0.01)		
Large urban indicator	0.02 (0.01)		
R square	0.06	0.05	0.05
Number of hospitals	5,335	5,335	5,335

Note: The standard errors are in parentheses. A “*” indicates significance at the 5% level in a two-tailed test, and a “**” indicates significance at the 1% level.

B. Payment simulations

In the *Corrections Notice*, HCFA also simulates how OPSS payments would change across hospital groups if the OPSS included a budget neutral teaching adjustment. This teaching adjustment is based on the IRADCA variable. HCFA indicated that its regression analysis determined a “threshold” effect for teaching. It reported determining that outpatient cost per unit was higher only for teaching hospitals with an IRADCA ratio of 0.28 or more. HCFA then constructed a threshold variable using the following formula:

$$\text{Threshold} = \max(0, \text{IRADCA} - 0.28)$$

Next, HCFA developed a teaching adjustment based on this threshold variable using the following formula:

$$[(1 + \textit{Threshold})^{0.14} - 1] * 100]$$

This percentage payment add-on is then added to the basic OPPS payment for each teaching hospital whose IRADCA ratio is above the threshold. Finally, the OPPS conversion factor is reduced to ensure that total payments with the teaching add-on are equal to total OPPS payments without the teaching adjustment to maintain budget neutrality. **Table A-Four reproduces** HCFA’s results for three hospital groups, as published in the June 30 notice:

- Non-TEFRA non-teaching hospitals;
- Non-TEFRA hospitals with fewer than 100 residents; and
- Non-TEFRA hospitals with 100 or more residents.

**Table A-Four
HCFA Payment Simulations by Teaching Status**

Teaching Status	Percentage Change in Medicare Outpatient Payments (No Teaching Adjustment)	Percentage Change in Medicare Outpatient Payments with the Teaching Adjustment
Non-teaching (n = 3,814)	-5.1%	-5.6%
Fewer than 100 residents (n = 758)	-4.4%	-4.9%
100 or more residents (n = 245)	-10.6%	-7.9%

We believe there are three problems with HCFA’s payment simulations for teaching. First, the teaching adjustment specification is not correct. If the teaching adjustment is to be based on a double log regression equation, the following basic specification should be used for the teaching adjustment:

$$[(\exp^{(0.xx * \log(1 + \textit{IME}))} - 1) * 100]$$

where “exp” is the natural exponential function (the inverse of the natural log function), “0.xx” is the coefficient for the teaching variable, and IME is the teaching variable (e.g., the IRADCA or threshold variables). HCFA’s teaching adjustment equation is not quite right, because it fails to use the mathematical inverse function for the natural logarithm – the natural exponential function. As a practical matter, this did not have a sizable impact on the resulting teaching adjustments.

Second, we are not sure that the appropriate coefficient should be 0.14 in either HCFA’s teaching adjustment equation or in the exponential equation just described. We have already described above that we were not able to replicate this 0.14 coefficient. We subsequently learned of a possible explanation. In a conversation with a HCFA staff

member, we learned that HCFA may have used the results from the regression equation presented in **Table A-One**. We do not agree with this selection for the following reasons:

- This model is unweighted;
- It does not standardize for the wage index;
- It includes too many variables – if the payment system is only to include adjustments for the service mix and wage indices and for teaching, coefficient for the teaching variable should be derived from a model that excludes independent variables other than the teaching variable (e.g., DSH, rural indicator, and a large urban indicator); and
- It is based on a model using the wrong teaching variable – if the teaching adjustment formula is based on the threshold variable, the coefficient in that formula should be derived from a regression equation model where the threshold variable serves as the teaching variable. HCFA instead used a regression model where the teaching variable was the IRADCA ratio.

The third problem relates to the definition of the three hospital groups. As a preliminary matter, on page 35261 of the June 30 *Corrections Notice* HCFA indicated that there are 4,818 Non-TEFRA hospitals. This is one more hospital than the $3,814 + 758 + 245 = 4,817$ hospitals in published in HCFA's financial impact table (**Table A-Four in this document**). We believe the correct total is 4,818, and that HCFA is missing one non-teaching hospital.

More importantly, however, we are not sure how HCFA determined that there were 758 hospitals with fewer than 100 residents and 245 hospitals with 100 or more residents. We agree that there are 1,003 non-TEFRA teaching hospitals in the Medicare Outpatient Impact file (the file we and HCFA used for the regression analysis and payment simulations). HCFA's Outpatient Impact File does not include the total number of interns and residents at each hospital. Instead, it includes the IRADCA ratio and the average daily census adjusted for outpatient visits (ADCA) for each hospital. We multiplied IRADCA times ADCA to derive the total number of intern and residents at each hospital.

Using this methodology, we were only able to identify 193 hospitals with 100 or more residents, leaving 810 with fewer than 100 residents. It is possible that HCFA is using a different data source to determine which hospitals have 100 or more residents. If that is true, however, that information is not included on the public Medicare Outpatient Impact File. This means that it is not possible to replicate the payment simulations presented in the *Corrections Notice* for the three teaching status groups.

Section II: The Lewin Group's Regression Analyses and Payment Simulations

A. Regression Analyses

The first step in The Lewin Group's regression analysis was to replicate HCFA's May 17th regression analysis presented above in **Tables A-One and A-Two**. As indicated in **Table A-Five**, The Lewin Group was able to replicate HCFA's May 17th results almost exactly. This was expected, because both HCFA and The Lewin Group used the same data (the Medicare Outpatient Impact File) for this analysis. Any small differences most likely are rounding errors.

**Table A-Five
Comparing Regression Results for HCFA and The Lewin Group**

Independent Variable	Unweighted, Service Mix Adjusted Only		Weighted, Service Mix Adjusted Only	
	HCFA	Lewin	HCFA	Lewin
Intercept	**4.08 (0.01)	**4.08 (0.01)	**4.03 (0.01)	**4.03 (0.01)
Log(Wage Index)	**0.54 (0.03)	**0.54 (0.03)	**0.57 (0.02)	**0.57 (0.02)
Log(1 + IRADCA)	**0.14 (0.04)	**0.15 (0.04)	**0.08 (0.02)	**0.08 (0.02)
Log(1 + DSH)	0.02 (0.03)	0.02 (0.03)	**0.06 (0.02)	**0.08 (0.03)
Rural Indicator	**0.12 (0.01)	**0.12 (0.01)	**0.06 (0.01)	**0.06 (0.01)
Large Urban Indicator	0.02 (0.01)	0.02 (0.01)	**0.03 (0.01)	**0.03 (0.01)
R square	0.07	0.07	0.17	0.17
Number of hospitals	5,335	5,335	5,335	5,335

Note: The standard errors are in parentheses. A "***" indicates significance at the 1% level.

Next, we extended this analysis in the following ways:

- We estimated the HCFA models using a weighted least squares technique after standardizing cost per unit for both the service mix and wage indices;
- We estimated models that excluded the rural and large urban indicator variables (leaving the IRADCA and DSH variables) and after excluding all independent variables except the IRADCA variable; and
- We estimated an additional set of models where HCFA's 0.28 threshold variable replaces the IRADCA variable.

The regression estimates for these additional models are presented in **Table A-Six**. In most of these models, the teaching and DSH variables are statistically significant. The exceptions are for the teaching variables in models where the teaching variable is

HCFA's threshold variable. These exceptions are notable. They suggest that a threshold is not the best option for a teaching adjustment, at least the 0.28 level.

Table A-Six
Additional Regression Models: The Lewin Group
(Models Are Standardized for the Service Mix and Wage Indices and Are Weighted)

Independent Variable	IRADCA Models			Threshold Models		
Constant	**4.03 (0.01)	**4.06 (0.01)	**4.08 (0.00)	**4.04 (0.01)	**4.06 (0.01)	**4.08 (0.00)
Log(1 + IRADCA)	**0.07 (0.02)	*0.05 (0.02)	**0.07 (0.02)			
Log(1 + Threshold)				0.04 (0.03)	0.03 (0.03)	**0.07 (0.03)
Log(1 + DSH)	**0.08 (0.03)	**0.10 (0.03)		**0.10 (0.03)	**0.11 (0.03)	
Rural Indicator	**0.07 (0.01)			**0.06 (0.01)		
Large Urban Indicator	**0.03 (0.01)			**0.03 (0.01)		
R square	0.02	0.00	0.00	0.01	0.00	0.00
Number of hospitals	5,335	5,335	5,335	5,335	5,335	5,335

Note: The standard errors are in parentheses. A “*” indicates significance at the 5% level in a two-tailed test, and a “**” indicates significance at the 1% level.

We estimated a large number of other regression models, including the following:

- Intern and resident to average daily census (IRADC) ratio – we estimated another series of regression models that used the IRADC instead of the IRADCA ratio;
- Major teaching hospital dummy – in another series of models, we replaced the IRADCA ratio variable with a dummy variable indicating a hospital had 100 or more residents;²
- Threshold analyses – we tested for threshold effects for the IRADCA ratio and DSH percentage variables.

The results from these models consistently found statistically significant relationships between teaching intensity and/or DSH status and outpatient cost per case. Some of the particular findings were of interest. For example, we determined that if a threshold were to be applied for the IRADCA ratio, the best estimate was between 0.08 and 0.10, depending on what other variables were included in the model. In addition, we also found there was a threshold effect for DSH, with the best threshold being a DSH percentage of 20 to 21 percent.

² As described below in the payment simulation section, we were only able to identify 193 hospitals with 100 or more residents using the data from the Outpatient Impact File.

Finally, models that included only a major teaching hospital dummy variable to measure teaching intensity performed quite well. In particular the major teaching hospital dummy was highly significant and the R square statistic (a measure of overall model performance) was as high or higher for models with a major teaching hospital dummy than for models using some other measure of teaching intensity (e.g., an IRADCA ratio or a threshold variable).

B. Payment simulations

We then conducted a series of payment simulations based on teaching status (non-teaching, fewer than 100 residents, 100 or more residents). These simulations included the following:

- HCFA’s simulation model discussed above; and
- Simulation models based on the six regression equations presented in **Table A-Six that included the IRADCA ratio variable.**

The three new simulation models used payment adjustment formulas of the following type:

$$[(\exp^{(0.ww*\log(1+IRADCA)+0.xx*\log(1+DSH)+0.yy*Rural+0.zz*Large\ Urban)} - 1) * 100]$$

where, the “0.ww, 0.xx, 0.yy, and 0.zz” are the estimated coefficients. The conversion factor was then adjusted to maintain budget neutrality.

The payment simulation results are presented below in **Table A-Seven**. As mentioned above, we were only able to identify 193, not 245, hospitals with 100 or more residents. For this reason, we were not able to replicate the payment impacts HCFA reported in the *Corrections Notice*.³ For example, HCFA estimated that with no additional adjustments, hospitals with 100 or more interns and residents would experience a 10.6 percent reduction in their Medicare outpatient payments, but with the teaching threshold adjustment included, that reduction would fall to 7.9 percent. Our corresponding estimates were a 10.7 percent and a 8.1 percent payment reduction, respectively.

³ We were able to replicate other results exactly. For example, we calculated exactly the same payment impacts as reported by HCFA in the *Corrections Notice* for large urban, other urban, and rural hospitals. For this reason, we believe that we are using the same teaching adjustment factors and budget neutral corrections that HCFA used, and that the disparity in the teaching hospital results is due to the different counts of teaching hospitals .

We attempted to replicate HCFA’s teaching status results by sorting teaching hospitals by their total number of interns and residents. We then selected the 245 hospitals with the greatest number of interns and residents; this group reflected hospitals that had 73.2 residents or more. We prepared another set of payment simulations for this group. The results did not correspond to the results HCFA reported in the *Corrections Notice*. This suggests to us that HCFA is using some other data to count interns and residents and define these groups.

Table A-Seven
The Lewin Group Payment Simulation Results by Teaching Status

Payment Simulation Model	Percent Change in Medicare Outpatient Payments		
	Non-Teaching TEFRA (n = 3,815)	Fewer than 100 Residents (n = 810)	100 or More Residents (n = 193)
No additional adjustments	-5.1%	-4.5%	-10.7%
HCFA Threshold	-5.6%	-4.9%	-8.1%
The Lewin Group Payment Simulation Models (service mix and wage index adjusted, weighted)			
IRADCA, DSH, Rural, and Large Urban	-5.4%	-5.2%	-8.3%
IRADCA and DSH	-5.7%	-4.5%	-8.6%
IRADCA Only	-5.8%	-4.3%	-8.6%

Section III: IRADCA and IRADCA/DSH Payment Adjustment Formulas

If the following formulas were included in the OPSS, they would reduce payment losses for the 193 teaching hospitals with 100 or more interns and residents that we identified to 5.7 percent, the average Medicare outpatient payment reduction for all hospitals under the OPSS.

Formula with IRADCA Only:

$$[(\exp^{(0.16083987 * \log(1+IRADCA))} - 1) * 100]$$

In addition, the conversion factor in 1996 would need to be reduced from \$46.87 to \$46.08 to maintain budget neutrality.

Formula with IRADCA and DSH:

$$[(\exp^{(0.11062766 * \log(1+IRADCA) + 0.23293554 * \log(1+DSH))} - 1) * 100]$$

In addition, the conversion factor in 1996 would need to be reduced from \$46.87 to \$44.30 to maintain budget neutrality. This particular formula was chosen by applying a multiple to the coefficients from a weighted regression equation standardized for the service mix and wage indices that included only the log(1 + IRADCA) and log(1 + DSH) variables.

Conclusions

Our analysis of the regression equation and payment simulation analysis conducted by HCFA to assess the impact of IME and DSH adjustments to the OPSS reached the following conclusions:



- **Both IME and DSH are statistically significantly and positively related to outpatient cost per unit** – in its most recent analysis reported in the June 30th *Corrections Notice*, HCFA stated that there was a statistically significant relationship between outpatient cost per unit and IME (as measured by the intern and resident to average daily census, adjusted (IRADCA) ratio), but that there was no such relationship between outpatient cost per unit and DSH. This conclusion was based on the results of an unweighted regression model. When weighting the regression by outpatient units, HCFA determined that there was a statistically significant relationship between both IME and DSH and outpatient cost per unit. Our analyses also found statistically significant relationships for both IME and DSH where both IME and DSH were specified in many different ways;
- **HCFA did not fully standardize its regression equations** – in addition to the weighting issue, HCFA only standardized its regression models for the service mix index, but probably should have also standardized these models for the wage index as well;
- **There was a problem with HCFA’s threshold analysis** – in the *Correction Notice*, HCFA stated that there was no significant relationship between IME and outpatient cost per unit until a minimum IRADCA ratio, or “threshold” was reached. HCFA stated that threshold to be 0.28. We believe that this threshold was based on an analysis of unweighted regression equations. In our analysis using weighted regression equations that were both service mix and wage index adjusted, we found the “best” IRADCA threshold to be much lower – i.e., between 0.08 and 0.10; and
- **The resulting payment simulations were also problematic** – HCFA then conducted a series of payment simulations for an OPSS that included an IME adjustment. This analysis concluded that the reduction in outpatient payments for 245 teaching hospitals with 100 or more residents would be reduced from 10.6 percent to 7.9 percent if a teaching adjustment is included. As indicated above, we identified several issues with this analysis, including: (1) the HCFA IME adjustment formula is not exactly correct; (2) HCFA is probably using the wrong coefficient for the IME adjustment in its formula; and (3) we could not identify 245 hospitals with 100 or more interns and residents using the Medicare Outpatient Impact File.