

# USING ACUITY FACTORS TO NORMALIZE RELATIONAL DATA

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## INTRODUCTION

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As the push continues towards business integration within the medical practice, physicians are being placed in a position to make some hard decisions regarding investments into technology. The difficulty is deciding whether these investments will ultimately enhance their ability to make decisions based upon sound information. Many practices are not able to effectively process the data that is available from both their practices and the public domain. While some of this can be attributed to the so-called practice management (PM) software used by these medical practices, much of the problem centers around the ability to develop benchmarks and metrics that can be used to measure success or failure in operational management.

The writing, however, is on the wall and the fact of the matter is that, in order to effectively compete in what has become a buyers market, physician offices will ultimately need to incorporate these business models into their practices. A significant part of this integration is the ability to benchmark practice patterns against national averages and to control the validity of that data as it relates to a specific practice. Many studies have been done to try to define the 'typical' medical practice and the final result in all cases is that there is not, in fact, a 'typical' medical practice. Variances in location, demographics, specialty, socio-economics, tradition and other characteristics prevent the definition of 'typical' from taking on any significant form. There are some national organizations and associations that compile data on those who participate in their surveys, but there is also a great deal of controversy over the accuracy and useful application of their results. Very little standardization is incorporated into the data collection process and there is virtually no system in place to validate the accuracy or timeliness of the information provided by the sometimes limited number of medical practices in each of the specialties that respond.

In order to make sense of the data stream and make the results applicable to every medical practice, irrespective of payer mix, patient characteristics, specialization, etc., it is necessary to develop a method to normalize the external data against which the local data was being compared. This process, which centers around a measurement of the complexity of services and procedures provided to a specific patient population, is called the Acuity Factor (AF). This is, in effect, an outpatient case mix model that is similar to that found within hospitals, developed as a result of the DRG model. The acuity factor, sometimes referred to as a severity or complexity index, is specialty specific and to a greater degree, practice specific. By performing analyses of variance using external

data sets and incorporating specific differential calculations as detailed below, it is possible to accurately benchmark the data against any verifiable external data set. This is particularly important when looking at E/M utilization compared against the national Medicare utilization distribution curves and also with physician productivity, in order to stabilize compensation process.

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## USING THE RBRVS DATABASE

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The foundation for calculating the AF is the RBRVS. This model is predicated on accepting the assumption that RVUs measure the consumption of resources for a specific procedure or service. The RBRVS is the database used by CMS to develop the Medicare Physician Fee schedule and the complete data set is often referred to as the Physician Fee Schedule Database, or PFSDB. The RBRVS assigns a relative value unit, or RVU, to each of these procedure codes in order to measure the resources consumed when the procedure is performed on or the service delivered to the patient. There are three RVU components that correspond as follows:

### WORK RVU ( $RVU_{WK}$ )

This RVU value measures the work effort required by the physician in order to complete the service or procedure represented by that procedure code. In essence, this  $RVU_{WK}$  accounts for the physician resources consumed during this process and in keeping with the RBRVS model, the higher the work RVU value, the greater the physician resources that are consumed.

### PRACTICE EXPENSE RVU ( $RVU_{PE}$ )

This RVU value measures the costs, both variable and fixed, associated with the assigned procedure code. For example, the practice expense RVU for a 99213 (mid-level established office visit) is 0.7 while the practice expense RVU for 20205 (Deep muscle biopsy) is 4.14, or nearly 6 times higher than the office visit. This reflects such higher expenses as needles, syringes, pharmaceuticals, bandages, etc.

### MALPRACTICE EXPENSE RVU ( $RVU_{MP}$ )

While there is still some concern over the real-time accuracy of this component, the purpose is to define the relative risk to the provider and the patient and to measure the relative cost of training a physician would undergo as a result of their specific specialty. Therefore, procedures that would be performed primarily by a specific specialty would reflect these factors in the  $RVU_{MP}$  component.

Based upon market areas of the corresponding Medicare carriers, geographic practice cost indices (GPCI) are assigned to the RVU values in order to adjust the relative value of each component and hence the total RVU based upon the characteristics of that geographic location. For this purpose, there is a work, practice expense and malpractice expense GPCI which, when multiplied by the corresponding RVU component, geographically adjusts that component based upon the specific value of that GPCI factor. Then, in order to obtain the total geographically adjusted RVU for the practice, calculate the sum of the products of that calculation, as follows:

$$(RVU_{wk} * GPCI_{wk}) + (RVU_{pe} * GPCI_{pe}) + (RVU_{mp} * GPCI_{mp}) = RVU_{adj}$$

It should be noted that the geographic indices are not based upon any logical division of the geographic areas but rather solely dependent upon the market area served by the carrier.

### **DEVELOPMENT ASSUMPTIONS**

As mentioned prior, the acuity factor is calculated based upon the RBRVS database. In order to proceed, one needs to accept the assumption that this is a valid model. The second assumption is that the RBRVS accurately measures the consumption of resources and contribution of the physician's time and efforts when providing the service as assigned. While there is still some controversy over the accuracy of the RBRVS database and the validity of the methodology used, the fact remains that it is universally accepted as the standard in the industry for payment methodologies and performance of these types of analyses. This means that one must accept that the higher the RVU, the greater the consumption of resources and subsequently, the greater the relative complexity of the diagnosis and treatment of the patient(s). The other assumptions are more practice/provider specific. In order to accurately measure the RVU values for the procedures, the practice must be able to accurately track both procedures and annual frequency for those procedures by provider and/or specialty. And since the procedures identified are based upon the codes selected, one must assume that the coding is accurate with respect to the procedures actually performed and the documentation recorded in the patient's chart.

Granted, these are sometimes large assumptions, particularly the latter few. When it comes to coding, it is always important to perform some type of random or structured chart audit to ensure that the coding is as accurate as possible. It is also important that the data is reported accurately from the PM software. In some cases, it may be necessary to manually track procedures for a period of time, say three months, in order to obtain an accurate and timely data sample of the practice.

### **CALCULATING THE ACUITY RATIO**

The first step is to assign an RVU value to each procedure code/modifier group. Include in the table only those groups that have associated RVUs. In assigning RVU values to procedure code/modifier combinations, use the modifier-factored calculations as discussed above

Next, take the RVU values, multiply by the frequency for that line item and get the sum of the products. Then sum up the total frequencies and divide the frequency into the sum total RVU amount and you end up with a ratio of RVUs to procedures.

Table 1: Sample Acuity calculations

| Procedure Code | Modifier | Description                  | Annualized Frequency | Factored                  |               |
|----------------|----------|------------------------------|----------------------|---------------------------|---------------|
|                |          |                              |                      | adjusted Non-Facility RVU | Total RVUs    |
| 19240          | 58       | Removal of breast            | 1                    | 30.59                     | 30.59         |
| 19240          | 78       | Removal of breast            | 4                    | 30.59                     | 122.38        |
| 20200          | 51       | Muscle biopsy                | 4                    | 2.68                      | 10.70         |
| 20200          |          | Muscle biopsy                | 8                    | 5.35                      | 42.80         |
| 20520          |          | Removal of foreign body      | 1                    | 4.83                      | 4.83          |
| 20550          | 51       | Inj tendon sheath/ligament   | 1                    | 0.86                      | 0.86          |
| 20550          | 59       | Inj tendon sheath/ligament   | 7                    | 1.72                      | 12.05         |
| 20550          | LT       | Inj tendon sheath/ligament   | 15                   | 1.72                      | 25.82         |
| 20550          | RT       | Inj tendon sheath/ligament   | 11                   | 1.72                      | 18.93         |
| 20550          |          | Inj tendon sheath/ligament   | 218                  | 1.72                      | 375.24        |
| 20551          | 59       | Inj tendon origin/insertion  | 1                    | 1.69                      | 1.69          |
| 20551          |          | Inj tendon origin/insertion  | 23                   | 1.69                      | 38.87         |
| 20552          | RT       | Inj trigger point, 1/2 muscl | 1                    | 1.65                      | 1.65          |
| 20552          |          | Inj trigger point, 1/2 muscl | 106                  | 1.65                      | 174.71        |
| 20553          |          | Inject trigger points, =/> 3 | 2                    | 1.86                      | 3.71          |
| 20600          | LT       | Drain/inject, joint/bursa    | 7                    | 1.55                      | 10.88         |
| 20600          |          | Drain/inject, joint/bursa    | 38                   | 1.55                      | 58.90         |
| <b>TOTALS</b>  |          |                              | <b>448</b>           |                           | <b>934.63</b> |

Table 1 illustrates a sample of an acuity calculation table. In this case, we multiply the modifier factored geographically adjusted non-facility total RVU times the frequency. Then, we get the sum of the frequencies (448) and the sum of the total RVUs (934.63). Finally, we divide the total RVUs by the total frequency to get the AF, as follows:

$$934.63 / 448 = 2.086 \text{ (the total AF for this practice, specialty or provider)}$$

Calculating acuity factors for the control group is the same as for the practice. For example, if you wanted to calculate the AF by specialty based upon Medicare, you would use the Part B Physician/Supplier Procedure Summary (P/SPS) Master file. This file represents procedure-specific billing data for all (i.e., 100 percent) physician/supplier services rendered to all Medicare beneficiaries during a given calendar year.

#### MODIFIER RELATIONSHIPS

A modifier is a two-character identifier that signifies some change or modification to the manner in which a procedure code is reported. Some modify reimbursement and others don't. Some are used solely for statistical analysis and others are necessary in order to justify the use of a code or a combination of codes. For the purposes of this process, there are two types of modifiers that are considered during the calculation phase; those that affect reimbursement and those that don't. Modifiers that affect the reimbursement do so because they also affect the consumption of resources for that procedure, thereby affecting the RVU by the same degree. For example, a -50 modifier (Bilateral procedure) increases reimbursement by 50% and therefore, any code groups reporting a -50 modifier should also have their RVU value adjusted upwards 50%. An -80 modifier (Assistant at surgery), on the other hand, reduces reimbursement to approximately 20% to 25% of

the charge for the global procedure, indicating a corresponding reduction in the consumption of resources and RVU value.

These calculations, particularly when they involve very large data sets, can be quite cumbersome and time consuming. Therefore, in order to assist the reader with performing their own comparative analysis, we have included in Table 2 the total AF for all specialties as reported in the P/SPS Master file.

Table 2: Acuity Factors by specialty based upon Part B P/SPS Master file

| Description                  | Total Acuity | Description                 | Total Acuity |
|------------------------------|--------------|-----------------------------|--------------|
| ALLERGY/IMMUNOLOGY           | 0.36         | NEUROSURGERY                | 6.49         |
| Anesthesiology               | 3.25         | NUCLEAR MEDICINE            | 2.02         |
| CARDIAC SURGERY              | 12.21        | Nurse Practitioner          | 1.56         |
| CARDIOVASCULAR DISEASE       | 1.84         | OBSTETRICS/GYNECOLOGY       | 2.62         |
| Clinical Nurse Specialist    | 2.04         | OCCUPATIONAL THERAPY        | 0.77         |
| CRITICAL CARE (INTENSIVISTS) | 2.30         | OPHTHALMOLOGY               | 3.47         |
| DERMATOLOGY                  | 1.56         | OPTOMETRY                   | 2.14         |
| DIAGNOSTIC LABORATORY        | 2.01         | ORAL SURGERY                | 3.30         |
| EMERGENCY MEDICINE           | 2.24         | ORTHOPAEDIC SURGERY         | 3.26         |
| ENDOCRINOLOGY                | 1.86         | OTOLARYNGOLOGY/RHINOLOGY    | 1.65         |
| FAMILY PRACTICE              | 1.53         | PATHOLOGY                   | 1.25         |
| GASTROENTEROLOGY             | 4.30         | PEDIATRICS                  | 1.14         |
| GENERAL PRACTICE             | 1.56         | PERIPHERAL VASCULAR DISEASE | 3.00         |
| GENERAL SURGERY              | 4.66         | PHYSICAL MEDICINE/REHAB     | 1.33         |
| GERIATRICS                   | 1.72         | PHYSICAL THERAPY            | 0.69         |
| GYNECOLOGY/ONCOLOGY          | 3.41         | Physician's Assistant       | 2.35         |
| HAND SURGERY                 | 3.45         | PLASTIC/RECON SURGERY       | 5.03         |
| HEMATOLOGY                   | 1.68         | PODIATRY                    | 1.39         |
| HEMATOLOGY/ONCOLOGY          | 1.51         | PROCTOLOGY                  | 5.57         |
| INFECTIOUS DISEASE           | 1.76         | PSYCHIATRY                  | 1.88         |
| INTERNAL MEDICINE, GENERAL   | 1.67         | PULMONARY DISEASE           | 1.85         |
| INTERVENTIONAL RADIOLOGY     | 1.70         | RADIATION ONCOLOGY          | 2.85         |
| MANIPULATIVE THERAPY         | 1.34         | RADIOLOGY                   | 1.29         |
| MAXILLOFACIAL SURGERY        | 3.28         | RHEUMATOLOGY                | 1.76         |
| MEDICAL ONCOLOGY             | 1.48         | SURGICAL ONCOLOGY           | 3.95         |
| NEPHROLOGY                   | 1.68         | THORACIC SURGERY            | 8.90         |
| NEUROLOGY                    | 2.03         | UROLOGY                     | 3.04         |
| NEUROPSYCHIATRY              | 2.03         | VASCULAR SURGERY            | 4.60         |

### **INTERPRETING THE RESULTS**

The overall complexity of a patient encounter can be measured by the number of management options, amount of information to be obtained during the history and physical exam, the complexity of the decision making process and the overall complexity of the therapeutic and/or diagnostic services. The greater this overall complexity of diagnoses and treatment, the higher the RVU value. Higher RVU values also indicate a greater risk to the provider and the patient, hence the relationship to a higher AF. While the methodology is more straight forward, the same concept applies to non-

encounter procedures that involve the performance of a specific diagnostic or therapeutic procedure on the patient during the encounter.

Using this assumption, we can look at the ratio of RVUs for each procedure or service and compare this with other providers within the group or against other data sets (i.e. Medicare) and get a fair comparison of the acuity level of any given mark against another using the same methodology. For example, Cardiac Surgery has the highest overall total acuity factor of 11.661 while Allergy/Immunology has the lowest rating of 0.375. This would indicate that the overall complexity of the services and procedures provided to the patient population for this specialty is approximately 31 times greater than the overall complexity of services and procedures provided to the patient population for the allergy/immunology provider.

As a process of normalizing data from the national Medicare database, we would now compare the AF in Table 1, depending upon the source of the data (practice, provider, etc.) to the average AF for the same specialty in a control group. This control group might be the Medicare average if looking to benchmark against practice type or peer group or it may be other providers of the same specialty within the same practice, in order to evaluate productivity issues.

In Table 2, which identifies the overall total AF by specialty for the general Medicare population, we see that Cardiovascular Disease has a national average AF of 1.84. The practice AF, as determined in the example in Table 1 is approximately 2.09. Compared to the practice, then, the variance to the national average is approximately 13.6%, meaning that the overall complexity of the procedures and services delivered to the specific patient population measured is approximately 13.6% greater than the average Medicare population. If this was a Urology specialty, we would compare their AF with that of Urology (3.04), resulting in a variance of -31%, indicating that the complexity of the procedures they provide for their patient population is, on average, about a third less than that of the national Medicare patient population.

In medicine, age and sex have a great deal to do with the types and frequency of procedures and services that are provided to patients. The Medicare population is older than the general population and consists of a higher percent of females than the general population, giving this group some unique medical characteristics. The importance of this calculation becomes clear in these examples; unless the practice is 100% Medicare, the value of the national Medicare data set is diminished to the degree that the practices payer mix is other than Medicare. The AF can be used to normalize this national database for the practice by adjusting the results for their particular patient population. As we will discover later, this can be of particular importance when analyzing E/M utilization and physician productivity.

As we can see from the above calculations, coding drives this process since RVUs are assigned based upon specific procedure code/modifier groups. This means that if the coding is not accurate the AF will not accurately represent the level of complexity of services and procedures delivered to the patient population. This is particularly true as it applies to E/M codes. Coding for E/M services is based upon a complex set of guidelines that, in some cases, requires in excess of thousand decisions to be made by the provider. Contrast this with a procedural code that is usually well defined and very specific, for example, a laceration repair or treatment of a fracture. Depending upon the influence that E/M codes have on the practice (utilization as a percent of total procedures), improper E/M coding may significantly skew what would have otherwise been an accurate understanding of the application of the AF. For example, a physician who under codes

on E/M codes would have an acuity factor that would indicate that the overall complexity of diagnoses and treatment was lower than what it would have been had the coding been reported correctly. Over coding, on the other hand, might indicate a higher overall level of medical complexity among the patient population than is truly the case. Therefore, if there is a suspicion of significant coding problems, consideration should be given to resolving those issues first and then recalculating the acuity factor. In many cases, a simple chart audit followed by an extrapolation calculation is all that is needed to deal with this issue. A more effective model, however, is to break out the AF by E/M and non-E/M services, as discussed next.

### **E/M VS. NON-E/M**

As discussed above, E/M coding is driven by a specific set of guidelines that, according to many, are administratively complex and medically unnecessary. Depending upon the set of guidelines used, the specialty and the medical need of the patient, a provider may have to consider more than 1,500 decision points in order to accurately code for the visit or patient encounter. Coding for a single E/M visit may be far more complex than coding for a procedure as sophisticated as a coronary artery bypass graft (CABG). Not that the E/M visit is more complex than the cardiac procedure but rather the coding algorithm is far more complex. As a result, supported by study after study, improper coding for the E/M visit is more of a rule than an exception. Because of this, it is not uncommon for the total acuity factor to be skewed towards the E/M coding anomalies found within the practice. And the higher the number of E/M codes as a percent of all procedures, the greater the potential for skewing. For example, Cardiac Surgery providers report the highest level of both E/M and non-E/M acuity factors. This would indicate that not only are the procedures they perform extremely complex but the evaluation and management services for those patients also indicate a higher degree of complexity. Using Table 3 below, if you divide the non-E/M variance (29.47%) by the E/M variance (6.01%), you get a ratio of approximately 4.9 to 1, indicating that the procedures themselves are significantly more complex in relations to corresponding E/M services as a whole. Based on the national average AF data set, Pediatrics, with an E/M acuity factor of 1.75 and a non-E/M factor of 0.70, indicates that the process of evaluation and management for a particular patient population is less intense (or complex) than the procedures that are performed for that same patient population ( $1.75 / 0.70 = 0.4$ ).

#### ESTIMATING E/M CODING ABBERANCIES

The actual calculations here are the same as above; only we separate the E/M and non-E/M codes into separate tables and calculate the AF values separately. The application for this is primarily used in evaluating potential up and down coding of E/M codes compared to the level of complexity of the non-E/M procedures delivered to the patient.

Table 3: Acuity Factor Calculations

| <b>Acuity Factors</b>           | <b>National</b> | <b>Local</b> | <b>Variance</b> |
|---------------------------------|-----------------|--------------|-----------------|
| Total Acuity Factor             | 4.785           | 5.587        | 16.75%          |
| E/M Acuity using Total RVUs     | 1.892           | 2.005        | 6.01%           |
| Non-E/M Acuity Using Total RVUs | 8.824           | 11.425       | 29.47%          |
| Variance differential           | 0.214           |              | 23.46%          |

Table 3 illustrates the E/M and non-E/M acuity factors using total geographically adjusted RVU

values for both the practice and the national average for this specialty (obtained from the P/SPS Master file). In this example, we can see that the variance for the non-E/M AF is 29.47%, meaning that this practice reports that the procedures they perform on the represented patient population is approximately 29.47% higher than the national average for this specialty. The E/M AF shows a variance of 6.01%, or about 20% of the variance for the non-E/M AF. This would indicate that this practice may be down coding (or under coding) their E/M services by 23.46%, the difference between the two variances, calculated by subtracting the E/M AF from the non-E/M AF and following is the logic for this interpretation.

The AF for the non-E/M procedures, as interpreted above, indicates a significantly higher level of complexity for the actual procedures performed on the patient, whether surgical, diagnostic, therapeutic, etc. In order to come to the decision to perform a procedure on a patient, the provider must first determine the need for that procedure and this is accomplished during the evaluation and management process. It would stand to reason (and has been validated through chart audits and reviews) that the more complex the procedure, the more complex the evaluation and management process as defined by the amount of the history taken, the number of body parts and organ systems examined during the visit, the amount of laboratory, radiological and other diagnostic tests performed and the complexity of the decision making process. This does not mean that the AF values should be the same, but it would indicate that the variances should be close, indicating that the relationship between non-E/M and E/M services to the control group is similar. Using Table 3 as our example, then, we can see that, while the non-E/M procedures reported for the patient population are significantly more complex than the control group, the E/M services reported, based upon the codes assigned, are only slightly more complex than the control group. The expectation is that, if the E/M codes were assigned commensurate with the level of complexity of the procedures performed on the patient population, the E/M variance should be much closer to 29.47%.

One of the problems practices face when performing an intra-category E/M utilization study is that they use the national Medicare utilization distribution curves to represent the norm for their specialty. It is important to remember that the control is based upon 100% Medicare patients, the overwhelming majority of whom are in excess of 65 years old. If the practice's payer mix and patient demographics is not the same as the control group, then the functional value of this type of comparison is reduced to risk analysis only. It would be wholly misleading for a medical practice with a Medicare population of 40% to compare their E/M utilization to the Medicare average expecting that this would fairly and accurately represent a potential disparity in their E/M coding. In fact, when using the Medicare database, the only real value is to assess the potential for outside audits based upon profiling the practice against the local medical review policy (LMRP) criteria of the Medicare intermediary.

#### ACUITY ADJUSTED CHARGE DIFFERENTIALS

Using the AF, the practice can begin to quantify potential under and/or over coding of E/M codes based not upon a static control population, but rather based upon the actual level of complexity of the procedures and services they currently provide to their own patient population. In this way, using other calculations, such as utilization differentials, the practice can develop true acuity adjusted charge differentials, pointing to specific E/M coding anomalies by specialty, by provider and by E/M category.

Table 4: Acuity Adjusted Charge Differentials

| Category                      | Practice Charges | Adjusted Medicare Charges | Medicare Charges Differential | Acuity Adjusted Charge | Adjusted Charge Differential |
|-------------------------------|------------------|---------------------------|-------------------------------|------------------------|------------------------------|
| New Office Visits             | \$12,805         | \$12,572                  | (\$233)                       | \$15,847               | \$3,042                      |
| Established Office Visits     | \$82,375         | \$87,126                  | \$4,751                       | \$98,928               | \$16,553                     |
| Initial Outpatient Consults   | \$145            | \$136                     | (\$9)                         | \$173                  | \$28                         |
| Initial Hospital Visits       | \$9,540          | \$9,652                   | \$112                         | \$11,859               | \$2,319                      |
| Established Hospital Visits   | \$61,000         | \$63,721                  | \$2,721                       | \$73,785               | \$12,785                     |
| Observation/Inpatient Consult | \$690            | \$795                     | \$105                         | \$877                  | \$187                        |
| Discharge Days                | \$2,568          | \$2,606                   | \$38                          | \$3,186                | \$618                        |
| Outpatient Consult            | \$162,048        | \$160,082                 | (\$1,966)                     | \$203,210              | \$41,162                     |
| Initial Inpatient Consult     | \$130,998        | \$131,966                 | \$968                         | \$149,956              | \$18,958                     |
| Follow up Consult             | \$375            | \$344                     | (\$31)                        | \$487                  | \$112                        |
| Confirmatory Consult          | \$2,350          | \$2,474                   | \$124                         | \$2,884                | \$534                        |
| Emergency Department Services | \$369            | \$473                     | \$104                         | \$379                  | \$10                         |
| Comprehensive Nursing Visit   | \$0              | \$0                       | \$0                           | \$0                    | \$0                          |
| Subsequent Nursing Visit      | \$0              | \$0                       | \$0                           | \$0                    | \$0                          |
| Totals                        | \$465,263        | \$471,948                 | \$6,685                       | \$561,569              | \$96,306                     |

Table 4 illustrates the potential to estimate the under or over coding of E/M services from a financial perspective by using the AF calculations. Continuing with our example from Table 3, we apply the AF variance differential to the E/M utilization patterns for this practice. The Practice Charges column identifies the current level of charges submitted for codes within the specific category. The Medicare Adjusted Charges are calculated by redistributing the frequency of utilization for each code within the category by the national average distribution and then recalculating the charges based on those new frequencies. It is important to note that the practice should *never* modify their codes or coding patterns based upon this variance. This should *never* be used as an incentive to code using any other model than the official E/M coding guidelines. The next column, Medicare Charge Differential simply identifies the difference between the first two columns.

Column 5 (Acuity Adjusted Charge) defines the level of charges for that category based upon adjusting the current level of charges based upon the variance differential of 23.46% as indicated in Table 3. This is the amount by which it is assessed that this practice is potentially under coding their E/M codes. The actual calculation for the Acuity Adjusted charge relies on a more complex methodology of first calculating the utilization differentials, suffice it to say that the Acuity Adjusted Charge Differential measures the charge difference between where the practice is and where they would be if their E/M codes were coded commensurate with the level of complexity of the non-E/M procedures performed on the patient population.

The overall result for this practice is a net increase in E/M charges of \$96,306; a gain of 20.7% over their current E/M charge level. It is very important to note that, as with the Medicare comparisons above, this should *never* be used as incentive to change the manner in which E/M codes are assigned but rather as motivation to perform a chart review in order to validate the results of the study.

## WORK VS. TOTAL RVUS

E/M and non-E/M acuity measurements are also broken out by work and total RVU values in order to insure a more specific examination of issues in both E/M utilization and physician productivity analyses. By doing so, we can further differentiate the physician work product from the actual and estimated expenses associated with the specific procedure or service. In assessing the impact here, we would expect that the work E/M acuity factor would be less than the total E/M acuity factor as the former does not consider the resources required in the form of fixed and variable expenses. The ratio, however, of these two is also useful as a comparison to identify potential E/M coding anomalies since again, coding for non-E/M procedures is far more straightforward and less complex. This same assumption would apply to the relationship of the work non-E/M and the work E/M ratios, except that with the exclusion of resources other than those measured by the work RVU, we have a more accurate process of application for measuring the physicians contribution to productivity.

A recurring theme found amongst medical practices during compensation negotiations deals with the ‘my patients are sicker than others’ dilemma. Using the work AF, we can effectively quantify that statement both within the practice (provider to provider) and externally (provider to peer group and practice/specialty to national average).

Table 5: Sample table of acuity factors for FP providers

In Table 5, we have calculated the acuity factors for each provider within an 11-physician family

| <b>Specialty Code</b> | <b>Physician ID</b> | <b>Practice Work Acuity</b> | <b>Provider Work Acuity</b> | <b>Variance from Practice</b> |
|-----------------------|---------------------|-----------------------------|-----------------------------|-------------------------------|
| FP                    | Doc1003             | 0.712                       | 0.954                       | 33.97%                        |
| FP                    | Doc1006             | 0.712                       | 0.666                       | -6.45%                        |
| FP                    | Doc1007             | 0.712                       | 0.571                       | -19.79%                       |
| FP                    | Doc1009             | 0.712                       | 0.855                       | 20.14%                        |
| FP                    | Doc1011             | 0.712                       | 0.671                       | -5.79%                        |
| FP                    | Doc1013             | 0.712                       | 0.666                       | -6.50%                        |
| FP                    | Doc1014             | 0.712                       | 0.688                       | -3.34%                        |
| FP                    | Doc1016             | 0.712                       | 0.698                       | -2.01%                        |
| FP                    | Doc1023             | 0.712                       | 1.007                       | 41.49%                        |
| FP                    | Doc1024             | 0.712                       | 0.726                       | 1.94%                         |
| FP                    | Doc1027             | 0.712                       | 0.572                       | -19.68%                       |

practice group. In this case, the work acuity for the entire practice is 0.712, calculated as an aggregate of all providers using the formulae above. By dividing each individual providers’ work AF by the work AF for the practice, we can build a variance column that assists in identifying which physicians are providing (or at least reporting) more complex care than the others within the group. While this does not really address the dilemma discussed above (it only measures the procedures and services provided by the practice, rather than every service and procedure provided to the patient by all physicians), it does provide a valuable look at who is doing what. In a same-specialty practice or within the same specialty in a multi-specialty practice, variances like we see above with Docs 1003, 1009 and 1023 should stimulate a review of their charts to see why the procedures and services they

provide would be so much more complex than the average for the practice.

The next step is to compare the practice work AF against that of the control group; in this case, the national Medicare average. For family practice, the national average work AF for CY 2002 (the most recent year for which data is available) was 0.81, according to upon the P/SPS master file. By dividing the average AF for the practice (.712) by the national average (0.81) and then subtracting one, we calculate a variance from the national average for the practice of -12.10%, indicating that the overall complexity of the procedures and services provided to the patient population is approximately 12% less than that of the 100% Medicare patient population treated by FP physicians nationally. Finally, we can develop a variance column that compares each individual physician with that of the national average, although the value of this in a multi-physician specialty is minimal.

Other applications include comparing AF with work RVUs to determine if there is a relationship between the level of the AF and the number of work RVUs reported by the physician. The same comparison can be made on time to determine if higher complexity (higher AF) results in a higher time component. Other comparisons can be made to profitability, productivity, work patterns, payer mix, etc., all contributing to the understanding of the relationship between practice productivity and patient characteristics

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## SUMMARY

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The Acuity Factor, whether used in total or broken down into its component parts, plays a useful role in the medical practice. As the payer side continues to move towards total business integration, applying these types of methodologies and techniques to determine fee schedule amounts and to design provider contracts, the medical practice must be able to respond in kind. And not only respond, but be proactive in their ability to accurately benchmark critical markers in their practice against external data sets. While the process may initially seem overwhelming, being able to produce efficient and usable reports from the practice management software can substantially reduce the resource overhead required to calculate the values necessary to conduct this type of study. In the absence of standardized and timely data, acuity factors provide for the practice a decision support model of sorts, contributing to the ability to monitor productivity, analyze for profitability and compliance, conduct meaningful comparative analyses and ensure parity with the payer side.

While the benefit to the practice may be obvious, the benefit to the consultant is a little more subtle. Acuity factoring is not, in and of itself, applicable as a free-standing analytical model. Its primary function is to enhance the already beneficial process of both E/M utilization and physician productivity. If applied properly, it can solve a multitude of problems and answer many questions that practices have had for a long time and which consultants have been powerless to approach. Being able to not only qualify E/M utilization anomalies but to now quantify from both a distribution and financial angle significantly increases the value of the E/M analysis. Likewise, being able to use a severity index to balance out physician productivity and profitability with the complexity of the patients they see will make is much easier to sooth the ruffles that ultimately appear during compensation plan development. As an approach, acuity factoring provides for the consultant a new and higher level of analytical capability than ever before.