

An Innovative Approach for Calculating the Work Relative Value Units of Clinical Activities Otherwise Concealed

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Abstract

Since the introduction of work relative value units (wRVUs), academic institutions have increasingly relied on them as a means of assessing clinical productivity. However, wRVUs do not capture all activities performed in the academic setting. Although proposals exist for converting teaching, research, and administrative activities into wRVUs,

certain clinical activities—deemed “special services” at the University of Kentucky—remain unrecognized by this metric. For instance, wRVUs do not capture activities which include clinical work performed on a contractual basis, nor do they capture medicolegal activities. Yet, these and other special services often represent an important stream of revenue for an

academic department. Because of both the significant dependence of wRVUs in determining clinical productivity and the failure of wRVUs to capture special services, the authors propose a formula that converts these clinical efforts into wRVUs.

One means to measure productivity is the relative value unit or the work relative value unit (wRVU). The concept of the wRVU began with the Harvard National Resource-Based Relative Value Scale (RBRVS) study in 1985. The scale assigns a standard measure of “work performed” to each type of clinical encounter.^{1,2} The study authors submitted the scale to the Health Care Financing Administration (HCFA) in 1988.³ The following year, President George H.W. Bush signed the Omnibus Budget Reconciliation Act of 1989 enacting physician payment schedules based on RBRVS.³ In 1992 Medicare enacted RBRVS, and later that year the American Medical Association’s Specialty Society Relative Value Scale Update Committee provided, to HCFA, its first set of recommendations for using wRVUs.³

Many academic institutions have widely adopted and employed the concept of the wRVU to assess a physician’s clinical productivity.^{4–9} As the clinical realm

represents but one of the four domains of an academic physician’s responsibilities, institutions have made efforts to create productivity models that also assess teaching, research, and administration.^{5,10–12} Some of these efforts have attempted to incorporate seniority and quality of performance (relative both to peers and to standard criteria) into compensation metrics.¹³ The Mission-Based Management Programs of the Association of American Medical Colleges reviewed the metrics developed by a small number of medical schools that employed wRVUs to distinguish the manner by which each faculty member contributes to the school’s mission.¹⁴ This committee concluded that the wRVU system of assessment is advantageous because it accounts for variables such as time and effort expended in each activity. It also has the advantage of comparing activities across disparate activities and avoids using expended time as a metric.¹⁴

However, the very nature of some clinical services makes quantifying individual clinical productivity difficult. For example, anesthesiology services are billed by American Society of Anesthesiologists (ASA) units—not resource-based wRVUs—and ASA units are not the equivalent of wRVUs.¹⁵ Other forms of clinical service, shared by many disciplines, are also unaccounted for by wRVUs. Often, these “concealed” services are very important to the financial well-being of an academic department. The University of Kentucky deems those clinical activities that cannot be easily quantified by wRVUs as

“special services.” Special services include the provision of medical care by contractual arrangement and medicolegal activities including, but not limited to, examinations, forensic reviews, and court testimony.

The importance of these special services is likely specialty-dependent and may vary with geographic locale, the composition and interests of the faculty, and/or the needs of the community. For instance, certain academic departments, such as neurology, psychiatry, and pathology, are likely to have a disproportionate share of medicolegal activities, whereas clinical activities provided on a contractual basis may be more broadly distributed across various departments. Regardless of institutional and departmental policies and differences, each clinical department of every academic health center must devise a means of accounting for the clinical revenues produced by those activities that are not readily captured by wRVUs.¹⁵ The revenues generated by these special services may be quite substantial and may be extremely important for the fiscal soundness of an academic department. Notably, unlike the funds that wRVUs typically represent, the money generated by special services is fungible and can decrease the need for cross-subsidization from other entities within the academic environment. Accounting for the time and effort faculty expend in generating these valuable revenues is difficult; nonetheless, doing so is vital. Failure to address an important source of revenue in compensation schemes undervalues the time and effort of

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the faculty who are essential in generating funds from special services.

Accounting for special services is especially important as hospital revenues decrease. Medicare costs continue to climb—in large measure because of the increased numbers of beneficiaries reaching age 65—and payments to physicians have not kept pace with these and other Medicare costs, such as prescription drug benefits and nursing home expenses.¹⁶ Further, Medicare is anticipated to reduce physician fees substantially in the future. Other payers are likely to follow suit. The Centers for Medicare and Medicaid Services which oversees Medicare eliminated payment for consultation codes 99241–99255 and substituted certain evaluation and management codes instead. This change has had a significant pernicious impact on the total revenues of many specialties.¹⁷ As a consequence of the decline in these traditional forms of clinical revenue, income from special services assumes increasing importance for the financial well-being of an academic department.

Proposed Formula for Calculating the wRVUs Generated by Special Services

As reliance on wRVUs as a metric to assess productivity increases, the University of Kentucky developed the following formula to convert fees derived from special services into wRVUs. Here we present the formula, followed by an example using an imaginary faculty member, Dr. John Smith.

Formula

1. For each faculty member, calculate the fees solely generated by activities that are recognized by the wRVU.
2. Calculate the fees per wRVU for each faculty by dividing the number obtained in step #1 by the faculty member's total wRVUs. As each faculty member sees a different payer mix, the number is normalized by using fees rather than actual payments.
3. Divide the special services fees generated by the number derived in step #2. This step provides the wRVUs per special service for that particular faculty member.
4. Add the total wRVUs to the number of wRVUs for the special services obtained from step #3.

Example

The total fees (comprising all fees for patient evaluation and management, patient procedures, medicolegal services, and other contract work) Dr. Smith generated in the last year were \$465,000. The special services fees (i.e., fees for just medicolegal and contract work) he generated came to \$85,000. The total payments received for *all* of the services Dr. Smith provided equaled \$221,037, and the payments received for the special services he provided equaled \$82,000. The total patient-care-generated wRVUs (excluding special services, which are not associated with wRVUs) were 3,544.

Given these amounts, the application of the formula for Dr. Smith would be as follows:

Step #1: $\$465,000 - \$85,000 = \$380,000$

Step #2: $\$380,000/3,544 = \107.22

Step #3: $\$85,000/\$107.22 = 792.76$

Step #4: $3,544 + 793 = 4,337$

Thus, Dr. Smith generated a total of 4,337 adjusted wRVUs.

The Formula in Practice at the Department of Neurology at the University of Kentucky

We applied our formula to account for the special services rendered by the faculty of the Department of Neurology at the University of Kentucky from July 2009 through June 2010. The Department of Neurology has contracts with various entities throughout the region, including with the following: (1) a federal correctional institution to provide neurological care to inmates, (2) a company that contracts with the state of Kentucky to provide long-term care at a facility for the mentally handicapped, (3) a community hospital 50 miles from the university campus to provide neurological care and electrophysiology services, and (4) the state of Kentucky to provide pediatric neurological care in Lexington, Kentucky, and multiple other clinical sites throughout eastern Kentucky.

These ongoing, contractual special services represented 11% of the fees generated in the department and 24.7% or \$309,000 of all cash received for special services. (Collection rates for special services, unlike other clinical activities, approach 100% in our department.)

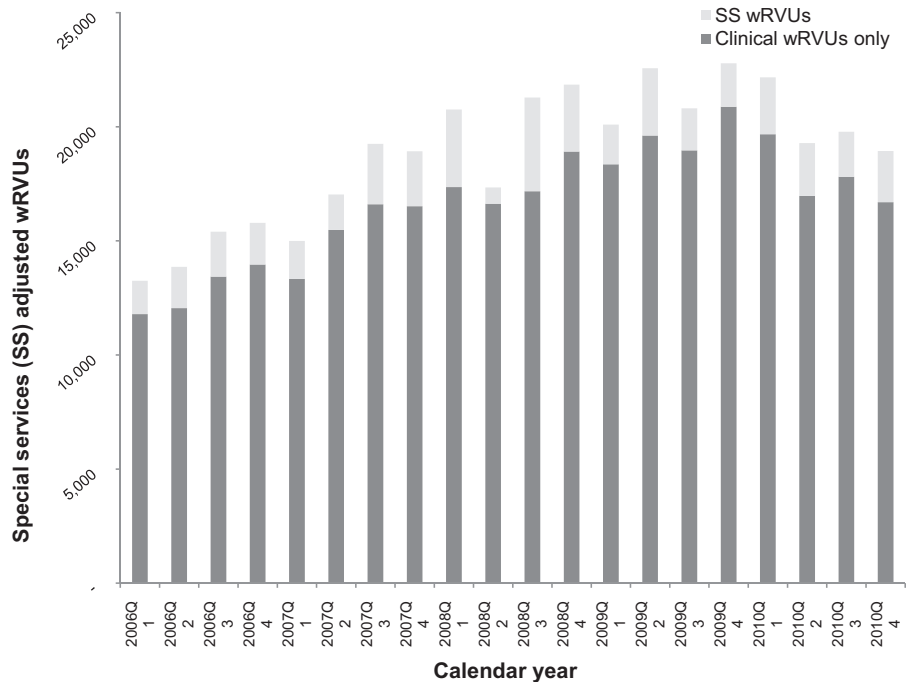


Figure 1 Distribution of actual work relative value units (wRVUs) and calculated wRVU equivalents from special services at the University of Kentucky, Department of Neurology, July 2005 to June 2010. This figure demonstrates the application of the authors' formula at the departmental level. The dark gray bars represent the actual wRVUs generated from non-special-service-related services across the department; the light gray bars represent the additional wRVUs derived from special service activities.

Additionally, in 2009, members of the department performed 139 independent examinations for the insurance industry, for workmen's compensation claims, and for assorted other entities. The fees for these independent services represented almost \$244,000 or 19.6% of all special service fees. Fees for other independent medical/legal work contributed \$693,000 or 55.6% of all special service fees.

Revenues generated by these activities flow to the institution. The Kentucky Medical Services Foundation (KMSF), a 501(c)(3) entity, conducts the billing and collection for these activities. The revenue from special services returns to departmental coffers after overhead assessments by KMSF and the Dean's Office.

The participation in special services among individual faculty members is quite variable. Three adult neurologists provide neurological coverage (often, recently, via telemedicine) at the federal correctional facility. Two epileptologists cover the institution for the mentally handicapped, and two neurologists staff the community hospital. Those faculty members who conduct special services via contracts receive credit for these activities proportional to the number of clinics each staffs. In other words, if a physician provides 50% of the staffing at clinic for which payment is received contractually, he or she will receive credit for 50% of the monies derived from this activity. Those monies are then used in the formula for deriving the wRVUs for this activity. The medicolegal work is divided very disproportionately among members of the department: 46.9% of the medicolegal revenue is generated by one person, and the second and third highest generate, respectively, 14.0% and 15.7% of this revenue.

Figure 1 provides an illustration of the application of this methodology, without adjusting for year, at the departmental level. Figures 2 through 4 also show productivity at the department level and, together, provide a comparison of faculty members within a single department. They demonstrate the disparity that can exist between faculty who primarily see patients and conduct few special services and those faculty who have more substantial commitments to special services, either through contract work and/or medicolegal activities. The adjusted wRVUs of the three faculty members represented by Figures 2

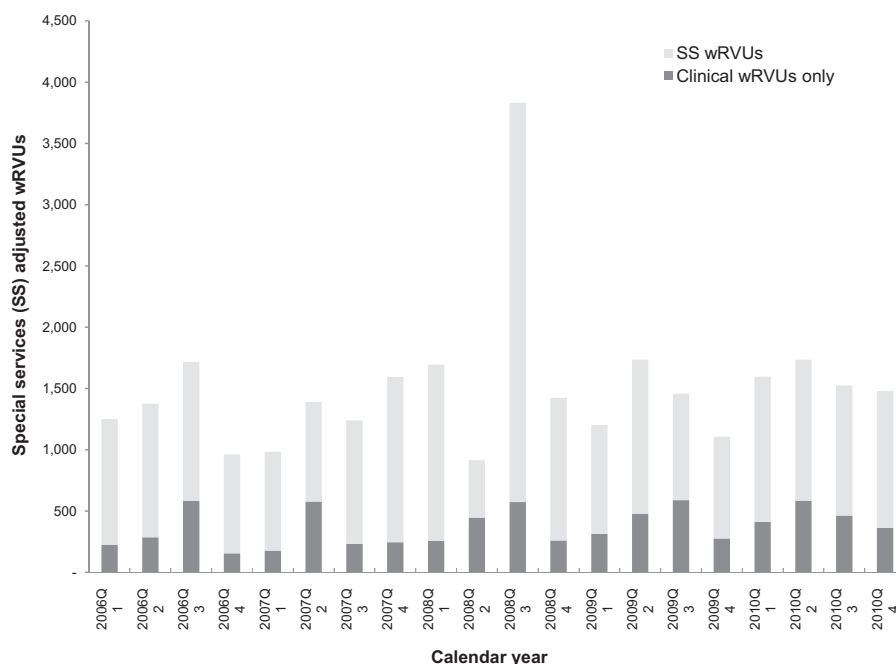


Figure 2 An "extreme" example of the contribution of calculated work relative value units (wRVUs) for one faculty member at the University of Kentucky, Department of Neurology, July 2005 to June 2010. This figure shows what is probably the most extreme example of a productive faculty member who generates far less "official or counted" wRVUs than what would be represented by his or her true effort. This faculty member's average clinical wRVUs of 375 per quarter would indicate a poor performer (the average wRVUs across department faculty number 761 per quarter), but the wRVUs, adjusted for special service of 1,510 per quarter, are well above the department average.

through 4 are fairly comparable, but at first glance—that is, without the adjustment for special services—one faculty member would appear to be extremely underproductive.

The Importance of Accounting for Special Service Revenues

Accounting for the revenues from special services is important, especially in a constrained fiscal environment. In their analysis of the results of a 2002 survey of academic neurology departments to which 95 of 133 responded, Rizzo and Mobley¹⁸ found that 83% of neurology programs were perceived by the departmental leadership to be under moderate to severe financial pressure, and 17% were experiencing severe pressure. Only 15% of academic neurology departments generated a profit from patient care, and approximately one-third lost nearly \$40.00 per patient visit in their general neurology clinic.¹⁸ The clinical revenue stream derived from special services can be a crucial source of income because it may be both substantial and unaccompanied by overhead costs that erode the value of other sources of income.

The downstream revenue resulting from special services is also important for the academic enterprise. This revenue includes funds resulting from the development of networks of referring physicians who would not otherwise have referred patients to the institution, from the performance of diagnostic and other tests (X-rays, MRIs, electrophysiological studies, etc.) at the academic institution, and from the referral of patients to other services within the institution. As with other clinical revenues, the revenue from these efforts provides an important source of funding to underwrite the academic mission of the medical school. To illustrate, a 1992–1993 study undertaken by the Association of American Medical Colleges in which 60 (48%) of 126 U.S. medical schools participated showed that 28 cents of every faculty-practice-plan dollar collected went to support academic programs.¹⁹

Finally, acknowledging the considerable effort expended by the individual clinician on special services is important. For clinicians providing contractual service, this effort includes the uncompensated time to go to off-campus sites. For those providing medicolegal services, it often includes the

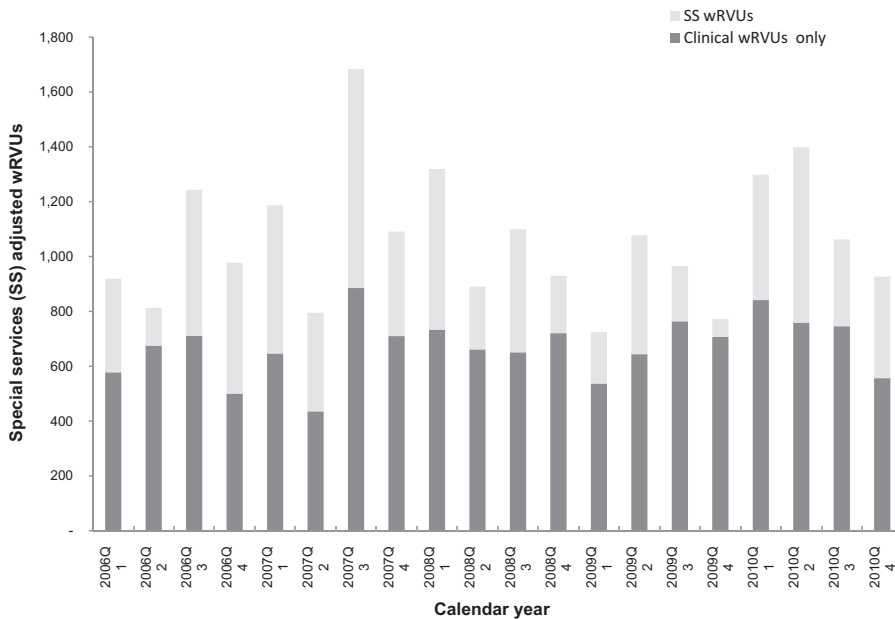


Figure 3 Example of contribution of calculated work relative value units (wRVUs) for the typical faculty member at the University of Kentucky (UK), Department of Neurology, July 2005 to June 2010. Figure 3 shows the typical special service involvement of UK Neurology faculty. The average additional wRVUs due to special service are about 1,060 adjusted wRVUs (57.3%) per quarter.

tedium of reviewing large volumes of clinical material and the stress, due to an adversarial relationship with opposing counsel, of providing a deposition and experiencing a trial.

Alternative Methods of Accounting for These Clinical Activities

The inability to adequately account for a faculty member’s clinical contribution is due to the absence of an adequate formula for converting special services into wRVUs. Filling this gap has been challenging, although some approaches provide potential solutions. For instance, clinical effort can be readjusted to carve out time for clinical services that are run on a contractual basis. However, it is difficult to reallocate clinical effort to reflect time spent traveling to distant clinical sites, reviewing medical records, researching the literature, conferencing with attorneys and case managers, or doing other activities involved in generating this kind of revenue.

Another alternative would be to use both total attributable revenue and wRVUs in assessing faculty clinical productivity—rather than relying on just a single measure. Of course, doing this increases the complexity of assessing clinical productivity. A third approach might be to convert wRVUs to dollars by using a

conversion factor derived by dividing the entire department’s collected clinical revenue by total billed wRVUs. Each faculty member would then be credited with the respective dollars generated by this formula as well as those generated by special services or other activities not readily accounted for by wRVUs. If necessary, this total dollar

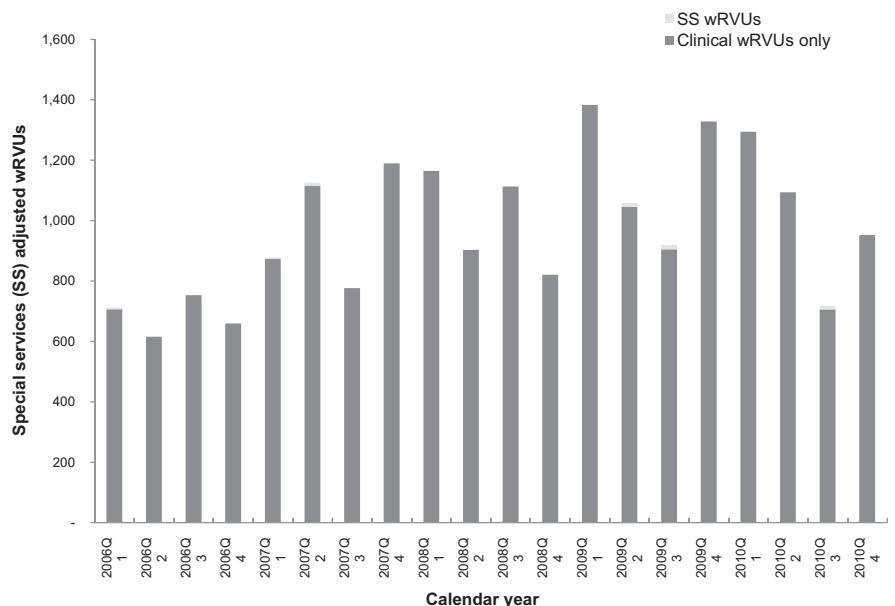


Figure 4 Example of contribution of calculated work relative value units (wRVUs) for a faculty member at the University of Kentucky, Department of Neurology, who conducts few special services, July 2005 to June 2010. This figure represents the wRVUs of a provider who was new in 2005 and whose average wRVUs per quarter numbered about 1,000 (excluding the first four quarters while the practice was building).

amount could be recalculated as wRVUs using the same conversion factor. This approach, however, would distort the value of the wRVUs that have been assigned via the preexisting accounting methodology.

A fourth approach would be to convert contract and/or special services fees to wRVUs by using unit averages across the unit rather than by individual faculty. Other academic activities, such as research,^{10,11} teaching,^{10,11,20–22} and administration,^{10,11} could be treated similarly using suggested formulae for their conversion to wRVUs.⁵ The Department of Family Medicine at the State University of New York at Buffalo has successfully implemented such a comprehensive wRVU-based incentive plan.⁵ The University of California Davis also developed a similar, mission-based reporting system that incorporated a method of calculating wRVUs for all elements of the academic mission,²³ but its general implementation has been resisted.²⁴

A fifth solution might be to abandon wRVUs altogether in calculating the contribution to the clinical effort and to simply use fees or cash collection. Using net collections for a clinician has the inherent drawback of failing to account for differences in the distribution of payers in an individual practice. Using fees would seem intrinsically fairer, but doing so

creates problems related to evaluating the value of services. Namely, the fee charged for a particular service need not accurately represent the amount of work or degree of skill required for the performance of a particular clinical activity.

Almost certainly, other academic departments have wrestled with the problem of accounting for clinically derived income not otherwise recognized by wRVUs and have established their own formulae. The extant literature provides precious little to assist academic departments that have not found an ideal protocol. We believe that our approach is fair and simple—and adaptable. One possible adaptation of our approach would be to determine the conversion factor for wRVUs on a departmental level rather than for each individual separately. Therefore, the departmental fees for activities traditionally recognized by wRVUs, departmental fees for special services, and the aggregate departmental wRVUs would all be used in the calculation of the conversion factor and then applied to each individual. This departmental approach would likely be most useful either in settings where faculty are just starting up a practice and have few special service billing events or where faculty rarely perform special service activities. In these situations, a faculty member may submit fees for medicolegal work in one month, but the cash may not be realized in the same month, resulting in an undervaluing of the wRVU when the cash is realized. A conversion factor at the department level would allow for consistency and lead to less variability in the wRVU conversion factor from month to month.

Although our formula derived from the experience of a single academic department of neurology at a state-supported institution, it is likely broadly applicable to other departments and institutions in which special services constitute a significant component of clinical revenues. Refinements may be necessary, but our formula provides a means to begin accounting for the contribution of these often neglected, though extremely important, special services.

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