Underreimbursement of Obstetric and Gynecologic Invasive Services by the Resource-Based Relative Value Scale

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Objective: To compare the relative value of work and reimbursement by the resource-based relative value scale (RBRVS) and the charge-based McGraw-Hill relative value scale for invasive services performed for women only (obstetric-gynecologic), for men only (urology), and in a gender-neutral specialty (general surgery).

Methods: Two hundred nineteen obstetric-gynecologic, 125 urology, and 105 general surgery invasive procedures were compared by the mean for each specialty of 1) the ratio of the procedure-specific work component of the RBRVS unit to the total relative value unit, and 2) the ratio of the procedure-specific total RBRVS unit to the McGraw-Hill relative value unit. All procedures were weighted equally. Ratios are reported as percentages. Statistics were compared by analysis of variance with Newman-Keuls test for multiple pairwise comparisons when significant differences were identified. Statistically significant differences were defined as P < .05.

Results: The mean percentage of the procedure-specific work component of the RBRVS unit to the total relative value unit and the total RBRVS unit to the McGraw-Hill unit were significantly lower (P < .01 for all comparisons) for obstetric-gynecologic (49.7 and 139.5) than for urology (55.1 and 207.1) or general surgery services (53.2 and 181.0). There were no significant differences between urology and general surgery services among the procedures studied.

Conclusion: The data support a lower relative value of work and reimbursement for services performed for women only. This may be the result of 1) high initial estimates of work for urology and general surgery services, 2) low initial estimates of work for obstetric-gynecologic services, or 3) a carry-over of reimbursement bias from the charge-based environment to the RBRVS by the methods used in its development. (Obstet Gynecol 1996;87:328-31)

The Physician's Payment Review Commission, established by Congress in 1986 and charged with making recommendations for reforms in Medicare physician reimbursement, recommended the development of a fee schedule based on the relative value of services, primarily defined by the resource costs of providing those services. A model for measuring resource costs was developed by Hsiao et al with the support of the office of Research and Demonstrations of the Health Care Financing Administration. This model was used to develop the resource-based relative value scale (RBRVS), now used to establish physician reimbursement under Medicare guidelines. The RBRVS established a common cross-specialty scale of RBRVS units for selected physician services based on total work, required practice costs to provide the service, and the amortized cost of specialty training. (The final rule eliminated the amortized cost of a specialty training component and added a separate malpractice component, originally included as part of the required practice costs. This was done because of substantial increases in malpractice insurance costs of some specialties during the development of RBRVS.)

The work component of the RBRVS unit is the only part considered service specific, whereas the required practice cost and amortized cost of specialty training components (and, subsequently, the malpractice component) are considered specialty specific. The estimates of work of were derived for approximately 5% of the codes defined in the Physicians' Current Procedural Terminology (CPT coding book) from surveys in which physicians supplied estimates of work for services within their specialty, based on vignettes of "typical" patients. The estimates of work for the remaining services (those not surveyed) were created from extrapolation of existing charge-based data.
There are many limitations to this approach. First, the extrapolated values cannot be validated as representing accurate estimates of total work because of the lack of standard criteria with which to compare them. Second, any specialty-specific under- or overestimation of the few services used for the cross-specialty linkage would be carried to many other services by this approach. Finally, this method would allow biases from the charge-based environment to be transferred into the RBRVS.

We wished to evaluate whether a gender bias exists in the reimbursement for invasive services under the RBRVS. Therefore, we tested the null hypothesis that the ratio of the work component of the RBRVS unit to the McGraw-Hill relative value study for all services were compared as “gender neutral” specialty. We also compared the ratio of the RBRVS unit to the McGraw-Hill criteria-based relative value for invasive services in the three specialties. Because the McGraw-Hill scale is the most widely used relative value study for private insurance claims, comparing it with the RBRVS unit for a given procedure allows an assessment of change in reimbursement with wider acceptance of the RBRVS.

Materials and Methods

Resource-based relative value units for all services were obtained from the Health Care Financing Administration, effective January 1, 1994. In brief, the total RBRVS unit for a specific service is the sum of the work relative value unit, the required practice cost relative value unit, and the malpractice relative value unit. Reimbursement specific for Vermont was calculated for each service as determined by the Health Care Financing Administration, using geographic practice cost indices and a surgical conversion factor of $35.158 from the same source. Geographic practice cost indices are established by the Health Care Financing Administration in an attempt to adjust for geographic differences in the cost of medical practice. One of three conversion factors in the category of surgical, primary care, and other nonsurgical services is used to compute a fee schedule amount according to the formula provided by the Health Care Financing Administration in the final rule. Geographic practice cost indices used were for Medicare carrier 780, locality 50 (Vermont), work geographic practice cost index 0.942, practice expense geographic practice cost index 0.941, and malpractice geographic practice cost index 0.533. The accuracy of these calculations was confirmed by comparison with the 1994 Medicare locality fee schedule, statewide Vermont (C & S Administrative Services for Medicare, Boston, MA, 1994). All services used in the study were considered invasive and had a status indicator of “A,” indicating active codes paid separately under the physician fee schedule. The McGraw-Hill criteria-based relative value units were obtained from McGraw-Hill, Inc.

Ten invasive services performed in the specialties of gynecology and urology were initially matched into pairs as “same” procedures by the authors (Table 1). Obstetric procedures could not be paired as “same” with any urologic procedures. For these 20 services, the mean of 1) the work component of the RBRVS unit, 2)
the total relative value unit, and 3) the McGraw-Hill relative value unit for each specialty were compared. Subsequently, 219 obstetric-gynecologic (44 obstetric CPT codes 59000–59870, relating to pregnancy, ectopic pregnancy, abortion services, or hydatidiform mole), 125 urologic, and 105 general surgical invasive services were chosen from the CPT codes because they 1) represented obstetric and gynecologic codes performed only on females (eg, excluding circumcision), 2) represented urologic codes performed only on males, 3) represented general surgical codes performed on both males and females (ie, gender neutral), and 4) had an established resource-based relative value. The required practice cost components of the total RBRVS unit for obstetrics and gynecology and urology were comparable, and therefore were not adjusted. The required practice cost component for general surgical services was increased by 3% to correct for the differences in practice expense defined and used by Becker et al. The means of procedure-specific ratios of 1) the work component of the RBRVS unit to the total RBRVS unit, 2) the malpractice component of the RBRVS unit to the total RBRVS unit, 3) the work component to the total relative value unit after correction for the malpractice component, 4) the total relative value unit to the McGraw-Hill relative value, and 5) the calculated Vermont reimbursement under the RBRVS to the McGraw-Hill relative value were compared among specialties, with all procedures weighted equally.

All ratios are reported as percentages. Statistics were compared by analysis of variance with Newman-Keuls test used for pairwise multiple comparisons when appropriate. P < .05 was used to indicate statistical significance.

Results

The mean ratios for urology to gynecologic services for the work component of the RBRVS unit, the total RBRVS unit, and the McGraw-Hill relative value unit for ten pairs of “same” services matched between urology and gynecology were 1.63, 1.36, and 1.14, respectively. Therefore, the average work components of the RBRVS unit, the total RBRVS unit, and the McGraw-Hill relative value unit were 63, 36, and 14% higher, respectively, for the urology service when compared with the “same” gynecologic service (Table 1). Based on these results, the larger data base was evaluated.

The mean work components of the RBRVS unit to total relative value unit ratio, the mean total relative value unit to McGraw-Hill relative value unit ratio, and the mean Vermont regional reimbursement/McGraw-Hill relative value unit ratio were significantly lower for obstetric and gynecologic services compared with urology or general surgery services (P < .01 for all comparisons) (Table 2). There were no significant differences between urology and general surgery services when compared by the same ratios. The malpractice component of the relative value unit makes up 4.5, 7.8, and 7.7% of the urology, obstetric and gynecologic, and general surgery relative value units, respectively; this was significantly lower for urology services when compared with obstetric and gynecologic and general surgical services. Therefore, the same aforementioned ratios were recalculated with the malpractice component removed from the total relative unit for all procedures. The differences were unchanged and remained at the prior levels of significance.

Discussion

The data presented suggest that the methodology and assumptions made in the development of RBRVS may not be valid for the three specialties compared. The findings support an overall lower relative value of work and reimbursement for invasive services performed for women only when compared with services performed for men only or for both sexes. The possible causes for these findings include the following: 1) high initial estimates of the work component for the obstetric and gynecologic services, and 3) a carry-over of reimbursement bias from the charge-based environment to the RBRVS.

The RBRVS was developed by evaluating the resources needed to provide services and was proposed to establish physician reimbursement for services of all specialties on a common scale, based in nonmonetary units. An important advantage of a scale based on nonmonetary units is its budget-neutral formula, which can be translated into dollars by a conversion factor established retrospectively. This allows both the maintenance of relative reimbursement among physician services across specialty lines as well as a match to be made between the total services rendered and the total dollars budgeted for services in a given fiscal period. The RBRVS was developed by first creating specialty-specific scales for services that were then linked by “same or equivalent” services between specialties. The result of the cross-specialty linkage was the creation of a common scale for all services, theoretically allowing comparisons across specialty lines. Because of limits on budget and time, only a small fraction of the more than 7000 codes (approximately 5%) identified in the Physicians' CPT coding could be evaluated on a resource basis through the use of physician surveys; even fewer (82 pairs of services) codes were linked in the creation of the cross-specialty common scale. Extrapolation to
the remaining nonsurveyed services was carried out using existing charge-based data from the Health Insurance Association of America and Medicare Part B.6,7 Importantly, any consistent bias in the small number of links for any one specialty would not be apparent in the cross-specialty linkage process. The Health Care Financing Administration recognized this possibility and singled out urology procedures as having overinflated resource-based relative values compared with other procedures on the fee schedule, specifically comparing them with obstetric and gynecologic and general surgery services.8,9 The Health Care Financing Administration then adjusted the resource-based relative values of some of the urologic procedures to correct for this overvaluation. In addition, Hsiao et al10 noted a fivefold difference in the ratios of mean current charges to resource-based relative values for invasive services across specialties. The services were divided into high, medium, and low ratio procedures, with obstetric and gynecologic services tending to be in the “higher” group and urology and general surgery services tending to be in the “lower” group. Our data evaluated the inverse of this ratio, represented as the total RBRVS unit to the McGraw-Hill relative value unit. The significantly lower mean ratio in this category for obstetric and gynecologic services tending to be in the “higher” group and urology and general surgery services tending to be in the “lower” group. The Health Care Financing Administration then adjusted the resource-based relative values of some of the urologic procedures to correct for this overvaluation. In addition, Hsiao et al10 noted a fivefold difference in the ratios of mean current charges to resource-based relative values for invasive services across specialties. The services were divided into high, medium, and low ratio procedures, with obstetric and gynecologic services tending to be in the “higher” group and urology and general surgery services tending to be in the “lower” group. Our data evaluated the inverse of this ratio, represented as the total RBRVS unit to the McGraw-Hill relative value unit. The significantly lower mean ratio in this category for obstetric and gynecologic services tending to be in the “higher” group and urology and general surgery services tending to be in the “lower” group.

We conclude from this data that both total work and, subsequently, reimbursement for invasive services performed for women only are undervalued. The similarity in the urology and general surgery ratios studied is further evidence that obstetric and gynecologic services represent outliers on the cross-specialty scale. In addition, significant decreases in reimbursement for obstetric and gynecologic services can be expected to occur with adoption of the current RBRVS by third-party

### Table 2: Specialty-Specific Ratios for Invasive Services Within the Resource-Based Relative Value Scale Among Three Specialties

<table>
<thead>
<tr>
<th>Specialties</th>
<th>Urology</th>
<th>Ob-Gyn</th>
<th>Surgery</th>
<th>Ob-Gyn vs Urology</th>
<th>Ob-Gyn vs Surgery</th>
<th>Urology vs Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRVU/TotalRVU</td>
<td>55.1</td>
<td>49.7</td>
<td>53.2</td>
<td>q = 8.17</td>
<td>q = 5.02</td>
<td>q = 4.21</td>
</tr>
<tr>
<td>(0.99)</td>
<td>(0.69)</td>
<td>(0.95)</td>
<td></td>
<td>P = .01</td>
<td>P &lt; .01</td>
<td>NS</td>
</tr>
<tr>
<td>MRVU/TotalRVU</td>
<td>4.5</td>
<td>7.8</td>
<td>7.6</td>
<td>q = 10.89</td>
<td>q = 1.22</td>
<td>q = 8.12</td>
</tr>
<tr>
<td>(0.36)</td>
<td>(0.16)</td>
<td>(0.64)</td>
<td></td>
<td>P &lt; .01</td>
<td>NS</td>
<td>P &lt; .01</td>
</tr>
<tr>
<td>WRVU/TotalRVU-(MRVU)</td>
<td>57.5</td>
<td>54.0</td>
<td>57.5</td>
<td>q = 6.06</td>
<td>q = 5.25</td>
<td>q = 0.41</td>
</tr>
<tr>
<td>(0.87)</td>
<td>(0.70)</td>
<td>(0.87)</td>
<td></td>
<td>P &lt; .01</td>
<td>NS</td>
<td>P &lt; .01</td>
</tr>
<tr>
<td>TotalRVU/McGraw-Hill RVU</td>
<td>207.1</td>
<td>139.8</td>
<td>181.0</td>
<td>q = 8.73</td>
<td>q = 5.04</td>
<td>q = 3.04</td>
</tr>
<tr>
<td>(12.18)</td>
<td>(4.06)</td>
<td>(9.44)</td>
<td></td>
<td>P &lt; .01</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>VtCalc$/McGraw-Hill RVU</td>
<td>67.3</td>
<td>44.3</td>
<td>57.5</td>
<td>q = 9.32</td>
<td>q = 4.99</td>
<td>q = 3.60</td>
</tr>
<tr>
<td>(4.0)</td>
<td>(1.31)</td>
<td>(2.71)</td>
<td></td>
<td>P &lt; .01</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

| WRVU = work component of resource-based relative value unit; TotalRVU = total relative value unit; NS = not significant; MRVU = malpractice component of resource-based relative value unit; McGraw-Hill RVU = McGraw-Hill relative value unit; VtCalc$ = calculated reimbursement in dollars for Vermont (locality 50) from resource-based relative value units. Data are presented as mean (standard error of the mean). Urology services, n = 125; obstetric and gynecologic services, n = 219; general surgical services, n = 105. Comparisons made by analysis of variance and Newman-Keuls test for multiple comparisons (q statistic).

### References


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