

Running Head: RVUs and Provider Productivity

A Study of the Relative Value Unit as a Practice

Management Tool for Provider Productivity

A Graduate Management Project

Submitted to the Faculty of

U.S. Army-Baylor University

by

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Abstract

The Military Health System (MHS) currently uses work relative value units (RVU) to measure productivity of its providers. This nationally standardized scale is used by Medicare and many other third party payers and is a common source for work RVUs. The work RVU is intended to reflect the time to perform a service, technical skill and mental effort of a provider. This productivity measure is included in the Defense Health Program's (DHP) performance plan between the Deputy Secretary of Defense and the Assistant Secretary of Defense, Health Affairs (ASD(HA)) along with the Army, Navy and Air Force Assistant Secretaries for Manpower and Reserve Affairs. It is one of many measures that articulate the expectations for the performance of DHP.

This study was intended to explain how the RVU is calculated, and how it is used as a tool for evaluating provider productivity. The MHS calculates provider productivity per day by individual medical treatment facility (MTF). This study calculated productivity by individual provider for the entire Heidelberg Medical Activity (MEDDAC). This process uncovered data quality issues and allowed providers to evaluate their own performance. Additionally, this study revealed that though this measure is reliable, its validity is very dependent on coding accuracy and availability accuracy. It also revealed that a true benchmark of productivity should not be established until the administration processes are in place and streamlined to lessen the burden on the providers.

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A Study of the Relative Value Unit as a Practice Management Tool for Provider Productivity

Introduction

On January 1, 1992 the U. S. government implemented federal resource-based relative value scales (RBRVS) for the payment of physicians. The RBRVS method uses relative value units (RVUs) to measure work involved in performing a clinical service, the expense involved in delivering the service and malpractice risk associated costs of performing the service (Davidson, 2000). The RBRVS fee schedule is designed to “level the playing field,” or distribute Medicare payments more equitably among physicians by reducing specialty and geographical variances (Broughton and Rogers, 1993). It is an attempt to control Medicare payments by compensating providers based on the resource intensity of their services. Providers are compensated based on the amount of work they provide.

RVUs are nonmonetary relative units of measure assigned to medical common procedural terminology (CPT) codes copyrighted by the American Medical Association (AMA). These units are objective, standardized indicators of the value of services and measure relative differences in resources consumed. RVUs assign relative values or weights to medical procedures primarily for the purpose of reimbursement of services performed, but also for productivity measurements, cost analysis and benchmarking (Anderson and Glass, 2002a).

Prior to the introduction of RVUs, medical groups had no quantitative means for tracking provider productivity except for counting procedures performed and patients seen. Encounters are defined as a documented, face-to-face contact between a patient and provider who exercises independent judgment in the provision of services to the individual. RVUs greatly expanded the possibilities to allow for case complexity and mix analysis, staffing and workload analysis,

procedure cost analysis, productivity-based compensation models and more (Anderson and Glass, 2002a).

Coding is very important in RVU analysis. If medical services and procedures are inaccurately or inappropriately coded, then RVU analysis will reflect dramatically skewed results (Anderson and Glass, 2002b). RVUs do not capture financial data. RVUs reflect a provider's productivity in non-financial terms. As long as the coding is accurate, the RVUs will capture, not only an individual provider's clinical productivity but also resource consumption (Anderson and Glass, 2002b).

The RVU was initially developed by the Centers for Medicare and Medicaid Services (CMS) as a payment mechanism for civilian providers; however, the MHS uses the methodology as a measure of patient complexity and physician productivity. Currently, the MHS only calculates and tracks the RVUs per day for primary care providers. The method for computing provider productivity using the RVU measure is currently outlined in the MHS Initial Metric Handbook and the Defense Health Program (DHP) performance plan. The calculating the RVU measure was changed for fiscal year (FY) 2003 and will be explained in the literature review.

The Assistant Secretary of Defense for Health Affairs (ASD(HA)) is charged with the operation of the DHP and serves as principal advisor to the Secretary of Defense for medical and health affairs. The provision of health care consumes the vast bulk of the DHP's resources. Health care is provided in military treatment facilities (MTFs) operated by the Department of Defense (DoD); through TRICARE managed care support contracts; and in the form of other health care purchased by the DHP (principally care provided in the former public health hospitals, known as designated providers, and care purchased in civilian facilities for active-duty

personnel). These sources of care are collectively referred to as the Military Health System (MHS) (DHP Performance Plan, 2003).

The ASD(HA) must justify to Congress why the DHP receives about 19% of the Operations and Maintenance Funds of the Department of Defense. About 35% of these funds are for contract care. The MHS optimization project calls for increasing MTF and provider productivity in order to recapture some of these contract dollars. Therefore, this productivity measure is included in the DHP performance plan between the ASD(HA) and the Deputy Secretary of Defense. The purpose of the plan is to articulate the expectations of the DHP. The Army Medical Command (MEDCOM) and each Regional Medical Command (RMC) track this measure. It is included on the MHS Balanced Scorecard (BSC) as an efficiency measure. The Surgeon General of the Army, LTG James Peake, has included the measure as part of his trip book that is developed when he visits a RMC.

Conditions Which Prompted the Study

Currently, MEDCOM tracks primary care provider productivity by RVUs per provider per day using the method outlined in the MHS metric handbook and the DHP performance plan. MEDCOM tracks the information by MTF, and not by provider. The Europe Medical Regional Command (ERMC) is now tracking RVUs by MTF to include outlying clinics and individual providers. The Army's benchmark for FY 2002 was 14.5 RVUs per provider per day (MHS Handbook, 2002). The benchmark for FY 2003 has been raised to 15.4 RVUs per provider per day due to the change in calculating the measure.

The Heidelberg Medical Department Activity (MEDDAC) consists of the main hospital in Heidelberg, Germany and outlying clinics in Friedberg, Babenhausen, Butzbach, Buedingen, Darmstadt, Hanau, Stuttgart and two clinics in Mannheim, Coleman and Mannheim Clinics.

During FY 2002, the MEDDAC exceeded the benchmark as a sum total, but some outlying clinics and providers are below the benchmark. The MEDDAC providers are concerned with how RVUs are calculated, and what decisions will be made in the future with the data collected. Currently, there are no coders for the outlying clinics and they serve 73% of the population within the MEDDAC's area of responsibility. Coders are being sought, but until any are hired, the providers in the outlying clinics must code their own visits or encounters. Coders assigned to the primary care clinics at the main hospital began coding in October 2002, beginning of FY 2003. They currently code internal medicine, pediatrics, family practice, and ambulatory care. Providers still code the flight medicine and medical exam clinics. The command wants to facilitate learning and provider awareness in regards to provider productivity, coding and documentation. The data quality teams also review these activities as part of the Army's Data Quality Management Control Program (DQMCP). The command also wants to meet or exceed the RVU benchmark within ERMC and MEDCOM.

Statement of the Problem

How is the RVU calculated by the MHS? Is it a useful tool in evaluating physician productivity? How can Heidelberg MEDDAC improve its business practices to accurately capture the provider workload and improve its data quality? What decisions will be made by the RMC, MEDCOM and ASD/(HA) using RVU data?

Literature Review

The RVU, originally developed as a provider payment mechanism, has expanded into much more since its inception in 1992. It has grown into a valuable practice management tool that allows common denominator analysis and per unit comparisons for both clinical productivity and expense data (Anderson and Glass, 2002a).

Before the development of RBRVS, the universally accepted method of reimbursement was based upon “customary, prevailing and reasonable” (CPR) charges (AMA, 2000). The geographic variability and the fiscal constraints imposed by Medicare caused a variation in charges and payments in the 70’s and 80’s. Providers and health plans became dissatisfied with the CPR system.

In 1986, Congress created the Physician Payment Review Commission (PPRC) to recommend how physician payment for Medicare beneficiaries might be reformed. The PPRC recommended a resource-based fee schedule. The Health Care Financing Administration (HCFA), now known as the Centers for Medicare and Medicaid (CMS) contracted with William Hsiao, Ph. D. and his colleagues at the Harvard School of Public Health, with a subcontract to the AMA, to build a resource-based relative value system that would have many of the attributes identified by the PPRC (McMahon, 1990). The RBRVS has since become the industry standard for physician compensation.

RBRVS comprises the CPT-4 codes, descriptions, and the RVUs associated with each code. The purpose of the CPT code is to provide a uniform language that accurately describes medical, surgical, and diagnostic services, and thereby serves as an effective means for reliable nationwide communication among physicians, patients, and third parties (Davidson, 2000). Some CPT codes are called Evaluation and Management (E&M) codes. They represent that portion of a healthcare encounter that is not a procedure. They are designed to classify services provided by a privileged provider and are used primarily in the outpatient setting. They are referred to as an E&M instead of as a CPT in order to distinguish the difference between evaluation/management services and procedural coding (PASBA, 2002). The RBRVS is not

copyrighted because its source is a federal government agency and so it is in the public domain (Anderson and Glass, 2002a).

The RBRVS has its limitations because it does not consider health care outcomes, quality of care or demand for services. RVUs do not take into consideration practice efficiencies. Also, not all codes have RVUs assigned to them, which makes it more difficult to place a standardized value on those procedures or services (Anderson and Glass, 2002a). As stated before, proper coding is the key to RVU accuracy. Properly documenting all work performed during the encounter will ensure coding accuracy and it will help avoid fraud.

The RBRVS is broken into three components: physician work, practice expense and malpractice expense. Physician work involves time, technical skill, physical strength, mental effort, physician stress and total work. Practice expenses involve rent, support staff, and supplies, which vary by the physician's gross revenue, mix of services, and practice location. Malpractice expense is the degree of risk for performing a procedure and varies by specialty (Donnelly, 1993).

On average, the RVU work component accounts for 54% of the total RVU for the medical procedure, practice expense averages 41% and the malpractice expense the remaining 5% (Anderson and Glass, 2002a). The addition of the three components yields the total RVU for a particular CPT code.

The MHS does not include the practice expense and the malpractice expense components when calculating the RVU for a particular code. The MHS has modified the CMS RVU map in order to better capture provider workload. For FY 2002, the MHS metric is the number of work relative value unit adjusted visits per Full-time Equivalent (FTE) provider per 8-hour day in military primary care clinics (DHP Metric Handbook, 2002). The MHS identifies primary care

by the Military Expense and Performance Reporting System (MEPRS) code for a given clinic. The following clinics are considered Primary Care for this metric: Internal Medicine Clinic (BAA), Pediatrics Clinics (BDA), Adolescent Clinic (BDB), Well Baby Clinic (BDC), Pediatric Clinics Cost Pool (BDX), Family Practice Clinic (BGA), FP Clinic Cost Pool (BGX), Primary Care Clinics (BHA), Medical Examination Clinic (BHB), Immediate Care Clinic (BHI), Primary Care Clinics Cost Pool (BHX), Primary Care Clinics NEC (BHZ), Flight Medicine Clinic (BJA), Flight Medicine Care Cost Pool (BJX), and Undersea Medicine Clinic (BKA). Available provider FTEs are based on Skill Types 1-Clinicians and 2-Direct Care Professional for these clinics and exclude Clinician Skill Subtypes N-Interns and R-Residents.

The adjusted RVU is being used to measure the complexity of care, and not just the count of visits. Adjusted RVUs are calculated by giving full weight to the highest procedure or Evaluation and Management (E&M) code on the completed standard ambulatory data record (SADR); all additional procedures or E&M codes done at that encounter are then given 50% of CMS stated work weight (DHP Metric Handbook, 2002).

For FY 2003, the simple RVU will be used instead of the adjusted RVU. The simple RVU is the summation of all codes in an encounter with no adjustment. The ASD(HA) changed the metric from adjusted to simple in order to compare the direct care workload to purchased care workload. Simple RVUs for purchased care was recently added to the data repository. The benchmark was raised from 14.5 to 15.4 RVUs per provider per day. Additionally, Nurse Practitioners (NPs) and Physician's Assistants (PAs) are considered .75 FTE in the calculation.

The RVU data are retrieved from the MHS Management Analysis and Reporting Tool (M2), formerly called the ARS Bridge. Available FTE data are retrieved from the Expense Assignment System (EAS) IV. The EAS IV number represents the sum of monthly FTEs, and

already accounts for the Yearly FTE * 12 months. Therefore, the equation for determining RVUs per provider per day is (Yearly Total Relative Value Unit Adjusted visits/ ((Available FTEs * 168)/8)). The DHP Metric Handbook states that there are 168 available hours per month (21 days * 8 hours per day). An example of the calculation is shown in Table 1.

Table 1

How to Calculate RVUs per Provider per Day

MTF	Adjusted RVUs per Month	Available FTE per Month	Calculation	RVUs per provider per day
X	3229	9.95	$3229/((9.95*168)/8)$	15.5
Y	933	5.05	$933/((5.05*168)/8)$	8.8
Z	1930	8.94	$1930/((8.94*168)/8)$	10.3

Table 1 depicts the RVUs per provider per day for the entire MTF. The EAS IV does not provide the available FTE for each individual provider. For instance, one provider may be doing the majority of the workload while the others lag behind, however; the MTF is meeting the standard overall. The individual available FTE information must be retrieved from the local Uniform Chart of Accounts Personnel (UCAPERS) in order for a MTF to drill down to the individual provider. This reveals to the provider what they are actually producing per day.

The RVU calculation is very dependent on coding accuracy as stated before. Coding is done within the Ambulatory Data Module (ADM) in the Composite Health Care System (CHCS). The ADM is an update of the Ambulatory Data System (ADS). Its use began on 1 October 2002.

Once the RVUs are calculated, the next logical question is “So what?” RVU analysis is a practice management tool. Analysis provides administrators and providers with an objective means for assessing office volume and staffing needs, reviewing composition of top volume codes to determine changes in practice trends and treatment protocols, performing market-based

comparisons, monitoring provider performance, and providing feedback on improving efficiency and productivity (Anderson and Glass, 2002b). RVU analysis is a far more reliable tool because physicians can no longer assert that their patients are sicker because the RVU adjusts for complexity.

Anderson and Glass (2002a) state that RVU analysis falls into three broad categories: productivity, cost, and benchmarking. Provider productivity is now measured in non-financial terms because RVUs are linked to coding and not to a dollar value. Cost analysis is a growing trend among practices because administrators can determine ways to manage the cost of providing services, set more realistic fee schedules and negotiate better contracts (Berlin and Faber, 1997). Providers and group practices can now compare themselves to others using RVU benchmarking.

It is important to note that RVU analysis should not be used as a sole indicator of provider productivity. This analysis alone will not yield enough evidence to evaluate a provider's productivity. Case intensity and trends in patient population can be measured using a combination of encounters, RVUs, and procedures per patients (Anderson and Glass, 2002b). The RVU work component is by far the best tool for measuring a provider's effort and degree of decision-making required for performing a procedure.

Purpose

The purpose of this study is to investigate the utility of the RVU as a practice management tool. The study hopes to identify possible data quality issues and to recommend possible solutions and better business practices. Additionally, this study hopes to improve provider knowledge and education at the Heidelberg MEDDAC and to add to the body of knowledge in RVU studies.

Methods and Procedures

The RVU data were retrieved from the M2 system, and the FTE data were retrieved from EAS IV. Since EAS IV did not provide individual provider availability, data were retrieved from the local UCAPERS showing provider availability. Total number of visits per provider was also retrieved in order to determine RVUs per visit (Table 6). The productivity measure for the entire MEDDAC metric was calculated using the method outlined in the metric handbook. A spreadsheet was generated showing RVUs per provider per day by MEPR and clinic (Tables 2 and 3). Another spreadsheet was created drilling down to the individual provider (Appendix A and Table 4). Individual provider names and identification will not be shown. Again, only primary care will be captured by the proper MEPRS code. The CHCS was also used to verify credentialed primary care providers and MEPRS codes. All nine outlying clinics and the hospital's primary care clinics were analyzed.

The patient care stream was followed in order to better understand the process and procedures that generate the RVU and UCAPERS data in order to determine possible lapses in data quality. Also, the data stream was followed through the several automated systems to determine validity and reliability of the data. The RVU process is very dependent on coding and data entry into UCAPERS.

Providers were interviewed in order to capture their thoughts and ideas on how to improve the system and to better educate all personnel involved in this process. The RVU process also included several other areas like Patient Administration Division (PAD) and Managed Care.

Results

After the data were retrieved from M2 and UCAPERS, a spreadsheet was generated showing the RVUs per day per 3-digit MEPR as outlined by the DHP Metric Handbook. All FY 2002 data were pulled in November 2002. Table 2 displays RVUs per day per 3-digit MEPR code for the entire MEDDAC. It also reveals that Heidelberg MEDDAC met the benchmark of 14.5 adjusted RVUs per day per provider for FY 2002 using adjusted RVUs. Some clinics did not meet the benchmark, while others have exceeded it. Some provider's availability was credited to the cost pools while their workload went to the appropriate clinic, thus the zero RVUs for the cost pools. Appendix B gives a more detailed breakdown by MEPR code. First quarter, FY 2003 data revealed no availability was credited to any of the cost pools, see Table 5.

Table 2

RVUs per Provider per Day by 3-Digit MEPR, FY 2002

MEPR	FTE	RVUs	RVUs/Prov/Day
BAA (Internal Medicine)	21.26	6575.7	14.7
BDA (Pediatrics)	50.26	15261.6	14.5
BDB (Teen Clinic)	4.38	1513.2	16.5
BDC (Well Baby)	6.95	2273.5	15.6
BDX (Cost Pool)	-	-	-
BGA (Family Practice)	168.83	52705.9	14.9
BGX (Cost Pool)	0.36	-	-
BHA (Ambulatory Care)	200.16	72120.6	17.2
BHB (Medical Exams)	9.56	2625.4	13.1
BHX (Cost Pool)	21.53	-	0.0
BJA (Flight Medicine)	5.49	1136	9.9
Total	488.78	154211.9	15.0

The fourth digit of the MEPR code identifies Heidelberg's outlying clinics and each Heidelberg clinic. So Table 3 was generated in order for the clinic commanders and service chiefs to see how well their clinics performed in FY 2002. Heidelberg MEDDAC did very well

in meeting the benchmark of 15.4 RVUs per provider per day. Only five clinics did not meet the benchmark.

Table 3

RVUs per Provider per Day by Clinic, FY 2002

Clinic	RVUs/Prov/Day
Hanau	20
Coleman	19.4
Stuttgart	16.9
Buedingen	16.3
Mannheim	15.8
Pediatrics (Heidelberg)	15.3
Darmstadt	15.2
Butzbach	14.8
Internal Medicine (Heidelberg)	14.7
Babenhausen	13.8
Ambulatory Care (Heidelberg)	12.8
Freidberg	11.9
Family Practice (Heidelberg)	10.3
Flight Medicine (Heidelberg)	8.5

Table 4 is a sample of the spreadsheet displaying each provider's RVUs per day. This allows each service chief and each outlying clinic commander to see how productive each provider was in their clinic. Each service chief and clinic commander was given their respective spreadsheet displaying their providers RVUs per day.

Table 4

Sample Spreadsheet of RVUs per Provider per Day, FY 2002

Provider	October 01			November 01			December 01		
	FTE	RVU	RVU/Prov/Day	FTE	RVU	RVU/Prov/Day	FTE	RVU	RVU/Prov/Day
A	0.80	259.7	15.4	0.57	182.5	15.2	0.67	259.8	18.5
B	-	46.2	-	-	56.2	-	-	76.2	-
C	0.93	89.0	4.6	0.84	95.4	5.4	0.59	50.8	4.1
D	0.63	195.6	14.8	0.35	99	13.7	0.40	122.4	14.6
E	0.46	170.5	17.7	0.61	183.3	14.3	0.48	157.7	15.6
F	0.77	276.8	17.1	0.49	202.7	19.7	0.49	151.2	14.7
G	0.81	119.7	7.0	0.65	162.5	11.9	0.05	72.2	68.8
H	-	88.9	-	-	122	-	0.67	306	21.7

Several data quality issues were revealed when creating this spreadsheet. Some providers had no availability recorded in clinics where they had workload. In Table 4, Provider B and H both had missing availability data. Research had determined that Provider B was a PA assigned to another MEPR code, but had worked in Internal Medicine. In this case, this individual did not loan time to internal medicine on their clinician worksheet. Provider H was a reservist who had not been enrolled in UCAPERS until two months after he started working. There were not a lot of providers missing data, however, the majority of the providers missing FTE data were reservists, borrowed military manpower, volunteers and contractors. There is still a requirement to track all these providers in UCAPERS. Tracking RVUs by MEPR would not reveal these errors. Some of these issues could not be fixed, because some providers had already departed. When errors were uncovered, the sections concerned were notified. These sections fixed what they could and began to review their processes in order to improve their data quality.

When investigating the very high and very low performers, it was discovered that some clinicians had either under reported their time or over reported their time in clinic. Provider G in Table 2 had reported only working eight hours during the month of December, however, his

workload revealed he had 111 encounters. In another instance, a provider had reported that he was a 1.42 FTE in clinic one month with only 140 visits. Research revealed that he incorrectly reported his call hours as clinic time. This particular provider had only worked in family practice for only one month and needed additional training on how to fill out his UCAPERS worksheet. It is very important for supervisors to verify each subordinate's worksheets. The resource management department at Heidelberg is very aggressive in scrutinizing clinician worksheets, but the supervisors and commanders are responsible for verifying UCAPERS worksheets.

Service chiefs were some of the low performers. It was discovered that the service chiefs of internal medicine, family practice and pediatrics were disadvantaged during FY 2002. They were not allowed an administrative code, an E code, on their worksheet in order to account for their administrative time as chief. This time was added back into their clinic time thus skewing their availability. Since availability is the denominator in the productivity equation, their RVUs per day went down and they were perceived as less productive. Service chiefs were given an administrative code starting 1st quarter, FY 2003. In 2nd quarter, FY 2003, all providers were given an administrative code. This will better reflect a provider's time in clinic. There was a significant improvement in each service chiefs RVUs per day for 1st quarter. Comparing simple RVUs from 4th quarter to 1st quarter, the pediatric chief improved from 9 RVUs per day to 17 RVUs per day and the family practice chief improved from 7 RVUs per day to 13 RVUs per day. The internal medicine chief was deployed and a new chief was appointed, so no comparison could be made.

Table 5 displays the RVUs per day per 3-digit MEPR for first quarter FY 2003. Simple RVUs were used for FY 2003 calculations as stated before. First quarter data were pulled in February 2003.

Table 5

RVUs per Provider per Day per 3-digit MEPR, 1st Qtr, FY 2003

MEPR	FTE	RVU	RVU/Prov/Day
BAA (Internal Medicine)	6.55	990.86	7.2
BDA (Pediatrics)	16.38	4058.8	11.8
BDB (Teen Clinic)	1.6	349.97	10.4
BDC (Well Baby)	1.86	548.96	14.1
BGA (Family Practice)	45.38	13483	14.1
BHA (Ambulatory Care)	56.95	16767	14.0
BHB (Medical Exams)	3.91	739.29	9.0
BJA (Flight Medicine)	0.76	150.66	9.4
Total	133.39	37088.54	13.2

The data show that RVUs per provider per day decreased for 1st quarter. None of the clinics made the FY 2003 benchmark of 15.4 RVUs per day. It was expected that these numbers would increase due to the change to simple RVUs; providers would get full value for all codes. An ad hoc in CHCS researching the top E&M codes uncovered a drop in the use of the higher valued E&M codes and increase use of the lower valued codes, Appendix C. Coding compliance improved in the Heidelberg clinics since the hiring of outpatient coders. Providers in these clinics did not have to code their own encounters. The most common used E&M, 99213, produced 0.67 RVUs. Its use declined from 35% of all encounters in September 2001 to 29% in December 2001. There was an increase in use of the lower valued code, 99212 (0.45 RVUs), from 9% to 14% of all encounters. The highest valued code, 99205 (2.0 RVUs), went from being used on 3% of all encounters in September to not being used at all in November and December. The coders did not begin to code for the providers until October 2002. One

conclusion is that providers doing their own coding chose the higher code and since this task was taken from them, their documentation only supported the lower code.

The drop in visits per provider per day was another possible reason for the decrease in RVUs during 1st quarter. Fourth quarter, FY 2002, statistics revealed that the family practice clinics, to include the outlying clinics, averaged 20.8 visits per provider with an average simple RVU per visit of 0.75. This yielded 15.6 RVUs per provider per day. During 1st quarter, FY 2003, Heidelberg's family practice clinics produced 0.79 simple RVUs per visit and averaged 17.9 visits per day per provider. This yielded 14.1 RVUs per provider per day. The acuity stayed about the same, but it was the volume that made the difference.

Another useful measure is RVUs per visit. Table 6 is a sample of spreadsheet generated for each clinic commander and service chief in order to determine how many RVUs each provider produced per visit. Some providers in the same clinic were able to generate more per visit than some of their colleagues.

Table 6

RVUs per Visit by Provider 1st Quarter, FY 2003

Provider	Clinic	Total Visits	RVUs	RVU/Visit
A	Family Practice	654	838	1.28
B	Family Practice	782	669	0.86
C	Family Practice	480	337.18	0.70
D	Pediatrics	542	353.34	0.65
E	Pediatrics	278	153.96	0.55
F	Internal Medicine	344	180.72	0.53
G	Internal Medicine	466	443.38	0.95
H	Physical Exams	181	31.45	0.17
I	Physical Exams	33	36.3	1.10

Provider A and Provider B worked in the same exact clinic, but Provider A produced more RVUs than Provider B. Both these providers worked in an outlying clinic and both were

required to code their own encounters. It was revealed that Provider A coded all encounters with the same E&M code, 99214 (1.10 RVUs). This becomes a coding compliance issue if the supporting documentation does not support a code of 99214. Provider C, working in Heidelberg, had their encounters coded by an outpatient coder.

Investigation into medical exams uncovered an issue with default E&M codes in the ADM of CHCS. Provider H had accepted the default code of 99211 for all his medical exams. The code 99211 is to be used by non-privileged providers (ADM Coding Guidelines, 2002). The code 99211 carries a relative value of 0.17. Further investigation revealed that several different outlying clinics had different default codes for their medical exam sections (BHB). Coding for medical exams conducted on soldiers as part of their five year physical is based upon their age. The outpatient coders recommend code 99395 (1.36 RVUs) for established patients between the ages of 18-39 years. The code is for periodic comprehensive preventive medicine evaluation and management. Providers need to be more aware of the default E&M and one recommendation is to remove it completely.

Discussion

The RVU productivity measure is defined consistently within the system, so every provider understands productivity the same way. It is a step forward in measuring the true “work” of a provider as compared to just raw visits or encounters. The method of calculating the RVU productivity measure is straightforward and rather simple as defined by the DHP plan. Calculating productivity by MEPR will provide an overall view of productivity, but generating a by name list provides more detail and allows for quick identification of data quality issues as seen in Table 4. It also provides the supervisors a management tool in which to identify outliers. Further investigating the outliers can lead to identifying process issues. Now that providers

understand the RVU measure, they are more vigilant in their documentation and coding. They want better data quality and better results. Clinic supervisors and outlying commanders at Heidelberg have already begun to review their processes in regards to clinician worksheets, documentation and coding accuracy. Documenting the encounter correctly is the most important aspect of this measure. Everything starts with good documentation.

One limitation of using RVUs is their dependence on accurate coding. The providers are concerned that the MHS began measuring productivity before support systems, like coders and coding training, could be put in place. Providers who don't code accurately don't reflect their actual work. RVUs are closely tied to coding, appropriate coding is key to the provision of good data used in any analysis (Glass, 2002). As stated before, the validity of the results is dependent on coding and proper availability tracking. Heidelberg's CPT coding accuracy has improved since 4th quarter, FY 2002. However, it is still below the standard in E&M coding accuracy. Coding accuracy must improve in order to get a better picture of provider productivity. Coders are still needed for the outlying clinics where a majority of the population is served. Recent data from several studies suggest that physicians code inaccurately (King, Lipinsky and Sharp, 2002). King et al (2002) even found that credentialed coders often disagreed on proper E&M coding, which suggests that coding guidelines may not provide enough guidance. Errors may be unavoidable.

One disagreement was found in the coding of the medical evaluation board (MEB) physical. Some providers were using the code 99455, work related or medical disability evaluation, to code the MEB physical. This code has no relative value. Other providers used 99395, periodic comprehensive preventive service, which carries a value of 1.36. Others just appointed the physical as a routine visit, 99212 or 99213. The issue was presented to many

coders to include subject matter experts at OTSG. At this time, the issue is still not resolved as to which code is correct.

The other component to this measure is the availability of the provider. An advantage that the MHS has over the civilian sector is a standardized definition of what composes a FTE. Though it is argued that 168 hours a month is flawed, it is at least standard throughout the system. Providers must accurately complete their UCAPERS worksheet. As stated before in the results, inaccurate availability reporting could be detrimental to the validity of the results. Providers can be perceived as unproductive by corrupted availability data. The resource management office has given additional training on how to complete their worksheets along with all the necessary codes to account for time away from the clinic. This is more important now, because of the increase in pre-deployment activities; smallpox and anthrax screenings; and military training. These events take the military provider out of the clinic. Combining RVUs with measures of time allow for measurement of efficiency. However, productivity and efficiency are distinct from quality and service. Outcomes are not a factor in this measure. These are other limitations of the RVU measure.

Investigating the providers with no availability identified a process problem in UCAPERS reporting. Supervisors must be aware that all privileged providers regardless of status, i.e. reservist, borrowed manpower or volunteer, must be tracked in UCAPERS. Privileged providers must be credentialed and on file with the credentialing office. The credentialing office now provides a list of all privileged providers to the UCAPERS technicians for a cross check. Providers assigned to other sections and see patients must properly loan their time.

Investigation into the drop in RVUs per provider per day during 1st quarter revealed three possible reasons. The drop in the use of the higher valued codes due to lack of documentation, the drop in patient volume and possible corrupt availability data. Supervisors and clinic commanders can directly affect better documentation and accurate clinician worksheets. The providers who know they work hard want to see their work reflected in the data. Now that they are better informed they are more diligent in their documentation and availability reporting.

The MHS is a data informed enterprise. Credibility comes with better data quality. The Officer Distribution Plan (ODP) uses RVU data to determine staffing levels. This data may be included in business case analyses and venture capital initiatives to justify additional resources. Itemized billing is also dependent on coding. Inaccurate coding and poor documentation may lead to bills being denied by insurance carriers. MHS providers must realize that good documentation and coding are the keys to current civilian reimbursement models. Having good habits now will lead to an easier transition into the civilian sector later.

Conclusion and Recommendations

All facilities should conduct an RVU analysis at their facility. Retrieving data by individual provider will reveal data quality issues and could lead to some insight into improving internal processes. Provider education is paramount. Since productivity and compensation are not linked, it may seem that the RVU measure makes little sense. Getting providers to fully grasp this measure is even more of a challenge. They must understand that good documentation, good coding and accurate UCAPERS worksheets lead to clean data that truly captures their work. It also brings credibility to our system.

Benchmarking this measure may be premature. Support systems still need to be in place and additional education needs to be completed. The system must allow for improvement in

productivity. If the goals are too high or the support functions are inadequate, then the desired effect may not be present. RVUs may not be a perfect measure, but it is more useful than traditional measures. This measure also serves a function in administrative decision-making. One function is workload management. Related to that are functions of resource allocation and cost accounting.

The RVU measure of productivity is the most common used method. It greatly expands the possibilities to allow for case complexity, and mix analysis, staffing and workload analysis, procedure cost analysis and more (Glass, 2002). However, it still has its limitations. Validity is dependent on coding and availability accuracy. It is not tied to compensation, so provider motivation may be lacking. It should not be used as a sole indicator of provider productivity. Use several key practice management indicators in combination to give a complete picture (Glass, 2002). Facilities that conduct an RVU analysis by provider will greatly benefit. This analysis gives insight into data quality issues as well as provides feedback to providers.

Appendix A: Sample Spreadsheet of RVUs per Provider per Day FY 2002

Provider	July 02			August 02			September 02		
	FTE	RVU	RVU/prov/day	FTE	RVU	RVU/prov/day	FTE	RVU	RVU/prov/day
A	1	577	27.5	0.52	377	34.5	0.52	318.4	29.2
B	0.17	55.2	15.5						
C	1	593.1	28.2	0.95	482.7	24.2	0.91	389.7	20.4
D	0.58	24.2	2.0	0.98	230.1	11.2	0.85	203.7	11.4
E	-	101.8		0.19	43.8	11.0			
F	0.48	166.8	16.5	0.33	101.6	14.7	0.21	76.5	17.3
G				-	208.6		-	421.7	
H	0.95	246.5	12.4	0.38	95.8	12.0	0.04	16.8	20.0
I	0.36	151.8	20.1	0.49	202.5	19.7	0.77	305.6	18.9
J	-	88.6		-	122				
K	0.73	176.3	11.5	0.73	135.8	8.9	0.88	207.1	11.2

Note. Provider E and G were a reservists.

Provider J was a contractor before being assigned to Heidelberg.

Appendix B: Heidelberg MEDDAC RVUs per Provider per Day by MEPR, FY 2002

MEPRS	FTE	RVU	RVU/PROV	MEPRS	FTE	RVU	RVU/PROV
BAAA	20.99	6543	14.8	BGAL	5.48	2371.1	20.6
BAA0	0.17	22.9	6.4	BHAL	7.3	1991	13.0
BAAG	0.09	9.2	4.9	BHBL	0.03	12.7	20.2
Int Med	21.25	6575.1	14.7	Buedingen	12.81	4374.8	16.3
BDAA	26.53	8174.9	14.7	BGAT	4.22	2080	23.5
BDA0	0.13	22.9	8.4	BHAT	3.93	1289.8	15.6
BDA5	0.6	103.6	8.2	BJAT	0.16	18	5.4
BDAB	1.05	0	0	Coleman	8.31	3387.8	19.4
BDAE	14.29	5229.8	17.4	BGAU	16.93	5139.4	14.5
BDBA	4.38	1513.2	16.5	BHAU	25.92	11749.9	21.6
BDCA	6.95	2273.5	15.6	BHBU	0.8	129.6	7.7
Peds	53.93	17317.9	15.3	BJAU	0.65	287.3	21.0
BGAA	56.24	10738	9.1	BHXU	4.48	-	-
BGA0	0.14	24.6	8.4	Stuttgart	48.78	17306.2	16.9
BGAE	12.63	4306.5	16.2	BDAX	5.86	1305.8	10.6
BGXA	0.36	-	-	BGAX	20.71	6638.3	15.3
Family Practice	69.37	15069.1	10.3	BHAX	25.38	14065.1	26.4
BHAA	18.38	3102.3	8.0	BHBX	1	361	17.2
BHAE	31.51	10857.8	16.4	BHXX	0.19	-	-
BHBA	4.18	575.8	6.6	Hanau	53.14	22370.2	20.0
Amb Care	54.07	14535.9	12.8	BGAO	13.93	4076.2	13.9
BJAA	4.67	830.1	8.5	BHAO	15.36	4986.7	15.5
Flight				BHBO	0.4	136.8	16.3
BDAR	1.85	424.6	10.9	Butzbach	29.69	9199.7	14.8
BGAR	12.39	6328.9	24.3	BGAK	18.52	6119.4	15.7
BHAR	32.28	13859.7	20.4	BHAK	20.73	6311.7	14.5
BHBR	1.1	733.1	31.7	BHBK	0.81	389.6	22.9
BJAR	0.01	0.7	3.3	Darmstadt	40.06	12820.7	15.2
BHXR	16.58	-	-	BAA	21.26	6575.7	14.7
Mannheim	64.21	21347	15.8	BDA	50.26	15261.6	14.5
BGAZ	6.33	2031.6	15.3	BDB	4.38	1513.2	16.5
BHAZ	9.83	2032.9	9.8	BDC	6.95	2273.5	15.6
BHBZ	0.13	20.9	7.7	BGA	168.83	52705.9	14.9
Freidberg	16.29	4085.4	11.9	BGX	0.36	-	-
BGAP	6.95	2851.2	19.5	BHA	200.16	72120.6	17.2
BHAP	9.53	1874.3	9.4	BHB	9.56	2625.4	13.1
BHBP	0.26	117.7	21.6	BHX	21.53	-	-
Babenhausen	16.74	4843.2	13.8	BJA	5.49	1136	9.9
				HMEDDAC	488.78	154211.9	15.0

Appendix C: Top E&M Codes Used September 02 through December 02

Code	RVU	Description	Sep-02		Oct-02		Nov-02		Dec-02	
			Count	% of total						
99213	0.67	OUTPATIENT VISIT, EST	8,987	35%	9,291	33%	8,439	31%	7,859	29%
99211	0.17	OUTPATIENT VISIT, EST	4,884	19%	5,905	21%	6,629	24%	6,024	22%
99212	0.45	OUTPATIENT VISIT, EST	2,359	9%	3,429	12%	3,180	12%	3,740	14%
99214	1.1	OUTPATIENT VISIT, EST	2,813	11%	2,903	10%	2,182	8%	2,131	8%
99371	0.24	PHONE CONSULTATION	1,746	7%	1,845	7%	1,621	6%	1,613	6%
99203	1.34	OUTPATIENT VISIT, NEW	1,260	5%	1,622	6%	1,318	5%	1,068	4%
99202	0.88	OUTPATIENT VISIT, NEW	1,088	4%	996	4%	784	3%	903	3%
99372	0.61	PHONE CONSULTATION	756	3%	1,041	4%	709	3%	801	3%
99499	0	UNLISTED E&M SERVICE	0	0%	0	0%	1,247	5%	1,477	5%
99283	1.24	EMERGENCY DEPT VISIT	713	3%	549	2%	573	2%	0	0%
99204	2.0	OUTPATIENT VISIT, NEW	784	3%	746	3%	0	0%	0	0%
99411	0.15	PM COUNSELING, GROUP	0	0%	0	0%	0	0%	1,402	5%
99395	1.36	PM VISIT, EST, AGE 18-39	0	0%	0	0%	709	3%	0	0%
Total Count			25,390		28,327		27,391		27,018	

Note. Code 99211 is for use by non-privileged providers (ADM Coding Guidelines, 2002).

Code 99499 was not used prior to FY 2003, now it used mainly in the immunization clinic instead of 99211.

References

- American Medical Association. *Medicare RBRVS: The Physician's Guide*. Chicago, IL. 2000
Jan: 4-33.
- Anderson, J. and Glass, K. (2002). Relative Value Units: From A to Z (Part I of IV). Medical Practice Management, 17(5), 225-228.
- Anderson, J. and Glass, K. (2002). Relative Value Units and Productivity: Part 2 of 4. Medical Practice Management, 17(6), 285-290.
- Berlin, M. and Faber, B. (1997). RVU Costing Applications. Healthcare Financial Management, 51(11), 73-76.
- Broughton A. and Rogers M. (1993). Helping Physicians Cope with RBRVS. Hospital Topics, 71(4), 27-31.
- Davidson, Steven (2000). The Why's and How's of Relative Value Units. Emergency Medicine News, August, 6.
- Defense Health Program (DHP). (2002, March 13). *Handbook for the Initial MHS Standard Metric Set*.
- Donnelly, Joseph (1993). RBRVS as a financial assessment tool. Healthcare Financial Management, February, 47(2), 44-51.
- Glass, Kathryn (2002). Tracking RVU, Statistics to stand by. MGMA Connexion, January, 2(1), 50-53.
- King, M., Lipinsky, M. and Sharp L. (2002). E/M Coding Problems Plague Physicians, Coders. Journal of AHIMA, July-August, 73(7), 62-66.
- McMahon, Laurence F. Jr. (1990). A Critique of the Harvard Resource-Based Relative Value Scale. American Journal of Public Health, 80(7), 793-798.
- Patient Administration Systems and Biostatistics Activity (PASBA). (2002, 18 December). *Ambulatory Data Module (ADM) Coding Guidelines*. Retrieved April 3, 2003 from <http://www.pasba.amedd.army.mil/coding/CodingGuidelines021218.doc>

2003 Physician's Current Procedural Terminology, Professional Edition. American Medical Association.