

## **Section VII**

### **VA Unit Costs**

For the FY04 ELDA projections, VA unit cost data was supplied for FY 2002 based on CDR data sources. VA included all necessary budget items related to the delivery of health care services in order to calculate unit costs. These unit costs are intended to account for all health care related expenditures. Budget items specifically excluded from the unit costs include Station 101, Readjustment Counseling, CHAMPVA (direct only), Spina Bifida, Foreign Medical Payments, Children of Women Vietnam Veterans, Dental Care, and Non-Veterans. The resulting MBP expenditure projections can be directly compared to VA's budget projections.

Unit cost data from VA was available at the 5-digit (ambulatory) and 6-digit (inpatient) station level. Unit costs were aggregated to treating MCCV (Medical Center Closest within the VISN) facility detail for this analysis. Discussions of Facility level unit costs (preferred facility and treating facility) in this section refer to MCCV facility detail unless otherwise indicated. Analysis of the FY 2002 VA data produced VA unit costs specific to each treating facility. For each Market ID Area (market), unit costs were developed to reflect the treating facilities used by enrollees residing in that market. The market level unit costs were then assigned to the Sectors contained in each particular market.<sup>1</sup> The FY 2002 VA unit costs were then trended forward to the projection periods using the most appropriate trend factors available and are detailed in Section IX- Trend Rate Assumptions.

In addition to the unit cost data, VA supplied clinic stop and CPT code experience for every ambulatory visit within VHA for FY 2002, and complete bed section detail for all acute inpatient stays within VHA for FY 2002. Both the CDR cost reports and the utilization experience included Fee-Based Care that VHA purchases for veteran enrollees from the private sector.

VA unit costs were developed for all enrollees in each market. The aggregate unit costs were then compared to the aggregate Medicare Allowed average charges, as projected by the model, for all enrollees in the market. Unit costs for every market were then expressed as a percent of the Medicare Allowed average charge in that area. The methodology used to develop each type of VA unit cost is documented as follows.

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<sup>1</sup> The unit costs were not developed for each individual Sector for credibility reasons.

***Acute Inpatient Unit Costs***

The inpatient health care service categories available in the CDR-based data report are similar to the health care service categories found in the utilization benchmarks. The Treatment Services and Locations that were included in calculating the VA costs per day for each acute care inpatient service category are listed below:

	<u>Service</u>	<u>Location</u>
Medical Cost per Day	Medical	Epilepsy
	Medical	Medical
	Medical	Medical GEM
	Medical	MICU
	Medical	Neurology
	Medical	Neurology GEM
	Medical	Rehabilitation
	Medical	Rehabilitation GEM
	Non-VA	Non-VA Medical
Surgical Cost per Day	Surgical	OR Procedures
	Surgical	SICU
	Surgical	Surgical
	Surgical	Transplants Team
	Non-VA	Non-VA Surgical
Psychiatric Cost per Day	Psychiatric	EBTPU
	Psychiatric	Psychiatric
	Psychiatric	Psychiatric GEM
	Psychiatric	Psychiatry-General Intern.
	Psychiatric	Psy Subst Inter
	Psychiatric	SIPU
	Non-VA	Non-VA Psychiatric
Substance Abuse Cost per Day	Psychiatric	Substance Abuse

The CDR costs for the above treatment locations included costs that are classified as LTC or Non-Acute by the Inpatient Stay Sorting Criteria described in Section V- VA Workload Data Manipulations. In order to develop appropriate estimates for acute care inpatient unit costs, it was necessary to remove these low-cost days from the utilization and cost components of the CDR report. VA inpatient workload was used to determine the number of days of care to remove from the CDR, by treating facility. Unit costs from the LTC and Non-Acute portions of the CDR report were used to determine the costs associated with the days removed. The general

formula used for each facility and acute care inpatient service category is: Adjusted Inpatient Cost = CDR Inpatient Cost – (LTC Days classified as Acute × LTC Per Diem) – (Non-Acute Days classified as Acute × Non-Acute Per Diem). The adjusted costs were then summarized over all facilities to generate national per diems for each acute care inpatient service category (medical, surgical, psychiatric and substance abuse).

The adjusted costs for each treating facility were used to generate unit costs for each acute care inpatient service category. Upon reviewing for reasonableness, it was determined that these detailed unit costs were not reasonable for some facilities. According to VA staff, some facilities have difficulty allocating expenses among the various types of stays. For example, if a facility altered the number of beds available for certain types of stays, such as surgical or psychiatric, but did not reallocate the expenses associated with these bed types, then the calculated costs per day would be too high for some bed types and too low for others. It is likely that this could happen within VA's expense allocation system.

In order to compensate for this problem, expense allocations among acute care inpatient service categories were not relied upon at the treating facility level. The total adjusted costs (over all acute care inpatient service categories) were summarized for each treating facility and used later in the acute care inpatient unit costs calculation for each market.

VA also provided CDR costs for acute inpatient care by DRG and treating facility. The expense allocation problems noted above were also present in this CDR cost report. Therefore, DRG costs were only relied upon at the national level. DRGs were grouped into the four acute care inpatient service categories, and each was assigned a relative value unit (RVU) based on the relativity between the per diem for that DRG and the other DRGs in the same category. These RVUs were multiplied by the national per diems (calculated from the adjusted inpatient costs described earlier) by category to arrive at a national average per diem for each DRG.

Every acute inpatient stay from the workload was assigned a total cost based on the national DRG per diem and the length of the stay. These costs were aggregated by treating facility and compared to the adjusted total costs by treating facility previously derived. Each treating facility was assigned a relative cost factor based on its total expenditures compared to the adjusted expenditures calculated using the DRG mix at that treating facility and the national per diems.

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Next, each stay in the FY 2002 VA workload data was assigned a severity-adjusted cost according to the following formula:  $\text{Severity-Adjusted Cost} = \text{Length of Stay} \times \text{Treating Facility Relative Cost} \times \text{National DRG Per Diem} \div \text{DRG RVU}$ . The severity-adjusted cost removes the impact of case mix at each treating facility by assigning a national case mix. The severity-adjusted costs were summarized for each market (based on the enrollee county of residence) at the acute care inpatient service category level. Market unit costs were then developed for each acute care inpatient service category to complete the process.

***Nursing Home and Skilled Nursing Facility Unit Costs***

The Long Term Care (LTC) treatment services included in the unit cost data include Nursing Home (NH) and Skilled Nursing Facility (SNF) services. NH unit costs are identified in the data using the methodology described below, but NH services were not included in the Final FY04 ELDA projections. The Treatment Services and Locations that were included in calculating the VA costs per day for each service are listed below:

	<u>Service</u>	<u>Location</u>
Nursing Home	LTC	Nursing Home
	LTC	Nursing Home GEM
	LTC	Hospice
	LTC	Inter Med LTC
	CNH	Non-VA Nursing Home
Skilled Nursing Facility	LTC	Intermediate
	LTC	Intermediate GEM

The VA costs per day for NH were calculated for each market by mapping each facility into a market area. VA markets that did not have any NH unit cost data were assigned a per diem based on the closest VA market with NH experience. The NH unit cost data provided by VA included the costs of providing services within VA as well as purchasing the services from the community. It did not, however, include payments made to state nursing homes for the care of veterans. It is assumed, based on reports supplied by VA, that 50% of VA-sponsored NH care in FY 2002 was provided by state nursing homes at a set national per diem. The NH per diems used in the VA Enrollee Health Care Projection Model are an average blend of the non-state NH and the state NH per diems.

There were not enough SNF services performed by VHA to create reasonable per diems at the market level. Many VISNs appear to have these services at only one or two facilities. Further, at the VISN level, some of the per diems were still significantly higher or lower than the national average, indicating possible budget allocation problems for these services within the CDR. The CDR-based per diems for SNF, when compared to the NH per diem, appeared reasonable only at the national level.

The cost of providing SNF services is considered to be related to NH services. Therefore, to create reasonable per diems for SNF services, the following analysis was performed:

1. Calculate the ratios of the NH per diems by market to the national NH per diem
2. Adjust the national SNF per diem by the ratios calculated in Step 1 to create a market-level set of per diems

The resulting per diems have the same relativities as the market level set of NH per diems.

***Special VA Program Bed Section Unit Costs***

The special VA program bed section services included in the model were developed from historical VA utilization and unit cost data. The service categories available in the CDR-based data report are similar to the special VA program bed section service categories projected in the model. The Treatment Services and Locations included in calculating the VA costs per day for these services are as follows:

	<u>Service</u>	<u>Location</u>
Blind Rehab	Medical	Blind Rehabilitation
Spinal Cord Injury	Medical	Spinal Cord Injury
Sustained Trt & Rehab (STAR I II III)	Psychiatric	STAR I II III
Psychiatric Res Rehab Trt (PRRTP)	Psychiatric	PRRT
PTSD Res Rehab (PRRP)	Psychiatric	PTSD PRRT
	Psychiatric	Domiciliary PTSD
Sub Abuse Res Rehab Trt	Psychiatric	SARRTP
	Psychiatric	Domiciliary Substance
Homeless Chronic Ment Ill CWT	Psychiatric	HCMC CWT/TR
	Psychiatric	SA CWT/TR

	Psychiatric	CWT/TR
	Psychiatric	PTSD CWT
Residential Rehab Treatment	LTC	Domiciliary
	LTC	Domiciliary GEM
	LTC	Homeless Domiciliary

There were not enough special VA program bed section services performed to create reasonable per diems at the market or VISN level. Many VISNs appear to have these services at only one or two facilities, if at all. Further, at the VISN level, some of the per diems were still significantly higher or lower than the national average, indicating possible budget allocation problems for these services within the CDR. Therefore, the national level VA per diems for each service were used at all levels of projections. These national level per diems were calculated for each service by dividing the total national expenditures from the unit cost data by the total bed days for each service in the VA workload experience data.

The SCI program also includes home care services. Nationally, these services represented approximately \$5 million in expenditures for FY 2002. These services are small in number, making it difficult to model them individually. As a result of discussions with VA, the SCI home care expenditures were loaded into the SCI bed section per diem. Consequently, the projected expenditures for the SCI bed section services also include the costs of providing related SCI home care services.

The CDR-based unit cost data did not have explicit detail for Respite Care bed section services. This care is considered to be similar to Nursing Home care; therefore, the national NH per diem for VA and community bed services was used as the Respite Care national per diem. A market level set of per diems was then calculated using the ratios of the NH per diems by market to the national NH per diem. The resulting Respite per diems have the same relativities as the market level set of NH per diems.

***Ambulatory Unit Costs***

The CDR Ambulatory data was not available in a format that allowed for a simple crosswalk to be constructed mapping into the Ambulatory health care services in the benchmark model. As mentioned previously, VA provided a report that includes facility CDR costs and units. From this report, total Ambulatory service costs were calculated for each treating facility. VA also provided clinic stop and CPT code experience data for every Ambulatory visit within VHA for

FY 2002, including fee-based care. The CPT code detail in this data allowed visits, procedures, and services within VA to be counted in the same way that they are calculated in the private sector, as documented in Section V- VA Workload Data Manipulations.

To approximate VA unit costs on a cost per service basis similar to the services projected in the model, the total Ambulatory costs for each treating facility were matched to the total CPT service counts calculated from the FY 2002 experience data. This resulted in a per service unit cost based on similar units to those used in the Medicare per service unit costs calculated in the benchmarks. The CDR total Ambulatory costs for each facility were calculated using the Ambulatory Treatment Services and Locations listed below:

	<u>Service</u>	<u>Location</u>
Ambulatory Cost	OPC	Cancer Treatment
	OPC	Community Care Support
	OPC	DOM After Care - VA
	OPC	HMI
	OPC	OPC Admit/Screening
	OPC	OPC Ambulatory Surgery
	OPC	OPC Ancillary
	OPC	OPC Diagnostic
	OPC	OPC Dialysis
	OPC	OPC Fee
	OPC	OPC General Psychiatric
	OPC	OPC Medicine
	OPC	OPC Preventive Care
	OPC	OPC Prosthetics
	OPC	OPC PTSD
	OPC	OPC Rehab
	OPC	OPC Residential
	OPC	OPC Spc Psychiatric
	OPC	OPC Substance Abuse
	OPC	OPC Sub Abuse Disorders
	OPC	OPC Surgery
	OPC	Primary Care Medicine
	OPC	Primary Care Psychiatric
	OPC	Psychiatric Social Group
	OPC	Telephone Contact

Once the CDR total Ambulatory costs for each facility were calculated, the expenditures for certain specific outpatient services were removed. These services include VA's Outpatient Mental Health Programs and Compensation & Pension Exams. These expenditures were

removed because the unit costs basis for these services could be directly derived from detailed data supplied by VA (see the “VA Outpatient Mental Health Program Unit Costs” and “Compensation & Pension Exam Unit Costs” subsections). For these services, VA supplied CDR outpatient costs by facility for the specific clinic stop locations that are a part of these services. These expenditures were then summarized by treating facility, and removed from the total Ambulatory costs.

Within VA’s health care delivery system, some treating facilities perform more or less complex Ambulatory services than the national average. The Ambulatory VA unit costs reflected in the model should be appropriate for the veteran enrollee populations associated with each market area, rather than a particular treating facility. Therefore, the treating facility based unit costs were case-mix adjusted to the mix of CPT services associated with each market area. In order to perform this case-mix adjustment, each CPT service in the FY 2002 VA workload data was assigned a relative intensity using Medicare’s Resource-Based Relative Value Scale (RBRVS) unit values. RBRVS unit values are established for each CPT code to calculate Medicare reimbursement. The Medicare reimbursement for a particular CPT code is calculated by multiplying its unit value by an appropriate conversion factor. Therefore, the unit values associated with each CPT code represent the relative intensity of each procedure or service. The total Ambulatory unit costs for each facility were translated into an “effort-cost” using RBRVS units as weights. This “effort-cost” calculated for each treating facility is comparable to the conversion factor used in Medicare reimbursement.

The total costs for each treating facility were then allocated to the patients using that facility, according to the “effort-cost” for the facility and the procedures performed for that patient. Total costs, units and “efforts” were then aggregated according to the market areas of the patients. The calculated “effort-cost” for each market was then translated into a unit cost by dividing by a national intensity adjustment. The national intensity adjustment reflected the ratio between the national “effort-cost” and the national cost per unit.

The total Ambulatory market unit costs were then used to calculate Ambulatory service line specific unit costs. The ratio of the total Ambulatory VA unit cost to the total Medicare Allowable Ambulatory unit cost was calculated for each market area. This ratio represents VA unit costs as a percentage of Medicare Allowable charge levels for each market area. This percentage was then applied to Medicare Allowable average charges by Ambulatory health care service to approximate VA unit costs for each Ambulatory health care service.

### ***VA Outpatient Mental Health Program Unit Costs***

The VA Outpatient Mental Health Programs (OPMH Program) include the following service lines:

- Day Treatment
- Homeless
- Methadone Treatment
- Mental Health Intensive Case Management (MHICM)
- Work Therapy
- Community MH Residential Care

VA supplied Ambulatory CDR unit cost data for the specific clinic stop locations included in these services. The cost per service was calculated for each OPMH Program service by mapping each clinic stop location to the appropriate service line. There were not enough OPMH Program services performed to create reasonable per service unit costs at the market or VISN level. Many VISNs appear to have these services at only one or two facilities, if at all. Further, at the VISN level, some of the units costs were still significantly higher, or lower, than the national average—indicating possible budget allocation problems for these services within the CDR. Therefore, the national level VA per service unit costs for each OPMH Program service were used at all levels of projections. These national level costs per service were calculated by dividing the total national expenditures from the CDR unit cost data by the total clinic stop service count for each OPMH Program service in the VA workload experience data.

### ***Prescription Drug Unit Costs***

The FY 2002 CDR data included Prescription Drug unit cost data by facility. The facilities were mapped to market areas in order to calculate the total Prescription Drug expenditures for each market. Market level Prescription Drug unit costs were then calculated by dividing the total expenditures by the total 30-day equivalent scripts dispensed in each market area, as reported in the FY 2002 VA workload experience data.

The prescription drug unit costs calculated from the FY 2002 CDR data reflect the mix of drugs dispensed by VA as a result of the \$2 and \$7 pharmacy copays in effect during that period. After

February 1, 2002 the \$2 copay increased to \$7. As observed in the FY 2002 workload experience the higher copay level reduces the number of over-the-counter drugs dispensed by VA. This reduction in low cost over-the-counter drugs dispensed results in a higher average unit cost for the remaining drugs dispensed. Consequently, the prescription drug unit costs projected for FY 2003 and beyond (derived from FY 2002 data) have been adjusted to account for the change in unit cost intensity mix by Priority Level. These adjustments were calculated using the FY 2002 VA pharmacy utilization data, the average wholesale price (AWP) by NDC, and the estimated proportion of drugs supplied for NSC conditions by Priority Level (provided by VA).

### ***Prosthetics and Related Services Unit Costs***

For Prosthetics and related services, VA supplied NPPD and DDC data that included FY 2002 utilization and cost per unit. The services represented in this data include the following service categories:

- Glasses/Contacts
- Hearing Aids
- Durable Medical Equipment
- Prosthetics
- VA Program Equipment and Services

Discussions of Prosthetic unit costs in this section refer to all of the services listed above. VA dispenses Prosthetic units throughout the entire health care system from a national dispensary. Consequently, on a cost per unit basis, regional cost differences do not typically exist. Therefore, national unit costs for each service line were calculated from the NPPD and DDC data. However, the mix of units supplied for Durable Medical Equipment, Prosthetics, and VA Program Equipment and Services varied significantly by Priority Level. As a result, unit costs were developed separately for each Priority Level for these projections.

### ***Compensation & Pension Exam Unit Costs***

VA was able to provide FY 2002 CDR unit cost data for the Compensation & Pension Exam (C&P Exams) clinic stop locations. However, during the modeling of this benefit, it was discovered that the true volume of C&P Exams performed by VA was best identified using the

CPT procedures counts recorded the workload experience data. To calculate an appropriate cost per CPT count, the following steps were performed:

1. Calculate a national cost per C&P Exam clinic stop using the total expenditures from the CDR unit cost data dividing by the total C&P clinic stops in the workload experience data.
2. Convert the unit cost per clinic stop calculated in Step 1 to a unit cost per CPT procedure count using the ratio of the total C&P Exam CPT procedure counts to associated clinic stops within the workload experience data.

The resulting national C&P Exam unit cost was used as the FY 2002 starting unit cost within the VA Enrollee Health Care Projection Model projections.

### ***Other Service Categories***

It was assumed that Maternity and Ambulance services are contracted outside of VA. Unit costs for these services were taken from Milliman research of billed charges, adjusted for each market area.

### ***VA Unit Cost Fiscal Year Fluctuations***

Fundamentally, VA unit costs are derived by dividing total fiscal year expenditures by workload volume. Within the model, the base year utilization and expenditures are then trended forward to each fiscal year based on the medical trend assumptions and the enrollment projections.

For the FY03 ELDA analysis, the model contained unit costs derived from FY 2001 budget obligations and workload volumes. FY 2002 (and beyond) was then projected during the FY03 ELDA analysis using the medical trend assumptions and enrollment projections. However, during the FY04 ELDA update it was observed that the FY 2002 workload and expenditure projections produced during FY03 ELDA did not match the actual budget obligations and workload volumes for FY 2002. The FY03 ELDA predicted an expenditure increase of 15% from FY 2001 to FY2002. In actuality, the budget obligations grew 9% between these two years. Enrollment was projected to grow 16% during FY 2002 and this actually occurred. Workload volumes increased as well, but the budget obligations did not increase proportional to the workload and the assumed medical cost trends. This resulted in lower average unit costs for

FY 2002 as compared to FY 2001. This meant that lower unit costs were implemented in the FY04 ELDA model. These unit costs were then trended to future years using the medical trend assumptions. Consequently, the resulting expenditure projections for each fiscal year produced by the FY04 ELDA are lower than the expenditure projections for each fiscal year produced by the FY03 ELDA.

The fiscal year expenditures are directly tied to the budget obligations while the workload volume reflects enrollee demand and regional VISN administration decisions impacting supply of care. These separate forces may influence the changes in the expenditures and workload volumes for each fiscal year. In addition, these forces could cause VA's actual workload and expenditure trends to vary from medical utilization and cost trend assumptions established for future fiscal years. It was surmised by VA staff that the unit costs developed from FY 2001 could be high due to supply constraints (workload was less than it should have been). Another issue that VA raised was the concern that VA does not model by marginal cost. To validate the FY04 ELDA unit cost assumptions built on FY 2002 experience, VA and Milliman executed several analyses.

The total workload and expenditures used by Milliman in the unit costs analyses were validated by VA. Milliman then conducted a longitudinal analysis of VA workload for FY 2000, 2001, and 2002. This analysis summarized enrollee and patient utilization rates, patients as a percent of enrollees, and total enrollees, patients and utilization. The patients and workload utilization were sorted into major categories of care, such as Medical/Surgical Inpatient and Primary Care as well as Priority Level, Age Group, and Enrollee Type. The purpose of this analysis was to observe any evidence of supply constraints through decreasing patient rates or utilization rates that were inconsistent with general trends over the three-year period. This analysis revealed no evidence of supply constraints. Relative Value Units (RVUs) were also assigned to each outpatient visit, via CPT code, to determine if VA was experiencing significant changes in intensity per service over time. This analysis revealed no evidence of significant changes in intensity per service over time.

A variation of the analysis was also conducted to track utilization and patient rates of static enrollee populations over time. New enrollees first enrolling in FY 1999, 2000, 2001 and 2002 were tracked to analyze changes in their utilization and patient rates. The resulting rates did not display consistent trends or characteristics that would be reflective of supply constraints.

While these special analyses did not identify specific explanations for the high unit costs in FY 2001 as compared to FY 2002, it did highlight the impact of the unit cost methodology on future year projections. To the extent that the components of VA's unit cost basis — workload and budget obligations — vary from projected workload and assumed medical trend rates, the update to a new base year for each ELDA will include a new unit cost basis that will vary from the unit cost projections from the year before. Another relevant point is that as additional workload volumes are projected, the cost per service is trended but remains fixed. The unit costs do not fluctuate to account for marginal capacity as workload volumes increase. The amount of excess capacity inherently present in the VA experience data used for the base year will impact the calculated unit costs.

As a result of these analyses, VA and Milliman agreed to monitor the impact of future unit cost updates implemented in the model. The longitudinal studies should be maintained, expanded and updated with subsequent data.