



Guidebook for the DSS Intermediate Product Department Files

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Terms

AITC	Austin Information Technology Center
ALB	Account Level Budgeter
ALBCC	Account Level Budget Cost Center
CDCO	Corporate Data Center Operations
DCM	Department Cost Manager
DSS	Decision Support System
FY	Fiscal Year
HERC	Health Economics Resource Center
NDEs	National Data Extracts
NPCD	National Patient Care Database
O-IPD	Outpatient Intermediate Product Department Extract files
PTFs	Patient Treatment files
RVU	Relative Value Unit
T-IPD	Inpatient Intermediate Product Department Extract files
VA	U.S. Department of Veterans Affairs
VHA	Veterans Health Administration
VIReC	VA Information Resource Center
VISN	Veterans Integrated Service Network
VistA	Veterans Health Information Systems and Technology Architecture

1. Introduction

This guidebook provides information on using the Decision Support System (DSS) National Intermediate Product Department Extract files for research. Separate files for inpatient (T-IPD) and outpatient (O-IPD) care were created and released by DSS for each fiscal year beginning in 2005 and retrospectively created for fiscal years 2003 and 2004. These files were released to provide more detailed cost information for specific types of care. Previously, DSS National Data Extracts reported costs for six broad categories -- medicine/other, laboratory, pharmacy, radiology, nursing, and surgery. These cost sub-totals were dropped from the NDE files while new IPD files were created with a richer set of cost detail. The IPD files report costs for more than 600 product departments representing type of care and work performed during a medical encounter.

The guidebook is organized in the following format: Chapter 2 provides background information describing intermediate product departments and how costs are calculated for these departments, Chapter 3 describes the procedures to obtain the data, Chapter 4 describes the layout of the files and variables, and Chapter 5 provides specific examples and programming language to merge IPD records with other VA datasets.

This guidebook is meant to provide specific information on using the T-IPD and O-IPD files. Researchers may need to link these files to other DSS extract files and may refer to other HERC resources on DSS cost data. For information on encounter-level cost files, please see HERC's *Research Guide to Decision Support System National Cost Extracts* (<http://www.herc.research.va.gov/publications/guidebooks.asp>). For frequently asked questions on DSS cost data, please see HERC's Frequently Asked Questions (FAQ) web page at <http://www.herc.research.va.gov/resources/faq.asp>. Researchers may also need to link these files to other DSS clinical files with diagnosis and procedure information and can obtain a report by HERC on reconciling outpatient DSS extract files with NPCD files. Please see *Comparison of DSS Encounter-Level National Data Extracts and the VA National Patient Care Database: FY2004* on HERC's Data – DSS web page (<http://vaww.herc.research.va.gov/data/dss.asp>). **Note:** This report is only available on the internal VA website and is not available to the public. For information on DSS clinical data resources, see ViReC's website for documentation at <http://www.virec.research.va.gov/DataSourcesName/DSS/DSSdocumentation.htm>.

2. Intermediate Product Departments and Costs

2.1 Intermediate Products

Intermediate products are the procedures and services used in treating patients in an episode of care. These intermediate products represent work performed in each department and are bundled to make up the end product, the encounter, which is either an inpatient stay or outpatient visit. The VA uses a list of standard product codes with more than 44,000 entries so that similar products across VA facilities use the same code. Some examples are bed day in the surgical ward, 15-minute health risk assessment, single drug dispensed, or MRI brain scan.

2.2 Intermediate Product Departments

Intermediate products are produced by intermediate product departments (IPDs), organizational units categorized by distinct intermediate products and a discrete labor pool. Each clinical service is broken down into a unique set of product departments. There are codes for more than 600 distinct intermediate product departments. This list is updated annually, so the total number of departments can vary year to year. Examples of product departments are Primary Care Clinic, Toxicology Lab, Nursing Geropsychiatry Ward, or PTSD Day Treatment. From this list each medical center chooses codes that describe its departments.

There are several types of product departments. *Direct* departments provide the clinical products and services directly consumed by patients. These products and services are recorded in VistA and extracted for DSS and can be matched to costs. *Support* departments have clinical service labor and other costs but do not have products provided to patients. These support departments include Clinical Service Administration, Research, and Teaching. Some departments have products but no workload that is captured by VA systems. For clinical departments providing care to inpatients but not collecting the workload, the costs are assigned to the code for generic inpatient department, 5WW1. See VHA Handbook 1750.1 for more information.

The intermediate product department is also referred to as the *DSS department cost manager (DCM) department* in other VA datasets and DSS resources. In this research guide, we will use the terms intermediate product department exclusively. For researchers needing aggregate costs and not patient-level costs, the Account Level Budget Cost Center (ALBCC) dataset reports aggregate costs for each ALBCC annually. The ALBCC is a DSS financial unit related to the intermediate product department and provides expense information for the cost center, account, and job code levels. There is generally a one-to-one mapping from the ALBCC to the IPD. However, ALBCC reports costs for indirect and exempt cost centers, while indirect costs are assigned to direct product departments in DSS. HERC provides detailed documentation on the use of this dataset in a separate guide to researchers. For further information on DSS cost data resources, see HERC's *Research Guide to Decision Support System National Cost Extracts* on the Guidebooks web page at <http://www.herc.research.va.gov/publications/guidebooks.asp>.

2.3 How Intermediate Product Department Costs Are Determined

Costs of intermediate products are based on Relative Value Units or RVUs. RVUs are weighted units of measure used to compare care involving different procedures and diagnosis complexity. VA facilities assign RVUs to each intermediate product based on an estimate of the relative costs of the resources needed to produce it. These costs and resources include staff, supplies, equipment, and fixed costs including department and facility overhead.

The VA maintains a list of RVUs for intermediate products by cost type such as variable supply and variable labor. Variable labor has several categories such as physicians, nurses, and technicians that have separate RVU schedules.

In order to calculate the cost of an intermediate product, several steps are taken for each product per cost type/category within a product department: 1. For a given product, the assigned RVU is multiplied times the total number of units of that product that were produced to calculate a weighted RVU (that is, the total number of units of relative value used to produce that product). 2. The weighted RVUs for all products are summed across the department. 3. The total department costs are divided by sum of weighted RVUs to obtain the cost per RVU. 4. The cost per RVU is multiplied by the RVU for each product to obtain the unit cost of the product.

$$N_{IP} \times RVU_{IP} = WeightedRVU_{IP} \quad (1)$$

N = number of intermediate products

IP = intermediate product in a product department

RVU = Relative resources required for each intermediate product

$$\sum_{IP} WeightedRVU_{IP} = TotalWeightedRVUs \quad (2)$$

$$\frac{DepartmentCost}{TotalWeightedRVUs} = CostperRVU \quad (3)$$

$$CostperRVU_{IP} \times RVU_{IP} = Unitcost_{IP} \quad (4)$$

A standardized set of RVUs is provided to all facilities, and facilities may modify these RVUs to reflect local factors in order for RVUs to accurately reflect the relative amount of resources used to produce each intermediate product.

The unit costs of all the products produced in a given department within an encounter are summed to estimate the intermediate product department costs. These costs are reported in the IPD files for each encounter.

Estimation of costs

The VA tracks labor costs using three categories for employee labor and one category for contract labor. The variable labor categories include VL1 (technicians, social workers, psychologists, residents, and trainees), VL2 (nursing), VL4 (providers including physicians, dentists, and fellows), and VL5 (contracted labor).

Relative values for labor costs are expressed in minutes. For example, the relative value for registered nursing labor is the number of minutes of nursing labor ordinarily required to make that product. Non-RN nursing labor is computed using a separate set of RVUs. Because of differences in operating structure, service volume, and management methods, medical centers determine their own RVUs, and the number of minutes allocated to the same service varies across medical centers.

Type of Costs

Costs reported in the IPD DSS files are divided into cost sub-totals by three categories: fixed direct costs, variable direct costs, and indirect costs. Direct costs are those that are directly attributable to a patient care department. Costs that are incurred regardless of the volume of services provided are considered fixed costs. Costs that vary with the volume of services provided are variable costs. Variable costs consist of supplies and the cost of labor that might be released if workload decreased. Indirect costs are the costs of overhead departments such as housekeeping, engineering, and administration. Because indirect costs are fixed in the short-term, the category of variable indirect costs does not exist.

3. How to Access DSS National Extract Files

3.1 Obtaining Access to DSS Data

VA employees must obtain an Austin Information Technology Center (AITC) account to use the DSS national extracts. New users must complete a “Time Sharing Request Form,” or Form 9957. To obtain true Social Security Numbers, users must make a request to the local information security officer and complete a “Privacy Act Statement.” Additional procedures involve obtaining approval from the Human Subjects Review Panel and the VHA Privacy Office and are detailed on the VA National Data Systems intranet web site.

Account forms must list the appropriate task codes for the desired access level. Task codes are listed below. For more information please see HERC - Data - Decision Support System (DSS) (<http://www.herc.research.va.gov/data/dss.asp>) and ViReC’s *Guide for First Time Users of VA Austin Automation Center (AAC)* (<http://www.virec.research.va.gov/HistoricalDocuments/VirecInsights/Insights-v02n1.pdf>).

Table 1: Task Codes and Access Level for DSS National Data Extract Files

Task code	Access level
110TT10	DSS extracts with scrambled Social Security Numbers only
110TT11	DSS extracts and access to real Social Security Numbers for a particular medical center
110TT12	DSS extracts and access to real Social Security Numbers for a particular VISN
110TT13	DSS extracts and access to all real Social Security Numbers

3.2 Non-VA Users

The above permissions apply to VA employees and individuals who work for VA without compensation (WOC status). Individuals not employed by or affiliated with the U.S. Department of Veterans Affairs who wish to use the national extract must submit the same forms as other users (except the VA9957 Time Sharing Request Form), and submit their request to the VA CDCO Austin Information Technology Center at (512) 326-6006.

3.3 Accessing Data on Intermediate Products

IPD files may not provide sufficient level of detail for certain types of research. The extracts list the costs of all products produced within a department but do not itemize the products or the costs of each product. Researchers needing this level of detail should use the DSS production system. The production system stores DSS data from each facility in a separate database at the VA Austin Information Technology Center. The simplest way to access these data is to ask the site or VISN staff to run a report. It is very difficult to obtain permission to directly access the DSS production database. The applicant must submit a request to the DSS manager at the individual VISN or medical center. The applicant must also have an AITC timesharing account with the functional task code giving permission to access production DSS data. Production data

always include unencrypted social security numbers, so requests require the same steps needed to access any database with the true social security numbers of VA patients.

4. Description of File Layout and Variables

4.1 File Names

There are separate files for inpatient and outpatient encounters for each fiscal year. The IPD file names for all IPD files located at the AITC are listed in Table 2. The FY 2003 outpatient files are separated into different files grouped by VISNs. Beginning in FY 2004, separate files were created for each VISN.

Table 2: IPD File Names by Fiscal Year

FY	Inpatient/outpatient	Austin Automation Center File Name
2003	Inpatient	RMTPRD.MED.DSS.SAS.FY03.IPD
2003	Outpatient	RMTPRD.MED.DSS.SAS.FY03.V1TO5.OIPD
2003	Outpatient	RMTPRD.MED.DSS.SAS.FY03.V6TO10.OIPD
2003	Outpatient	RMTPRD.MED.DSS.SAS.FY03.V11TO16.OIPD
2003	Outpatient	RMTPRD.MED.DSS.SAS.FY03.V17TO22.OIPD
2004-10	Inpatient	RMTPRD.MED.DSS.SAS.FYXX.VISNYY.IPD
2004-10	Outpatient	RMTPRD.MED.DSS.SAS.FYXX.VISNYY.OIPD

XX=Fiscal year (04-10), YY=VISN (01-23)

4.2 Inpatient File Layout

The inpatient IPD file (T-IPD) provides details of the costs reported in the DSS National Data Extract treating specialty file. The treating specialty refers to the code assigned by the type of inpatient unit where care was delivered. The DSS treating specialty file contains one record per treating specialty per fiscal period, or month, for each inpatient encounter during a given fiscal year. An inpatient encounter is defined as an inpatient stay beginning with the admission date and ending on the discharge date. In the treating specialty file, there are multiple records per patient encounter if a patient is treated by multiple treating specialties and/or the inpatient stay occurs beyond one fiscal period. Information on a stay that began in one fiscal year and ended in another year will be found in both years' files.

In the T-IPD files, each product department where a patient is treated will have a separate record, so there will be one record per product department for each treating specialty and fiscal period. This file structure can result in large numbers of records for each inpatient stay.

4.3 Outpatient File Layout

The outpatient IPD file (O-IPD) provides details of costs reported in the DSS National Data Extract outpatient files. In the DSS outpatient files, there is one record per outpatient encounter, defined by date and unique clinic stop code. Patients who visit more than one clinic stop in an outpatient visit will have multiple records.

In the O-IPD file, each product department where a patient is treated will have a separate record, so there can be multiple records if a patient received care at more than one product department or more than one clinic stop for an encounter.

4.4 Variable Lists and Descriptions

Tables 3 and 4 list all variables in the T-IPD and O-IPD datasets. The tables list the type of variable (character or numeric), the formatting, if any, the label assigned by DSO, and the fiscal years for which they exist.

Table 3: Variable List for Treating Specialty Intermediate Product Department (T-IPD) File

Variable name	Type	Format	Label	FY File
ADMITDAY	Numeric	YYMMDD8	Admit Day	2003-10
COUNT	Numeric			2007
DISDAY	Numeric	MMDDYY10.	Discharge Day	2008-10
DIV	Character			2005-07
ENC_NUM	Character		Encounter Number	2007-10
FP	Numeric		Fiscal Period	2003-10
FY	Numeric		Fiscal Year	2003-10
IPD	Character			2005-07
IPD_BED	Numeric		IPD Beddays	2003-06
IPD_FD	Numeric		IPD Fixed Direct \$	2003-10
IPD_FI	Numeric		IPD Fixed Indirect \$	2003-10
IPD_NUM	Character			2003-10
IPD_TOT	Numeric		IPD Total \$	2005-10
IPD_TYPE	Character			2004-07, 10
IPD_VD	Numeric		IPD Variable direct \$	2003-10
OEFOIF	Character		OEFOIF Flag	2008-10
OEFOIFDTE	Numeric		OEFOIF Last return date	2008-10
SCRSSN	Numeric	SSN	Scrambled SSN	2003-10
STA	Character		Station	2007
STA3N	Numeric	STA3NL.	Station	2003-10
STA6A		\$STA6AL. or \$STA52AL.	Division	2003-10
STA6AIPD	Character			2007
SUFFIX	Character			2003-10
SUM_CV	Numeric		Sum of Converted Volumes	2003-10
TRTIN	Numeric	YYMMDD8	Day to Trt.Sp	2003-10
TRTOUT	Numeric	YYMMDD8	Day from Trt.Sp	2003-10
TRTSP		BEDSECN.	Treating Specialty	2003-10
TRTTIMEI	Numeric	TIME8	Time to Trt.Sp	2008-10
TRTTIMEO	Numeric	TIME8	Time from Trt.Sp	2008-10
VISN	Numeric		VISN	2003-10
WARD_BED	Numeric		Ward Beddays	2003-06

Table 4: Variable List for Outpatient Intermediate Product Department (O-IPD) File

Variable name	Type	Format	Label	FY File
CLSTOP	Character		Clinic Stop	2003-10
CMOP	Character		CMOP Flag	2004-10
CR_PAIR	Character		Credit Pair	2003-10
CV	Numeric		Sum/Converted Vol	2003-10
DIVPERF	Character		Division Performed	2003-10
DSS_ID	Character		DSS ID	2010
ENC_NUM	Character		Encounter Number	2004-10
FD	Numeric		IPD Fixed Direct \$	2003-10
FI	Numeric		IPD Fixed Indirect \$	2003-10
FP	Numeric		Fiscal Period	2003-10
FY	Numeric		Fiscal Year	2003-10
IPD_BED	Numeric		IPD Beddays	2003-10
IPD_NUM	Character			2003-10
IPD_TYPE	Character			2004-10
NOSHOW	Character		No Show Flag	2004-07
OBS	Character		OBS Flag	2004-10
OEFOIF	Character		OEFOIF Flag	2008-10
OEFOIFDTE	Numeric		OEFOIF Last return date	2008-10
OIPD_TOT	Numeric			2004-10
PROS_TYPE	Character			2004-10
PSEDUO	Character			2004-10
REFER	Character		Refer Lab	2004-10
SCRSSN	Numeric	SSN	Scrambled SSN	2003-10
STA3N	Numeric	STA3NL.	Station	2003-10
STA6A		\$STA6AL. or \$STA52AL.	Division	2003-10
SUFFIX	Character			2003
TELEMED	Character		Telemed Flag	2004-10
VD	Numeric		IPD Variable direct \$	2003-10
VISN	Numeric		VISN	2003-10
VIZDAY		YYMMDD9.	Date of Service	2003-10
VL4	Numeric		VL4 Cost	2004-10
VL5	Numeric		VL5 Cost	2004-10
VS	Numeric		Variable Supply Cost	2004-10
WARD_BED	Numeric		Ward Beddays	2003-10

For a quick summary of intermediate product department codes (the variable IPD_NUM in DSS datasets) by cost category, see Table 5 below which describes the naming convention by product department.

Table 5: Cost Categories and Corresponding Intermediate Product Departments for Inpatient Care

Cost Category	DSS Code for Intermediate Product Department (IPD_NUM)	Intermediate Product Department
Lab	L***	All Laboratory
Bedday (nursing ward or residential)	UE**, UF**, UG**, UH**, UJ**, U2** BU2*, CU2*, MU2*, NU2*, PU2*, RU2, SU2, AU2*, UU2* P4A*, P4B*, P4C*, P4D*, P4E*, P4F*, P4G* 4L**, 44**, 45**	Wards- nursing Observation wards Psychiatry Residential Rehab RRTP
Pharmacy	D***	All Pharmacy
Radiology	X*** H*** ZT**, Z0**, Z6U*	Radiology Nuclear Medicine Radiation Therapy
Surgery	SS**, S3** C31*, C8Q1 GSJ*, G3S*, G31 ASX M3**	Surgery SCI OR & SCI Urological Unit Anesthesiology Outpatient Surgery Procedures performed by Medicine MDs

4.5 Description of Variables

A brief description of all inpatient and outpatient file variables is included below for quick reference.

ADMITDAY

Date when episode of care began in the hospital or other setting. Date may be in previous fiscal year for hospitalizations that carried over into current fiscal year.

CLSTOP

Clinic stop code, also called DSS Identifier, for clinic where treatment was given. A full list of DSS Identifiers is available only on the DSS Intranet Web site.

CMOP

CMOP flag. A value of Y indicates that the prescription fill or refill was completed by a Consolidated Mail Outpatient Pharmacy (CMOP). This is most common for routine high-volume medications.

CR_PAIR

Clinic Stop Credit Pair. A modifier to the clinic stop code. This variable is only available for FY04 and beyond. The meaning of credit pair modifiers is defined in the documentation for clinic stops.

CV

Converted volume. The volume or quantity of products produced in an encounter. If the product department is a laboratory department, then this represents lab tests. If the product department is a pharmacy department, then this represents the number of pills; if outpatient clinic, then interval of time.

DISDAY

Date of discharge. Not all records will have a DISDAY if the discharge occurred after the month of service. For patients not discharged at the end of the fiscal year, the DISDAY will be recorded as the last the last day of the fiscal year. These patients will also have records in the following fiscal year.

DIV

Division. The medical substation value for the location of the patient's bed. This variable is not available prior to FY04.

DIVPERF

Division where service was performed. If the **DIVPERF** is a substation, the variable contains the three-digit station number with modifiers. In VISNs with an integrated laboratory database, the division indicates the medical facility where the lab test was run.

DSS_ID

The total DSS Identifier, consisting of the Primary Stop Code and the Secondary Stop Code.

ENC_NUM

Encounter Number. A unique identifier for each encounter. In the Outpatient file, the variable contains the date of the encounter (VIZDAY) and the clinic stop code (CLSTOP) in the format YYDDDCCC. In the Inpatient Discharge and Treating Specialty files, the variable contains the date of encounter (ADMITDAY) followed by an “I” to indicate it was an inpatient encounter. The variable appears in the format YYDDDI.

FD/IPD_FD

Fixed direct costs, costs related to the direct provision of care that do not vary by volume. Examples include clerical personnel and nursing supervisor time.

FI/IPD_FI

Fixed indirect costs, costs that are indirectly related to the provision of care that do not vary by volume such as building maintenance and other overhead.

FP

Fiscal period, the number of the month in the fiscal year. This variable takes on an integer value from 1 to 12. Because the federal fiscal year is from October 1 to September 30, October is month 1, November is month 2, etc.

FY

Fiscal year, this variable has four digits representing the fiscal year. The fiscal year beginning October 1, 2002 and ending September 30, 2003 is denoted as 2003.

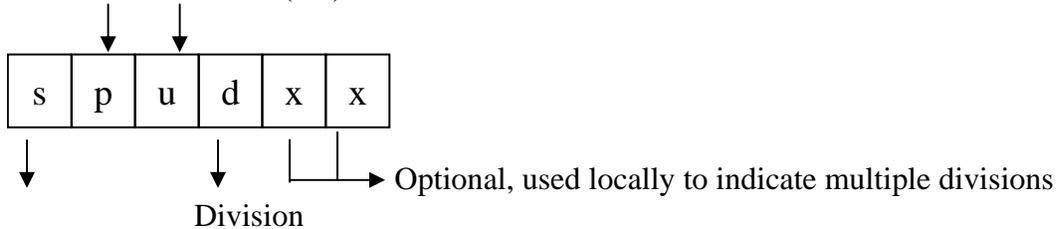
IPD_BED

For observation cases (Stop Code 290-296) only. Number of patient beddays for all nursing or non-nursing bedday departments.

IPD_NUM

Four to six digit code for the intermediate product department, also known as department cost manager (DCM) department code. It is a unit for the assignment of costs at a department or division level. The naming convention for IP department is as follows:

DSS Production Unit (PU) Code



Clinical service responsible for products

For example: IPD_NUM = M2G1

M=Medicine - supervising service

2G=Inpatient dialysis – production unit

1=Division

A list of all valid IPD_NUM codes and their descriptions is available only on the DSS Intranet Web site. At the home page: 1) Click on “Program Documents” in the left column; 2) Click on “VHA Product Departments and Production Units” in the menu that appears; and 3) Select the appropriate “Nat’l Prod Dept -ALBCC Master List.” This list gives both product department and ALBCC codes. See Table 5 for a summary definition of codes.

IPD_TYPE

Cost category, one of the following: medicine/other, laboratory, pharmacy, radiology, nursing, or surgery.

IPD_TOT/OIPD_TOT

Sum of all fixed and variable costs for each IPD record.

NOSHOW

No show flag. Y = No-show visit. For FY98 to FY03, the flag was blanked out if a patient was seen in the same clinic at another time in the same day. For FY04 to FY07, no-show visits are separate visits. Beginning in FY07 no-show records are no longer included in the outpatient files and are located in a separate file

OBS

Observation flag. Y indicates that the encounter is an observation case

PROS_TYPE

Prosthetics Type Flag. A flag variable that indicates the type of prosthetics service provided.

PSEUDO

Pseudo-SSN. This variable indicates whether the social security number for this record is a pseudo SSN, for example, an identifier assigned to samples used to calibrate laboratory equipment.

REFER

"Y" indicates records in one facility where Lab work was performed for another VA medical center, and "I" if one of the prescription records was for an investigational drug

SCRSSN

Scrambled Social Security Number, a formula manipulation of the real SSN and not a randomly generated number. This variable takes a unique value for each real Social Security number, and thus may be used to identify a patient across fiscal years and datasets.

STA3N

Medical Center Station Number, the 3-digit numeric identifier of a VAMC facility. This variable indicates the parent station (VA hospital) or the parent station of a branch to which the patient was admitted or received outpatient services. See HERC's *Research Guide to Decision Support System National Cost Extracts* (<http://www.herc.research.va.gov/publications/guidebooks.asp>) for a listing of all possible values. **Note:** This is an internal VA website and is not available to the public.

STA6A

Discharge/Medical Center Substation. The substation is the same as that in the PTF file for inpatient records and the NPCD file for outpatient records. The first 3 digits are the parent station identifier (STA3N), followed by three characters that identify the substation or operational unit within the facility. Operational units are established and differ by site and refer to an outpatient site or medical center division. There are over one thousand substations.

SUFFIX

DSS Division. A 3-digit code used to identify the division within medical center. Some analysts have noted that when certain ancillary services are used, VA may use code for the parent station even though the care is provided at a satellite facility.

TELEMED

Telemed Flag, flag that indicates a telehealth encounter. The value of the variable could be either a stop code or other four character code.

TRTSP

Treating specialty, this variable contains null values for outpatients but may contain a value if the patient was admitted for observation. The standard SAS format "BEDSECN." may be used with this variable to obtain a description of the treating specialty. See HERC's *Research Guide to Decision Support System National Cost Extracts* (<http://www.herc.research.va.gov/publications/guidebooks.asp>) for a listing of values for **TRTSP**. **Note:** This is an internal VA website and is not available to the public.

TRTTIMEI

Bedsection time in, the time (in hours and minutes) the treating specialty segment began and corresponds with admit date (ADMITDAY). If missing in the input records, a default time of 0003 is posted during DSS processing.

TRTTIMEO

Bedsection time out, the time (in hours and minutes) the treating specialty segment ended and corresponds with the discharge date (DISDAY). If missing in the input records, a default time of 0003 is posted during DSS processing.

VISN

Veterans Integrated Service Network (VISN) where the care was received.

VIZDAY

Date of the visit during which service was provided in the format YYMMDD9. If the date cannot be determined, a default is used with the value of the YEAR MONTH field concatenated with "01" for the DD portion.

VD/IPD_VD

Variable direct costs, costs related to the direct provision of care that varies with volume.

VS_COST

Variable supply cost, supply costs related to the direct provision of care that varies with volume.

VL4

Outpatient Variable Labor Cost Category 4, the cost for employee providers, including attending physicians, dentists, and fellows. This is calculated by assuming that employee providers account for the same share of variable labor cost in all products made by a particular department. It is found using the following formulas:

Variable Labor Cost (4) = Encounter Department Variable Direct Cost x (A/B)

A = Total Department Variable Labor Cost (4)

B = Total Department Direct Variable Cost (variable labor + variable supply + variable other).

VL5

Outpatient Variable Labor Cost Category 5, the cost for contracted services. This cost is calculated by assuming that contract services account for the same share of variable labor cost for all products made by a particular department. It is found using the following formulas:

Variable Labor Cost (5) = Encounter Department Variable Direct Cost x (A/B)

A = Total Department Variable Labor Cost (5)

B = Total Department Direct Variable Cost (variable labor + variable supply + variable other).

WARD_BED

For observation cases (Stop Code 290-296) only, the number of unique values of DATE OF SERVICE for WARD bedday records

5. Using the IPD Files for Research

5.1 IPD File Formatting

The IPD national extract files do not contain any formatting for the product department variable (IPD_NUM), so HERC has created a permanent SAS format library that is available at AITC under the name RMTPRD.HERC.DSS.SAS.ALBFMTS for the product department names for IPD files FY 2003 through FY 2010. Using this file, the format *DCM01_* can be applied to the IPD_NUM variable. This file is accessible to VA personnel under the functional task code for DSS data. The format names were obtained from the national DSS list of product departments and clinical production units. Because of the large number of product departments (more than 600 product departments in FY 2008), the format names are not listed in this guide.

The IPD product department code can contain 4-7 characters depending on whether there is a subdivision, and this varies by facility. For example, a facility may have more than one primary care clinic in different locations, so the IPD_NUM for each primary clinic contains additional character(s) to denote the subdivision. Also, not all of the product departments are standardized across facilities. There is facility variation in whether departments refer to separate units for inpatients and outpatients or units for both types of care. For example, some facilities have separate departments for inpatient and outpatient dialysis, and other facilities use only one department code for both inpatient and outpatient dialysis. The DSS IPD format names are generic names used to denote the type of care that was provided but not the location.

HERC analysts took several steps to define the formats. Overall, 14% of IPD codes (IPD_NUM) in the IPD 2003-2008 files were matched to a format name by the entire 4-7 character code to the corresponding product department name. Other codes were defined by partial matches. 73% of IPD codes were matched using the clinical service and production unit (first three characters of the IPD_NUM). An additional 12% of IPD codes were matched using only the production unit, the second and third characters. These cases occurred when the production unit referred to care not provided by the clinical service denoted in the IPD_NUM (e.g. podiatry care in the ambulatory service). The remaining codes are formatted to their own values because they cannot be uniquely tied to a clinical service and production unit (less than 1% of all records in the O-IPD and T-IPD files). Researchers may need to contact local DSS staff at a particular medical center in order to determine the appropriate product department name on a case-by-case basis.

To use the format library, the SAS statements below are used to call the formats:

```
libname NAME '/PATH/FOLDER';
options fmtsearch=(NAME.albfmt);

data DATASET_B;
  set DATASET_A;
  format ipd_num $dcm01_.;
run;
```

5.2 Merging Records with Utilization Files at the Encounter Level

Researchers may need to merge product department records with utilization files to obtain more detailed clinical information at the encounter level; for example, researchers may want to estimate the average cost of nursing hours in inpatient cardiac care units per hospitalization with certain clinical characteristics. As there may be multiple IPD records per encounter record, records of the same encounter in the IPD file must be aggregated in order to merge the data with encounter records.

This example discusses obtaining costs for a specific product department for an encounter where product department costs are summed across records for each encounter. Below is programming language which details how to create a dataset with costs summed across a given product department for each encounter and how to merge these records with encounter-level records such as hospitalization records in the PTF. Both SAS and Stata code are provided as examples.

The T-IPD files are structured by treating specialty and month of treatment, so there may be multiple records for each product department and hospitalization. To obtain records at the encounter level, researchers may need to construct a file with one record for each patient stay (SCRSSN, STA3N, ADMITDAY). In this example the variables of interest from the IPD file are the product department and the total costs for the product department or IPD_NUM and IPD_TOT, respectively. If a hospital stay begins in one fiscal year and ends in the next (e.g. stay begins 09/25/07 and ends 10/05/07), researchers will have to aggregate IPD records from multiple fiscal year files.

The IPD_NUM used in this example is UE61 for nursing cardiac inpatient units to get the total costs for this product department for each encounter. These summed costs are then merged with records from the PTF.

SAS programming code

```
proc sql;
  create table newtable as
  select SCRSSN, STA3N, ADMITDAY,
  sum(IPD_TOT) as tot_ipd_tot
  from subset (where=(IPD_NUM='UE61'))
  group by SCRSSN, STA3N, ADMITDAY;
quit;
```

```
Data mergedfile;
  Merge newtable ptffile;
  By SCRSSN STA3N ADMITDAY;
run;
```

Stata programming code

```
Use filename, clear
    Keep if (IPD_NUM == "UE61")

collapse (sum) newvar1 = IPD_TOT, by (SCRSSN STA3N ADMITDAY)

save newfilename

use ptffile, clear
sort SCRSSN STA3N ADMITDAY
merge SCRSSN STA3N ADMITDAY using newfilename
save mergedfile
```

5.3 Merging Records at the Bed Section or Clinic Stop Level

In other research studies or analyses, researchers may want to look at costs per patient for care obtained in certain bed sections and clinic stops. This example looks at the average annual cost per patient for inpatient dialysis by treating specialty. Researchers would need to create a file with one record per patient stay for each treating specialty by scrambled SSN, facility, date of admission, and treating specialty (SCRSSN, STA3N, ADMITDAY, TRTSP) and sum costs across patient stays for a given IPD. The variables of interest in this example are the same as above (product department and total costs for the product department or IPD_NUM and IPD_TOT). The treating specialty variable (TRTSP) is renamed to bed section (BEDSECN) to match the variable name in the PTF.

The IPD_NUM used in this example is I2G1 for inpatient dialysis. These summed costs are then merged with records from the PTF.

SAS programming code

```
proc sql;
    create table newtable as
    select SCRSSN, STA3N, ADMITDAY, TRTSP as BEDSECN
    sum(IPD_TOT) as newvar1
    from originalfile (where=(IPD_NUM='I2G1'))
    group by SCRSSN, STA3N, ADMITDAY, BEDSECN;
quit;

Data newfile;
    merge newtable ptffile;
    by SCRSSN STA3N ADMITDAY BEDSECN;
run;
```

Stata programming code

```
Use filename, clear
    keep if (IPD_NUM == "I2G1")
    rename TRSTP BEDSECN
collapse (sum) newvar1 = IPD_TOT , by (SCRSSN STA3N ADMITDAY BEDSECN )
save newfilename

sort SCRSSN STA3N ADMITDAY BEDSECN
merge SCRSSN STA3N ADMITDAY BEDSECN using ptffile
save mergedfile
```

5.4 Facility Level Costs

Another use of the IPD files may be to obtain product department costs by facility for a treating specialty. In this example we obtain the total costs by station for two product departments. We look at the product departments I2G1 for inpatient dialysis and I2I1 for hemodialysis unit for the treating specialty nursing home care (80).

SAS programming code

```
proc sql;  
  create table newtable as  
  select IPD_NUM, STA3N, TRTSP,  
  sum(IPD_TOT) as newvar  
  from subset where IPD_NUM in ('I2I1','I2G1') and TRTSP eq '80'  
  group by STA3N, IPD_NUM;  
quit;
```

Stata programming code

```
Use filename, clear  
  keep if (IPD_NUM == "I2G1" | IPD_NUM == "I2I1") & (TRTSP == '80')  
  
collapse (sum) newvar = IPD_TOT, by (STA3N IPD_NUM)  
save newfilename
```