



YOUR GUIDE TO VA DATA

Insights

Intranet addresses have been removed from this document. Intranet links are available on the Intranet version of this publication. For more information, please go to VIREC's Redaction Information web page: <http://www.virec.research.va.gov/References/Redactions.htm>

The Pharmacy Benefits Management (PBM) Database: A Primary Resource for Nation-Wide VA Medication Data

Assessment of the various economic, clinical, and humanistic outcomes related to different drug treatment options has become a key area of focus in health care. Health services researchers within the Department of Veterans Affairs (VA) have long desired a comprehensive database on VA-issued pharmaceutical prescriptions and associated costs. The Veteran Health Administration (VHA) Pharmacy Benefits Management Strategic Health Group (PBM/SHG) has developed a drug utilization database designed to support its mission of managing the VA National Formulary process. In many ways, the development and maintenance of the PBM patient-specific database addresses some of the data needs of VA health services researchers and clinical program managers.

What is the Pharmacy Benefits Management (PBM) Database?

HISTORY

The PBM Database captures extensive prescription information for all VA patients who obtain their prescriptions within the VA system. The purpose of the PBM Database is to supply dispensing data elements from the Veterans Health Information Systems Technology & Architecture (VISTA) software packages in order to support, maintain, and facilitate optimal quality of care and research.

YEARS COVERED

Fiscal year 1999 (starting October 1, 1998) through the present.

SOURCE DATA

Specific VISTA software packages providing source data for the PBM Database include: 1) Outpatient Pharmacy package, 2) Inpatient Medications package (Intravenous [IV], Unit Dose [UD], and Automatic Replenishment/Ward Stock [AR/WS]), 3) Controlled Substance package (CS), and 4) Laboratory package.

UNIQUE FEATURES

- ◆ Information on each occasion of drug dispensation, which helps to track total prescription usage on a gross or discrete level.
- ◆ Controlled substance dispensing, which can help identify appropriate use of these medications.
- ◆ Laboratory data allowing for the monitoring of therapeutic effectiveness and selected side effects.
- ◆ A national formulary indicator and restriction information.
- ◆ Identifies medications filled at the Consolidated Mail-Out Pharmacies (CMOP).

HOW CAN THE PBM DATABASE BE USED IN RESEARCH?

Various applications of this database include:

- ◆ Analysis of population-based prescribing habits
- ◆ Review of drug utilization trends
- ◆ Examination of economic, clinical, and humanistic outcomes
- ◆ Assessment of disease management guidelines
- ◆ Development of pharmaco-economic evaluations
- ◆ Establishment of studies focusing on appropriate use and compliance
- ◆ Estimation of drug usage at a local, regional, or national level

WHAT DATA ARE INCLUDED IN THE PBM DATABASE?

The PBM database includes every VA patient that has activity at a VA pharmacy. It includes medication utilization information based on patient Social Security Number (SSN) for every prescription filled in the VA, dosing instructions for each prescription, National Drug Code (NDC) identifier where applicable, cost, provider information, and other data specific to inpatient and outpatient sectors. Each VA facility electronically transfers patient-specific data on a monthly basis to the PBM/SHG based in Hines, IL.

Data originate from the VISTA Outpatient Pharmacy, Inpatient Medications, Controlled Substances, and Laboratory packages at each VA station. Upon receipt, the PBM collects, processes, and translates the information into a national database format. Currently, from these components, only outpatient and laboratory data are being translated into a format useful for research. The other portions of the database await completion, with the IV and UD sections scheduled for release in 2001.

The PBM database includes comparative data for all VA facilities nationwide and data can be aggregated nationally by VISN, station, or individual VA clinics at monthly, quarterly, and annual intervals. The database undergoes a monthly update. A brief description of each VISTA source package is outlined below.

OUTPATIENT PHARMACY PACKAGE

The Outpatient Pharmacy Package comprises prescriptions dispensed at a site's pharmacy, either as a new fill or a refill, within that month. Also included are prescriptions dispensed and filled during the month by a CMOP. The package provides a detailed profile of the types of medications, quantities, cost, and dosing for unique patients evaluated. (*Refer to the table on pages 6-7 titled, "VISTA Pharmacy Packages Source Data and Constituent Fields Contained within the PBM (Version 3.0) Database" for a complete list of variables*)



INPATIENT MEDICATIONS PACKAGE

◆ Intravenous (IV) and Unit Dose (UD) Modules

IV and UD data represent each individual order entered by the prescriber and are contingent upon its “active” status and continuation of dispensing occurrences. Medications ordered but not dispensed are not included in the feed to the PBM database.

◆ Automatic Replenishment/Ward Stock Module

The Automatic Replenishment/Ward Stock package of VISTA manages the drug stock inventory by tracing the utilization of medications stored and administered in the clinic or on the ward unit. This package does not track inventory at the patient level. Each clinic ward unit has specific amounts of certain medications most commonly used. The medication supplies vary per unit according to areas of practice and previous utilization. Using the allotted amounts of drug per ward unit stock and following its distribution, in addition to observing the frequency of use of medications not previously included as part of this stock, can provide direction on when and how much of a given medication to restock for the area.

CONTROLLED SUBSTANCE (CS) PACKAGE

The Controlled Substance package supplies information about controlled substance use. However, these entries may duplicate some orders received through the other VISTA sources.

LABORATORY PACKAGE (LIMITED DATA)

The Laboratory Package includes medication-specific lab result data, such as for monitoring therapeutic efficacy or adverse effects. Lab values take into account the most recent test results of the year and apply to several target drug classes only.

DRUG CLASS	REQUIRED LAB RESULTS
Antineoplastic Hormones	Testosterone and Testosterone Free
Calcium Channel Blockers	Creatinine
Antilipidemic Agents	Total Cholesterol, LDL, HDL, Triglycerides, SGOT, & SGPT
ACE Inhibitors	Creatinine & Potassium
H2 Antagonists	Creatinine
Oral Hypoglycemics	Glucose, HgbA1c, SGOT, & SGPT

For further information on the specific fields contained in the database for each package, visit the Pharmacy Benefits Management Strategic Healthcare Group Website at [\[REDACTED\]](#)

WHAT ARE SOME LIMITATIONS OF THE DATABASE?

The PBM (v. 3.0) Database has deficits in the following areas:

- ◆ Cost information is facility-specific. Cost information ensues from manual entry of prices at a facility level, with or without reference to the Drug Accountability package. Therefore, prices reported at the facility level may not accurately reflect immediate price increases, decreases, and Blanket Purchase Agreements (BPAs) in a timely fashion due to lack of personnel or other reasons. Also, the use of different manufacturers of the same drug could compound the cost issue if not recorded accurately, since the database is nomenclature-based.
- ◆ Dispense units are not standardized for topicals (creams, ointments, gels), liquids, aerosols, etc. For example, various units reported include “mg”, “gm”, “ml”, “L”, and “each”, depending on the person entering prescriptions or facility preferences. This lack of consistency can cause some confusion in interpreting the data on the actual amount of drug dispensed.
- ◆ A “stop date” field is not available for inpatient medications. Currently, this information can be inferred by combining the start date, dosing instructions, and dispensing occurrences of more than a single month’s report for a particular patient. However, this method is subject to error from making assumptions and may not reflect those medications dispensed from the ward stock.
- ◆ The current database is not NDC-based.

HOW CAN RESEARCHERS GAIN ACCESS TO THE DATABASE?

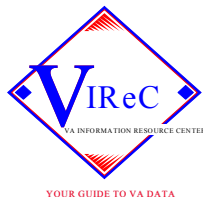
Investigators and clinicians can obtain data from the PBM v. 3.0 Database from the PBM/SHG. The following steps are necessary:

- 1) Contact the PBM/SHG or obtain a “PBM Data Request Form,” which can be found on the VIREC or PBM/SHG Websites (*Refer to back page for URLs*),
- 2) Complete the data request form, and return it to the PBM/SHG,
- 3) Submit a copy of the Institutional Review Board approval for the specific research project to the PBM/SHG, and
- 4) Submit a summary of the project to the PBM.

The time required for project completion depends on three factors:

- ◆ date or time of receipt of the request,
- ◆ degree of complexity, and
- ◆ volume of data required.

For individually identifiable data, a scrambling algorithm and separate key can be provided.



What Future Updates are Pending for the PBM Database?

- ◆ Elimination of the redundancy of listing provider (i.e., prescriber) information in each VISTA package extract by constructing a separate Provider module containing the pertinent data elements.
- ◆ Amendment of the Outpatient Pharmacy module to indicate a clinic of origin for each prescription written, to shorten the dosing instructions field, and to display additional data elements where appropriate (i.e., dosage ordered, dispense units/dose, route schedule, duration, and patient instructions).
- ◆ Expansion of the Laboratory module to include the National VA Lab Code to provide standardization in terminology between VISNs and stations, inserting further lab test results standard for patients receiving at least one prescription and for patients on certain drug classes that need close monitoring, and dividing the numeric and comment values into two mutually exclusive fields- one with numbers and one with text. For this package, the latest value (i.e., the value closest to time of prescription) will be extracted.
- ◆ Alteration of the Automatic Replenishment/Ward Stock module to separate the entries into two independent sections (either automatic replenishment or ward stock) for better identification.
- ◆ Development of a module containing patient demographic information to better assess each patient in relation to their disease state, to identify any predisposing factors, and to evaluate epidemiological factors.
- ◆ Production of a Vital Sign module in order to monitor pertinent parameters necessary to measure the progression/resolution of a particular disease state and the efficacy of certain therapeutic interventions.
- ◆ Establishment of a Drug Information module that will carry information from the Adverse Reaction Tracking (ART) file (i.e., reactant, reaction, and severity), elements from the Pharmacy Intervention file (i.e., drug, intervention, and recommendation), and drug-drug interaction notifications.
- ◆ Exploration of new options of user interface that take into account the large amount of data requested and extracted.

**VISTA PHARMACY PACKAGES SOURCE DATA AND CONSTITUENT FIELDS
CONTAINED WITHIN THE PBM (VERSION 3.0) DATABASE**

Data Source Package	PBM Field	
Outpatient Pharmacy Package	Facility identifiers	Formulary/Non-formulary indicator
	Date of original fill/refill	National formulary indicator
	Date dispensed	National formulary restriction
	Prescription number	DEA special handling field
	Prescription patient status	New/Refill/Partial Indicator
	Patient identifiers (Social Security Number; SSN)	Provider identifiers (MD SSN)
	VA Product Name	Provider type (fee/staff)
	VA drug class	Provider class
	Generic drug name	Provider service/section
	Drug identifiers (National Drug Code number; NDC)	Provider specialty
	Consolidated Mail Outpatient Pharmacy (CMOP) indicator (Y/N)	Dosing instructions
	Mail/Window Indicator	Acceptance/Refusal of counseling
		Dispense unit
		Price per dispense unit
	Days supply	
	Total quantity dispensed	
Inpatient Medications Package Intravenous (IV) Submodule	Facility identifiers	Dispensing occurrences of IV order (# of IV bags)
	Start date of order	VA product name
	IV order #	VA drug class
	Order indicator	Drug identifiers (NDC number)
	IV type	Formulary/Non-formulary indicator
	Outpatient IV	National formulary indicator
	Patient identifiers (SSN)	National formulary restriction
	Dosing instructions	IV additive or solution print name
	Provider identifiers (MD SSN)	IV additive or solution indicator
	Provider type (fee/staff)	Generic drug name
	Provider class	Drug unit
	Provider service/section	Drug cost per unit
	Provider specialty	Total units dispensed
	Provider subspecialty	

Continued to page 7



Continued from page 6

DATA SOURCE PACKAGE	PBM FIELD	
Inpatient Medications Package Unit Dose (UD) Submodule	Facility identifiers Start date of order Unit dose order # Patient identifiers (SSN) Dosing instructions Provider identifiers (MD SSN) Provider type (fee/staff) Provider class Provider service/section Provider specialty Provider subspecialty VA product name	VA drug class Generic drug name Drug identifiers (NDC number) Formulary/Non-formulary indicator National formulary indicator National formulary restriction Units per dose Dispense unit Price per dispense unit Dispensed amount (total)
Inpatient Medications Package Automatic Replenishment/ Ward Stock (AR/WS) Module	Facility identifiers Breakdown by division/outpatient site Month and year of report VA product name VA drug class Generic drug name Drug identifiers (NDC number)	Formulary/Non-formulary indicator National formulary restriction Dispense unit Cost per dispense unit AMIS category AMIS conversion number Total quantity dispensed
Inpatient Medications Package Controlled Substance (CS) Module	Facility identifiers Breakdown by division/outpatient site Dispense (transaction) date Patient identifiers (SSN) VA product name VA drug class Generic drug name Drug identifiers (NDC number)	Formulary/Non-formulary indicator National formulary indicator National formulary restriction Breakdown unit or dispense unit Package size Unit cost Total quantity dispensed or total doses dispensed
Laboratory Package	Facility indicators Patient identifiers (SSN) IV order number UD order number Prescription number	Generic drug name Lab test name Results and units Hi/Lo flags Date/Time specimen collected

PBM Database Contacts

Francesca Cunningham, Pharm.D.
Program Manager, Outcomes Research
Pharmacy Benefits Management/Strategic Healthcare Group
Telephone: (708) 786-7862

Michael Valentino, R.Ph., MHSA
Associate Chief Consultant
Pharmacy Benefits Management/Strategic Healthcare Group

Websites

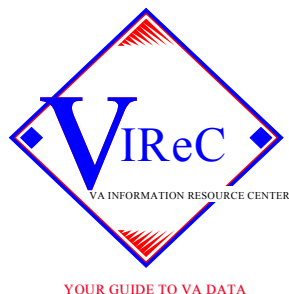
- ◆ Pharmacy Benefits Management SHG (Intranet)
[REDACTED]
- ◆ VA Information Resource Center (Internet)
<http://www.virec.research.va.gov>

Suggested Citation

Cunningham F, Sales M, Valentino M. The Pharmacy Benefits Management (PBM) Database: A Primary Resource for Nation-Wide VA Medication Data. VIREc Insights Hines, Illinois: VA Information Resource Center, 2001, Vol. 2 No. 2.

Editorial Staff

Editor-in-Chief: Denise M. Hynes, PhD
Managing Editor: Sam Manivong, MS
Design/Layout: April Kopp



VA Information Resource Center
Telephone: (708) 202-2413
FAX: (708) 202-2415
Hours: M - F, 8:00 A.M. - 4:30 P.M. CT
Address: Hines VA Hospital
VIREc (578/151V)
P.O. Box 5000
Hines, IL 60141-5000

Visit our Website: www.virec.research.va.gov