



**IMMUNOLOGY CASE REGISTRY
TECHNICAL MANUAL AND PACKAGE
SECURITY GUIDE**

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Preface

The Immunology Case Registry Technical Manual and Package Security Guide has been developed for IRMS (Information Resource Management Service) and CIOFO (Chief Information Office Field Office) support personnel and contains technical information on the application. The content covers: software implementation and maintenance, routine descriptions, a file list, an exported option list, cross-references, archiving and purging, callable routines, external relations, package-wide variables, on-line documentation, and package security issues.

The Immunology Case Registry Technical Manual and Package Security Guide is one of four manuals associated with the application. Information discussing the functionality of the software's menus and options is found in the Immunology Case Registry User Manual. Information critical to the successful installation of the software can be found in the Immunology Case Registry Installation Guide. New release changes can be found in the Immunology Case Registry Release Notes.

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Introduction

The Immunology Case Registry (ICR) application supports the maintenance of local and national registries for clinical and resource tracking of Human Immunodeficiency Virus (HIV/AIDS) disease. This version of the Immunology Case Registry Package provides many capabilities to VA Medical Centers that provide care to immune deficiency patients. The software supports the categorization of patients with HIV disease, generates reports to the Center for Disease Control (CDC), and automatically extracts data for inclusion in the VA's National Immunology Case Registry. It also provides several clinical and administrative reports for medical center use.

The Immunology Case Registry Package accesses several other *VISTA* files which contain information concerning diagnosis, prescriptions, laboratory tests, radiology exams, hospital admissions, and clinic visits. This allows clinical staff to take advantage of the wealth of clinical data supported through *VISTA*.

Functionality:

- Creates a simple process for entering and tracking a patient into the registry. Users need only identify the patient and determine the disease category for that patient. Virtually all other data employed by the ICR module is accessed through the other *VISTA* packages (e.g., Pharmacy, Laboratory, Dental, and Radiology).
- Provides security in addition to that provided by the Kernel and VA FileMan to ensure patient confidentiality. Patient identifying information is automatically encrypted for transmission to the National Registry. Names are never transmitted.
- Provides data extracts for uploading to a National Registry. The National Registry is used to provide VA-wide review of patient demographics, clinical aspects of disease, and resource utilization involved in providing care to patients.
- Provides a variety of management reports for local use, including patients lost to follow-up, frequency of visits, and volume of lab tests and prescriptions per patient.
- Audits user access to patient data for patients in the registry.
- For the Medical Center's local Immunology Case Registry:
 - Categorizes patients according to severity of HIV disease.

Introduction

Collects data necessary for reporting of AIDS cases to the Center for Disease Control. Automatically generates CDC report forms for patients categorized as AIDS patients.

Lists patients who have not been seen at the medical center for a specified length of time.

Generates resource utilization reports.

Chapter 1 Implementation and Maintenance

Description:

This chapter provides guidelines for implementing the Immunology Case Registry application. The Immunology Case Registry package was mandated for installation by circular 10-91-142 on Dec. 2, 1991. It is important to complete all of the steps contained in this chapter before assigning menu options to clinical staff.

Immunology Case Registry is found in the IMR namespace. All routines, templates and options begin with IMR. File numbers are in the range of 158 to 158.95 and are stored in the ^IMR global.

Virgin Installation of Software:

The following steps should be followed when the Immunology Case Registry software is installed in an environment where no previous installation of the Immunology Case Registry application has taken place.

1. Setting up the software environment.

Information Resource Management Services (IRMS) staff should install the software using the Installation Guide in a test environment prior to installing the software in the production (VAH) account. The following *VISTA* packages should reside in the environment where the Immunology Case Registry application is to be installed:

- a. VA FileMan V. 21 or greater,
- b. Kernel V. 8.0 or greater,
- c. Kernel Toolkit V. 7.3 or greater,
- d. PIMS V. 5.3 or greater,
- e. MailMan V. 7.1 or greater.

The Immunology Case Registry Package accesses other *VISTA* packages (e.g., Pharmacy, Laboratory, Dental, and Radiology) which contain information concerning diagnosis, prescriptions, laboratory tests, radiology exams, hospital admissions, and clinic visits.

Data entered into the test environment **CANNOT** be transferred into the production environment. It is recommended that a limited amount of data be entered into the test directory in order for the user to become familiar with the application and to establish an acceptable training data base.

2. Editing site configurable files.

- a. The Enter/Edit Immunology Study Site Parameters option edits the IMR Site Parameters (#158.9) file.
- b. The Lab Test Specification for Immunology option edits the Immunology Specific Lab Test (#158.95) file.

Note: A new lab-specific test, Viral Load, is included with this version. The ADPAC or IRMS support person should use the Lab Test Specification for Immunology option to link this Viral Load category name to local (facility) lab test names for viral load tests.

- c. The Specification or Drugs for Immunology option edits the Immunology Specific Drug (#158.94) file.

Review the above populated site configurable files. The options which allow the application coordinator to edit the file's data are all located in the Immunology Study Management Menu (i.e., ICR Site Management Functions).

3. Queueing TaskMan jobs.

The Extract Data for Immunology Study Registry [IMR REGISTRY DATA] option should be queued to run nightly at 6:00 pm or later. The ADPAC may queue this option to run via the Queue Registry Data Collection [IMR QUE DATA COLLECT] option or the IRMS support person may use the Schedule/Unschedule Options option to queue the IMR Registry Data option to run.

Note: There is no need to schedule this task to run in your test account.

4. Accessing menus.

Access to the package is restricted to holders of the security keys associated with the package. The keys are required for access to the files, as well as utilization of the routines. Attempts to access the files or use the routines without the proper security keys results in an entry in the IMR Access Violations (#158.8) file which identifies the individual, date and time, and the attempted access. Access violations are also recorded in the facility's error trap.

There are two security keys in this application:

IMRA - This is a general key for access to the ICR Package.

IMRMGR - This is the key held by the individual(s) in charge of the ICR Package at their facility.

5. Assigning menus.

The Immunology Study Management Menu contains the following menus or options:

Select OPTION NAME: **IMR MENU (MANAGEMENT)** Immunology Study Management Menu

ICR PACKAGE VERSION 2.1

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ICR Site Management Functions ...
Reports Menu (ICR) ...
General Immunology Study Menu ...
Delete an Entry from the Case Study File
Create Search Template Containing Study Members
Lab Test Specification for Immunology
Specification of Drugs for Immunology
Encryption of Data (Demonstration)

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Clinical staff should be assigned the 2nd and 3rd options (i.e., Reports Menu (ICR) and General Immunology Study Menu). The other options should be assigned to the Immunology Case Registry application coordinator.

6. Printer issues.

The user should select certain printers to be set up as allowable (secure) printers in the IMR Site Parameters (#158.9) file. If the user attempts printing to a non-secure printer, then the output will be replaced by an error message indicating that the output can only be directed to a secure printer. However, users can print their output to a printer that is “slaved” to their terminal.

7. Domain.

The IMMUNOLOGY.VA.GOV domain must be set-up in the Domain (#4.2) file for each facility. If no such entry exists, contact your CIO Field Office customer support representative to find out what values are needed; then use the Enter/edit functionality of FileMan to create the entry.

Non-Virgin Installation of Software:

Follow steps 1 through 7 above when installing the software in an environment where a previous version of the application has been installed.

Implementation Considerations:

The installation should not be done while the Extract Data for Immunology Study Registry [IMR REGISTRY DATA] option is running. Check the Option Scheduling (#19.2) file to find out when this option is scheduled to run.

Resource Requirements:

The minimal hardware requirements for the software is one CRT and one printer per location. In addition to this, the following statistics regarding the disk storage requirements of the software were compiled by the Alpha/Beta test sites.

<u>Globals</u>	<u>Type of Data</u>	<u>Size</u>
DDs		300 k
IMR	Patient data for the Immunology Case Registry application	4 k/ patient
XM	Patient data extract mail messages to the National Registry	1 k/ message

Chapter 2 Routine Descriptions

IMRACCESS	This routine maintains the log of users who have accessed the system.
IMRCALL	This routine is used for making calls to the PIMS VADPT API.
IMRCAT	This routine displays the instructions for selecting one of the four categories of patient (HIV+ (T4>500), HIV+ (T4<500), AIDS (CAT 3) and AIDS).
IMRCD4	This routine handles the checking of CD4 value input.
IMRCDC	This routine gathers information for the CDC form.
IMRCDCED	This routine sets up the fields for editing the CDC form.
IMRCDPCR	This routine is used to print the CDC form.
IMRCDCPX	This routine is used to print the CDC form.
IMRCDP1	This routine is used to print the CDC form.
IMRCDP2	This routine is used to print the CDC form.
IMRCDP3	This routine is used to print the CDC form.
IMRCDP4	This routine is used to print the CDC form.
IMRCDP5	This routine is used to print the CDC form.
IMRCDP6	This routine is used to print the CDC form.
IMRCDP7	This routine is used to print the CDC form.
IMRCDP8	This routine is used to print the CDC form.
IMRCDPR	This routine displays diseases for the CDC form.
IMRDAT	This routine drives the data extract process to the National HIV Registry.
IMRDAT1	This is a continuation of the routine IMRDAT.
IMRDD	This routine checks for a status that agrees with the date of death.

Routine Descriptions

IMRDEL	This routine deletes an entry in the Immunology Case Study file.
IMREDIT	This is the main routine for entering and editing basic patient data.
IMRENV	This is the environment check routine for the V. 2.1 installation.
IMRERR	This routine produces an error that is trapped in the system error trap whenever an unauthorized user attempts to access the Immunology Case Registry package.
IMRIPST	This is a post-init Immunology routine.
IMRIPST1	This is a post-init Immunology routine.
IMRKEYS	This routine manages the allocation and deallocation of the security keys for the package.
IMRLAB	This routine produces the Lab activity and costs for the national data extract.
IMRLAB1	This routine calculates and displays laboratory activity and costs for microbiology for the national data extract.
IMRLCAT	This routine produces the Breakdown of Patients by Category report.
IMRLCAT1	This is a continuation of the routine IMRLCAT.
IMRLCAT2	This is a continuation of the routine IMRLCAT.
IMRLCNT	This routine produces the Inpatient and Outpatient Activity report.
IMRLCNT1	This is a continuation of the routine IMRLCNT.
IMRLCNT2	This is a continuation of the routine IMRLCNT1.
IMRLCNT3	This is a continuation of the routine IMRLCNT1.
IMRLFOL	This routine produces the Follow Up report.
IMRLIST	This routine produces the Registry List report.
IMRLLAB	This routine produces the Laboratory Utilization Data report.
IMRLLAB1	This is a continuation of the routine IMRLLAB.

IMRNTL	This routine is used for the National Data Base Inquiry.
IMRNTL1	This routine is used for the National Data Base Inquiry.
IMRPINQ	This routine is used for the Patient Inquiry option.
IMRPINQ1	This is a continuation of the IMRPINQ routine.
IMRPNEU1	This routine is used for the Pneumococcal Immunization Report.
IMRPNEUM	This routine is used for the Pneumococcal Immunization Report.
IMRPRE	This is a pre-init Immunology routine.
IMRPTF	This routine extracts information from the Patient Treatment file for transmission to the National HIV Registry.
IMRRAD	This routine extracts information from the Radiology database for transmission to the National HIV Registry.
IMRRADL	This routine is used to print the Radiology Utilization Report.
IMRRADL1	This routine is used to print the Radiology Utilization Report.
IMRREST	This routine resets the patient HIV category.
IMRRISK	This routine is used to calculate the patient's HIV risk.
IMRRX	This routine extracts the Pharmacy data for transmission to the National HIV Registry.
IMRRXL	This routine generates the Pharmacy Prescription Utilization Data report.
IMRRXL1	This routine is used to print the Pharmacy Prescription Utilization Data report.
IMRRXLA	This routine provides list data on the Pharmacy Prescription Utilization Data report.
IMRRXS	This routine is used to print the Drug Specific Utilization Report.
IMRSCH	This routine gathers the outpatient activity for transmission to the National HIV Registry.
IMRSCNT	This routine generates the Specific Inpatient/Outpatient Utilization report.

Routine Descriptions

IMRSCNT1	This is a continuation of the routine IMRSCNT.
IMRSET1	This routine produces the Current Inpatients Report.
IMRSHO	This routine shows a sample of the encryption technique used in the package.
IMRSLAB	This routine produces the Utilization of Specific Lab Tests report.
IMRSOPT	This is the routine that the ADPAC can use to queue the National Registry data extract to run.
IMRSPRAM	This routine is used to set up parameters for the Immunology Case Registry package, including Lab, Pharmacy and Radiology.
IMRSRCH	This routine is used to create, show and delete search templates containing the patients in the Immunology Case Study file.
IMRTST	This routine looks up the results of Lab tests if they are present.
IMRUTL	This routine is a general purpose utility.
IMRVLAB	This routine produces the Viral Tests List report.
IMRXOR	This is the main encryption routine in the package.

Chapter 3 File List and Related Information

File Descriptions

IMMUNOLOGY CASE STUDY 158

This file is used to maintain local patient specific data related to the Immunology Case Registry.

The data fields are related to three areas:

1. Locally relevant data - this includes patient id (coded), the HIV-related category of the patient, the date(s) when the patient's category was determined or changed.
2. Information for use in printing the CDC form. These fields are related to the five parts of the CDC form, and the largest group of fields in the file.
3. Information related to the last date observed for different types of data included within the most recent data collection for the National Registry for the patient.

IMR ACCESS VIOLATIONS 158.8

This file logs attempts to access either routines or files which are restricted as a part of the Immunology Case Registry package. The information logged is the date and time of the violation, the user id, and the routine name or file which was being accessed.

In addition, any entry should appear in the system error log for each access violation recording a reference to a missing line. This error is logged whether the user is logged in under programmer mode or not.

IMR SITE PARAMETERS 158.9

This file contains the parameters unique to your facility that the Immunology Case Registry software needs in order to function properly.

IMMUNOLOGY SPECIFIC DRUG 158.94

This file contains the names of drugs which were specifically identified by the HIV Focus Group as necessary for the Immunology Case Registry package.

The entries in this file are pointed to by the Immunology Case Registry Site Parameter file for the Specific Drug field. There should be a corresponding entry in the Site Parameter file for each entry in this file. In the Site Parameter file all entries in the site Drug file which correspond to an entry should be entered.

IMMUNOLOGY SPECIFIC LAB TEST 158.95

This file contains the names of lab tests which were specifically identified by the HIV Focus Group as necessary for the Immunology Case Registry package.

The entries in this file are pointed to by the Immunology Case Registry Site Parameter file for the Specific Lab Test field. There should be a corresponding entry in the Site Parameter file for each entry in this file.

Package Default Definition

FILE #	NAME	UP DATE DD	SEND SEC. CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
158	IMMUNOLOGY CASE STUDY	YES	YES	NO			
158.8	IMR ACCESS VIOLATION	YES	YES	NO			
158.9	IMR SITE PARAMETERS	YES	YES	NO			
158.94	IMMUNOLOGY SPECIFIC DRUG	YES	YES	YES	ADD	NO	NO
158.95	IMMUNOLOGY SPECIFIC LAB TES	YES	YES	YES	ADD	NO	NO

Chapter 4 Exported Options

Menu Options by Name

IMR ACCESS LOG Access Violation Log

This option is used to list any access violations in the ICR package, and to delete any entries over 30 days old.

Access violations are recorded when an individual who does not have a proper key for a file or routine (IMRA and/or IMRMGR) either attempts to use the routine or access an entry in the file. The access is recorded in this list AND is recorded in the system error trap as the result of a reference to a non-existent line.

In most cases these violations would have to occur at the Programmer access level, since all of the options (except those used by Laboratory and Pharmacy to initialize the Drug and Lab Test sub-files of the Site Parameter File) are protected by a security key.

IMR BLANK CDC FORM Generate a BLANK copy of CDC Form

This option can be used to generate a blank copy of the Center for Disease Control (CDC) form to act as a template for asking questions, etc.

IMR CATEGORY BREAKDOWN Breakdown of Patients by Category

This option produces a breakdown of patients within various groupings (age, sex, living status, eligibility, means test group, etc.) by their category within the Immunology Case Study file. If a date range is specified, the categories will also be shown for patients seen during that period of time as outpatients, inpatients, who had prescriptions filled, and laboratory tests performed. The other breakdowns will appear only for those patients seen during the specified period.

IMR CDC ENTER/EDIT CDC Form Data Entry

This is the option used to enter data which is required prior to printing the Center for Disease Control (CDC) form from the Immunology Study file.

IMR DELETE ENTRY Delete an Entry from the Case Study File

This option provides the ability for an individual with the IMRMGR key the ability to delete an incorrect entry from the Immunology Case Study (#158) file.

WARNING: this option will delete all information in File 158 relative to this patient. IN ADDITION, it will send a message to the National Registry to indicate that information concerning the selected patient should not be included within the Registry.

IMR ENTER/EDIT DATA Enter/Edit Basic Patient Data

This is the option used to enter a new patient into the Immunology Case Study (#158) file, and to update changes (e.g., category or status).

IMR FOLLOW UP LIST Follow Up Report

This option produces a listing of those patients who are at risk for loss to follow-up. The listing is based on patients identified as not having been seen since the date selected by the user. Patients are not listed if there is a date of death in the Patient (#2) file. The listing gives the last date seen, the patient name, the last 4 digits of the social security number and the category by number.

IMR INPAT LIST Current Inpatients Report

This option produces a list of those members of the Immunology Case Study file who are currently inpatients, including their location.

IMR INQUIRY NATIONAL Inquiry To National Data Base

This option will allow the users to make an inquiry to the National Registry for seven reports. The reports are: Patient Inquiry, Breakdown of Patients by Category, Laboratory Utilization Data, Pharmacy Prescription Utilization Data, Follow Up, Utilization of Specific Lab Tests, and Drug Specific Utilization.

IMR IP/OP ACTIVITY LIST Inpatient and Outpatient Activity

This option provides a listing of selected inpatient and outpatient activity during a specified time for members of the Immunology Case Study file. Outpatient activity indicates the number of visits and number of patients involved for each stop code. Inpatient activity indicates the number of patients at each of 1 stay, 2 stays, etc., and the number of patients, stays, total days of inpatient activity, and the median length of stay for each bed section.

IMR KEYS Show users with access to 'ICR' keys

This option is used by the Immunology Case Registry (ICR) application coordinator, or equivalent, to examine which users hold the ICR keys.

IMR LAB TEST ENTRY Lab Test Specification for Immunology

This option is available for the Clinical Laboratory Coordinator to identify those tests on the local system which are equivalent to the laboratory tests specified for inclusion in the Immunology Case Study.

IMR LAB UTILIZATION LIST Laboratory Utilization Data

This option provides a breakdown of utilization of laboratory resources by patients in the Immunology Case Study file. The number of individual laboratory results (each individual result value) and the number of patients generating that workload during a specified time. The number of laboratory values per patient, and the number of patients in each set, the number of patients and results reported by laboratory test type, and the highest number of results per patient and the number of patients at that level for each type of test. These are listed in the order of highest utilization first.

IMR MENU (GENERAL) General Immunology Study Menu

This option is used to access the general Immunology Case Study functions. Data entry/editing, and printing of Center for Disease Control (CDC) forms.

IMR MENU (MANAGEMENT) Immunology Study Management Menu

This menu is used to access those functions necessary to manage the Immunology Case Registry package in terms of initializing the site parameter file, etc.

IMR MENU (SITE SETUP) ICR Site Management Functions

This menu contains options directly related to initialization of the IMR Site Parameters (#158.9) file and other functions for overseeing the package.

IMR PATIENT INQUIRY Patient Inquiry

This option allows the user to do a patient inquiry to the local or national database.

IMR PATIENT LIST Registry List

This option will produce a simple listing of patients in the Immunology Case Study (#158) file. The listing includes Patient Name, Social Security Number, and CAT (Category on a 1 to 4 scale). If there is a date of death in either File 158 or the Patient (#2) file, that date appears in the output. If the date of death is from File 158, '(ICR)' appears after the date of death.

The user is asked on selecting the option whether a listing by Category is desired. If the response is YES, then the output will be arranged in alphabetical order within categories, otherwise the output will be in simple alphabetical order. The user can choose to include living, dead or both living and dead patients in the output.

IMR PHARM DRUG ENTER/EDIT Specification of Drugs for Immunology

This option is available for the Pharmacy Coordinator to identify those entries in the drug file which are equivalent to those drugs specified for inclusion and analysis in the Immunology Case Study.

IMR PHARM UTILIZATION LIST Pharmacy Prescription Utilization Data

This option produces a listing of prescription drug utilization by members of the Immunology Case Study file. Drugs with the greatest utilization in terms of fills and in terms of cost of dispensed drugs are listed for the period specified.

IMR PNEUMOCOCCAL RPT Pneumococcal Immunization Report

This option allows the generation of two possible report outputs:

One report output allows a user to enter a date range and then displays the name, SSN and date of immunization for all ICR patients that had a Pneumococcal Immunization within that date range.

The other report output displays the name, SSN and last date of immunization for all living ICR patients who have not had a Pneumococcal Immunization within the last 5 years.

Each report gives the total number of patients in the list.

IMR PRINT CDC FORM Print CDC Form with Data

This option is used to print the Center for Disease Control (CDC) form, including the data contained within the Immunology Case Study file.

IMR PRINT OPTS Reports Menu (ICR)

This menu contains those options for producing output reports based on membership in the Immunology Case Study file.

IMR QUE DATA COLLECT Queue Registry Data Collection

This option allows the user to schedule the Extract Data for Immunology Study Registry [IMR REGISTRY DATA] option to run DAILY at 6pm. The extract process sends patient information from the facility to the National Registry.

IMR QUEUED INPAT LIST Current Inpatient List (Queue This Option)

This option should be scheduled to run at the desired date and time and the desired frequency following that date.

This option does NOT require the person who queues it to hold an Immunology Case Registry (ICR) package key.

It DOES require that the printer selected for output be one of those selected as an allowable printer in the IMR Site Parameters (#158.9) file. If the printer specified is not a secure printer, then the output will be replaced by an error message indicating that the output can only be directed to a secure printer.

IMR RADIOLOGY UTILIZATION Radiology Utilization Report

This option provides information on the utilization of Radiology Resources by individuals within the Immunology Case Study file. The Resource utilization is indicated by the number and types of Radiology Procedures recorded for the specified period of time.

IMR REGISTRY DATA Extract Data for Immunology Study Registry

This option extracts data for those data elements required by the Focus Group and any additional data elements which are permitted in the IMR Site Parameters file. These data elements are prepared and transmitted to the National Registry.

IMR SEARCH TEMPLATE Create Search Template Containing Study Members

This option is used to create a search template with any non-descriptive name desired. This search template will contain all of the members of the Immunology Case Study file, and can be used to access data from the PATIENT file and related files on these patients. The search template is used in conjunction with the File Manager 'Print' option, and is specified at the first request to sort by as: SORT BY: NAME// [TEMPLATE NAME where TEMPLATE NAME would be the name specified by the creator of the template. This will limit the output to entries in the Patient file who are also included in the Immunology Case Study file. You will then be asked to specify what additional field you wish to sort by, as in a normal sort specification.

The sort template contains only the results of the search (the members of the file), and does not indicate on what basis these entries were selected, in contrast to the sort template generated by a regular SEARCH which can be used to perform another search if desired.

IMR SHOW CODE Encryption of Data (Demonstration)

This option is designed to demonstrate the appearance of name, SSN, DOB, etc. when encoded for transmission within the Immunology Case Registry (ICR) package. The Immunology Case Study file entry number is the encoded value of the internal entry number for the Patient file, giving the file pointer capabilities, when accessed through the routines included in the ICR package.

IMR SPECFC IP/OP ACTIVITY LIST Specific Inpatient/Outpatient Utilization

This option will identify those members of the Immunology Case Study file who were seen as outpatients in a specified Stop Code, or as inpatients in a specified bed section. For outpatient activity the desired stop code(s) may be entered directly or by indicating a clinic which falls within the desired stop code. The list is NOT clinic specific, but only uses a specified clinic to identify the stop code and any patients with visits to clinics with that stop code, or interaction with that stop code indicated by Enter/Edit Stop Code will be included.

IMR SPECFC LAB LIST Utilization of Specific Lab Tests

This option provides identification of patients in the Immunology Case Study file who have had interaction with the laboratory with respect to specific tests designated by the user during a specified period of time.

IMR SPECFC RX LIST Drug Specific Utilization Report

This option will provide a list of specific patients in the Immunology Case Study file who had prescriptions filled for those particular drugs specified by the user during the selected time period.

IMR SPF ENTER/EDIT Enter/Edit Immunology Study Site Parameters

This option is used to maintain the site specific information for the Immunology Case Study data file(s).

IMR TEMPLATE DELETE Delete a Package Search Template

This option may be used to delete a specific search template which has been created using this package.

IMR TEMPLATE LIST List Search Templates for Package

This option can be used to produce a listing of the search template names which have been created for this package, including the user who created the template, the date it was created, and the last date on which it was referenced.

IMR VIRAL TESTS LIST Viral Tests List

This option allows the user to tally the test results for Viral Load Tests. It cannot be requested from the National Registry. The users can only tally the test results for a date range that is not before any archive and purge of the lab tests.

Exported Options

Chapter 5 Archiving and Purging

No provisions for archiving or purging have been made for this release and none are planned for the future. The HIV Focus Group decided that the data in this package is of such importance that no entries should be purged from the ICR database. The package's files contain very little data of their own, consisting mainly of pointers to other files. This information must remain intact in order to produce accurate reports.

Archiving and Purging

Chapter 6 Callable Routines

The Immunology Case Registry package does not contain any callable routines.

Chapter 7 External Relations

The Immunology Case Registry package makes extensive use of other *VISTA* files when it gathers data for transmission to the National Registry or for use in locally generated reports. Some of the collected information is stored in the Immunology Case Study file under an encrypted pointer to prevent identifying the patient.

A detailed listing of the individual fields used is contained in **Appendix A - Data Collection Messages**.

In addition to the data elements detailed in Appendix A, the Immunology Case Study file points to the following files for the information indicated:

File No.	File Name	Data Element
2	Patient	Patient Name
4	Institution	Station Number
5	State	State at onset of illness/AIDS State of Hospital/AIDS Diagnosis

The user can view the DBIA's (Database Integration Agreements) by going to the Integration Agreements Menu option under the DBA menu on FORUM.

Chapter 8 Internal Relations

The routines, files and options contained in this package are distributed as a unit. Any attempt to access the files or data, other than through the menu options, will result in an error. Such errors are logged and are subject to review by your facility's Information Security Officer.

The options **Lab Test Specification for Immunology** and **Specification of Drugs for Immunology** are designed for delegation to laboratory and pharmacy personnel at the discretion of facility management.

Chapter 9 Package-wide Variable

The Immunology Case Registry package does not contain package-wide variables. All variables are set within the individual IMR routines and killed before exiting.

Package-wide Variable

Chapter 10 On-line Documentation

This software is found in the IMR namespace. All routines, templates, and options begin with IMR. File numbers are in the range of 158 to 158.95 and stored in the ^IMR global.

The list of all exported files and their data dictionaries can be produced by using the VA FileMan Data Dictionary Utility option, List File Attributes. File relationships can be diagrammed by using the VA FileMan Data Dictionary Utility option, Map Pointer Relationships.

Menu diagrams may be generated through the Menu Management option, Display Menus and Options. If detailed documentation is required on the application's options, it can be printed through the Menu Management option, Print Option File.

The XINDEX routine prints a cross-reference listing of all local and global variable usage as well as other information of invaluable assistance in debugging.

Throughout the application, on-line documentation is also provided at each user prompt. If you are unsure of what is being asked or how to reply during your dialogue with the computer, simply enter one or two question marks (? or ??) for help. The computer will respond with an explanation and then repeat the prompt.

Chapter 11 Software Product Security

1. Security Management.

No additional security measures are to be applied other than those implemented through Menu Manager and the package routines.

No additional licenses are necessary to run the software.

Confidentiality of staff and patient data and the monitoring of this confidentiality is no different than with any other paper reference.

2. Security Features:

a. Mail groups and alerts.

There are no mail groups or alerts in this software. Data extract messages and national report inquiries are sent to a server utility at the IMMUNOLOGY.VA.GOV domain. The data extract messages are sent to persons at the facility, who are identified as ICR Coordinators in the ICR Site Parameters (#158.9) file.

b. Remote systems.

The application transmits data to the National Registry which is physically located at the Hines CIOFO.

c. Archiving/Purging.

Refer to chapter 5, Archiving and Purging, in this manual.

d. Contingency Planning.

It is the responsibility of the using service to develop a local contingency plan to be used in the event of application problems.

e. Interfacing.

No specialized (non VA) interfaces are used or required by the application.

f. Electronic signatures.

Electronic signatures are not used by the application.

g. Menus.

The Information Security Officer (ISO) may wish to view the Access Violation Log option output regularly to monitor unauthorized usage.

h. Security Keys.

There are two security keys in this package, they are:
 IMRA - This is a general key for access to the ICR Package.
 IMRMGR - This is the key held by the individual(s) in charge of the ICR Package at their facility.

i. File Security.

NUMBER	NAME	GLOBAL NAME	DD ACC	RD ACC	WR ACC	DEL ACC	LAY ACC	AUDIT
158	IMMUNOLOGY CASE STUDY	^IMR(158,	@	@	@	@		@
158.8	IMR ACCESS VIOLATIONS	^IMR(158.8,	@	@	@	@		@
158.9	IMR SITE PARAMETERS	^IMR(158.9,	@	@	@	@	@	@
158.94	IMMUNOLOGY SPECIFIC DRUG	^IMR(158.94,	@	@	@	@	@	@
158.95	IMMUNOLOGY SPECIFIC LAB TEST	^IMR(158.95,	@	@	@	@	@	@

j. References.

The following is a list of circulars and directives for this package:

1. Circular 10-91-142, December 2, 1991 - ICR V. 2.0 software installation mandate.
2. VHA Directive 10-93-159, December 29, 1993 - Case reporting of AIDS (RCS 10-0116).
Supplement No. 1 - Case reporting of AIDS (RCS 10-0116).
3. VHA Directive 96-013, February 20, 1996 - Case reporting of AIDS (RCS 10-0116).

k. Official Policies.

There are no special official policies for this package.

Glossary

Access Code A unique sequence of characters known by and assigned only to the user, the system manager and/or designated alternate(s). The access code (in conjunction with the verify code) is used by the computer to identify authorized users.

ADP Coordinator/ADPAC/Application Coordinator Automated Data Processing Application Coordinator. The person responsible for implementing a set of computer programs (application package) developed to support a specific functional area such as Immunology Case Registry, PIMS, etc.

Application A system of computer programs and files that have been specifically developed to meet the requirements of a user or group of users. Examples of *VISTA* applications are the PIMS and Immunology Case Registry application.

Archive The process of moving data to some other storage medium, usually a magnetic tape, and deleting the information from active storage in order to free-up disk space on the system.

Audit Trail/Logging Features The use of automated software procedures to determine if the security controls implemented for protection of computer systems are being circumvented and to identify the potential source of the security breach.

Backup Procedures The provisions made for the recovery of data files and program libraries and for restart or replacement of ADP equipment after the occurrence of a system failure.

Baud Rate The rate at which data is being transmitted or received from a computer. The baud rate is equivalent to the number of characters per second times 10.

Block The unit of storage transferred to and from disk drives, typically 512, 1024, or 2048 bytes (characters).

Boot The process of starting up the computer.

Bulletin A canned message that is automatically sent by MailMan to a user when something happens to the database.

Byte A unit of computer space usually equivalent to one character.

CIOFO Chief Information Office Field Office, formerly known as Information Resource Management Field Office, and Information Systems Center.

Contingency Plan A plan which assigns responsibility and defines procedures for use of the backup/restart/recovery and emergency preparedness procedures selected for the computer system based on risk analysis for that system.

Glossary

CORE A collection of VA developed programs (specific to PIMS, Pharmacy Service, and Laboratory Service) which is run at VA Medical Centers.

CPU Central Processing Unit, the heart of a computer system.

CRT Cathode Ray Tube, similar to a TV monitor but used in computer systems for viewing data. Also called a Video Display Terminal (VDT).

Cursor A visual position indicator (e.g., blinking rectangle or an underline) on a CRT that moves along with each character as it is entered from the keyboard.

Data Dictionary A description of file structure and data elements within a file.

Device A hardware input/output component of a computer system (e.g., CRT, printer).

Disk A magnetic storage device used to hold information.

Edit Used to change/modify data typically stored in a file.

Field A data element in a file.

File The M construct in which data is stored for retrieval at a later time. A computer record of related information (e.g., Patient file).

File Manager or FileMan Within this manual, FileManager or FileMan is a reference to VA FileMan. FileMan is a set of M routines used to enter, edit, print, and sort/ search related data in a file; a data base.

Global An M term used when referring to a file stored on a storage medium, usually a magnetic disk.

Hardware The physical or mechanical components of a computer system such as CPU, CRT, disk drives, etc.

IRMS Information Resource Management Service.

Kernel A set of software utilities. These utilities provide data processing support for the application packages developed within the VA. They are also tools used in configuring the local computer site to meet the particular needs of the hospital. The components of this operating system include: MenuMan, TaskMan, Device Handler, Log-on/Security, and other specialized routines.

Kilobyte More commonly known as Kbyte or "K". A measure of storage capacity equivalent to 1024 characters.

LAYGO An acronym for Learn As You Go. A technique used by VA FileMan to acquire new information as it goes about its normal procedure. It permits a user to add new data to a file.

- M** Formerly known as MUMPS or the Massachusetts (General Hospital) Utility Multi-Programming System. This is the programming language used to write all *VISTA* applications.
- MailMan** An electronic mail, teleconferencing, and networking system.
- Megabyte** A measure of storage capacity; approximately 1 million characters. Abbreviated as Mbyte or Meg.
- Memory** A storage area used by the computer to hold information.
- Menu** A set of options or functions available to users for editing, formatting, generating reports, etc.
- Menu Manager** A part of the Kernel that allows each site to manage the various options or functions available to individual users.
- Modem** An electronic device which converts computer signals to enable transmission through a telephone.
- Module** A component of the Immunology Case Registry software application that covers a single topic or a small section of a broad topic.
- Namespace** A naming convention followed in the VA to identify various applications and to avoid duplication. It is used as a prefix for all routines and globals used by the application. The Immunology Case Registry Package uses IMR as its namespace.
- Operating System** The innermost layer of software that communicates with the hardware. It controls the overall operation of the computer such as assigning places in memory, processing input and output. One of its primary functions is interpreting M computer programs into language the system can understand.
- Option** A functionality that is invoked by the user. The information defined in the option is used to drive the menu system. Options are created, associated with others on menus, or given entry/exit actions. For example, the IMR MENU (MANAGEMENT) is the main menu for the Immunology Case Registry application.
- Package** Otherwise known as an application. A set of M routines, files, documentation and installation procedures that support a specific function within *VISTA* (e.g., the ADT and Immunology Case Registry applications).
- Password** A protected word or string of characters that identifies or authenticates a user, a specific resource, or an access type (synonymous with Verify Code).

Pointer A special data type of VA FileMan that takes its value from another file. This is a method of joining files together and avoiding duplication of information.

Port An outlet in the back of the computer into which terminals can be connected.

Printer A device for printing (on paper) data which is processed by a computer system.

Program A set of M commands and arguments, created, stored, and retrieved as a single unit in M.

Queuing The scheduling of a process/task to occur at a later time. Queuing is normally done if a task uses up a lot of computer resources.

Response Time The average amount of time the user must wait between the time the user responded to a question at the terminal and the time the system responds by displaying data and/or the next question.

Restart/Recovery Procedures The actions necessary to restore a system's data files and computational capability after a system failure or penetration.

<RET> Carriage return or Enter.

Routine A set of M commands and arguments, created, stored, and retrieved as a single unit in M.

Security Key A function which unlocks specific options and makes them accessible to an authorized user.

Security System A part of Kernel that controls user access to the various computer applications. When a user signs-on, the security system determines the privileges of the user, assigns security keys, tracks usage, and controls the menus or options the user may access. It operates in conjunction with MenuMan.

Sensitive Information Any information which requires a degree of protection and which should be made available only to authorized users.

Site Configurable A term used to refer to features in the system that can be modified to meet the needs of each site.

Software A generic term referring to a related set of computer programs. Generally, this refers to an operating system that enables user programs to run.

Subroutine A part of a program which performs a single function.

Task Manager or TaskMan A part of Kernel which allows programs or functions to begin at specified times or when devices become available. See Queuing.

Telecommunications Any transmission, emission, or reception of signs, signals, writing, images, sounds or other information by wire, radio, visual, or any electromagnetic system.

Terminal A device used to send and receive data from a computer system (i.e., keyboard and CRT, or printer with a keyboard).

UCI User Class Identifier. The major delimiter of information structure within the operating system.

User A person who enters and/or retrieves data in a system, usually utilizing a CRT.

Utility An M program that assists in the development and/or maintenance of a computer system.

VDT Video Display Terminal. Also called a Cathode Ray Tube (CRT).

Verify Code A unique security code which serves as a second level of security access. Use of this code is site specific; sometimes used interchangeably with a password.

VISTA Veterans Health Information Systems and Technology Architecture.

Appendix A - Data Collection Messages

The initial data collection to update the National Registry from the date the data extract was last run to the current date is the most time consuming. This only occurs when the package is first installed. The data extraction routine is scheduled (by default) to run each night afterward. If the Queue Registry Data Collection [IMR QUE DATA COLLECT] option is used to set up the task, it will start at 6PM. It is important to keep the National and Local registries consistent. The data extraction routine will process all patients daily. Any patient activity that occurred will be picked up and sent to the National Registry right away. This will serve to prevent the software from back tracking up to six months to gather any missed data or to catch up with backlogged data as it has done so in the past version. This will result in a compact and rapid aggregation for the patients thus limiting the amount of maximum impact the package can have on mail transmission. The software will eliminate any unnecessary mail transmission. If the patient is deceased, the record will cease to be transmitted to update the National database 60 days after the patient's date of death. If no patient activity, no data will be sent.

The package only picks up that data that is in active *VISTA* files and has not been archived. Processing the patient data daily will eliminate the impact of archived data that was not collected.

The data that is submitted to the National Immunology Case Registry is first put into the form of a MailMan Message for ease in transmission and subsequent entry in the national database. The '^' character is used as a delimiter to separate the pieces of data in each line. Each message begins with a line that has the keyword 'START' as the first '^' piece and will contain information for one patient in the Immunology Case Study file. The first '^' piece on each line indicates the type of data contained on that line.

Piece Element	Data Element
1	START keyword
2	Station Number
3	Date of data collection
4	Set or sequence number within current data collection
5	An encoded number to check that the encryption algorithm has not been tampered with
6	Package version number

The second line of each message is a patient identifier line.

Piece Element	Data Element
1	PA keyword (Patient)
2	Encoded social security number

The final line of the data associated with an individual patient is the timing data line.

Piece Element	Data Element
1	TIME keyword
2	Type of data collection NEW - first collection for the patient UPD - subsequent update
3	Number of seconds to create the mail message

Demographic Data:

Piece Element	Data Element
1	DE keyword (Demographic)
2	Date of Birth (encoded)
3	Sex (M/F)
4	Zip Code
5	Period of Service
6	Eligibility Code
7	Service Separation Date [Last]
8	Current Means Test Status
9	Date of Death (MAS)

The other data lines may appear in a message or not depending on whether relevant data exists for a patient and whether that data has previously been collected.

Outpatient Activity is recorded by the number of visits in each stop code. Visits to one stop code may reflect visits to one or more different clinics. The data transmitted does not reflect all of the fields and files referenced to obtain this information. These are summarized briefly.

The .001 field of the Appointment (#1900) Sub-file of the Patient (#2) file is used to determine the month and year for the visit.

Field 3 of the Appointment Sub-file of the Patient file is checked to exclude appointments which were cancelled or during an inpatient stay.

Field .01 of the Appointment Sub-file of the Patient file is used to determine the clinic (Hospital Location) in which the patient was seen.

Field 8 of the Hospital Location (#44) file is used to determine the stop code associated with the clinic.

Field 1 of the Clinic Stop (#40.7) file is used to determine the 'AMIS Reporting Stop Code' which is transmitted.

Piece Element	Data Element
1	SC keyword
2	Year in File Manager date format
3	Stop Code number
4	Number of visit in JAN
5	Number of visit in FEB
6	Number of visit in MAR
•	
•	
14	Number of visit in NOV
15	Number of visit in DEC

Inpatient Activity is recorded in several levels, the first being the overall stay, with the IP keyword. This record is updated at the time of admission, at the time of discharge, and when the PTF record is closed. The other records of inpatient activity are only generated and transmitted when the PTF record is closed, and all diagnosis and procedure codes should be complete. The third letter of the IP keyword denotes the type of inpatient activity.

Piece Element	Data Element
1	IP keyword (Inpatient Episode)
2	Admission Date
3	Discharge Date
4	Discharge Bed section
5	Type of Disposition
6	Outpatient Treatment
7	DXLS
8	ICD2
9	ICD3
10	ICD4
11	ICD5
12	ICD6
13	ICD7
14	ICD8
15	ICD9
16	ICD10

The IPM line contains data for a bed section stay, and there will be one IPM line for each bed section movement.

Piece Element	Data Element
1	IPM keyword (Inpatient Movement)
2	Beginning Movement Date
3	Ending Movement Date
4	Losing bed section

Appendix A - Data Collection Messages

5	ICD1
6	ICD2
7	ICD3
8	ICD4
9	ICD5
10	ICD6
11	ICD7
12	ICD8
13	ICD9
14	ICD10
15	Admission Date

The IPS line contains data on surgical procedures, and will be present only if procedures are included in the record.

Piece Element	Data Element
1	IPS keyword (Inpatient Surgical Procedure)
2	Admission Date
3	Operation Date
4	Operation Code 1
5	Operation Code 2
6	Operation Code 3
7	Operation Code 4
8	Operation Code 5

The IPP line contains data on non-surgical procedures, and will be present only if procedures are included in the record.

Piece Element	Data Element
1	IPP keyword (Inpatient Non-surgical Procedure)
2	Admission Date
3	Procedure Date
4	Bed section
5	Operation Code 1
6	Operation Code 2
7	Operation Code 3
8	Operation Code 4
9	Operation Code 5

The RX data lines contain data for outpatient pharmacy prescriptions. The Stop Code which is transmitted is derived from the CLINIC (#5) field in the Prescription (#52) file in a manner similar to that described above for the Outpatient Activity (SC) lines.

Piece Element	Data Element
1	RX keyword (Prescription)
2	Issue Date
3	Drug
4	Fill number 0 = original fill 1-n = refill number
5	Last Fill Date (Last Dispensed Date)
6	Quantity
7	Days Supply
8	Number of refills
9	Patient Status
10	Stop Code
11	Cost/Fill
12	blank
13	NDF Name (National Drug name)

Basic laboratory tests which appear in the Laboratory Test file, are included in the lines which begins 'CH' and 'CHL'.

Piece Element	Data Element
1	CH keyword
2	The Year the Specimen was taken
3	Name for the data value. The type of test is identified by the 'node number' which contains the data. The name is found as the field name in the data dictionary, as the first piece in the node ^DD(63.04, node #,0)
4	Node number containing the data
5	Test cost (Only costs for the particular data type associated with the node can be identified at present, even if it was actually ordered as part of the panel)
6-17	Month counter. The last 12 pieces will contain a count of how many same lab tests are taken for each month. This is used in the National database to help tabulate the lab tests.
18	National lab test name.

Piece Element	Data Element
1	CHL keyword
2	Date specimen taken
3	Name for the data value. The type of test is identified by the 'node number' which contains the data. The name is found as the field name in the data dictionary, as the first piece in the node ^DD(63.04, node #,0)

Appendix A - Data Collection Messages

4	Node number containing the data
5	Test cost (Only costs for the particular data type associated with the node can be identified at present, even if it was actually ordered as part of the panel)
6-7	Date value The contents of the data node (this may include an additional piece indicating values outside the normal range or critical values)
8	National lab test name.

Laboratory tests which come under the area of microbiology, may include not only bacteria, but molds, viruses, fungus, etc. Any of these areas are picked up and transmitted in the lines of 'MI'.

Piece Element	Data Element
1	MI keyword
2	Date specimen taken
3	Site specimen
4	Collection sample
5	Organism
6	Quantity
7	Line number Initialized as 1 and incremented for each line required to contain data on sensitivity testing the next two pieces are repeated as many times as required, if the line length becomes too long, a new line is started with pieces 1 through 6 repeated, the line number (piece 7) incremented and new values for 8, 9 then 10, 11, etc.
8	Agent tested (e.g. antibiotic type, based on node numbers greater than 2 and less than 3 - the name is taken from the appropriate node in the data dictionary for the appropriate sub-file)
9	Interpretation the second piece in the node for the preceding entry, usually I, R, or S, for Insensitive, Resistant, or Sensitive, respectfully.
10	Agent tested
11	Interpretation

Radiology data is transferred in the lines starting with 'RA'

Piece Element	Data Element
1	RA keyword
2	Exam Date
3	Radiology procedure
4	CPT code for procedure

Dental data is transferred in the lines starting with 'DNT'

Piece Element	Data Element
1	DNT keyword
2	Date
3	Dental Bed Section
4	Dental Classification
5	Screening/Complete Exam
6	Admin Procedure
7	X-Rays Extraoral #
8	X-Rays Intraoral #
9	Prophy Natural Dentition
10	Prophy Denture
11	Operating Room
12	Neoplasm Confirmed Malignant #
13	Neoplasm Removed #
14	Biopsy/Smear #
15	Fracture #
16	Other Signif. Surg. (CTV)
17	Factor (Not Used)
18	Surfaces Restored #
19	Root Canal Therapy #
20	Periodontal Quads (Surgical) #
21	Perio Quads (Root Plane) #
22	Patient Ed. (CTV)
23	Spot Check Exam
24	Individual Crowns #
25	Post & Cores #
26	Fixed Partial (Abut) #
27	Fixed Partial (Pont Only) #
28	Removable Partial #
29	Complete Dentures #
30	Prosthetic Repair #
31	Splints & Spec. Procs. (CTV)
32	Extractions #
33	Surgical Extractions #
34	Other Significant Treat (CTV)
35	Completions/Terminations

Appendix A - Data Collection Messages

36	Interdisciplinary Consult
37	Evaluation
38	Pre Auth/2 nd Opinion Exam
39	Spot Check Discrepancy #

Piece Element	Data Element
1	SDV keyword
2	Year
3	AMIS reporting stop code
4	Number of stop codes reported for January.
5	Number of stop codes reported for February.
6	Number of stop codes reported for March.
7	Number of stop codes reported for April.
8	Number of stop codes reported for May.
9	Number of stop codes reported for June.
10	Number of stop codes reported for July.
11	Number of stop codes reported for August.
12	Number of stop codes reported for September.
13	Number of stop codes reported for October.
14	Number of stop codes reported for November.
15	Number of stop codes reported for December.

The lines beginning with the letters CDC contain the data in the 0, 1, 2, 102, 108, 110, 111 and 112 nodes of the Immunology Case Study file, and contain the information entered for this package and the generation of the CDC form when a patient is initially classified as having AIDS. These lines are included only if the CDC form has been generated.