OUTPATIENT PHARMACY (OP)

TECHNICAL MANUAL/SECURITY GUIDE

Version 7.0
December 1997

(Revised December 2002)

Department of Veterans Affairs
V*IST***A** System Design & Development

Revision History

Any changes subsequent to the initial release of this manual are listed below. The users should update the manual with the pages listed under the Revised Pages column.

Date	Revised Pages	Patch Number	Description
12/2002	Title, i – (ii), 13 (14) (41) 42	PSO*7*127	Updated the Title Page and Revision History Page. Added the new routine PSOADDR to the Routine List. Added the new *Patient Address Changes Report* option to the menu diagram.
10/2002	Title, i – iv, 63-72	PSO*7*111	Updated the Title Page, Revision History Page, and Table of Contents pages. Added Appendix B for the new HL7 Messaging with an External System. Included Index due to the page numbers changing. Included pages for double-sided copying.
11/2001	i (ii), 1 (2), 3 (4), 13 (14), 15 (16), 29 (30), (35) 36, 39 (40), 41 (42)	PSO*7*71 PSO*7*80	Added changes related to OP Medication Copay/MillBill. p. i. Updated Revision History page. p. 1. Introduction section revised. p. 3. Orientation - added Copay Release Notes to list of related manuals. p. 13. Routine List - added four new routines. p. 15. Exported Options - added new security key and description. p. 29. External Relations - updated list of other software needed. p. 36. Software Product Security - added new security key and description. p. 39. Outpatient Pharmacy Supervisor Menu Diagrams – revised Copay Menu options and (p. 41) added new Free Text Dosage Report. (Pages in parentheses were not changed but included in this Release Notes document for two-sided copying.)
09/2001	All		Complete revision. Added Revision History Page. Re-formatted the entire manual to meet national and local documentation standards. Added HL7 web address to External Interfaces section. (Sec. 9) Noted that the PSOA PURGE key and Purge options under Archiving are out of order until further notice (Sec. 6.2, 7, and 14. 6). Updated contents to include changes due to previously undocumented patch releases and the Pharmacy Ordering Enhancements (POE) project patch PSO*7*46.
12/97			Original release of V. 7.0 Technical Manual.

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1. Introduction

This document briefly describes the technical and security aspects of V. 7.0 of Outpatient Pharmacy (OP). It is intended for members of the Automated Data Processing (ADP)/Information Resources Management Service (IRMS) staff who have had experience with other Veterans Health Information Systems and Technology Architecture (**V***IST***A**) software and have worked or will work with a package coordinator who is familiar with the functions of the Outpatient Pharmacy in a VA Medical Center. Readers without this background are referred to the documentation for the Kernel, the VA FileMan and the User's Manual for this release.

The Outpatient Pharmacy package provides a method for managing the medications given to veterans who have visited a clinic or who have received prescriptions upon discharge from the hospital. Prescription labels are automatically generated and refill request forms are printed. Medication histories are kept online to permit checks for potential interactions. Profiles can be generated to assist the clinician in managing the patient's medication regimen. Management reports aid the pharmacy in controlling inventory and costs.

A number of site parameters allow the individual Department of Veterans Affairs Medical Center (VAMC) to customize the package to meet local needs. The User's Manual describes these site parameters and the ways they influence the operation of the package.

See Section 10 of this manual, "External Relations," for a listing of software not included in this package that must be installed before this version of Outpatient Pharmacy is fully functional.

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2. Orientation

2.1. Online Documentation

Throughout the entire OP package, enter a question mark (?) to obtain online information to assist in choosing actions at any prompt. Where examples of screen dialogs are given, user responses are shown as bolded text.

Additional information about this package is contained in help prompts and comments which are available online. Detailed information can also be obtained by using the Kernel routine XINDEX to produce detailed listings of the routines and by using the VA FileMan to generate listings of data dictionaries for the files.

The Data Dictionaries (DDs) are considered part of the online documentation for this software application. Use VA FileMan List File Attributes [DILIST] option, under the Data Dictionary Utilities [DI DDU] option, to print the DDs.

2.2. Related Manuals

Outpatient Pharmacy V. 7.0 Release Notes
Outpatient Pharmacy V. 7.0 User Manual (Revised September 2001)
Computerized Patient Record System V. 1.0 Installation Guide
Computerized Patient Record System V. 1.0 Set-up Guide
Pharmacy Ordering Enhancements (POE)Phase 2 Release Notes
Outpatient Medication Copay Release Notes

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3. Implementation and Maintenance

3.1. Resource Requirements

Outpatient Pharmacy V. 7.0 contains approximately 339 routines including all PSO* routines and compiled templates, PSOX* and APSPT* that take up approximately 1.5MB disk space.

Response Time monitor hooks have been placed in the following routines:

Routine	Purpose
PSON52	File New Prescriptions in File #52
PSORN52	File Renewed Prescriptions in File #52
PSOR52	File Refill Prescriptions in File #52

This package requires 21 files (see "Files" section in this manual). A typical site might require the following disk space:

1 Mbyte	DRUG file (#50) (4000 entries)
3 Mbytes per month	DRUG COST file (#50.9) (800 items dispensed by 200 dispensing physicians)
150 Mbytes	PRESCRIPTION file (#52) (500,000 prescriptions)
50 Mbytes	PHARMACY PATIENT file (#55) (500,000 prescriptions)
about 1 to 2 Mbytes	routines and the other files (except for RX VERIFY file (#52.4), RX SUSPENSE file (#52.5), and PHARMACY ARCHIVE file (#52.8))
3 to 5 Mbytes of "swing space"	RX VERIFY file (#52.4), RX SUSPENSE file (#52.5), and PHARMACY ARCHIVE file (#52.8)

Outpatient Pharmacy might be expected to require about 350 Mbytes of disk space. The actual disk utilization will, of course, depend mainly on the size of the 3 large files - PRESCRIPTION file (#52), PHARMACY PATIENT file (#55) and DRUG COST file (#50.9).

The requirements for Video Display Terminals (VDTs) and printers also depend upon the number of transactions performed by the Outpatient Pharmacy. There should be about 3 VDTs and 1 printer for each 500 prescriptions (or fraction of 500) issued each day. If mail-out refills are handled separately, there should be at least one VDT and one printer for each 500 refills. An additional VDT and printer may be desired in the supervisor's office and one VDT in the office of people who are assigned to consult with patients about their medication regimens.

There are no special device requirements except to print barcodes on labels. In this case, the label printer must be capable of printing barcodes and must be able to be set to a form length of either 4 inches or 24 lines. The section in this document on barcodes provides additional information about this function.

3.2. Options to be Deleted during Installation

NOTE: The options listed below are deleted on the initial installation of Outpatient Pharmacy V. 7.0. No options are deleted after the initial installation up to patch PSO*7*46.

Option Name	Menu Text
PSO DRUG	Drug Enter/Edit
PSO DRUGMENU	Drug/Drug Interaction Functions
PSO HOLDRX	Hold Rx
PSO INTERACTION	Drug Interactions Menu
PSO INTERACTION LOCAL ADD	Enter/Edit Local Drug Interaction
PSO INTERACTION SEVERITY	Edit Drug Interaction Severity
PSO LAB MONITOR	Mark/Unmark Lab Monitor Drugs
PSO NEW	New Prescription Entry
PSO REF	Refill Prescriptions
PSO RXEDIT	Edit Prescriptions
PSO RXHOLD	Hold Features
PSO RXPAR	Partial Prescription
PSO SIGED	Medication Instruction File Add/Edit
PSO UNHOLDRX	Unhold Rx
PSO FACILITY SETUP	Enter Facility Data for Clozapine
PSO MARK DRUG	Mark Clozapine Drug
PSOL UNMARK DRUG	Unmark Clozapine Drug
PSOARCCO	Find
PSOARCHLIST	List One Patient's Archived Rx's
PSOARCIN	Tape Retrieval
PSOARCPURGE	Purge
PSOARCSV	Save

3.3. Templates to be Deleted during Installation

NOTE: The templates listed below are deleted on the initial installation of Outpatient Pharmacy V. 7.0. No options are deleted after the initial installation up to patch PSO*7*46.

Input	**File**
PSO DRUG	#50
PSO SIGED	#51
PSO BATCH PARTIAL	#52
Print	**File**
PSO ACTION PROFILE #3	#44
PSOBJP	#52
Sort:	**File**
PSOBJP	#52

3.4. Routines to be Deleted during Installation

NOTE: The routines listed below are deleted on the initial installation of Outpatient Pharmacy V. 7.0. No options are deleted after the initial installation up to patch PSO*7*46.

PSOCLDRG	PSOCLUS1	PSOCLUS2	PSOCLUS3	PSOCSRL1
PSOCSTAR	PSODRUG	PSOGMINS	PSOGMP12	PSOGMP25
PSOLIST	PSONODIB	PSONUM	PSOPOST3	PSOPRE
PSORX	PSORXPAR			

Prior to the initial installation of Outpatient Pharmacy V. 7.0, it is recommended that all PSO* routines be deleted using the system utility to delete routines. Back up local modifications to any PSO* routines.

After installation of Outpatient Pharmacy V. 7.0, compare routines to note the changes between locally modified routines and the V. 7.0 routines. Take care when installing local modifications as V. 7.0 of Outpatient Pharmacy has been modified greatly with patch PSO*7*46.

3.5. M Audiofax (Telephone Refill Requests)

If telephone refill requests are processed using M Audiofax, a new VEXRX routine must be installed to interface with Outpatient Pharmacy V. 7.0. To install this routine, go to SHOP ALL on FORUM and in the TELEPHONE REFILL REQUESTS Basket, retrieve the message "VEXRX for Outpatient V. 7." This message will contain the new VEXRX routine. This routine must be forwarded and installed on the production account.

Important

Telephone refill requests (M Audiofax) cannot be processed without the new VEXRX routine.

3.6. Setting up the Bingo Board Device

A dedicated device must be set up for use with the bingo board. The device setup is similar to that used to set up a printer, except the sub-type will be C-VT. Only devices with the sub-type C-VT will be allowed to be entered at the "DISPLAY DEVICE" prompt in the *Enter/Edit Display* [PSO BINGO ENTER/EDIT DISPLAY] option found on the *Bingo Board Manager* [PSO BINGO MANAGER] menu. For further information, see the site's systems guide for information on setting up the device. Once a dedicated device is set up, the bingo board can be scheduled to automatically start and/or stop at user-defined times.

3.7. Mail Group Setup for the HL7 External Interface

A mail group and device **must** be set up in order to run the HL7 external interface. The recommended name of the mail group is PSO HLGROUP1. The recommended device name is PSO HLDEVICE1.

3.8. Using the Maintenance Menu

The *Maintenance (Outpatient Pharmacy)* [PSO MAINTENANCE] menu is used for implementation as well as maintenance of the Outpatient Pharmacy package. The first five options, *Site Parameter Enter/Edit* [PSO SITE PARAMETERS] (example follows), *Edit Provider* [PSO PROVIDER EDIT], *Add New Providers* [PSO PROVIDER ADD], *Queue Background Jobs* [PSO AUTOQUEUE JOBS], and *Autocancel Rx's on Admission* [PSO AUTOCANCEL1] are used for implementation. The remaining options on this menu may be used for maintenance. (An example is given below for the *Queue Background Jobs* [PSO AUTOQUEUE JOBS] option. See the Outpatient Pharmacy V. 7.0 User Manual for an explanation of the other options on this menu.)

Maintenance (Outpatient Pharmacy) [PSO MAINTENANCE] menu

- *Site Parameter Enter/Edit*
- *Edit Provider*
- *Add New Providers*
- *Queue Background Jobs*
- *Autocancel Rx's on Admission*

  Bingo Board Manager ...
  Edit Data for a Patient in the Clozapine Program
  Enter/Edit Clinic Sort Groups
  Initialize Rx Cost Statistics
  Edit Pharmacy Intervention
  Delete Intervention
  Auto-delete from Suspense
  Delete a Prescription
  Expire Prescriptions
  Purge Drug Cost Data
  Purge External Batches
  Recompile AMIS Data

3.9. Queue Background Jobs [PSO AUTOQUEUE JOBS]

This option is used to queue all background jobs. Once the *Queue Background Jobs* [PSO AUTOQUEUE] option is selected, the option automatically pre-selects the jobs. Entering "E" for exit will not exit the option. An up arrow (^) must be entered to exit a specific job and go on to the next one. The background jobs are as follows:

- Autocancel Rx's on Admission
- Initialize Rx Cost Stats
- Initialize Management Stats
- Compile AMIS Data (NIGHT JOB) with a default rescheduling frequency of every 24 hours.
- Expire Rx's
- Auto-delete from Suspense

A date and time at least 2 minutes in the future must be entered. The jobs should be set to run at a time convenient for the site.

> NOTE: The options listed above must be scheduled to run through the *Queue Background Jobs* [PSO AUTOQUEUE] option. Attempting to run them from any other option will cause problems.

Only the following prompts require responses. All others will be left blank.

QUEUED TO RUN AT WHAT TIME:	This is the date/time desired for TaskMan to start this option.
RESCHEDULING FREQUENCY:	If this field is blank then the job will run only once.

Example: View of Queue Background Jobs Screen

```
Select Maintenance (Outpatient Pharmacy) Option: QUEue Background Jobs

If time to run option is current do not edit.
Autocancel System Parameter must be set to 'YES'
before prescriptions are discontinued.
```

```
Edit Option Schedule
    Option Name: PSO AUTOCANCEL
    Menu Text: Autocancel on Admission                    TASK ID: 2617405
  ____________________________________________________________________________

  QUEUED TO RUN AT WHAT TIME: JUN 13,2000@01:00

DEVICE FOR QUEUED JOB OUTPUT: PP6;P-OTHER;132;64

 QUEUED TO RUN ON VOLUME SET:

      RESCHEDULING FREQUENCY: 1D

             TASK PARAMETERS:

            SPECIAL QUEUEING:
____________________________________________________________________________
COMMAND:                                    Press <PF1>H for help    Insert
```

These default values are highlighted on the screen display, not to indicate user input.

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4. Files

This package requires the 21 files listed below. Information about the files can be obtained by using the VA FileMan to generate a list of file attributes.

The Data Dictionaries (DDs) are considered part of the online documentation for this software application. Use the VA FileMan *List File Attributes* [DILIST] option, under the *Data Dictionary Utilities* [DI DDU] option, to print the DDs. The following are the files for which DDs should be printed:

4.1. Outpatient Pharmacy Files

FILE #	NAME	UP DATE DD	SEND SEC. CODE	DATA COMES W/FILE	SITE DATA	RSLV PTS	USER OVER RIDE
50.073	DUE QUESTIONNAIRE	YES	YES	NO			
50.0731	DUE ANSWER SHEET	YES	YES	NO			
50.0732	DUE QUESTION	YES	YES	NO			
50.0733	DUE SECTION	YES	YES	NO			
50.9	DRUG COST	YES	YES	NO			
52	PRESCRIPTION	YES	YES	NO			
52.11	PATIENT NOTIFICATION (Rx READY)	YES	YES	NO			
52.4	RX VERIFY	YES	YES	NO			
52.41	PENDING OUTPATIENT ORDERS	YES	YES	NO			
52.5	RX SUSPENSE	YES	YES	NO			
52.51	PHARMACY EXTERNAL INTERFACE	YES	NO	NO			
52.52	CLOZAPINE PRESCRIPTION OVERRIDES	YES	YES	NO			
52.8	PHARMACY ARCHIVE	YES	YES	NO			
52.9	PHARMACY PRINTED QUEUE	YES	YES	NO			
53	RX PATIENT STATUS	YES	YES	NO			
59	OUTPATIENT SITE	YES	YES	NO			
59.1	OUTPATIENT AMIS DATA	YES	YES	NO			
59.12	OUTPATIENT PHARMACY MANAGEMENT DATA	YES	YES	NO			
59.2	WAITING TIME	YES	YES	NO			
59.3	GROUP DISPLAY	YES	NO	NO			
59.8	OUTPATIENT CLINIC SORT GROUP	YES	YES	NO			

The namespaces for the Outpatient Pharmacy package are PSO and APSP.

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5. Routine List

The following is a list of routines for Outpatient Pharmacy that will be seen when the new routine set is loaded. The first line of each routine contains a brief description of the general function of the routine. Use the *First Line Routine Print* [XU FIRST LINE PRINT] option to print a list of just the first line of each PSO* routine.

PSO55FX2	PSO55FX3	PSOADDR	PSOAMIS	PSOAMIS0	PSOAMIS1	PSOARC	PSOARCCO
PSOARCCV	PSOARCDE	PSOARCF1	PSOARCF2	PSOARCF3	PSOARCF4	PSOARCF5	PSOARCF6
PSOARCIN	PSOARCLT	PSOARCR1	PSOARCR2	PSOARCRR	PSOARCS2	PSOARCSV	PSOARCTG
PSOARCTP	PSOARX	PSOARX1	PSOAUTOC	PSOB	PSOBARV	PSOBBC	PSOBGMG1
PSOBGMG2	PSOBGMG3	PSOBGMGR	PSOBING1	PSOBINGO	PSOBKDE1	PSOBKDED	PSOBMST
PSOBRPRT	PSOBSET	PSOBSET1	PSOBUILD	PSOCAN	PSOCAN1	PSOCAN2	PSOCAN3
PSOCAN4	PSOCLDRG	PSOCLERK	PSOCLO1	PSOCLOLS	PSOCLPRE	PSOCLUS1	PSOCLUS2
PSOCLUS3	PSOCLUTL	PSOCMOP	PSOCMOPA	PSOCMOPB	PSOCMOPC	PSOCMOPR	PSOCMOPT
PSOCOPAY	PSOCOST	PSOCOSTP	PSOCP	PSOCPA	PSOCPB	PSOCPC	PSOCPD
PSOCPDUP	PSOCPE	PSOCPIB	PSOCPTRH	PSOCPTRI	PSOCPVW	PSOCSRL	PSOCSRL1
PSOCST	PSOCST10	PSOCST11	PSOCST12	PSOCST2	PSOCST3	PSOCST4	PSOCST5
PSOCST53	PSOCST6	PSOCST7	PSOCST8	PSOCST9	PSOCSTAR	PSOCSTD	PSOCSTM
PSOCSTX	PSODACT	PSODEA	PSODEDT	PSODELI	PSODEM	PSODGAL	PSODGDG1
PSODGDG2	PSODGDGI	PSODIR	PSODIR1	PSODIR2	PSODIR3	PSODIRPT	PSODISP
PSODISP1	PSODISP2	PSODISP3	PSODISPS	PSODIV	PSODLKP	PSODP	PSODRDU1
PSODRDU2	PSODRDUP	PSODRG	PSODRUG	PSODSPL	PSODSRC	PSODUE	PSOELPS2
PSOELPST	PSOEXBCH	PSOEXDT	PSOEXREF	PSOEXRST	PSOFSIG	PSOFTDR	PSOFUNC
PSOHCPRS	PSOHCSUM	PSOHELP	PSOHELP1	PSOHELP2	PSOHELP3	PSOHELP4	PSOHLD
PSOHLDC	PSOHLEXC	PSOHLEXP	PSOHLINC	PSOHLINL	PSOHLNE1	PSOHLNE2	PSOHLNEW
PSOHLPII	PSOHLPIS	PSOHLSG	PSOHLSG1	PSOHLSG2	PSOHLSG3	PSOHLSG4	PSOHLSG5
PSOHLSIG	PSOHLSIH	PSOHLSN	PSOHLSN1	PSOHLSNC	PSOHLUP	PSOHLUP1	PSOLAB
PSOLBL	PSOLBL1	PSOLBL2	PSOLBL3	PSOLBL4	PSOLBLD	PSOLBLD1	PSOLBLN
PSOLBLN1	PSOLBLN2	PSOLBLS	PSOLBLT	PSOLLL1	PSOLLL2	PSOLLL3	PSOLLL5
PSOLLLI	PSOLLU1	PSOLMAL	PSOLMAO	PSOLMDA	PSOLMLST	PSOLMPAT	PSOLMPF
PSOLMPI	PSOLMPO	PSOLMPO1	PSOLMPO2	PSOLMRN	PSOLMUTL	PSOLSET	PSOMAUEX
PSOMGCM1	PSOMGCOM	PSOMGM31	PSOMGMN1	PSOMGMN2	PSOMGMN3	PSOMGMN4	PSOMGMRP
PSOMGR31	PSOMGREP	PSOMGRP1	PSOMGRP2	PSOMGRP3	PSOMGRP4	PSOMLLDT	PSON52
PSONEW	PSONEW1	PSONEW2	PSONEW3	PSONEWF	PSONEWG	PSONFI	PSONGR
PSONRXN	PSONTEG	PSONTEG0	PSOORAL	PSOORAL1	PSOORAL2	PSOORAPI	PSOORCPY
PSOORDA	PSOORDER	PSOORDRG	PSOORED1	PSOORED2	PSOORED3	PSOORED4	PSOORED5
PSOORED6	PSOOREDT	PSOORFI1	PSOORFI2	PSOORFI3	PSOORFI4	PSOORFIN	PSOORNE1
PSOORNE2	PSOORNE3	PSOORNE4	PSOORNE5	PSOORNE6	PSOORNEW	PSOORNW1	PSOORNW2
PSOORRL	PSOORRL1	PSOORRNW	PSOORUT1	PSOORUT2	PSOORUT3	PSOORUTL	PSOP
PSOP1	PSOP2	PSOPAT	PSOPKIV1	PSOPOLY	PSOPOST	PSOPOST1	PSOPOST2
PSOPOST3	PSOPOST4	PSOPOST5	PSOPOST6	PSOPOST7	PSOPOST8	PSOPRA	PSOPRF
PSOPRFSS	PSOPRI	PSOPRVW	PSOPST68	PSOPT102	PSOPTPST	PSOPXRM1	PSOR52
PSORDS	PSOREF	PSOREF0	PSOREF1	PSOREF2	PSORENW	PSORENW0	PSORENW1
PSORENW2	PSORENW3	PSORENW4	PSORESK	PSORESK1	PSORFL	PSORN52	PSORN52C
PSORPTS	PSORPTS1	PSORX1	PSORXCLE	PSORXDL	PSORXED	PSORXED1	PSORXEDT
PSORXI	PSORXL	PSORXL1	PSORXLAB	PSORXPA1	PSORXPR	PSORXPR1	PSORXRP1
PSORXRP2	PSORXRPT	PSORXVW	PSORXVW1	PSORXVW2	PSOSD	PSOSD0	PSOSD1
PSOSD2	PSOSD3	PSOSDP	PSOSIG	PSOSIGCX	PSOSIGDS	PSOSIGMX	PSOSIGNO
PSOSIGTX	PSOSITED	PSOSPSIG	PSOSTART	PSOSUBCH	PSOSUCH1	PSOSUCHG	PSOSUCLE
PSOSUDCN	PSOSUDEL	PSOSUDP1	PSOSUDP2	PSOSUDPR	PSOSUINV	PSOSULB1	PSOSULBL
PSOSULOG	PSOSUP	PSOSUPAT	PSOSUPOE	PSOSUPRX	PSOSURST	PSOSUSRP	PSOSUTL
PSOSUTL1	PSOTRLBL	PSOUTIL	PSOUTL	PSOUTLA	PSOUTLA1	PSOVCNT	PSOVER
PSOVER1	PSOVER2	PSOVERC	PSOVRPT	PSOVWI	PSOXX	PSOXZA	PSOXZA1
PSOXZA2	PSOXZA3	PSOXZA4	PSOXZA5	PSOXZA6	PSOXZA7	PSOXZA8	PSOZACT

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6. Exported Options

6.1. Menu Assignments

Unless menus have already been assigned, the *Outpatient Pharmacy Manager* [PSO MANAGER] menu should be assigned to the Package Coordinator for Outpatient Pharmacy. It should also be added to the menu of the Site Manager and any ADP/IRMS staff that the Package Coordinator selects to help in the operation of Outpatient Pharmacy. The *Pharmacist Menu* [PSO USER1] option should be assigned to all pharmacists and the *Pharmacy Technician's Menu* [PSO USER2] option should be assigned to all pharmacy technicians and other pharmacy personnel who may view prescriptions and/or inquire into other Outpatient Pharmacy files.

6.2. Security Keys

PSORPH	This key is required to use all of the Outpatient Pharmacy options. It should be assigned to all pharmacists, the package coordinator, and all appropriate members of the ADP/IRMS staff.
PSO COPAY	This key is used to identify users to notify when a copay exemption cannot be determined at the time a prescription fill is released. Holders of this key are also notified any time the *Exempt Rx Patient Status from Copayment* [PSOCP EXEMPTION] option is used to change the copay exemption for an Rx Patient Status.
PSOA PURGE	***NOTE**: Disabled until further notice.* This key should be assigned to the package coordinator and/or any person who will be responsible for archiving prescriptions.
PSOLOCKCLOZ	This key is used to override the lockouts in the Clozapine options. All members of the Clozapine treatment team must be entered as users on the system and must be given this key. All pharmacists who have the ability to override the lockouts in this option must also hold this key. The Pharmacy Service representative of the Clozapine treatment team should identify these pharmacists.
PSOINTERFACE	This key is used to access the *External Interface Menu* [PSO EXTERNAL INTERFACE] option.

6.3. Package Security

Electronic signatures may be established by using the *Electronic Signature code Edit* [XUSESIG] option.

In Kernel V. 8.0 the *Electronic Signature Code Edit* [XUSESIG] option has been tied to the Common Options, under the *User's Toolbox* [XUSERTOOLS] submenu, for easy access by all users.

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7. Archiving and Purging

Detailed information is kept for each prescription, including all information about the original prescription, all refills and all editing. An average prescription requires about 300 bytes (0.3 Kbytes) of disk storage. The archiving options under the manager's menu allow the package coordinator and IRMS/ADP staff to manage this file. Old prescriptions, typically those which have been expired or canceled for more than a year, can be saved to tape and then purged from online storage. NOTE: The purge options under the *Archive* menu are out of order until further notice. The User's Manual describes the operation of these options. Because not all prescriptions require the same amount of space and because of the way the operating system utilizes the disk, do not expect to regain 300 bytes of disk storage for every prescription purged. As prescriptions are purged, all references to these prescriptions from other files are also deleted.

The RX SUSPENSE file (#52.5) holds information about all prescriptions that have been suspended for later printing. There is an automatic purge for this file for prescriptions printed from 7 to 90 days ago. The package coordinator can run the *Auto-delete from Suspense [*PSO PNDEL] option at regular intervals to purge this file of suspended prescriptions which have been printed 7 to 90 days ago. The purging is tasked to run every 7 days.

Specific entries can be deleted using the *Change Suspense Date* [PSO PNDCHG] or *Pull Early From Suspense* [PSO PNDRX] options.

Drug cost data can now be purged using the *Purge Drug Cost Data* [PSO PURGE DRUG COST] option.

7.1. Setting up the Archive Device

The following examples display archive device setups for file and tape.

These examples may differ from site to site. If a device differs, check with IRMS for information on device set up.

```
                    HOST FILE SERVER (HFS) DEVICE SETUP:


NAME: HFS      $I: ARC0797.TMP
ASK DEVICE: YES      ASK PARAMETERS: NO
VOLUME SET(CPU): VAA QUEUING: ALLOWED
LOCATION OF TERMINAL: COMPUTER AREA   ASK HOST FILE: YES
ASK HFS I/O OPERATION: YES *MARGIN WIDTH: 132
*FORM FEED: #  *PAGE LENGTH: 64
*BACK SPACE: $C(8)    SUBTYPE: P-OTHER
TYPE: HOST FILE SERVER
BAUD RATE (c): UNKNOWN
```

```
                        MAGNETIC TAPE DEVICE SETUP:


NAME: TAPE (T7867)   $I: $3$MKA600:
ASK DEVICE: YES      ASK PARAMETERS: YES
SIGN-ON/SYSTEM DEVICE: NO
LOCATION OF TERMINAL: COMPUTER ROOM
*MARGIN WIDTH: 255   *FORM FEED: #
*PAGE LENGTH: 256    *BACK SPACE: $C(8)
OPEN PARAMETERS: (FORMAT="VAL4":BLOCKSIZE=2048)
SUBTYPE: MAGTAPE     TYPE: MAGTAPE
PERFORM DEVICE CHECKING: NO
BAUD RATE (c): UNKNOWN
```

8. Callable Routines

Entry points provided by the Outpatient Pharmacy package to other packages can be found in the External Relations section of this manual. No other routines are designated as callable from outside of this package.

9. External Interfaces

For up to date information on maintaining the HL7 External Interface, go to the following web site:

http://vista.med.va.gov/VistA_Lib/Infrastructure/Health_Level_7_(HL7)/hl71_6p56_p66.pdf

NOTE: The HL Logical Link Entry/Node set up for Outpatient Pharmacy is PSO LLP1.

Steps for Setup/Shutdown of the External Interface

The following screens depict the steps necessary to setup and shutdown the external interface for Version 1.6 of the **V*IST*A** Health Level Seven (HL7) application package. See Appendix A of this manual for more information on the Outpatient Pharmacy HL7 Specification.

The following examples are options from the HL7 package. The top level menu option being used is the HL MAIN MENU option [*HL7 Main Menu*].

Setting Up the Interface:

```
Select Menu Option: HL  HL7 Main Menu


   1      V1.5 OPTIONS ...
   2      V1.6 OPTIONS ...
   3      Activate/Inactivate Application
   4      Print/Display Menu ...
   5      Purge Message Text File Entries

Select HL7 Main Menu Option: V1.6 OPTIONS


   1      Communications Server ...
   2      Interface Workbench
   3      Message Requeuer

Select V1.6 OPTIONS Option: COMMunications Server

   1      Edit Communication Server parameters
   2      Manage incoming & outgoing filers ...
   3      Monitor incoming & outgoing filers
   4      Start LLP
   5      Stop LLP
   6      Systems Link Monitor
   7      Logical Link Queue Management ...
   8      Report
```

```
Select Communications Server Option: START LLP

This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
to communicate

Select HL LOGICAL LINK NODE: PSO LLP1
The LLP was last shutdown on MAR 17, 1997 10:10:11.


     Select one of the following:

          F         FOREGROUND
          B         BACKGROUND
          Q         QUIT

Method for running the receiver: BACKGROUND
Job was queued as 434423.

   1      Edit Communication Server parameters
   2      Manage incoming & outgoing filers ...
   3      Monitor incoming & outgoing filers
   4      Start LLP
   5      Stop LLP
   6      Systems Link Monitor
   7      Logical Link Queue Management ...
   8      Report

Select Communications Server Option: MANAge incoming & outgoing filers

   1      Start default number of incoming & outgoing filers
   2      Start an incoming filer
   3      Start an outgoing filer
   4      Stop all incoming filers
   5      Stop all outgoing filers
   6      Stop an incoming filer
   7      Stop an outgoing filer

Select Manage incoming & outgoing filers Option: START AN INComing filer
Incoming filer queued as task number 434424

   1      Start default number of incoming & outgoing filers
   2      Start an incoming filer
   3      Start an outgoing filer
   4      Stop all incoming filers
   5      Stop all outgoing filers
   6      Stop an incoming filer
   7      Stop an outgoing filer

Select Manage incoming & outgoing filers Option: START AN OUTgoing filer
Outgoing filer queued as task number 434425

   1      Start default number of incoming & outgoing filers
   2      Start an incoming filer
   3      Start an outgoing filer
   4      Stop all incoming filers
   5      Stop all outgoing filers
   6      Stop an incoming filer
   7      Stop an outgoing filer
```

```
Select Manage incoming & outgoing filers Option: <ENTER>

   1      Edit Communication Server parameters
   2      Manage incoming & outgoing filers ...
   3      Monitor incoming & outgoing filers
   4      Start LLP
   5      Stop LLP
   6      Systems Link Monitor
   7      Logical Link Queue Management ...
   8      Report

Select Communications Server Option: SYSTEms Link Monitor


                                MESSAGING MONITOR

                MESSAGES  MESSAGES   MESSAGES    MESSAGES  DEVICE
     NODE       RECEIVED  PROCESSED  TO SEND     SENT      ON-LINE  STATE

     PSO LLP1      0        0           1           1        Y       IDLE









     Number of incoming filers running => 1
     Number of outgoing filers running => 1

     TYPE: (N) NEXT, (B) BACKUP, (Q) QUIT: Quit
```

Shutting Down the Interface:

```
Select Menu Option: HL7 Main Menu


   1      V1.5 OPTIONS ...
   2      V1.6 OPTIONS ...
   3      Activate/Inactivate Application
   4      Print/Display Menu ...
   5      Purge Message Text File Entries

Select HL7 Main Menu Option: V1.6 OPTIONS


   1      Communications Server ...
   2      Interface Workbench
   3      Message Requeuer
```

```
Select V1.6 OPTIONS Option: COMMunications Server


   1      Edit Communication Server parameters
   2      Manage incoming & outgoing filers ...
   3      Monitor incoming & outgoing filers
   4      Start LLP
   5      Stop LLP
   6      Systems Link Monitor
   7      Logical Link Queue Management ...
   8      Report

Select Communications Server Option: MANAGE incoming & outgoing filers


   1      Start default number of incoming & outgoing filers
   2      Start an incoming filer
   3      Start an outgoing filer
   4      Stop all incoming filers
   5      Stop all outgoing filers
   6      Stop an incoming filer
   7      Stop an outgoing filer

Select Manage incoming & outgoing filers Option: STOP AN INComing filer

Incoming filer queued as task number 434427 has been asked to stop

   1      Start default number of incoming & outgoing filers
   2      Start an incoming filer
   3      Start an outgoing filer
   4      Stop all incoming filers
   5      Stop all outgoing filers
   6      Stop an incoming filer
   7      Stop an outgoing filer

Select Manage incoming & outgoing filers Option: STOP AN OUTGoing filer

Outgoing filer queued as task number 434428 has been asked to stop


   1      Start default number of incoming & outgoing filers
   2      Start an incoming filer
   3      Start an outgoing filer
   4      Stop all incoming filers
   5      Stop all outgoing filers
   6      Stop an incoming filer
   7      Stop an outgoing filer

Select Manage incoming & outgoing filers Option: <ENTER>

   1      Edit Communication Server parameters
   2      Manage incoming & outgoing filers ...
   3      Monitor incoming & outgoing filers
   4      Start LLP
   5      Stop LLP
   6      Systems Link Monitor
   7      Logical Link Queue Management ...
   8      Report

Select Communications Server Option: STOP LLP

This option is used to shut down the lower level protocol for the
appropriate device.  Please select the node which you would
like to shutdown.
```

```
Select HL LOGICAL LINK NODE: PSO LLP1
The lower level protocol was started on MAR 17, 1997 10:34:10.

Okay to shut down this job? YES
The job for the PSO LLP1 Lower Level Protocol will be shut down.

   1      Edit Communication Server parameters
   2      Manage incoming & outgoing filers ...
   3      Monitor incoming & outgoing filers
   4      Start LLP
   5      Stop LLP
   6      Systems Link Monitor
   7      Logical Link Queue Management ...
   8      Report

Select Communications Server Option: SYSTEMs Link Monitor

                              MESSAGING MONITOR

               MESSAGES  MESSAGES   MESSAGES  MESSAGES  DEVICE
    NODE       RECEIVED  PROCESSED  TO SEND   SENT      ON-LINE  STATE

    PSO LLP1      0        0           0        0         N     SHUTDOWN




     Number of incoming filers running => Zero
     Number of outgoing filers running => Zero

     TYPE: (N) NEXT, (B) BACKUP, (Q) QUIT: Quit
```

VAX System

To install the HL7 interface on a VAX system, complete the following steps:

1. Create a Username for each non-**V***IST***A** system to be connected to the **V***IST***A** system.
2. If environmental access control is enabled on your system, grant ACL using the utility ACL(D ^ACL). Otherwise, skip this step.
3. Create a login command file for each Username.
4. Set up the DECserver port for each non- **V***IST***A** system to which you will be connecting.
5. Tie the DECserver node/port to the Username through the VMS AUTOMATIC LOGIN file (D ^ALF).
6. Create the VMS terminal characteristics and protection.
7. Create the appropriate entries in the **V***IST***A** DEVICE file (#3.5).

An example of each step is provided on the following pages.

Username Creation (PSO HLDEVICE1)

```
Username: PSO HLDEVICE1                Owner:
Account:                               UIC: [50,115] ([MGRDSM,HLDEVICE1])
CLI:  DCL                              Tables: DCTABLES
Default:  DISK$VA1:[HLDEVICE1]
LGICMD:         HLDEVICE1.COM
Flags:  DisCtlY Restricted DisWelcome DisNewMail DisReport Captive
Primary Days:     Mon     Tue     Wed     Thu     Fri
Secondary Days:                                           Sat     Sun
No access restrictions
Expiration:       (none)    Pwdminimum:   6     Login Fails:     0
Pwdlifetime:    180 00:00   Pwdchange:         (pre-expired)
Last Login: 17-MAR-1997 o9:22 (interactive),    (none) (non-interactive)
Maxjobs:        0  Fillm:        150 Bytlm:     40960
Maxacctjobs:    0  Shrfillm:       0 Pbytlm:    0
Maxdetach       0  BIOlm:         18 Jtquota:   1024
Prclm:          2  DIOlm:         18 Wsdef:     800
Prio:           4  ASTlm:        300 Wsquo:     1200
Queprio:        0  TQElm:         10 Wsextant   1600
CPU:      (none)   Enqlm:        300 Pgflquo:   10240
Authorized Privileges:
   LOG IO TMPMBX NETMBX PRMGBL
Default Privileges:
   LOG_IO TMPMBX NETMBX PRMGBL
```

Grant ACL if Using Environmental Access

```
USER        ACCESS MODE      VOL      UCI      ROUTINE
-----       -----------      ----     ---      ------
HLDEVICE1   APLLICATION      KER      COR      HLLP
```

Login Command File (HLDEVICE1.COM)

```
$! CAPTIVE FOR HLDEVICE1
$ if f$mode().nes.”INTERACTIVE” then exit
$ on error then $logout
$ set nocontrol=t
$ set term/nowrap/noline/hostsync/noecho/eight/nobroad/pasthru
$
$ pid=f$getjpi(“”,”pid”)
$ term=f$getjpi(pid,”terminal”)
$ proc=”HLDEVICE1 ” +  term
$ set proc/name=’proc’
$
$ envir = f$trnlnm(“dsm$environment”)
$ if envir .eqs. “” then envir = “dsmmgr”
$ manager=”’’envir’/uci=vah/vol=rou”
$dsm:
$! Dsm/environ=DSM MANAGER/u=vah/v=rou/input=sys$command ^HLLP
$
$  dsm/environ=’manager/input=sys$command ^HLLP
$
$exit:
$logout/brief
```

Set Up the DECserver Port

```
Port 48: AVAILABLE                              Server: DSV9

Character Size:         8                Input Speed:          9600
Flow Control          XON                Output Speed:         9600
Parity:              None                Modem Control:    Disabled
Stop Bits:        Dynamic

Access:            Remote                Local Switch:         None
Backward Switch:     None                Name:              LC-3-16
Break:           Disabled                Session Limit:           1
Forward Switch:      None                Type:                 ANSI

Dedicated Service:     DHCP

Authorized Groups:        0
(Current) Groups:               0

Enabled Characteristics:

Autoprompt

Tie DECserver Node/Port to Username (HLDEVICE1)

D ^ALF
 Edit or List the VMS Automatic Login file: SYS$SYSTEM:SYSALF.DAT

Add record, or modify existing record

Terminal (ddcu) ? DSV9/LC-3-16
User name ? HLDEVICE1
Terminal DSV9/LC-3-16 user HLDEVICE1 record added.

Terminal (ddcu) ? <ENTER>

Do you want to add or modify (A), delete (D), or list (L) records ?
<ENTER>

SYS$SYSTEM:SYSALF.DAT has been updated
```

Create LAT Port

```
MC LATCP CREAT PORT LTA9048 /NOLOG
MC LATCP SET PORT /NODE=DSVn /PORT=LC-n-n /NOLOG LTA9048
```

Create VMS Terminal Characteristics/Protection

```
$!HLDEVICE1
$ SET PROTECT=W:RWLP /DEVICE LTA9048
$ SET TERM/PERM/NOWRAP/HOSTSYNC/NOECHO/EIGHT/NOBROAD/ALTYPE/PASTHRU
LTA9048
```

Create V*IST*A Device File Entries

```
NAME: HLDEVICE1
                                                $I:  LTA9048:
 LOCATION OF TERMINAL: PHARMACY                 MARGIN WIDTH: 80
 FORM FEED: #,*27,*91,*50,*74,*27,*91,*72
 PAGE LENGTH: 24
                                                BACK SPACE: $C(8)
  SUBTYPE: C-VT100
                                                TYPE: TERMINAL


NAME: NULL DEVICE
                                                $I: _NLA0:
 LOCATION OF TERMINAL: NULL DEVICE              MARGIN WIDTH: 255
 FORM FEED: #
 PAGE LENGTH: 256
 BACK SPACE: $C(8)
                                                SUBTYPE: P-OTHER
 TYPE: TERMINAL
```

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10. External Relations

The following software is not included in this package and must be installed before this version of Outpatient Pharmacy is completely functional.

Package	Minimum Version Needed
Accounts Receivable (AR)	4.5
Adverse Reaction Tracking (ART)	4.0
Clinical Information Resources Network (CIRN)	1.0
Consolidated Mail Outpatient Pharmacy (CMOP)	2.0
Consolidated Patient Record System (CPRS)	3.0
Decision Support System (DSS)	3.0
Fee Basis	3.5
VA FileMan	22.0
Integrated Funds Control, Accounting, and Procurement (IFCAP)	5.0
Inpatient Medications (IP)	5.0
Integrated Billing (IB)	2.0
Kernel	8.0
Laboratory	5.2
MailMan	7.1
Master Patient Index/Patient Demographics (MPI/PD)	1.0
National Drug File (NDF)	4.0
Order Entry/Results Reporting (OERR)	3.0
Patient Information Management System (PIMS)	5.3
Pharmacy Data Management (PDM)	1.0
Remote Procedure Call (RPC) Broker	1.1

NOTE: For Outpatient Medication Copay options to be fully functional, the Pharmacy Ordering Enhancement (POE) project software must be installed, which includes patches to Outpatient Pharmacy (PSO*7*46), Order Entry/Results Reporting (OR*3*94), Pharmacy Data Management (PSS*1*38), and Inpatient Medications (PSJ*5*50).

10.1. Data Base Integration Agreements (IAs)

Outpatient Pharmacy (OP) V. 7.0 has Data Base Integration Agreements (IAs) with the packages listed above, in addition to the following: Consolidated Mail Outpatient Pharmacy (CMOP), Drug Accountability (DA), and Controlled Substances (CS). For complete information regarding the IAs for OP V. 7.0, please refer to the *Integration Agreement Menu* [DBA IA ISC] option under the *DBA* [DBA] option on FORUM.

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11. Internal Relations

Very few of the options in this package can be invoked independently. Those that can be so invoked independently are

PSO MANAGER	Outpatient Pharmacy Manager
PSO P	Medication Profile
PSO USER1	Pharmacist Menu
PSO USER2	Pharmacy Technician's Menu
Any other option may not run independently.	

Any locally created menu which includes options from this package *must* have the ENTRY ACTION field read: D:'$D(PSOPAR) ^PSOLSET and should have the MENU EXIT ACTION field read: D FINAL^PSOLSET

12. Package-Wide Variables

The variables PSODIV, PSOINST, PSOIOS, PSOPAR, PSOPAR7, PSOSYS, PSOLAP, PSOPROP, PSOCLC, PSOCNT, PSODTCUT, PSOSITE, PSOPRPAS, PSOBAR0, PSOBAR1 and PSOBARS are used extensively throughout the package. They are set by the routine PSOLSET and are not killed until exiting from the package.

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13. Templates

Sort	File
PSO COST STAT	50.9
PSO BBWAIT SORT	52.11
PSO DRUG LIST	50
PSO HOLD LIST	52
PSO INTERVENTIONS	9009032.4
PSO NARC LIST	52
PSOUPAT	52
Input	**File**
PSO CLOZDRUG	50
PSO DISPLAY EDIT	59.3
PSO INTERACT	56
PSO INTERVENTION EDIT	9009032.4
PSO INTERVENTION NEW	9009032.4
PSO OUTPT	2
PSO OUTPTA	2
PSO PARTIAL	52
PSO SITE	59
PSOD DUE BUILD QUESTIONNAIRE	50.073
PSOD DUE EDIT	50.0731
Print	**File**
PSO ACTION PROFILE	44
PSO ACTION PROFILE #2	44
PSO ALPHA DRUG LIST	50
PSO BBWAIT PRINT	52.11
PSO COST STAT	50.9
PSO DRUG LIST	50
PSO HOLD	52
PSO INACTIVE DRUG LIST	50
PSO INTERVENTIONS	9009032.4
PSO N/F LIST	50
PSO NARC LIST	52
PSO PHARMACY STATS	50.9
PSO REQUEST STATISTICS	50.9
PSO SUSPENSE LIST	52.5
PSO SYNONYM LIST	50
PSOD PRINT ANSWER SHEET	50.0731

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14. Software Product Security

14.1. Mail Group Setup for the HL7 External Interface

A mail group and device **must** be set up in order to run the HL7 external interface. The recommended name of the mail group is PSO HLGROUP1. The recommended device name is PSO HLDEVICE1.

14.2. Archiving/Purging

For archiving and purging information, see the section titled "Archiving and Purging" in this manual.

14.3. Interfacing

For interface information, see the section titled "External Interfaces" in this manual.

14.4. Electronic Signatures

Electronic signatures may be established by using the *Electronic Signature Code Edit* [XUSESIG] option. In Kernel V. 8.0 the *Electronic Signature code Edit* [XUSESIG] option has been tied to the Common Options, under the *User's Toolbox* [XUSERTOOLS] submenu, for easy access by all users.

14.5. Menu Assignments

The *Outpatient Pharmacy Manager* [PSO MANAGER] menu should be assigned to the Package Coordinator for Outpatient Pharmacy and also added to the menu of the Site Manager and any ADP/IRMS staff that s/he selects to help in the operation of Outpatient Pharmacy. The *Pharmacist Menu* [PSO USER1] option should be assigned to all pharmacists and the *Pharmacy Technician's Menu* [PSO USER2] option should be assigned to all pharmacy technicians and other pharmacy personnel who may view prescriptions and/or inquire into other Outpatient Pharmacy files.

14.6. Security Keys

PSORPH	This key should be assigned to all pharmacists, the package coordinator, and all appropriate members of the ADP/IRMS staff.
PSO COPAY	This key should be assigned to any users who need to be notified when a copay exemption cannot be determined at the time a prescription fill is released. Holders of this key are also notified any time the *Exempt Rx Patient Status from Copayment* [PSOCP EXEMPTION] option is used to change the copay exemption for an Rx Patient Status.
PSOA PURGE	*NOTE: Disabled until further notice.* This key should be assigned to the package coordinator and/or any person who will be responsible for archiving prescriptions.
PSOLOCKCLOZ	This key is used to override the lockouts in the Clozapine option. All members of the Clozapine treatment team must be entered as users on the system and must be given this key. All pharmacists who have the ability to override the lockouts in this option must also hold this key. The Pharmacy Service representative of the Clozapine treatment team should identify these pharmacists.
PSOINTERFACE	This key is used to access the *External Interface Menu* [PSO EXTERNAL INTERFACE] option.

14.7. File Security

This package requires 21 files in addition to those of the Kernel and other files to which it points, for example the PATIENT file (#2). Information about all files, including these can be obtained by using the VA FileMan to generate a list of file attributes.

File Numbers	File Names	DD	RD	WR	DEL	LAYGO
50.073	DUE QUESTIONNAIRE					
50.0731	DUE ANSWER SHEET					
50.0732	DUE QUESTION					
50.0733	DUE SECTION					
50.9	DRUG COST					
52	PRESCRIPTION					
52.11	PATIENT NOTIFICATION (Rx READY)					
52.4	RX VERIFY	@	@	@	@	@
52.41	PENDING OUTPATIENT ORDERS			@		
52.5	RX SUSPENSE				#	
52.51	PHARMACY EXTERNAL INTERFACE	@	@	@	@	@
52.52	CLOZAPINE PRESCRIPTION OVERRIDES	@	@	@	@	@
52.8	PHARMACY ARCHIVE					
52.9	PHARMACY PRINTED QUEUE					
53	RX PATIENT STATUS					
59	OUTPATIENT SITE					
59.1	OUTPATIENT AMIS DATA	@		@	@	@
59.12	OUTPATIENT PHARMACY MANAGEM DATA	@		@	@	@
59.2	WAITING TIME	@	@	@	@	@
59.3	GROUP DISPLAY	@	@	@	@	@
59.8	OUTPATIENT CLINIC SORT GROUP					

Please refer to Chapter 28 of Kernel V. 8.0 Systems Manual concerning installation of security codes sections entitled “Sending Security Codes.”

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15. Outpatient Pharmacy V. 7.0 Menu Diagrams

Three main menus are exported with the package. The *Outpatient Pharmacy Manager* [PSO MANAGER] menu should be assigned to supervisors, package coordinators, and members of the ADP/IRMS staff. Pharmacists should have the *Pharmacist Menu* [PSO USER1] option and clerks and technicians should have the *Pharmacy Technician's Menu* [PSO USER2] option.

15.1. Outpatient Pharmacy Manager

Archiving ...
- Find
- Save to Tape
- Tape Retrieval
- Archive to File
- File Retrieval
- Purge
- **> Out of order: Unavailable - Under Construction
- List One Patient's Archived Rx's
- Print Archived Prescriptions

Autocancel Rx's on Admission

Bingo Board ...
- BM Bingo Board Manager ...
  - Enter/Edit Display
  - Auto-Start Enter/Edit
  - Print Bingo Board Statistics
  - Print Bingo Board Wait Time
  - Purge Bingo Board Data
  - Start Bingo Board Display
  - Stop Bingo Board Display
- BU Bingo Board User ...
  - Enter New Patient
  - Display Patient's Name on Monitor
  - Remove Patient's Name from Monitor
  - Status of Patient's Order

Change Label Printer

Clozapine Pharmacy Manager
- Display Lab Tests and Results
- Edit Data for a Patient in the Clozapine Program
- List of Override Prescriptions
- Register Clozapine Patient

Copay Menu ...
- CHAMPUS Billing Exemption
- Exempt Rx Patient Status from Copayment
- Reset Copay Status/Cancel Charges

DUE Supervisor ...
1 Enter a New Answer Sheet
2 Edit an Existing Answer Sheet
3 Create/Edit a Questionnaire
4 Batch Print Questionnaires
5 DUE Report

Enter/Edit Clinic Sort Groups

External Interface Menu …
Purge External Batches
Reprint External Batches
View External Batches

Label/Profile Monitor Reprint

Maintenance (Outpatient Pharmacy) ...
Site Parameter Enter/Edit
Edit Provider
Add New Providers
Queue Background Jobs
Autocancel Rx's on Admission
Bingo Board Manager ...
Enter/Edit Display
Auto-Start Enter/Edit
Print Bingo Board Statistics
Print Bingo Board Wait Time
Purge Bingo Board Data
Start Bingo Board Display
Stop Bingo Board Display
Edit Data for a Patient in the Clozapine Program
Enter/Edit Clinic Sort Groups
Initialize Rx Cost Statistics
Edit Pharmacy Intervention
Delete Intervention
Auto-delete from Suspense
Delete a Prescription
Expire Prescriptions
Manual Auto Expire Rxs
Prescription Cost Update
Purge Drug Cost Data
Purge External Batches
Recompile AMIS Data

Medication Profile

Output Reports ...
Action Profile (132 COLUMN PRINTOUT)
Alpha Drug List and Synonyms
AMIS Report
CMOP Controlled Substance Rxs Dispense Report
Commonly Dispensed Drugs
Cost Analysis Reports ...
Clinic Costs
Division Costs by Drug
Drug Costs
Drug Costs by Division
Drug Costs by Division by Provider

- Drug Costs by Provider
- High Cost Rx Report
- Patient Status Costs
- Pharmacy Cost Statistics Menu ...
  - Pharmacy Statistics
  - Sort Statistics By Division
- Provider by Drug Costs
- Provider Costs
- Request Statistics

Daily AMIS Report
Drug List By Synonym
Free Text Dosage Report
Inactive Drug List
List Prescriptions on Hold
Management Reports Menu ...
- Daily Management Report Menu ...
  - All Reports
  - Cost of Prescriptions
  - Count of Prescriptions
  - Intravenous Admixture
  - Type of Prescriptions Filled
- Date Range Recompile Data
- Initialize Daily Compile
- Monthly Management Report Menu ...
  - All Reports
  - Cost of Prescriptions
  - Count of Prescriptions
  - Intravenous Admixture
  - Type of Prescriptions Filled
- One Day Recompile Data
- Purge Data

Medication Profile
Monthly Drug Cost
Narcotic Prescription List
Non-Formulary List
Poly Pharmacy Report
Released and Unreleased Prescription Report

Pharmacy Intervention Menu ...
- Enter Pharmacy Intervention
- Edit Pharmacy Intervention
- Print Pharmacy Intervention
- Delete Intervention
- View Intervention

Process Drug/Drug Interactions
Release Medication
Return Medication to Stock

Rx (Prescriptions) ...
- Patient Prescription Processing
- Barcode Rx Menu ...
  - Barcode Batch Prescription Entry
  - Check Quality of Barcode
- Complete Orders from OERR
- Discontinue Prescription(s)
- Edit Prescriptions
- List One Patient's Archived Rx's
- Reprint an Outpatient Rx Label
- View Prescriptions

Supervisor Functions ...
- Add New Providers
- Daily Rx Cost
- Delete a Prescription
- Edit Provider
- Initialize Rx Cost Statistics
- Inter-Divisional Processing
- Inventory
- Lookup Clerk by Code
- Monthly Rx Cost Compilation
- Patient Address Changes Report
- Pharmacist Enter/Edit
- Purge Drug Cost Data
- Recompile AMIS Data
- Site Parameter Enter/Edit
- View Provider

Suspense Functions ...
- Auto-delete from Suspense
- Change Suspense Date
- Count of Suspended Rx's by Day
- Delete Printed Rx's from Suspense
- Log of Suspended Rx's by Day (this Division)
- Print from Suspense File
- Pull Early from Suspense
- Reprint Batches from Suspense

Update Patient Record

Verification ...
- List Non-Verified Scripts
- Non-Verified Counts
- Rx Verification by Clerk

15.2. Pharmacist Menu

Bingo Board User ...
- Enter New Patient
- Display Patient's Name on Monitor
- Remove Patient's Name from Monitor
- Status of Patient's Order

Change Label Printer
Change Suspense Date
DUE Supervisor ...
- 1 Enter a New Answer Sheet
- 2 Edit an Existing Answer Sheet
- 3 Create/Edit a Questionnaire
- 4 Batch Print Questionnaires
- 5 DUE Report

Enter/Edit Clinic Sort Groups
External Interface Menu …
- Purge External Batches
- Reprint External Batches
- View External Batches

Medication Profile
Pharmacy Intervention Menu ...
- Enter Pharmacy Intervention
- Edit Pharmacy Intervention
- Print Pharmacy Intervention
- Delete Intervention
- View Intervention

Print from Suspense File
Process Drug/Drug/Interaction
Pull Early from Suspense
Release Medication
Return Medication to Stock
Rx (Prescriptions) ...
- Patient Prescription Processing
- Barcode Rx Menu ...
  - Barcode Batch Prescription Entry
  - Check Quality of Barcode
- Complete Orders from OERR
- Discontinue Prescription(s)
- List One Patient's Archived Rx's
- Reprint an Outpatient Rx Label
- View Prescriptions

Update Patient Record
Verification ...
- List Non-Verified Scripts
- Non-Verified Counts
- Rx Verification by Clerk

15.3. Pharmacy Technician's Menu

Bingo Board User ...
- Enter New Patient
- Display Patient's Name on Monitor
- Remove Patient's Name from Monitor
- Status of Patient's Order

Change Label Printer
DUE User ...
1. Enter a New Answer Sheet
2. Edit an Existing Answer Sheet
3. Batch Print Questionnaires

Medication Profile
Patient Prescription Processing
Pull Early from Suspense
Release Medication
Update Patient Record

16. Routine Mapping

No recommendations are made for routine mapping. However, to map the Outpatient Pharmacy package routines, the system will need to be brought down and then restarted to load the new routines into memory.

17. Journaling Globals

The primary global used by the Outpatient Pharmacy package is ^PSRX. This global is recommended if journaling is used.

18. Barcodes

This version of Outpatient Pharmacy includes the ability to print barcodes on the patient copy, the pharmacist's copy, and the patient narrative documents for new label stock. There are two options that utilize the barcodes.

Check Quality of Barcode [PSO BARCODE CHECK] option is used to monitor the quality and readability of the barcode before it is mailed.

Barcode Batch Prescription Entry [PSO BATCH BARCODE] option is used to actually refill the prescriptions utilizing barcodes in a batch entry.

If barcodes are not being used, enter an "OUT OF ORDER MESSAGE" for these two options.

Three parameters are used.

X is the barcode height. Values can be "S", "M" or "L". If X is undefined or not equal to one of these, the default value of "S" is used. "S" is 2/10 inch for the DS-220 and 1/6 inch for the MT-290. "M" is 4/10 inch for the DS-200 and 1/3 inch for the MT-290. "L" is one inch for both.

X1 is the value of $X at the left edge of the barcode. If X1 is undefined, the default value of 0 is used.

X2 is the data to be barcoded. Remember that the code 39 character set which is being used by the VA is a limited subset of the ASCII character set containing only the numbers, uppercase letters and eight punctuation characters. In most cases, any other characters are not printed. For example, the barcode for the string 123abc will be the same as that for the string 123.

On most printers, printing a barcode is a graphics operation which causes the value of $Y to be something other than the line count from the top of the page. Forms with barcodes on them must use a form feed to go to the top of the next form rather than a counted number of line feeds. This is the reason that printers being used to print barcodes on outpatient

pharmacy labels must be set for a form length of 24 lines or four inches.

The following section, New Label Stock, contains barcode on and off sequences for various printers.

18.1. New Label Stock (Version 6.0 and Later Versions)

*****IMPORTANT*****

Please test new label stock on all printers that will be used before going into production with new label stock.

Printers that will be printing the new label stock must be set to print at 12 characters per inch, and the form length must be set to 5 inches.

Previously, old label stock printed barcodes in one column at 10 characters per inch. New label stock prints barcodes at 12 characters per inch in 2 columns, (column 54 and 102). The following barcode entries in the TERMINAL TYPE file (#3.2) have worked at either the Birmingham Office of Information Field Office (OIFO) or at a site. If barcodes cannot be found that will work, please contact the nearest OIFO.

Check to see that a line feed is performed after the barcode off sequence is executed. Due to limited space, information has to be printed after certain barcodes print, without relying on a line feed in the Outpatient Pharmacy code. To test this, print a test label for an Rx with no refills. On the center copy of the label, on the next line after the "station number-Rx no." which prints directly under the barcode, one of the two following lines should print clearly:

```
* NO REFILLS REMAINING ** PHYSICIAN USE ONLY *
                    or
*** This prescription CANNOT be renewed ***
```

If there is a problem, try inserting a line feed at the end of the Barcode Off sequence. (add a ,! to the end of the sequence)

Remember to set the New Label Stock site parameter to Yes.

There are also 3 site parameters that provide patient instructions that will print after each patient's prescriptions. They are "NARRATIVE NON-REFILLABLE RX", "NARRATIVE REFILLABLE RX", and "NARRATIVE FOR COPAY DOCUMENT". The "NARRATIVE FOR COPAY DOCUMENT" will only print if at least one of the patient's prescriptions is subject to a Copay charge.

<u>For the Data South 220</u>

BAR CODE ON=
*27,"[1w",*27,"$70s",*94,"H",$S('$D(X):"04",X="M":"04",X="S":"02",X="L":"10",1:"04"),*94, "BDB"

BAR CODE OFF=*94,"G",*27,"$70c",*27,"[2w",!

For the MT-661

BAR CODE ON=
*27,"[<4h",*94,$S($X<60:"T450",1:"T850"),*94,"W9;5;1",*94,"B1;35;1;3",*13

BAR CODE OFF=*13,*10,*27,"[<4l",*27,"[5w"

The character after the [<4 in the BAR CODE OFF above is a lower case L.

For the Genicom 4440:

BAR CODE ON=*27,"[;3;1;;4;;4;;;1;}",*27,"[3t"

BAR CODE OFF=*27,"[0t",!

For the MT290:

BAR CODE ON=*26, "F0",$S(‘$D(X):2,X="M":2,X="S":1,X="L":6,1:2), ";000",*25,*20,"*"

BAR CODE OFF="*",*20,!,?$S($D(X1):X1,1:0),$S($D(X2):X2,1:"")

or

BAR CODE ON=*26,*34,"F3;000",*25,*20,"*"

BAR CODE OFF="*",*20

For the OTC 560:

BAR CODE ON=*27,"[;",$S('$D(X):3,X="M":6,X="L":12,1:3),"} ",*27,"[3t"

BAR CODE OFF=*27,"[0t"

For the Genicom 4490:

BAR CODE ON=*27,"[3t",*14

BAR CODE OFF=*15,*27,"[0t",*13

**The set up of the MT290 will not allow for a form length of 5 inches, it skips from 4 to 5.5. Following is the terminal type information that will allow the MT290 to print the labels at a form length of 5 inches.

```
NAME: P-MANNESMANN MT290/132 (PHAR)     RIGHT MARGIN: 132
  FORM FEED: #                          PAGE LENGTH: 30
  BACK SPACE: $C(8)
  OPEN EXECUTE: W *27,"[4W",*27,"[0Y",*27,"[30t"
  10 PITCH: $C(27) "[4w"                12 PITCH: $C(27) "[5w"
  DESCRIPTION: MANNESMANN TALLY 290/132 COLUMNS
  16 PITCH: $C(27) "[6w"                DEFAULT PITCH: $C(27) "[4w"
  BAR CODE OFF: "*",*20,!,?$S($D(X1):X1,1:0),$S($D(X2):X2,1:"")
  BAR CODE ON: *26,"F0",$S('$D(X):2,X="M":2,X="S":1,X="L":6,1:2),";000",
*25,*20,"*"
```

The *27,"[30t" was added to the Open Execute.

Glossary

ADP	Automated Data Processing
Archive	Prescriptions, typically those which have been expired or canceled for more than a year, can be saved to tape, and then purged from online storage.
CPRS	Computerized Patient Record System. CPRS is a Graphical User Interface (GUI) in **V***IST***A** that provides order entry and results reporting for multiple packages.
DHCP	See **V***IST***A**.
IRMS	Information Resources Management Service
POE	Pharmacy Ordering Enhancements project. POE is a series of enhancements to improve the ordering processes between Inpatient Medications and Outpatient Pharmacy. For Outpatient Pharmacy, POE changes occur in patch PSO*7*46.
Prescription	This term is now referred to throughout the software as medication orders.
Purge	Prescriptions, typically those which have been expired or canceled for more than a year, are saved to tape. Purging removes them from online storage.
Reprinted Label	Unlike a partial prescription, a reprint does not count as workload.
V*IST***A**	Acronym for **V**eterans Health **I**nformation **S**ystems and **T**echnology **A**rchitecture, the new name for Decentralized Hospital Computer Program (DHCP)).

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Appendix A:
Outpatient Pharmacy HL7 Interface Specifications

A. General Information

Introduction

This document specifies an interface between the **V***IST***A** Outpatient Pharmacy V. 7.0 (OP V. 7.0) application and any automatic dispensing system. It is based upon the Health Level 7 Standard (HL7) V. 2.2.

The term "Level 7" refers to the highest level of the Open System Interconnection (OSI) model of the International Standards Organization (ISO). The OSI model is divided into seven levels or layers. The HL7 Standard is primarily focused on what happens within the seventh or application layer. At this layer, the definitions of the data to be exchanged, the timing of the exchanges, and the communication of certain application specific errors occurs. The lower levels support the actual movement of data between systems.

The lower level communication protocol used in OP V. 7.0 is either X3.28 or the Hybrid Lower Layer Protocol (HLLP) over an RS-232 connection, as supported by the VA **V***IST***A** HL7 V. 1.6 application. Future enhancements to the VA **V***IST***A** HL7 application may include TCP/IP as an option for the lower level communication protocol.

Message Rules

The HL7 Standard describes the basic rules for the exchange of information between two computer systems. The unit of data transferred is referred to as the message. It is comprised of a group of segments in a defined sequence. Each message has a three-character code called a message type that defines its purpose. The real-world event that initiates an exchange of messages is called a trigger event. There is a one-to-many relationship between message types and trigger event codes. The same trigger event code may not be associated with more than one message type; however a message type may be associated with more than one trigger event. All message type and trigger event codes beginning with Z are reserved for locally defined messages. No such codes will be defined within the HL7 Standard.

Some special characters are used to construct messages. They are the segment terminator, field separator, component separator, sub-component separator, repetition separator, and escape character. The segment terminator is always a carriage return (CR in ASCII or hex OD). The other characters recommended by HL7 are used in this application (See HL7 Standard V. 2.2, Chapter 2 for details).

Segment Rules

A segment is a logical grouping of data fields. Segments of a message may be required or optional. They may occur only once in a message or they may be allowed to repeat. Each segment is given a name and is identified by a unique three-character code. All segments beginning with Z are reserved for locally defined messages. No such code will be defined within the HL7 Standard.

Field Rules

A field is a string of characters. HL7 does not care how systems actually store data within an application. Except where noted, HL7 data fields may take on the null value. Sending the null value, which is transmitted as two double quote marks ("""), is different from omitting an optional data field. The difference appears when the contents of a message will be used to update a record in a database rather than create a new one. If no value is sent (i.e., it is omitted) the old value should remain unchanged. If the null value is sent, the old value should be changed to null. In defining a segment, the following information is specified about each field:

a) position - position of the data field within the segment.

b) name - unique descriptive name for the field.

c) ID number - integer that uniquely identifies the data field throughout the Standard.

d) maximum length - maximum number of characters that one occurrence of the data field may occupy.

e) optionality - whether the data field is required (R), optional (O), or conditional (C) in a segment.

f) repetition - whether the field may repeat (N=no; Y=yes; (integer)= no. of repeats).

g) table - a table of values for a field (See HL7 Standard V. 2.2, Section 2.4.3.7 for source of tables).

h) data type - restrictions on the contents of the data field (See HL7 Standard V. 2.2, Section 2.4.5).

B. TRANSACTION SPECIFICATIONS

Communication Protocol

The lower level communication protocol used by OP V. 7.0 to transmit data between systems is either X3.28 or HLLP over an RS-232 connection.

A site parameter in the OP V. 7.0 application called External Interface controls transmission of data to the dispensing machine. If the parameter is set to off, no transmission will occur.

Processing Rules

A Pharmacy Encoded Order Message (event type=O01) is transmitted whenever an order is placed in OP V. 7.0 and the criteria are met for the dispensing machine. Upon successful receipt and storage of the message, the dispensing machine will generate and transmit a Pharmacy Encoded Order Acknowledgement Message (event type=O02).

The following HL7 messages will be used to support the exchange of Outpatient Pharmacy data with any automatic dispensing system:

RDE	Pharmacy Encoded Order Message
RRE	Pharmacy Encoded Order Ack. Message
ACK	General Ack. Message

The messages will consist of the following HL7 segments:

MSA	Message Ack.
MSH	Message Header
NTE	Notes and Comments
PID	Patient Identification
ORC	Common Order
RXE	Pharmacy Encoded Order
RXR	Pharmacy Route
ZAL	Allergy List
ZRL	Rx Label
ZML	Multi-Rx Label
ZSL	Suspense Label

Specific Transaction

The Pharmacy Encoded Order Message is as follows:

RDE	Pharmacy Encoded Order Message
MSH	Message Header
[PID]	Patient Identification
{ORC	Common Order
RXE	Pharmacy Encoded Order
[{NTE}]	Notes and Comments
RXR	Pharmacy Route
[{ZAL}]	Allergy List
[{ZRL}]	Rx Label
[{ZML}]	Multi-Rx Label
[{ZSL}]	Suspense Label
}	

Example:

```
MSH|^~\&|Outpatient Pharmacy||DISP II||1995110710159||RDE^001|10001|....
....P|2.2|||ER|ER
PID|||1234||Doe, John F.|||M|||60 Park Pl^^Bham^AL^35233||999-
9999||||||123-12-1234
ORC|NW|12345^OP7.0|||||^^^19951107^19951207|||10^Scott, Tom||987^Thomas,
Jerry|....
....|||19951107|^^^^NEW
RXE|""|D0082^Digoxin 0.25MG Tab^PSNDF^372.3^Digoxin 0.25MG
Tab^99PSD|""||.....
....^^^23^MG^99PSU|^^^120^Tab^99PSF|||||^Tab|5||188^Price, Warren|123987|
....3||199509070830
NTE|1||The medication instructions would be here
NTE|2||The patient instructions narrative would be here
NTE|3||The drug warning information, if available, would be here
NTE|4||Profile information would be here
NTE|5||Drug Interaction information would be here
NTE|6||Drug Allergy indications would be here
RXR|^^^6^Oral^99PSR
ZAL|128|Allergy|Drug|Verified|Severe
ZRL|52312|700 South 19th Str.^B'ham^AL^35233|(205)999-
9999|2^Outpatient^99PSC|....
....65421^Hill,Greg|12-1234|123121234|SCL50|19951228|WINDOW
PICKUP|COPAY|NON-SFTY|....
....REFILLABLE|2 refills remain prior to|CERTIFIED MAIL|Mfg------Exp-----
|REPRINT|....
....199511070800|19951107|3|30|521-123987|DRUG WARNING 1,2,3|30
ZML|ASPIRIN 325MG TAB|11|19961107|638|521-2000742
ZSL|DIMENHYDRINATE 50MG|19960107|1024
```

The Pharmacy Encoded Order Acknowledgment Message is as follows:

RRE	Pharmacy Encoded Order Ack. Message
MSH	Message Header
MSA	Message Acknowledgement

Example:

```
MSH|^~\&|DISP II||Outpatient
Pharmacy||199511070203||RRE^002|9988||2.2|||ER|ER
MSA|AA|10001
```

Segments used in the Outpatient Pharmacy HL7 interface:

SEGMENT	SEQ#	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
MSH	1	1	ST	R			Field Separator
	2	4	ST	R			Encoding Characters
	3	15	ST				Sending Application
	5	30	ST				Receiving Applicatioon
	7	26	TS				Date/Time of Message
	9	7	CM	R	0076		Message Type
	10	20	ST	R			Message Control ID
	11	1	ID	R	0103		Processing ID
	12	8	ID	R	0104		Version ID
	15	2	ID		0155		Accept Ack. Type
	16	2	ID		0155		Application Ack Type
PID	3	20	CM	R	Y		Patient ID
	5	48	PN	R			Patient Name
	8	1	ID			0001	Sex
	11	106	AD		Y/3		Patient Address
	13	40	TN		Y/3		Phone Number-Home
	19	16	ST				SSN Number-Patient
ORC	1	2	ID	R		0119	Order Control
	2	75	CM	C			Placer Order Number
	7	200	TQ				Quantity Timing
	10	80	CN				Entered By
	12	80	CN				Ordering Provider
	15	26	TS				Order Effective Date
	16	200	CE				Order Control Code Reason
RXE	1	200	TQ	R			Quantity/Timing
	2	100	CE	R			Give Code
	3	20	NM	R			Give Amount-Minimum
	5	60	CE	R			Give Units
	6	60	CE	O			Give Dosage Form
	11	3	CE	C			Dispense Units
	12	60	NM	O			Number of Refills
	14	20	CN	C			Pharmacist Verifier ID
	15	20	ST	R			Prescription Number
	16	20	NM	C			Number of Refills Remaining
	18	26	TS	C			D/T of Most Recent Refill
NTE	1	4	SI				Set ID-Notes and Comments
	3	64K	FY		Y		Comment
RXR	1	60	CE			0162	Route

Segments used in the Outpatient Pharmacy HL7 interface: (Continued)

SEGMENT	SEQ#	LEN	DT	R/O	RP/#	TBL#	ELEMENT NAME
ZRL	1	10	ST				Site Number
	2	106	AD		Y/3		Site Address
	3	12	TN				Site Phone Number
	4	40	CE				Clinic
	5	80	CN				Cosigner
	6	7	ST				SSN
	7	10	NM				SSN Barcode Value
	8	25	ST				Rx Patient Status
	9	26	TS				Temp. Address Date
	10	60	ST				Method of Pickup
	11	10	ST				Copay
	12	10	ST				Cap
	13	15	ST				Refillable
	14	30	ST				Refill Status
	15	6	ST				Routing
	16	20	ST				Mfg-Exp
	17	15	ST				Label Status
	18	26	TS				D/T Label Printed
	19	26	TS				Fill Date
	20	3	NM				Fill Number
	21	3	NM				Days Supply
	22	15	ST				Rx Barcode Value
	23	26	ST				Drug Warning
	24	20	ST				Quantity
ZML	1	40	ST				Drug Name
	2	3	NM				Number of Refills
	3	26	TS				Exp. Date
	4	20	ST				Rx Number
	5	15	ST				Barcode
ZSL	1	40	ST				Drug Name
	2	26	TS				Suspense Date
	3	20	ST				Rx Number
ZAL	1	20	NM				Allergy ID
	2	20	ST				Mechanism
	3	10	ST				Type
	4	12	ST				Verified
	5	10	ST				Severity
MSA	1	2	ID	R		0008	Ack. Code
	2	20	ST	R			Message Cntrl ID
	3	30	ST				Text Message

Example of data elements making up segments:

SEG	SEQ#	FIELD NAME	VALUE/EXAMPLE	TYPE
MSH	1	Filed Separator	|	string
	2	Encoding Character	^~\&	string
	3	Sending Application	OUTPATIENT PHARMACY	string
	5	Receiving Application	DISP II	string
	7	Date/Time of Message	1995110710159	timestamp
	9	Message Type	RDE^001	ID (table 0076)
	10	Message Control ID	10001	string
	11	Processing ID	P	ID (table 0103)
	12	Version ID	2.2	ID (table 0104)
	15	Accept Ack. Type	ER	ID (table 0155)
	16	Application Ack. Type	ER	ID (table 0155)
PID	3	Patient ID	1234	composite
	5	Patient Name	Doe, John F.	Patient Name
	8	Sex	M	ID (table 0001)
	11	Patient Address	60 Park Pl.^^Bham^AL^35233	AD
	13	Phone Number – Home	999-999	TN
	19	SSN Number - Patient	123-12-1234	ST
ORC	1	Order Control	NW	ID (table 0119)
	2	Placer Order Number	12345^OP7.0	composite
	7	Quantity Timing	^^^19951107^19951207	timing quantity
	10	Entered By	10^SCOTT,TOM	composite ID
	12	Ordering Provider	987^THOMAS,JERRY	composite ID
	15	Order Effective Date	19951107	timestamp
	16	Order Ctrl Code Reason	^^^^NEW	
RXE	1	Quantity/Timing	""	timing quantity
	2	Give Code	D0082^DIGOXIN 0.25MG TAB^PSNDF ^372.3^DIGOXIN 0.25MG TAB^99PSD	coded element
	3	Give Amount - Min	""	numeric
	5	Give Units	^^^23^MG^99PSU	coded element
	6	Give Dosage Form	^^^120^TAB^99PSF	coded element
	11	Dispense Units	^TAB	coded element
	12	Number of Refills	5	numeric
	14	Pharmacist Verifier ID	188^PRICE,WARREN	composite ID
	15	Prescription Number	123987	string
	16	Refills Remaining	3	numeric
	18	D/T of Last Refill	199509070830	timestamp
[{NTE}]	1	Set ID - Comments	(1 2,3, 4, 5, or 6)	sequence ID
			1=[Medication Instructions]	
			2=[Patient Instructions Narrative]	
			3=[Drug Warning Narrative]	
			4=[Profile Information]	
			5=[Drug Interactions]	
			6=[Drug Allergy Indications]	
	3	Comments	depends upon above ID type	formatted text

Example of data elements making up segments: (Continued)

SEG	SEQ#	FIELD NAME	VALUE/EXAMPLE	TYPE
RXR	1	Route	^^^6^Oral^99PSR	coded element
ZRL	1	Site Number	52312	string
	2	Site Address	700 South 19th Str.^B'ham^ AL^35233	address
	3	SitePhone	(205)999-9999	Telephone number
	4	Clinic	2^OUTPATIENT^99PSC	coded element
	5	Cosigner	65421^HILL,GREG	composite ID
	6	SSN	12-1234	string
	7	SSN Barcode Value	123121234	numeric
	8	Rx Patient Status	SCL50	string
	9	Temp. Address Date	19951228	timestamp
	10	Method of Pickup	WINDOW PICKUP	string
	11	Copay	COPAY	string
	12	Cap	NON-SFTY	string
	13	Refillable	REFILLABLE	string
	14	Refill Status	2 refills remain prior to	string
	15	Routing	CERTIFIED MAIL	string
	16	Mfg-Exp	Mfg Exp	string
	17	Label Status	REPRINT	string
	18	D/T Label Printed	199511070800	timestamp
	19	Fill Date	19951107	timestamp
	20	Fill Number	3	numeric
	21	Days Supply	30	numeric
	22	Rx Barcode Value	521-123987	string
	23	Drug Warning	DRUG WARNING 1,2,3	string
	24	Quantity	30	String
[{ZAL}]	1	Allergy ID	128	numeric
	2	Mechanism	Allergy	string
	3	Type	Drug	string
	4	Verified	Verified	string
	5	Severity	Severe	string
[{ZML}]	1	Drug Name	ASPIRIN 325MG TAB	string
	2	Number of Refills	11	numeric
	3	Exp. Date	19961107	timestamp
	4	Rx Number	638	string
	5	Barcode	521-2000742	string
[{ZSL}]	1	Drug Name	DIMENHYDRINATE 50MG	string
	2	Suspense Date	19960107	
}	3	Rx Number	1024	string
MSA	1	Ack. Code	AA	ID (0008)
	2	Message Control ID	10001	string
	3	Text Message	ACCEPTED	string

Notes pertaining to some of the data elements:

[MSH-5] Receiving Application is the name of the dispensing application.

[MSH-10] Message Control ID is the number that uniquely identifies the message. It is returned in MSA-2.

[PID-3] Patient ID is the patient's DFN, pointer to File #2 in **V***IST***A**.

[ORC-2] Placer Order Number is a composite field. The first component uniquely identifies an order among all orders. The second component contains the application ID of the placing application.

[ORC-7] Quantity Timing is a composite field that determines the priority, quantity, frequency, and timing of the order. The fourth component is the Fill Date in **V***IST***A** and the fifth component is the Expiration Date in **V***IST***A**.

[ORC-10] Entered By is the person's pointer to the NEW PERSON file (#200) and name in **V***IST***A** who keyed in the order.

[ORC-12] Ordering Provider is a composite ID field. The first component is the Provider's pointer to the NEW PERSON file (#200) in **V***IST***A** and the second component is his/her name.

[ORC-15] Order Effective Date is the date/time the order took effect.

[ORC-16] Order Control Code Reason is a coded element field. The fifth component reflects the status of the order (i.e., New, Refill, Partial, Reprint, or Partial Reprint).

[RXE-1] Quantity Timing is a required field but it will not be used in OP V. 7.0. It will always be a null value ("").

[RXE-2] Give Code identifies the substance ordered as encoded by the Pharmacy. The components, in order, are the VA Product ID, VA Product Name, National Drug File, local file pointer, local drug name, and the local file.

[RXE-3] Give Amount - Minimum is a required field but it will not be used in OP V. 7.0. It will always be a null value ("").

[RXE-5] Give Units identifies the units for the give amount as encoded by the VA National Drug file.

[RXE-6] Give Dosage Form is a coded element field. The fourth component is the pointer to the Dose Form file. The fifth component is the form name, and the sixth component is the name of coding system (99PSF).

[RXE-11] Dispense Units identifies the units for the dispense amount as encoded by the Pharmacy.

[RXE-14] Pharmacist Verifier ID identifies the pharmacist who verified the order. The first component is the DFN pointer in File #200 of **V***IST***A** and the second component is the name.

Notes: (Continued)

[RXE-15] Prescription Number is the external Outpatient prescription number.

[RXE-18] D/T of Last Refill identifies the last date the patient received this particular drug (i.e., Last Dispense Date).

[NTE] The Set ID field will identify the NTE segment (1=Med. Instructions; 2=Patient Instructions Narrative; 3=Drug Warning Narrative; 4=Profile Information; 5=Drug Interactions; 6=Drug Allergy Indications). The Comment field will contain the respective information.

[RXR-1] Route is a coded element field. The last three components are used for the local identifier, text, and coding system.

[ZRL-2] Site Address is a repeatable field to allow for addresses in **V***IST***A** that contain three lines.

[ZRL-4] Clinic is the field that identifies the clinic where the order originated.

[ZRL-5] Cosigner is the field that identifies the person who cosigned, if any. The first component is the pointer to File #200 and the second component is the name.

[ZRL-6] SSN is the last six numbers of the patient's SSN with a hyphen.

[ZRL-7] SSN Barcode is the patient's SSN without hyphens.

[ZRL-8] Rx Patient Status is the field that identifies the patient status code.

Notes: (Continued)

[ZRL-9] Temp. Address Date identifies the date through which the temporary address is valid.

[ZRL-10] Method of Pickup is a string type field identifying how the order will be picked up. It applies only to Window orders and is null in the case of Mail orders.

[ZRL-11] Copay is the field that specifies whether a copay charge is associated with the order. It will either be COPAY or NO COPAY.

[ZRL-12] Cap is the field that specifies whether a safety cap is necessary for the order.

[ZRL-13] Refillable is the field that specifies whether the order is refillable. It will either be REFILLABLE, NON-REFILLABLE, or NON-RENEWABLE.

[ZRL-14] Refill Status is the field that identifies the number of refills remaining before the expiration date. It will either be “Number Refills remain prior to”or “Last fill prior to”. The expiration date is located in piece 5 of the quantity timing field (ORC-7).

[ZRL-15] Routing is the field that identifies how the patient will receive the medication (i.e., at the Window or via Mail).

[ZRL-16] Mfg -Exp is string field that contains a line that appears only when the patient is a Nursing Home patient. It will be either null or “Mfg-----Exp-----”.

[ZRL-17] Label Status identifies the status of the order. It will be either REPRINT, PARTIAL, REPRINT/PARTIAL, or null.

[ZRL-18] Label Printed is the date and time the label printed.

[ZRL-19] Fill Date is the date that the prescription was filled.

[ZRL-20] Fill Number is the field that identifies which fill the order is.

[ZRL-22] Rx Barcode Value is the field that contains the barcode value. It is the station number and the internal Rx Number separated by a hyphen.

[ZRL-23] Drug Warning is a field that identifies any drug warnings. It will be either “DRUG WARNING #,#,#” or null.

[ZML] This segment is repetitive. It repeats for all the drugs for the patient.

[ZSL] This segment is repetitive. It repeats for all suspended Rx’s for the patient.

[ZAL] This segment is repetitive. It repeats for all of the patient’s allergies/adverse reactions.

[ZAL-1] Allergy ID field is the internal entry number of the VISTA file for the allergy.

[ZAL-2] Mechanism is a string type field that will either be ALLERGY or ADVERSE DRUG REACTION.

Notes: (Continued)

[ZAL-3] Allergy type is a string type field with a value of either DRUG, FOOD, or OTHER.

[ZAL-4] Verified is a string type field that will either be VERIFIED or NON-VERIFIED.
0
[ZAL-5] Severity is a string type field that will either be MILD, MODERATE, SEVERE, or UNKNOWN.

Appendix B:
HL7 Messaging with an External System

New Protocol

A new protocol, PSO RECEIVE ORDER, is exported for processing orders from an external system. To use this functionality, this protocol must be added as a SUBSCRIBER to the Event Driver protocol in the PROTOCOL file (#101), which sends the external order message.

New Application Parameter

A new HL7 application parameter, PSO RECEIVE, is exported as the Receiving Application of the PSO RECEIVE ORDER protocol from the HL7 APPLICATION PARAMETER file (#771).

New Logical Link

A new HL7 logical link, PSO LLPO from the HL7 LOGICAL LINK file (#870), is being exported as the Logical Link of the PSO RECEIVE ORDER protocol. This link information will need to be edited to match the communication method of the interface if this interface is activated.

For any orders received from an external source, two new fields are stored with the Outpatient Pending Order and with the prescription, once the Pending Order is finished. These fields are EXTERNAL PLACER ORDER NUMBER field (#114) and EXTERNAL APPLICATION field (#116) in the PENDING OUTPATIENT ORDERS file (#52.41). These fields are also within the PRESCRIPTION file (#52) and are the EXTERNAL PLACER ORDER NUMBER field (#123) and EXTERNAL APPLICATION field (#124).

Any external systems that send orders through this interface to **V*IST*A** must comply with having **unique** external placer order numbers within the orders from this system. This number is used for various look-ups within the interface, in conjunction with the EXTERNAL APPLICATION field (#116) in the PENDING OUTPATIENT ORDERS file (#52.41) and the EXTERNAL APPLICATION field (#124) in the PRESCRIPTION file (#52).

HL7 Order Message Segment Definition Table

When the PSO RECEIVE ORDER protocol is enabled to process orders from an external system, the following table defines the data elements required for each segment of the incoming order message. This is a unilateral interface. No order information will be returned to the external system.

Segment	Piece	Description/Field Name	Data	Data Type
MSH	1	Field Separator	|	String
	2	Encoding Characters	^~\&	String
	3	Sending Application	Sending Application Name	String
	4	Sending Facility		String
	5	Receiving Application	PSO RECEIVE	String
	6	Receiving Facility		String
	9	Message Type	ORM^O01	Coded Value
	10	Message Control ID		String
	11	Processing ID	P	Coded Value
	12	Version ID	2.3.1	Coded Value
	15	Accept Acknowledgement	NE	Coded Value
	16	Application Acknowledgement	AL	Coded Value
	17	Country Code	USA	Coded Value
PID	3	Patient (pointer to File #2)	**V***IST***A** IEN of Patient from File #2	Composite ID
	5	Patient Name		Person Name
PVI	3	Clinic (pointer to File #44)	**V***IST***A** IEN of Hospital Location from File #44	Composite
ORC	1	Order Control Code	'NW'	Coded Value
	2	Placer Order Number*	External Placer Order Number	Composite
	9	Date/Time of Transaction	Current Date/Time	Time Stamp
	10	Entered By	**V***IST***A** IEN of Provider from File #200	Composite ID Number and Name
	12	Ordering Provider	**V***IST***A** IEN of Provider from File #200	Composite ID Number and Name
	15	Order Effective Date	Current Date/Time	Time Stamp

Segment	Piece	Description/Field Name	Data	Data Type
RXO	10	Dispense Drug	**V***IST***A** IEN of Drug from File #50	Coded Element
	11	Quantity	Quantity	Numeric
	13	Number of Refills	Number of Refills	Numeric
NTE	6	Provider's Instructions to Dispensing Pharmacy	Free Text Provider Comments	String
	7	Patient's Instructions	Expanded Sig	String
ZRX	4	Routing	'W' (for Window)	String

* Field must contain unique data

The PSO RECEIVE ORDER protocol can also receive discontinue order messages. The following table gives the details of the fields that need to be received in the incoming order message.

Segment	Piece	Description/Field Name	Data	Data Type
MSH	1	Field Separator	|	String
	2	Encoding Characters	^~\&	String
	3	Sending Application	Sending Application Name	String
	4	Sending Facility		String
	5	Receiving Application	PSO RECEIVE	String
	6	Receiving Facility		String
	9	Message Type	ORM^O01	Coded Value
	10	Message Control ID		String
	11	Processing ID	P	Coded Value
	12	Version ID	2.3.1	Coded Value
	15	Accept Acknowledgement	NE	Coded Value
	16	Application Acknowledgement	AL	Coded Value
	16	Country Code	USA	Coded Value
PID	3	Patient (pointer to File #2)	**V***IST***A** IEN of Patient from File #2	Composite ID
	5	Patient Name		Person Name
PVI	3	Clinic (pointer to File #44)	**V***IST***A** IEN of Hospital Location from File #44	Composite
ORC	1	Order Control Code	'CA'	Coded Value
	2	Placer Order Number*	External Placer Order Number	Composite
	9	Date/Time of Transaction	Current Date/Time	Time Stamp
	10	Entered By	**V***IST***A** IEN of Provider from File #200	Composite ID Number and Name
	12	Ordering Provider	**V***IST***A** IEN of Provider from File #200	Composite ID Number and Name
	15	Order Effective Date	Current Date/Time	Time Stamp

***** Field must contain unique data

An Application Acknowledgement message is returned for new and discontinue messages received from the external system. Sequence 1 (Acknowledgement Code) of the MSA segment will always be Application Accept (AA), regardless of whether or not the incoming message passed all of the exception checks. Sequence 3 (Text Message) of the MSA segment will be null if the message was accepted and passed all of the exception checks. If the message is rejected by the receiving application, Sequence 3 (Text Message) will contain the reason for the rejection.

Segment	Piece	Description/Field Name	Data	Data Type
MSH	1	Field Separator	|	String
	2	Encoding Characters	^~\&	String
	3	Sending Application	PSO RECEIVE	String
	4	Sending Facility	(Sending Facility)	String
	5	Receiving Application	(Receiving Application Name)	String
	6	Receiving Facility	(Receiving Facility)	String
	7	Date/time of Message	Current Date/Time	Time Stamp
	9	Message Type	ORR^O01	Coded Value
	10	Message Control ID		String
	11	Processing ID	P	Coded Value
	12	Version ID	2.3.1	Coded Value
	15	Accept Acknowledgement	NE	Coded Value
	16	Application Acknowledgement	NE	Coded Value
	17	Country Code	US	Coded Value
MSA	1	Acknowledgement Code	AA	Coded Value
	2	Message Control ID		String
	3	Text Message	(Null, or Rejection Reason)	String

Order Messaging Exceptions

Exceptions will occur when **V*IST*A** rejects a new or discontinue order message. For new order messages, the rejections are largely based on the drug, provider, or patient associated with the prescription order.

Drug exceptions

- Drug is inactive (less than today's date)
- Drug is not marked for outpatient use
- Drug is not associated with a Pharmacy Orderable Item
- Invalid drug entry

Provider exceptions

- Provider is not authorized to write med orders
- Provider has an inactive date (date of today or less)
- Provider has a termination date (date of today or less)
- Provider does not hold the PROVIDER key
- Invalid provider entry

Patient exceptions

- Patient is deceased
- Invalid patient entry

Other exceptions

- Invalid NTE segment, greater than 245 characters
- Invalid message structure
- Missing MSH segment
- Missing PID segment
- Missing PVI segment
- Missing ORC segment
- Missing RXO segment
- External order, unable to successfully transmit to CPRS
- Unable to derive Institution from Clinic
- Unable to add order to Pending file
- Missing sending application name
- Invalid Order Control Code
- No Patient Location
- Missing CHCS Placer Order Number
- Duplicate order number in Outpatient Pending file
- Duplicate order number in Outpatient Prescription file
- Missing number of refills
- Missing effective date
- Missing Entered by data

For discontinue order messages, these are the possible exceptions:

Provider exceptions

- Provider is not authorized to write med orders
- Provider has an inactive date (date of today or less)
- Provider has a termination date (date of today or less)
- Provider does not hold the PROVIDER key
- Invalid provider entry

Other exceptions

- Invalid message structure
- Missing MSH segment
- Missing PID segment
- Missing ORC segment
- Missing sending application name
- Missing CHCS Placer Order Number
- Unable to find order in Pharmacy
- Patient mismatch in Pending order
- Pending order is being edited by another user
- Unable to cancel Pending order, status is HOLD
- Unable to cancel Pending order, status is RENEW
- Unable to cancel Pending order, status is DISCONTINUE (EDIT)
- Unable to cancel Pending order, status is DISCONTINUE
- Unable to cancel Pending order, status is REFILL REQUEST
- Patient mismatch in prescription
- Prescription is being edited by another user
- Unable to cancel prescription, status is DISCONTINUED
- Unable to cancel prescription, status is DELETED
- Unable to cancel prescription, status is DISCONTINUED BY PROVIDER
- Unable to cancel prescription, status is DISCONTINUED (EDIT)

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