



Clinical Reminders

PXRM*2.*18

TECHNICAL MANUAL

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Table of Contents

Introduction	1
Overview: Enhancements and Benefits of Clinical Reminders V. 2.0	1
Changes in Clinical Reminders V. 2.0	Error! Bookmark not defined.
Purpose of This Guide.....	3
Our Target Audience	3
Other Sources of Information.....	Error! Bookmark not defined.
Background/Technical Information	3
This Manual and Related Documentation	3
Documentation Retrieval Process	Error! Bookmark not defined.
Patch 12, Index Global.....	5
Implementation & Maintenance	6
Clinical Reminders Manager Menu	6
Post-Installation	Error! Bookmark not defined.
Routine Information	6
Routines Installed.....	Error! Bookmark not defined.
Files and Globals List	9
Files in Clinical Reminders V. 2.0	Error! Bookmark not defined.
File Descriptions	10
Exported Menus and Options	18
Archiving and Purging.....	23
External Relations.....	24
Internal Relations.....	28
Package-Wide Variables.....	29
Generating Online Documentation	32
Glossary.....	37
Acronyms	37
Definitions.....	38
APPENDIX A: Security Guide.....	41
File Security	43
Appendix B: Clinical Reminders Routine Checksums	44
Appendix C: Build File Print.....	Error! Bookmark not defined.

Revision History

Revision Date	Page(s)	Description	Project Manager	Author
June 2011	Page 10	Changes made in patch 18	Al Ebert	JoAnn Green
June 2006	Page 10	Changes to files made in patch 4	Tim Landy	JoAnn Green
May 2006	Throughout	Patch 4 changes	Tim Landy	JoAnn Green

Introduction

Overview: Enhancements and Benefits of Clinical Reminders V. 2*18

The High Risk Mental Health Patient – National Reminder and Flag project includes a national reminder and reminder dialog that mental health professionals can use to follow up on patients with the “High Risk of Suicide” patient record flag ,who missed their Mental Health appointments. The project also includes reports to facilitate follow-up on these patients by Suicide Prevention Coordinators and other Mental Health professionals.

Veterans Health Administration (VHA) mental health officials estimate that there are 1,000 suicides per year among veterans receiving care within VHA and as many as 5,000 per year among all living veterans. This request supports the Secretary’s Mental Health Strategic Plan that contains several initiatives pertaining to suicide prevention, including “Develop methods for tracking veterans with risk factors for suicide and systems for appropriate referral of such patients to specialty mental health care.”

Major objectives of this project include:

1. Identifying those veterans who are at risk for suicide (Sites define this locally in the Patient Record Flag.)
2. Preventing high risk, depressed patients from failing to get appropriate care if they miss appointments. The plan is to evaluate patients for depression so that appropriate referrals can be made; identify those veterans with a history of suicide attempt or suicidal ideation who miss an appointment; notify the mental health professional of the missed appointment; and track efforts to reach this veteran. If after three attempts, the veteran is not reached, a staff member may need to call other patient contacts or request a welfare check.

The scope includes the following software products:

- New mental health template called Suicide Behavior Report. This template will be a new entry in the MH TESTS & SURVEYS file (#601.71) and will be distributed nationally as an enhancement to the Mental Health Assistant 3.0 Package. This instrument will be used by MH professionals to assess and reassess the High Risk for Suicide patient’s behavior.
- Ability to print a detailed report by date range that displays the names and other information for the high risk patients that have missed clinic appointments due to no show, sort able by facility and date. This report will be an enhancement to the Scheduling Package. The ability to determine whether the patient is at risk for suicide on a particular appointment date will necessitate an enhancement to the Registration - Patient Record Flag Package.
- Ability to document results of the MH professional or Suicide Prevention coordinator’s response to a no-show MH appointment. This ability will require a MH clinician-oriented reminder definition that remains due until the MH clinician responds, using a new reminder dialog that helps them document the results of their follow-up with the patient. The Reminder Package will be dependent on Text Integration Utility (TIU) Health Summary Objects and Registration-Patient Record Flag product enhancements. The new reminder and dialogs will be:
 - a. HIGH RISK MH NO-SHOW FOLLOW-UP Reminder Definition
 - b. HIGH RISK MH NO-SHOW Follow-up Reminder Dialog

- Ability to track and report on results of clinician responses to no-show appointments, for example:
 - 1) Contacted Patient and Rescheduled appointment
 - 2) Called for Welfare Check
 - 3) Suicide attempt

The reporting will be based on an enhancement to the Reminder Package to include a new reporting reminder/extract definition.
- Ability to select a Mental Health Treatment Coordinator as a notification recipient to receive notifications in CPRS.

See the Clinical Reminders patch 18 Release Notes for specific details about enhancements and changes in patch 18 and related GMTS, OR, and TIU patches.

Updates to National Reminders in Patch 18

1. Updated branching logic reminders for OEF/OIF screening:
 - a. Fixed the problem concerning patients who do not have the required Last Service Separation Date (LSSD) entry not having the items show as due when they have been done.
 - b. Removed refusals and other exclusions from the branching logic – if not done, then show the item as open and allow the parent reminder to use the exclusions instead of also evaluating them in the branching logic. This makes all 7 of the branching logic reminders consistent.
2. Updated the URLs for MH screening.
3. Added '0' to the Within Category Rank for EF-NO BLAST/EXPLOSION INJURY and EF-NO BULLET INJURY in the reminder VA-EMBEDDED FRAGMENTS RISK EVALUATION.
4. Added occurrence count of 4 to AUD C in the alcohol screening reminder.
5. Fixed header/info text in AAA reminder.
6. Distributed H1N1 reminders and dialog via patch and distribute and inactivate.
7. Updated VA-ALCOHOL F/U POS AUDIT-C dialog to display the education and advice interventions without a box around both and also to have the results of an AUDIT-10 go into the progress note.
8. Distributed the updates to the VA-MHV INFLUENZA VACCINE reminder.

Purpose of This Guide

This Technical Manual is designed to help your site implement and maintain Clinical Reminders. It includes detailed information such as system requirements, file descriptions, and routine descriptions.

Our Target Audience

We have developed this guide for the following individuals, who are responsible for installing, supporting, maintaining, and testing this package:

- Information Resources Management (IRM)
- Clinical Application Coordinators (CAC) – called Application Package Coordinators (ADPAC) at some sites
- Product Support (PS)
- Software Quality Assurance (SQA)

Refer to the Web sites listed below when you want to receive more background and technical information about PXRM V. 2.0, and to download this manual and related documentation.

Related Documentation and websites

Clinical Reminders Main Web page: <http://vista.med.va.gov/reminders/>

Documentation Retrieval Process

Your site can also retrieve the Clinical Reminders V. 2.0 documentation listed below from the VistA Documentation Library (VDL) or from the following FTP addresses. The preferred method is to “FTP” the files from download.vista.med.va.gov. This location automatically transmits files from the first available FTP Server to the appropriate directory on your system. (See the order listed below under the FTP Address column). **Note:** If you prefer, you can retrieve the software *directly* from one of the FTP Servers, listed below, under the FTP Address column.

FTP Addresses Available for Downloading PXRM V. 2.0 Documentation

OI Field Office	FTP Address	Directory
Albany	ftp.fo-albany.med.va.gov	anonymous.software
Hines	ftp.fo-hines.med.va.gov	anonymous.software
Salt Lake City	ftp.fo-slc.med.va.gov	anonymous.software

Clinical Reminders V. 2*18 Documentation and Related File names

Documentation	Documentation File name
Installation Guide	PXRM_2_18_IG.PDF
Release Notes	PXRM_2_RN.PDF
User Manual	PXRM_2_18_UM.PDF
Manager’s Manual	PXRM_2_MM.PDF

Clinical Reminders documentation can also be found in the VistA Documentation Library: <http://vista.med.va.gov/vdl/> or <http://www.va.gov/vdl>

Implementation and Maintenance

Implementation and maintenance of Clinical Reminders occur several ways:

1. Integration with other applications:
 - CPRS
 - Health Summary
 - Patient Care Encounter (PCE)

Management of Clinical Reminders includes coordinating with these other entities. This linkage should remain transparent to users, but will require setup and coordination by the IRM office and Clinical Coordinators. See the technical and user manuals of those packages for implementation instructions.

2. Setting site parameters with options on the Manager Menu and the CPRS Coversheet option.
3. Allocating menus and options (see the Menus and Options section).
4. User customization through CPRS GUI Coversheet options.

Implementation and Maintenance

Patch 12, Index Global

The Clinical Reminders index global has been designed to provide an index of clinical data, which, in turn, supports rapid access to the data.

See the documentation for Patch 12 for information about installing and running the index global utility, as well as potential error messages and their resolution.

Journaling

The Office of Information recommends that journaling be disabled on the PXRMINDEX global while it is being built and until the historical index seeding is completed.

Once all the indexes are completed, journaling of the PXRMINDEX should be ENABLED.

Before installing PXRМ*2.0, make sure that the index global utility has completed its population of all the indexes included in PXRМ*1.5*12.

When PXRМ*1.5*12 is installed, it creates a new option, PXRМ INDEX MANAGEMENT, which is a menu containing PXRМ INDEX BUILD and PXRМ INDEX COUNT. Use the option PXRМ INDEX BUILD to start the indexing or to rebuild any part of the index.

The index-building utility populates the indexes by indexing the existing data. It works its way through the entire global, putting entries in the index for each piece of unique patient data it finds.

Although the index can be recreated from the original data at any time, the Office of Information recommends that journaling be enabled on the PXRMINDEX global after the historical index seeding is completed.

When the index utility finishes indexing a particular global, it sets the following three nodes:

```
^PXRMINDEX(FILE NUMBER,"GLOBAL NAME")=$$GET1^DID(FILE NUMBER,"","","GLOBAL NAME")
^PXRMINDEX(FILE NUMBER,"BUILT BY")=DUZ
^PXRMINDEX(FILE NUMBER,"DATE BUILT")=$$NOW^XLFTD
```

In addition to providing information about who built the index and when it got populated, these nodes can be used to determine when the index is complete and ready for use.

Implementation & Maintenance

Clinical Reminders Manager Menu

The Clinical Reminders Managers Menu contains these options for implementing and maintaining Clinical Reminders.

Reminders Managers Menu [PXRМ MANAGERS MENU]	
CF	Reminder Computed Finding Management ... [PXRМ CF MANAGEMENT]
	CRL Computed Finding List
	CFI Reminder Computed Finding Inquiry
	CFE Add/ Edit Computed Finding
RM	Reminder Definition Management ... [PXRМ REMINDER MANAGEMENT]
	RL List Reminder Definitions
	RI Inquire about Reminder Definition
	RE Add/Edit Reminder Definition
	RC Copy Reminder Definition
	RA Activate/Inactivate Reminders
	RH Reminder Edit History
	ICS Integrity Check Selected
	ICA Integrity Check All
SM	Reminder Sponsor Management [PXRМ SPONSOR MANAGEMENT]
	SL List Reminder Sponsors
	SI Reminder Sponsor Inquiry
	SE Add/Edit Reminder Sponsor
TXM	Reminder Taxonomy Management ... [PXRМ TAXONOMY MANAGEMENT]
	TL List Taxonomy Definitions
	TI Inquire about Taxonomy Item
	TE Add/Edit Taxonomy Item
	TC Copy Taxonomy Item
	TX Selected Taxonomy Expansion
	TXV Verify all taxonomy expansions
	TXA Expand all Taxonomies
TRM	Reminder Term Management ... [PXRМ TERM MANAGEMENT]
	TL List Reminder Terms
	TI Inquire about Reminder Term
	TE Add/Edit Reminder Term
	TC Copy Reminder Term
LM	Reminder Location List Management ... [PXRМ LOCATION LIST MANAGEMENT]
	LL List Location Lists
	LI Location List Inquiry
	LE Add/Edit Location List
	LC Copy Location List
RX	Reminder Exchange [PXRМ REMINDER EXCHANGE]
RT	Reminder Test [PXRМ REMINDER TEST]
OS	Other Supporting Menus ... [PXRМ OTHER SUPPORTING MENUS]
	TM PCE Table Maintenance ...
	PC PCE Coordinator Menu ...
	HS Health Summary Coordinator's Menu ...
	EF Print Blank Encounter Forms ...
	QO Enter/edit quick orders
INFO	Reminder Information Only Menu ... [PXRМ INFO ONLY]
	RL List Reminder Definitions
	RI Inquire about Reminder Definition
	TXL List Taxonomy Definitions
	TXI Inquire about Taxonomy Item
	TRL List Reminder Terms
	TRI Inquire about Reminder Term
	SL List Reminder Sponsors

DM	Reminder Dialog Management ... [PXRM DIALOG MANAGEMENT]
DP	Dialog Parameters ...
RS	Reminder Resolution Statuses
	HR Health Factor Resolutions
	FP General Finding Type Parameters
	FI Finding Item Parameters
	TD Taxonomy Dialog Parameters
DI	Reminder Dialogs
	DR Dialog Reports
	OR Reminder Dialog Elements Orphan Report
	ER Empty Reminder Dialog Report
	ALL Check all active reminder dialogs for invalid items
	CH Check Reminder Dialog for invalid items
CP	CPRS Reminder Configuration [PXRM CONFIGURATION MANAGEMENT]
CA	Add/Edit Reminder Categories
CL	CPRS Lookup Categories
CS	CPRS Cover Sheet Reminder List
MH	Mental Health Dialogs Active
PN	Progress Note Headers
RA	Reminder GUI Resolution Active
DL	Default Outside Location
PT	Position Reminder Text at Cursor
WH	WH Print Now Active
GEC	GEC Status Check Active
TIU	TIU Template Reminder Dialog Parameter
NP	New Reminder Parameters
RP	Reminder Reports ... [PXRM REMINDER REPORTS]
	RD Reminders Due Report
	RDU Reminders Due Report (User)
	RDT User Report Templates
	EPT Extract EPI Totals
	EPF Extract EPI List by Finding and SSN
	EQT Extract QUERI Totals
	GEC GEC Referral Report
	REV Review Date Report
	FUR Finding Usage Report
MST	Reminders MST Synchronization Management ... [PXRM MST MANAGEMENT]
	SYN Reminders MST Synchronization
	REP Reminders MST Synchronization Report
PL	Reminder Patient List Menu ... [PXRM PATIENT LIST MENU]
	LRM List Rule Management
	PLM Patient List Management
PAR	Reminder Parameters ... [PXRM REMINDER PARAMETERS]
	ESD Edit Site Disclaimer
	EWS Edit Web Sites
	MH Edit Number of MH Questions
ROI	Reminder Orderable Item Menu
	OE Add/Edit Reminder Orderable Item Group
	OI Reminder Orderable Item Inquiry
	OT Reminder Orderable Item Group Test
XM	Reminder Extract Menu [PXRM EXTRACT MENU]
	MA Reminder Extract Management
	EP Extract Definition Management
	EC Extract Counting Rule Management
	EG Extract Counting Group Management
	LR List Rule Management
GEC	GEC Referral Report [GEC REFERRAL REPORT]

Routine Information

Namespace: *PXRM*

XUPRROU (List Routines) prints a list of any or all of the PXRM routines. This option is found on the XUPR-ROUTINE-TOOLS menu on the XUPROG (Programmer Options) menu, which is a sub-menu of the EVE (Systems Manager Menu) option. See the list of checksums in Appendix B.

```
Select Systems Manager Menu Option: programmer Options
Select Programmer Options Option: routine Tools
Select Routine Tools Option: list Routines
Routine Print
Want to start each routine on a new page: No// [ENTER]

routine(s) ?    > PXRM*
```

The first line of each routine contains a brief description of the general function of the routine. Use the Kernel option XU FIRST LINE PRINT (First Line Routine Print) to print a list of just the first line of each xxx subset routine.

```
Select Systems Manager Menu Option: programmer Options
Select Programmer Options Option: routine Tools
Select Routine Tools Option: First Line Routine Print
PRINTS FIRST LINES

routine(s) ?    >PXRM*
```

Files and Globals List

Clinical Reminders V. 2.*18 (PXRМ*2*18)8 updates some of the following files. Journaling is recommended.

The namespace for the Clinical Reminders package is PXRМ and the primary global is ^PXRМ.

Global	Name
^PXRМ(800	CLINICAL REMINDER PARAMETERS
^PXRМ (801	REMINDER ORDERABLE ITEM GROUP
^PXRMD(801.41	REMINDER DIALOG
^PXRMD(801.42	REMINDER GUI PROCESS
^PXRMD(801.43	REMINDER FINDING ITEM PARAMETER
^PXRMD(801.45	REMINDER FINDING TYPE PARAMETER
^PXRMD(801.5	REMINDER DIALOG PATIENT ASSOCIATION
^PXRMD(801.55	REMINDER GEC DIALOG ASSOCIATION HISTORY
^PXRMD(801.9	REMINDER RESOLUTION STATUS
^PXRMD(801.95	HEALTH FACTOR RESOLUTION
^PXRMD(802.4	REMINDER FUNCTION FINDING
^PXRМPT(810.1	REMINDER REPORT TEMPLATE
^PXRМ(810.2	REMINDER EXTRACT DEFINITION
^PXRМXT(810.3	REMINDER EXTRACT SUMMARY
^PXRМ(810.4	REMINDER LIST RULE
^PXRМXP(810.5	REMINDER PATIENT LIST
^PXRМ(810.6	REMINDER EXTRACT ERRORS
^PXRМ(810.7	REMINDER EXTRACT COUNTING RULE
^PXRМ(810.8	REMINDER COUNTING GROUP
^PXRMD(810.9	REMINDER LOCATION LIST
^PXD(811.2	REMINDER TAXONOMY
^PXD(811.3	EXPANDED TAXONOMIES
^PXRMD(811.4	REMINDER COMPUTED FINDINGS
^PXRMD(811.5	REMINDER TERM
^PXRMD(811.6	REMINDER SPONSOR
^PXRMD(811.7	REMINDER CATEGORY
^PXD(811.8	REMINDER EXCHANGE
^PXD(811.9	REMINDER DEFINITION

Note: You can learn more about these files by generating a list with file attributes using VA FileMan.

File Descriptions

File #	File Name	File Description
800	CLINICAL REMINDER PARAMETERS	This file is used to define local parameters for maximum # of index errors, reminder management mail groups, health summary clinical maintenance disclaimers, SSN (full or truncated), MST synchronization, and websites. The file is exported with one entry that contains parameters used by Clinical Reminders.
801	REMINDER ORDERABLE ITEM GROUP	This file contains a list of Orderable Items that should have a reminder definition or a reminder term evaluation run against them as an order check. The Orderable Item will only be evaluated when the user places the order in CPRS. An Orderable Item Group can contain a list of Orderable Items and a list of Rules. A reminder rule can only contain one reminder term or one reminder definition.
801.41	REMINDER DIALOG	This file is used to define all of the components that work together to define a reminder dialog. Reminder dialog definitions are used by the CPRS GUI for reminder resolution.
801.42	REMINDER GUI PROCESS	This file summarizes GUI functionality that has been created for particular dialog processing on the GUI side. The GUI functionality can be associated with an entry in the Reminder Dialog file.
801.43	REMINDER FINDING ITEM PARAMETER	This file is used to predefine a preferred dialog element or dialog group to represent a reminder finding item. Auto-generation of a reminder dialog from the reminder definition uses the dialog in this file in preference to using the Finding Type Parameter's prefix and suffix to create a sentence. The finding items are restricted to finding types that can be used to resolve the reminder from the CPRS GUI. This file is for local use only. It does not contain any nationally distributed entries. Local entries in this file are not exchanged with other sites via the reminder exchange tool.
801.45	REMINDER FINDING TYPE PARAMETER	This file is used by the process that generates reminder dialogs for a reminder. During this process, for each reminder finding item in a reminder definition, one or more dialog elements are created depending on the Finding Type parameters in this file. The file content is distributed with the package but may be edited by sites to reflect how the site uses PCE data. The site can alter the pre-defined prefix and suffix text used to create sentences. The site can also disable creation of sentences for specific types of resolution statuses (e.g., Disable creation of education refused for an education topic because the site prefers to use Health Factors to represent refusals). The entries distributed in this file may not be deleted and new entries may not be added locally.

File Descriptions

File #	File Name	File Description
801.5	REMINDER DIALOG PATIENT ASSOCIATION	This file contains a small amount of static data. Entries are entered and removed as Reminder Dialogs are processed by the CPRS GUI. Its main purpose is to keep track of and supply an Encounter Date/Time to the GUI interface so that the date/time can be later added to fields in the V HEALTH FACTOR file.
801.55	REMINDER GEC DIALOG	This file contains a permanent history of activity that occurred during the use of the Reminder Geriatric Extended Care Dialogs. Information is added when a GEC Dialog is used and information is added about the patient
801.9	REMINDER RESOLUTION STATUS	This file defines the resolution statuses that may be related to a finding. National resolution statuses are distributed in this file, but sites may create local resolution statuses. If local resolutions are defined, they must be mapped to a national resolution status. The national resolution statuses are used by the process that creates dialog sentences for finding items. The distributed national resolution statuses may not be deleted.
801.95	HEALTH FACTOR RESOLUTION	This file defines the resolution statuses that should be related to a particular health factor. The resolution status can be derived for most patient findings (visit file helps determine done and historical). In order to know the appropriate resolution statuses for a health factor, they must be defined in this file. This file is for local use. No health factor resolution statuses are distributed in this file.
802.4	REMINDER FUNCTION FINDING FUNCTIONS	Function findings operate on data from standard findings and return computed data. They can be used in patient cohort logic and resolution logic. This file defines the functions that can be used in function findings.
810.1	REMINDER REPORT TEMPLATE	This file is used by the reminder reports options only. For each type of report (e.g. Reminders Due) selection parameters used in a report may be saved as a template when the report is being run. When running reports, the user may opt to retrieve parameters from an existing template as the basis of a new report. Templates may be modified, renamed, copied or deleted from the reminder report options. The parameters for the reminder reports consist of a patient sample (e.g. PCMM team) from which a patient list is built and also a list of reminders to be evaluated for each selected patient. The field names in the template file correspond to the local variable and array names used in the print routines.

File Descriptions

File #	File Name	File Description
810.2	REMINDER EXTRACT DEFINITION	<p>National extract definitions were sent out with Clinical Reminders V.2.0 to support site roll-up of reporting totals to the Austin Automation Center (AAC). The generic extract functionality supports corporate level management analysis by providing reports that:</p> <ul style="list-style-type: none"> summarize patient reminder compliance totals (not applicable, applicable, due, not due) summarize finding total counts that reflect the most recent findings resulting from reminder evaluation summarize finding total counts that reflect site activities during the reporting month. list unique applicable patients included in the finding count (Patient List is not sent to Austin) <p>An extract definition may be manually run or set up to automatically run monthly or quarterly. The extract can be defined to only produce compliance totals, or to also include finding totals.</p>
810.3	REMINDER EXTRACT SUMMARY	<p>This file stores compliance totals found for a specific extract. The extract entries are read-only and may be selected by number or extract name. The extract summary entries are currently created from two types of processing: 1) Generic EXTRACT tool manual runs and automated runs 2) LREPI ENHANCE MANUAL RUN and LREPI NIGHTLY TASK on day 15 of each month</p> <p>Extracts and transmissions for a selected prior period may be initiated manually from Extract Summary options. Existing extracts may also be re-transmitted, if required.</p>
810.4	REMINDER LIST RULE	<p>This file is used to define what extract criteria should be used to build reminder patient lists. Extract criteria is defined as "list rules" in this file. The file is used by the Reminder Patient List option and Reminder Extract Management option to create patient lists.</p> <p>There are four types of record in the file:</p> <p>Patient List Rules - define an existing patient list</p> <p>Finding Rules - define reminder terms</p> <p>Reminder Rule - defines a reminder definition that builds a patient list based on the patient cohort logic using the ending date as the evaluation date.</p> <p>Rule Sets- defines a multiple of sequentially defined list rules (a rule set can not be included in the multiple).</p>

File Descriptions

File #	File Name	File Description
810.5	REMINDER PATIENT LIST	Patient lists in this file are created from the Reminder Due reporting option, Reminder Patient List option or from Reminder Extract runs. Reminder patient lists are retained for 5 years in this file before being purged. Individual patient lists can have the automatic purge turned off.
810.7	REMINDER EXTRACT COUNTING RULE	This file is used during extract processing when an extract definition's TYPE OF TOTALS field is defined with COMPLIANCE AND FINDING TOTALS. When the extract type is for COMPLIANCE TOTALS only, there will not be an extract counting rule defined in the REMINDER EXTRACT DEFINITION file (#810.2). When the extract type includes FINDING TOTALS, then the extract definition needs to reference a counting rule for each reminder processed by the extract.
810.8	REMINDER COUNTING GROUP	Counting groups are used for extract processing when the extract type is COMPLIANCE AND FINDING TOTALS. Each counting group defines reminder terms and type of counts to be totaled during an extract run. Counting groups are referenced and combined into one Extract Counting Rule in the REMINDER EXTRACT COUNTING RULE file (#810.7). Nationally distributed groups are prefixed 'VA-' and cannot be modified by a site.
810.9	REMINDER LOCATION LIST	This file contains lists of stop codes and hospital locations for use as reminder findings. The stop codes and hospital locations are those associated with a Visit file entry.
811.2	REMINDER TAXONOMY	This file stores the Clinical Reminder taxonomies. A taxonomy is a way to give a name to a set of codes. These codes can be ICD Diagnosis, ICD Operation/ Procedure or CPT. This file contains a combination of nationally distributed and local entries. Nationally distributed entries have their name prefixed with VA-. Local entry names cannot start with VA-.
811.3	EXPANDED TAXONOMIES	This file contains expanded taxonomies. It is used as a data cache so the expansion does not need to be continuously done. The expansion is rebuilt whenever a taxonomy is edited or one of the source files has changed since the expansion was last done. The source files are ICD0, ICD9, and ICPT. Entries in this file should never be set by hand.

File Descriptions

File #	File Name	File Description
811.4	REMINDER COMPUTED FINDINGS	<p>When none of the standard finding types will work, a computed finding can be created. There are two steps in creating a computed finding: First a MUMPS routine must be written. Information about how to do this can be found in the Clinical Reminders Manager Manual. The second step is to make an entry in this file, which contains a list of reminder computed findings.</p> <p>This file contains a combination of nationally distributed and local entries. Nationally distributed entries have their name prefixed with VA-. Local entry names cannot start with VA-.</p>
811.5	REMINDER TERM	<p>This file defines terms that may be used within reminder definitions. Reminder terms are useful for national reminders involving findings that are based on local file definitions (e.g., laboratory test, drug file, radiology). National reminder terms have limited editing capabilities which allow sites to map their local finding items to a term. Sites may create local reminder terms, providing an easy way to group a variety of findings and treat them the same way in a reminder. When a reminder with terms is evaluated, the finding items mapped to the term are used to find the patient data, but the patient data is reported based on the term the data is mapped to. The most recent true finding will be used to represent the term.</p> <p>This file contains a combination of national, local, and VISN level terms. Any local terms are assigned an internal entry number prefixed with your site number. Nationally distributed entries will have a Term Type of "National".</p>
811.6	REMINDER SPONSOR	<p>This file contains the names of groups or organizations that are sponsors of reminder components such as definitions, terms, and dialogs. Entries cannot be edited using FileMan; you must use the Reminder Sponsor Edit option.</p>

File Descriptions

File #	File Name	File Description
811.7	REMINDER CATEGORY	<p>This file contains reminder categories. Reminder categories are created at each site and are not released with the reminder package.</p> <p>A reminder category is a list of reminders (or other reminder categories) and is used to group reminders for display in the CPRS GUI. Reminder categories are allocated to individual users, locations, service, or system using the option PXRMR CPRS LOOKUP CATEGORIES.</p>
811.8	REMINDER EXCHANGE	<p>The Reminder Exchange File is used to store packed reminder definitions.</p> <p>Entries in this file should never be edited.</p>
811.9	REMINDER DEFINITION	<p>This file contains Clinical Reminder definitions. For a detailed description of the contents of this file, see the Clinical Reminders Manager Manual. Additional information may be found at the Clinical Reminders web site: http://vista.med.va.gov/reminders/</p> <p>This file contains a combination of nationally distributed and local entries. Any local entries are assigned an internal entry number prefixed with your site number. Nationally distributed entries have their name prefixed with VA-. Local entry names cannot start with VA-.</p>

File Changes in PXR*2.0*18

File #802.4

Addition of some new functions required changes in the way the function argument patterns are checked for validity. Originally there was a single field named ARGUMENT PATTERN.

```
^PXRMD(802.4,D0,0)= (#.01) NAME [1F] ^ (#.02) ENTRY [2F] ^ (#.03) ROUTINE  
==>[3F] ^ (#.04) PRINT NAME [4F] ^ (#.05) ARGUMENT PATTERN  
==>[5F] ^
```

A new field named ARGUMENT PATTERNS was created and both fields were put on their own nodes.

```
^PXRMD(802.4,D0,0)= (#.01) NAME [1F] ^ (#.02) ENTRY [2F] ^ (#.03) ROUTINE  
==>[3F] ^ (#.04) PRINT NAME [4F] ^  
^PXRMD(802.4,D0,1,0)=^802.41^^ (#1) DESCRIPTION  
^PXRMD(802.4,D0,1,D1,0)= (#.01) DESCRIPTION [1W] ^  
^PXRMD(802.4,D0,2)= (#2) ARGUMENT PATTERN [1F] ^  
^PXRMD(802.4,D0,3)= (#3) ARGUMENT PATTERNS [1F] ^
```

File #811.4

The length of PRINT NAME, originally 40 characters was found to be insufficient for some new computed findings so it was changed to 64. The field CF PARAMETER REQUIRED was added for use by the reminder definition integrity checker.

```
^PXRMD(811.4,D0,0)= (#.01) NAME [1F] ^ (#.02) ROUTINE [2F] ^ (#.03) ENTRY  
==>POINT [3F] ^ (#.04) PRINT NAME [4F] ^ (#5) TYPE [5S] ^  
==>(#6) CF PARAMETER REQUIRED [6S] ^
```

File #811.5

The cross-reference that builds the “E” index for the finding multiple was changed to no longer pass the file number since the code that builds the index is now only used for terms where previously it was used for both terms and definitions.

File #811.6

The “B” index had a length of 64 while the .01 had a length of 225.

This index was used to create a key on the .01 to guarantee unique sponsor names. When two sponsor names were identical up to the first 64 characters, it created problems, so the length of the index was changed to 225. A FileMan lookup bug with new-style indexes longer than 100 characters was encountered. As a work-around, until the bug can be fixed, an old-style ‘B’ index was created so that lookups will work, and a new-style index ‘BN’ was created so the key on the .01 could be established. Once the FileMan bug is repaired, the ‘BN’ index can be deleted and a new-style ‘B’ index can be used.

File #811.9

A new requirement to allow the date of one finding to be used to set the date range of another finding required multiple changes. The original ‘E’ index on the .01 of the finding multiple was supplemented with an ‘EDEP’ index to store the evaluation dependency information, so that the findings can be evaluated in the correct order.

Two new frequencies, H (hours) and W (weeks), were added, so the full set is now H (hours), D (days), W (weeks), M (months), and Y (years). Frequencies can be used in a number of fields, so the input transforms and descriptions for these fields were changed to allow for the full set. The fields are:

FINDINGS MULTIPLE BEGINNING DATE/TIME and ENDING DATE/TIME (see above)

REMINDER FREQUENCY in the BASELINE AGE FINDINGS MULTIPLE (811.97), the FINDINGS MULTIPLE (811.902), and the FUNCTION FINDINGS MULTIPLE (811.925).

Exported Menus and Options

This table shows top-level menus; sub-menus are described in the Description column.

Option	Option Name	Syn	Description
Reminder Computed Finding Management	PXRM CF MANAGEMENT	CF	This option provides tools for viewing or editing reminder computed findings.
Reminder Definition Management	PXRM REMINDER MANAGEMENT	RM	This menu contains options for creating, copying, and editing reminder definitions, as well as the options for maintaining the parameters used by CPRS for reminder processing.
Reminder Sponsor Management	PXRM SPONSOR MANAGEMENT	SM	A Reminder Sponsor is the organization or group that sponsors a Reminder Definition, such as the Office of Quality and Performance. Options on this menu let you view, define, or edit Reminder Sponsors.
Reminder Taxonomy Management	PXRM TAXONOMY MANAGEMENT	TXM	The REMINDER TAXONOMY file is used to define a range of coded values from ICD Diagnosis codes, ICD Operation/Procedures codes, and CPT codes that can be viewed as being part of a clinical category (taxonomy). Each entry has a low value and a high value. The software will search for matches on all the codes between the low and high values inclusive. If there is a match then the taxonomy finding will be true for the patient. This menu contains options for copying, editing taxonomies, as well as listing and inquiring about specific taxonomies.
Reminder Location List Management	PXRM LOCATION LIST MANAGEMENT		Location Lists are a new kind of reminder finding, that allow you to use a list of patients for a stop code or hospital location in a reminder definition. The stop codes and hospital locations are those associated with a Visit file entry.

Exported Menus and Options

Reminder Managers Menu Descriptions

Option	Option Name	Syn	Description
Reminder Computed Finding Management	PXRM CF MANAGEMENT	CF	This option provides tools for viewing or editing reminder computed findings.
Reminder Definition Management	PXRM REMINDER MANAGEMENT	RM	This menu contains options for creating, copying, and editing reminder definitions, as well as the options for maintaining the parameters used by CPRS for reminder processing.
Reminder Sponsor Management	PXRM SPONSOR MANAGEMENT	SM	A Reminder Sponsor is the organization or group that sponsors a Reminder Definition, such as the Office of Quality and Performance. Options on this menu let you view, define, or edit Reminder Sponsors.
Reminder Taxonomy Management	PXRM TAXONOMY MANAGEMENT	TXM	The REMINDER TAXONOMY file is used to define a range of coded values from ICD Diagnosis codes, ICD Operation/Procedures codes, and CPT codes that can be viewed as being part of a clinical category (taxonomy). Each entry has a low value and a high value. The software will search for matches on all the codes between the low and high values inclusive. If there is a match then the taxonomy finding will be true for the patient. This menu contains options for copying, editing taxonomies, as well as listing and inquiring about specific taxonomies.
Reminder Term Management	PXRM TERM MANAGEMENT	TRM	This menu allows you to edit, map, and view reminder terms.
Reminder Location List Management	PXRM LOCATION LIST MANAGEMENT	LM	Location Lists are a new kind of reminder finding, that allow you to define a list of locations and give it a name. When reminders are evaluated, the finding will be true if the patient had a visit at one of the locations in the list in the specified date range.
Reminder Exchange	PXRM REMINDER EXCHANGE	RX	This option allows sites to exchange reminder definitions, dialogs, and other reminder components via MailMan messages and host files.
Reminder Test	PXRM REMINDER TEST	RT	This utility helps you test and troubleshoot your reminders when you create them or when you have problems.
Other Supporting Menus	PXRM OTHER SUPPORTING MENUS	OS	This option contains menus from related packages such as PCE and Health Summary.
Reminder Information Only Menu	PXRM INFO ONLY	INFO	This menu provides information-only options for users who need information about reminders but do not need the ability to make changes.
Reminder Dialog Management	PXRM DIALOG MANAGEMENT	DM	This menu allows maintenance of the parameters used by CPRS for reminder dialog processing.

Exported Menus and Options

Option	Option Name	Syn	Description
Reminder Reports	PXRM REMINDER REPORTS	RP	This is a menu of Clinical Reminder reports that clinicians can use for summary and detailed level information about patients' due and satisfied reminders. This option also contains reports that clinical coordinators can use to assign menus to specific users.
Reminders MST Synchronization Management	PXRM MST MANAGEMENT	MST	This option provides the Clinical Reminders MST management options. These options give you the ability to synchronize the MST History file #29.11 with MST data recorded elsewhere and to determine when the synchronization was last done.
Reminder Patient List Menu	PXRM PATIENT LIST MENU	PL	This menu contains options to manage list rules and patient lists.
Reminder Orderable Item Group Menu	PXM ORDER	OI	This menu contains options to allow sites to create Reminder Order Checks
Reminder Parameters	PXRM REMINDER PARAMETERS	PAR	This menu contains the options, Edit Site Disclaimer and Edit Web Sites, which allow you to modify the parameters for these items.
Reminder Extract Menu	PXRM EXTRACT MENU	XM	This option allows management of extract definitions, extract runs, and extract transmissions.
GEC Referral Report	PXRM GEC REFERRAL REPORT	GEC	This is the option that is used to generate GEC Reports. GEC (Geriatrics Extended Care) is used for referral of geriatric patients to receive further care

Exported Menus and Options

This is a list of the options and menus on the Reminders Managers Menu. (Yellow-highlighted options are new with PXR*2*18.)

Reminders Managers Menu [PXR MANAGERS MENU]	
CF	Reminder Computed Finding Management ... [PXR CF MANAGEMENT]
	CRL Computed Finding List
	CFI Reminder Computed Finding Inquiry
	CFE Add/ Edit Computed Finding
RM	Reminder Definition Management ... [PXR REMINDER MANAGEMENT]
	RL List Reminder Definitions
	RI Inquire about Reminder Definition
	RE Add/Edit Reminder Definition
	RC Copy Reminder Definition
	RA Activate/Inactivate Reminders
	RH Reminder Edit History
	ICS Integrity Check Selected
	ICA Integrity Check All
SM	Reminder Sponsor Management [PXR SPONSOR MANAGEMENT]
	SL List Reminder Sponsors
	SI Reminder Sponsor Inquiry
	SE Add/Edit Reminder Sponsor
TXM	Reminder Taxonomy Management ... [PXR TAXONOMY MANAGEMENT]
	TL List Taxonomy Definitions
	TI Inquire about Taxonomy Item
	TE Add/Edit Taxonomy Item
	TC Copy Taxonomy Item
	TX Selected Taxonomy Expansion
	TXV Verify all taxonomy expansions
	TXA Expand all Taxonomies
TRM	Reminder Term Management ... [PXR TERM MANAGEMENT]
	TL List Reminder Terms
	TI Inquire about Reminder Term
	TE Add/Edit Reminder Term
	TC Copy Reminder Term
LM	Reminder Location List Management ... [PXR LOCATION LIST MANAGEMENT]
	LL List Location Lists
	LI Location List Inquiry
	LE Add/Edit Location List
	LC Copy Location List
RX	Reminder Exchange [PXR REMINDER EXCHANGE]
RT	Reminder Test [PXR REMINDER TEST]
OS	Other Supporting Menus ... [PXR OTHER SUPPORTING MENUS]
	TM PCE Table Maintenance ...
	PC PCE Coordinator Menu ...
	HS Health Summary Coordinator's Menu ...
	EF Print Blank Encounter Forms ...
	QO Enter/edit quick orders
INFO	Reminder Information Only Menu ... [PXR INFO ONLY]
	RL List Reminder Definitions
	RI Inquire about Reminder Definition
	TXL List Taxonomy Definitions
	TXI Inquire about Taxonomy Item
	TRL List Reminder Terms
	TRI Inquire about Reminder Term
	SL List Reminder Sponsors
DM	Reminder Dialog Management ... [PXR DIALOG MANAGEMENT]

	DP	Dialog Parameters ...
	RS	Reminder Resolution Statuses
	HR	Health Factor Resolutions
	FP	General Finding Type Parameters
	FI	Finding Item Parameters
	TD	Taxonomy Dialog Parameters
	DI	Reminder Dialogs
	DR	Dialog Reports
	OR	Reminder Dialog Elements Orphan Report
	ER	Empty Reminder Dialog Report
		ALL Check all active reminder dialogs for invalid items
	CH	Check Reminder Dialog for invalid items
CP	CPRS	Reminder Configuration [PXR Configuration Management]
	CA	Add/Edit Reminder Categories
	CL	CPRS Lookup Categories
	CS	CPRS Cover Sheet Reminder List
	MH	Mental Health Dialogs Active
	PN	Progress Note Headers
	RA	Reminder GUI Resolution Active
	DL	Default Outside Location
	PT	Position Reminder Text at Cursor
	WH	WH Print Now Active
	GEC	GEC Status Check Active
	TIU	TIU Template Reminder Dialog Parameter
	NP	New Reminder Parameters
RP		Reminder Reports ... [PXR Reminder Reports]
	RD	Reminders Due Report
	RDU	Reminders Due Report (User)
	RDT	User Report Templates
	EPT	Extract EPI Totals
	EPF	Extract EPI List by Finding and SSN
	EQT	Extract QUERI Totals
	GEC	GEC Referral Report
	REV	Review Date Report
	FUR	Finding Usage Report
MST		Reminders MST Synchronization Management ... [PXR MST Management]
	SYN	Reminders MST Synchronization
	REP	Reminders MST Synchronization Report
PL		Reminder Patient List Menu ... [PXR Patient List Menu]
	LRM	List Rule Management
	PLM	Patient List Management
PAR		Reminder Parameters ... [PXR Reminder Parameters]
	ESD	Edit Site Disclaimer
	EWS	Edit Web Sites
	MH	Edit Number of MH Questions
ROI		Reminder Orderable Item Group Menu
	OE	Add/Edit Reminder Orderable Item Group
	OI	Reminder Orderable Item Inquiry
	OT	Reminder Orderable Item Group Test
XM		Reminder Extract Menu [PXR Extract Menu]
	MA	Reminder Extract Management
	EP	Extract Definition Management
	EC	Extract Counting Rule Management
	EG	Extract Counting Group Management
	LR	List Rule Management
GEC		GEC Referral Report [GEC Referral Report]

Archiving and Purging

Purging and archiving capabilities are not currently available in Clinical Reminders.

External Relations

Required Packages

Clinical Reminders V. 2.0*18 requires that the following software is installed and fully patched.

Minimum Required Packages and Versions

Package/Patch	Namespace	Version	Comments
Clinical Reminders	PXRM	2.0	Fully patched
GEN. MED. REC. – VITALS GMRV*5*25	GMRV	5.0	
Health Summary	GMTS	2.7	Fully patched
HL7	HL	1.6	Fully patched
Kernel	XU	8.0	Fully patched
MailMan	XM	7.1	Fully patched
NATIONAL DRUG FILE PSN*4.0*176	PSN	4.0	
Pharmacy Data Management PSS*1.0*133	PSS	1.0	
Outpatient Pharmacy PSO*7.0*299	PSO	7.0	
RADIOLOGY/NUCLEAR MEDICINE RA*5*56	RA	5.0	
TOOLKIT XT*7.3*111	XT	7.3	
VA FileMan	DI	22	Fully patched

External Relations

Remote Procedure Calls (RPCs)

An RPC is a procedure called from the client (the user's workstation) communicating to the server (the M database). Clinical Reminders contains Reminder Dialogs that are used within CPRS, from the Notes tab, thus requiring RPCs to facilitate this communication.

A complete listing of RPCs is available under the DBA menu on Forum.

The Database Administrator (DBA) maintains a list of RPCs.

- 1 PXRMEducationSubtopics
- 2 PXRMEducationSummary
- 3 PXRMEducationTopic
- 4 PXRMMentalHealth
- 5 PXRMMentalHealthResults
- 6 PXRMMentalHealthSave
- 7 PXRMPROGRESSNOTEHEADER
- 8 PXRMReminderCategories
- 9 PXRMReminderCategory
- 10 PXRMReminderDetail
- 11 PXRMReminderDialog
- 12 PXRMReminderDialog(TIU)
- 13 PXRMReminderDialogPrompts
- 14 PXRMReminderEvaluation
- 15 PXRMReminderInquiry
- 16 PXRMReminderRPC
- 17 PXRMReminderWeb
- 18 PXRMReminders(UNEVALUATED)
- 19 PXRMRemindersAndCategories

External Relations

Database Integration Agreements

Complete integration agreements are under the DBA menu on Forum.

Non-destructive, read-only component routines have been written to present VistA ancillary package data.

The package interacts with and extracts data from many other VistA software packages. Permission to use data from the other packages is obtained by completing a written integration agreement with each of the other packages.

The Database Administrator (DBA) maintains a list of Integration Control Registrations (ICRs) or mutual agreements between software developers, allowing the use of internal entry points or other software-specific features that are not available to the general programming public.

To obtain the current list of ICRs to which Clinical Reminders is a custodian, do the following:

```
Select DBA MENU Option: ??
```

NAME	NAMESPACE AND FILESPACE REGISTRATIONS ...
IAs	INTEGRATION CONTROL REGISTRATIONS ...
PKG	PACKAGE FILE INFORMATION ...
STN	INSTITUTION FILE INFORMATION ...
STND	STANDARDS ...

```
Select DBA MENU Option: ia  INTEGRATION CONTROL REGISTRATIONS
```

```
Select INTEGRATION CONTROL REGISTRATIONS Option: ?
```

HELP	Instructions for Entering ICRs
GET#	GET NEW Integration Control Registration #(s)
ADD	ADD/EDIT Pending Integration Control Registration
ROLL	Roll up ICR into Mail Message
FILE	File-type Integration Control Registrations Menu ...
ROU	Routine-type ICRs Menu ...
RPC	Remote Procedure Call-type ICRs Menu ...
OTH	Print 'Other'-type ICRs
SUPP	Supported References Menu ...
CONT	Controlled Subscription ICRs Menu ...
PRIV	Private ICRs Menu ...
CUST	Custodial Package Menu ...
INQ	Inquire to an Integration Control Registration
SUBS	Subscriber Package Menu ...
APIS	Supported API Report
VBLE	Lookup ICRs by Variable

PEND Print ICRs in Pending Status
ACTV Print Active ICRs
ALL Print ALL ICRs

Enter ?? for more options, ??? for brief descriptions, ?OPTION for help text.

Select INTEGRATION CONTROL REGISTRATIONS Option: cust Custodial Package Menu

Select Custodial Package Menu Option: ?

- 1 ACTIVE ICRs by Custodial Package
- 2 Print ALL ICRs by Custodial Package
- 3 Supported References Print All

Select Custodial Package Menu Option: 1 ACTIVE ICRs by Custodial Package

Select PACKAGE NAME: PXRM

DEVICE: HOME// <Enter> UCX DEVICE Right Margin: 80// <Enter>

Internal Relations

All options are independently invokable.

Package-Wide Variables

SACC EXEMPTIONS LIST

APR 20,2004 14:10 PAGE 1

CLINICAL REMINDERS

- 1 STANDARD SECTION: 3A Namespacing
 DATE GRANTED: SEP 8,2003
 A request to change sections 2.3.1.10.1 and 2.3.1.10.2 of the SAC so that the requirement for variable name spacing is replaced by a requirement for proper variable scoping has been put before the SACC. Pending approval of that change Clinical Reminders would like to request an exemption from those two sections; instead adhering to using proper scoping.

The reasons why these two sections should be changed have already been given to the SACC, however for convenience we will reiterate some of them here:

Because of the way MUMPS makes the symbol table globally available the only way name spacing of variables offers true protection is if all variables are name spaced. Most programmers would agree that name spacing of all variables would be very cumbersome and laborious. These two sections provide a false sense of security, which in turn can lead to bad programming.

With the eight-character limit for variable names, the name spacing requirement can make it very difficult to give variables meaningful names. For example, if your package name space is four characters you only have four unique characters for variable names.

Lack of meaningful names makes programs harder to understand and subsequently harder to maintain.

Before the new command existed name spacing was a mechanism that helped eliminate some collision in variable names. With the advent of the new command proper variable scoping is easily accomplished and eliminates variable name collision.

Clinical Reminders has gone to great a deal of effort to write safe code that uses proper scoping and to choose meaningful variable names. Clinical Reminders is requesting this exemption so its code can retain these positive attributes.

The Standards and Conventions Committee (SACC) has reviewed these independently. The SACC has voted in favor of the team's request, 11-2-0 (one absent), and recommends approval of their request. The SACC will take immediate action to investigate further the possible need to adapt and/or update or expand our current standard definitions. We will work with the Foundations Team and SEPG to ensure that there are amendable standards that cover all software releases.

- 2 DATE GRANTED: AUG 11,2003
 Frank Traxler, Programmer, the Standards and Conventions Committee (SACC) has reviewed these independently and discussed them openly on email with GUI SAC historians. The SACC has voted in favor of the Projects' requests, 10-2-1, and recommends approval of their

request. The current M SAC must be updated to reflect verbiage that will assist the user in following the process to current utilities that are available. As is, M SAC states "5.4.6.3.1 - A CRC-32 number shall be displayed in the About box using the GetFileCRC32 method in the Xlffileinfo unit. An example of a CRC can be found in the CPRS About box (see 1.4.7 Sample About box)." The SACC has searched for this GetFileCRC32 method and Xlffileinfo unit and cannot find them anywhere as referenced specifically. These utilities are available from outside source and are being used within source code. The packages are not exempt from the process, just from the specific utility and file until the GUI SAC is rewritten. Definitions: GetFileCRC32 - Calculates a CRC32 value on a given filename. CRC is a "digital fingerprint" of a file, you can use CRC32 to calculate 32-bit checksums.

CRC is displayed in the GUI when you open CPRS and choose "Help About:"

Here's the actual code:

fAbout.pas gets the CRC in the following call I've highlighted:
=====

```
procedure TfrmAbout.FormCreate(Sender: TObject); begin
  inherited;
  lblCompanyName.Caption      := 'Developed by the ' +
FileVersionValue(Application.ExeName, FILE_VER_COMPANYNAME);
  lblFileDescription.Caption   := 'Compiled ' +
FileVersionValue(Application.ExeName, FILE_VER_FILEDESCRIPTION);
  //date
  lblFileVersion.Caption      :=
FileVersionValue(Application.ExeName, FILE_VER_FILEVERSION);
  lblInternalName.Caption     :=
FileVersionValue(Application.ExeName, FILE_VER_INTERNALNAME);
  lblLegalCopyright.Text      :=
FileVersionValue(Application.ExeName, FILE_VER_LEGALCOPYRIGHT);
  lblOriginalFileName.Caption :=
FileVersionValue(Application.ExeName, FILE_VER_ORIGINALFILENAME);
  //patch
  lblProductName.Caption      :=
FileVersionValue(Application.ExeName, FILE_VER_PRODUCTNAME);
  lblComments.Caption         :=
FileVersionValue(Application.ExeName, FILE_VER_COMMENTS); //
version comment
  lblCRC.Caption              := 'CRC: ' +
IntToHex(CRCForFile(Application.ExeName), 8); end;
```

ORFn contains that call:
=====

```
function CRCForFile(AFileName: string): DWORD; const
  BUF_SIZE = 16383; type
  TBuffer = array[0..BUF_SIZE] of Byte; var
  Buffer: Pointer;
  AHandle, BytesRead: Integer; begin
  Result:=$FFFFFFFF;
  GetMem(Buffer, BUF_SIZE);
  AHandle := FileOpen(AFileName, fmShareDenyWrite);
  repeat
    BytesRead := FileRead(AHandle, Buffer^, BUF_SIZE);
    Result := UpdateCrc32(Result, TBuffer(Buffer^), BytesRead);
  until BytesRead <> BUF_SIZE;
```

```
        FileClose(AHandle);  
        FreeMem(Buffer);  
Result := not Result; end;
```

Generating Online Documentation

KIDS Build and Install Print Options

Print a list of package components

Use the KIDS Build File Print option if you would like a complete listing of package components (e.g., routines and options) exported with this software. See the example in Appendix C.

```
>D ^XUP
Setting up programmer environment
Terminal Type set to: C-VT100

Select OPTION NAME: XPD MAIN      Kernel Installation & Distribution System menu

      Edits and Distribution ...
      Utilities ...
      Installation ...

Select Kernel Installation & Distribution System Option: Utilities

      Build File Print
      Install File Print
      Convert Loaded Package for Redistribution
      Display Patches for a Package
      Purge Build or Install Files
      Rollup Patches into a Build
      Update Routine File
      Verify a Build
      Verify Package Integrity

Select Utilities Option: Build File Print

Select BUILD NAME: CLINICAL REMINDERS 2.0
```

Print Results of the Installation Process

Use the KIDS Install File Print option if you'd like to print out the results of the installation process.

```
Select Utilities Option: Install File Print
Select INSTALL NAME: CLINICAL REMINDERS 2.0

DEVICE: HOME// ;;999  ANYWHERE
```

Generating Online Documentation

Other Kernel Print Options

Besides using the Kernel Installation & Distribution (KIDS) options to get lists of routines, files, etc., you can also use other Kernel options to print online technical information.

Routines

The namespace for the Clinical Reminders package is PXRM. Use the Kernel option, List Routines [XUPRROU], to print a list of any or all of the Clinical Reminder routines. This option is found on the Routine Tools [XUPR-ROUTINE-TOOLS] menu on the Programmer Options [XUPROG] menu, which is a sub-menu of the Systems Manager Menu [EVE] option.

Example:

```
Select Systems Manager Menu Option: programmer Options
Select Programmer Options Option: routine Tools
Select Routine Tools Option: list Routines
Routine Print
Want to start each routine on a new page: No// <RET>
routine(s) ?    > PXRM*
```

The first line of each routine contains a brief description of the general function of the routine. Use the Kernel option, First Line Routine Print [XU FIRST LINE PRINT], to print a list of just the first line of each Health Summary subset routine.

Example:

```
Select Systems Manager Menu Option: programmer Options
Select Programmer Options Option: routine Tools
Select Routine Tools Option: First Line Routine Print
PRINTS FIRST LINES
routine(s) ?    > PXRM*
```

Generating Online Documentation

Globals

The globals used in the package are PXRM*, PXRMD*, and PXD*:

Use the Kernel option, List Global [XUPRGL], to print a list of any of these globals. This option is found on the Programmer Options menu [XUPROG], which is a sub-menu of the Systems Manager Menu [EVE] option.

Example:

```
Select Systems Manager Menu Option: programmer Options
Select Programmer Options Option: LIST Global
Global ^PXRM*
```

Inquire To Option File

The Kernel Inquire option [XUINQUIRE] provides the following information about a specified option(s):

- Option name.
- Menu text.
- Option description.
- Type of option.
- Lock (if any).

In addition, all items on the menu are listed for each menu option.

XINDEX

XINDEX is a routine that produces a report called the VA Cross-Referencer. This report is a technical and cross-reference listing of one routine or a group of routines. XINDEX provides a summary of errors and warnings for routines that do not comply with VA programming standards and conventions, a list of local and global variables and what routines they are referenced in, and a list of internal and external routine calls.

XINDEX is invoked from programmer mode: D ^XINDEX.

When selecting routines, select XXX* .

Generating Online Documentation

Data Dictionaries/ Files

The number-spaces for Clinical Reminders files are 800. 801, 811-. Use the VA FileMan DATA DICTIONARY UTILITIES, option #8 (DILIST, List File Attributes), to print a list of these files. Depending on the FileMan template used to print the list, this option will print out all or part of the data dictionary for the PXRМ files.

List File Attributes

The FileMan List File Attributes option [DILIST] lets you generate documentation about files and file structure. If you choose the “Standard” format, you can see the following Data Dictionary information for a specified file(s):

- File name and description.
- Identifiers.
- Cross-references.
- Files pointed to by the file specified.
- Files that point to the file specified.
- Input templates.
- Print templates.
- Sort templates.

Example:

```
>D P^DI
VA FileMan 21.0
Select OPTION: DATA DICTIONARY UTILITIES
Select DATA DICTIONARY UTILITY OPTION: LIST FILE ATTRIBUTES
  START WITH WHAT FILE: 800
                                     (1 entry)
      GO TO WHAT FILE: 821

Select LISTING FORMAT: STANDARD// [Enter]
DEVICE: PRINTER
```

In addition, the following applicable data is supplied for each field in the file: field name, number, title, global location, description, help prompt, cross-reference(s), input transform, date last edited, and notes.

The “Global Map” format of this option generates an output that lists all cross-references for the file selected, global location of each field in the file, input templates, print templates, and sort templates.

How to Generate Online Documentation

?, ??, and ??? Online Help

- ? Enter one question mark to see helpful information about the components of the health summary type used in the health summary and the options available.
- ?? Enter two question marks to see a list of available health summary components.
- ??? Enter three question marks for detailed help, if available.

CPRS Online Help

In CPRS, help relating to Clinical Reminders is available from the Help menu.

Internet

Clinical Reminders information is also available from the Clinical Reminders website <http://vista.med.va.gov/reminders/> and from the *VistA* Documentation Library (VDL): <http://vista.med.va.gov/vdl/> or <http://www.va.gov/vdl>

Glossary

Acronyms

Full VA list: <http://vaww1.va.gov/acronyms/fulllist.cfm#A>

AIMS	Abnormal Involuntary Movement Scale
AITC	Austin Information Technology Center
API	Application Programmer Interface.
CAC	Clinical Application Coordinator
CPRS	Computerized Patient Record System.
DBIA	Database Integration Agreement.
EPRP	External Peer Review Program
GUI	Graphical User Interface.
HRMH	High Risk Mental Health
HSR&D	Health Services Research and Development
HL7	Health Level 7
IHD	Ischemic Heart Disease
LSSD	Last Service Separation Date
MDD	Major Depressive Disorder
MH	Mental Health
OIT	Office of Information & Technology
OQP	Office of Quality and Performance
PD	Product Development (formerly OED)
PXRM	Clinical Reminders Namespace
QUERI	Quality Enhancement Research Initiative
SAS	Simple Authentication and Security
SRS	Software Requirements Specification
VHA	Veterans Health Administration.
VISN	Veterans Integrated Service Networks.
VISTA	Veterans Health Information System and Technology Architecture.
YS	Mental Health Namespace

Glossary

OIT Master Glossary:

http://vaww.oed.wss.va.gov/process/Library/master_glossary/masterglossary.htm

Definitions

AITC SAS Files	AITC SAS files contain data that is equivalent to data stored in the Reminder Extract Summary entry in the Reminder Extract Summary file. AITC manages SAS files for use by specifically defined users.
Applicable	An evaluation status that indicates patients whose findings met the patient cohort reminder evaluation.
Due	An evaluation status that indicates patients whose reminder evaluation status is due.
Extract Parameter	Parameters that define how to identify the patient cohort. A national extract entry is defined for each extract process. This entry defines an extract name, how often to automatically run the named extract process, the rules used to identify target patients, what reminders should be run against what patient list, what type of finding counts to accumulate, and where to transmit results.
Extract Run	A periodic extract job based on the Extract Parameter definition. The extract job creates an entry in the Reminder Extract Summary file. The extract job automatically starts a transmission job to transmit the extract summary data to a queue at the AAC. The successful completion of the Extract Run schedules the next periodic Extract Run.
Extract Summary	An extract summary containing the results of an extract process is created by this process in the Extract Summary File. This Extract Summary entry will help coordinators track the extract process through successful transmission processing by AAC.
Finding Count Rules	A Finding Count Rule defines the group of findings to accumulate, the type of finding total, and whether to use the TOTAL or APPLICABLE patient cohorts to calculate finding counts.

Glossary

Finding Group	Group of Reminder Terms within the Extract Parameter File used for counting purposes.
Finding Totals	Totals derived using Finding Count Rules.
HL7 Transmissions	HL7 transmission packages contain HL7 messages that are processed between the transmitting system and AAC.
List Rules	A List Rule is a set of rules that define which findings shall be used to determine whether a patient should be added or removed from a patient list.
National Database	All sites running Mental Health QUERI software transmit their data to a new compliance totals database at the AAC.
Not Applicable	An evaluation status that indicates patients whose findings did not meet the patient cohort reminder evaluation.
Not Due	An evaluation status that indicates patients whose reminder evaluation status is not due.
Reminder Definitions	Reminder Definitions comprise the predefined set of finding items used to identify patient cohorts and reminder resolutions. Reminders are used for patient care and/or report extracts.
Reminder Dialog	Reminder Dialogs comprise a predefined set of text and findings that together provide information to the CPRS GUI, which collects and updates appropriate findings while building a progress note.
Reminder Patient List	A list of patients that is created from a set of List Rules and/or as a result of report processing. Each Patient List is assigned a name and is defined in the Reminder Patient List File. Reminder Patient Lists may be used as an incremental step to completing national extract processing or for local reporting needs. Patient Lists created from the Reminders Due reporting process are based on patients that met the patient cohort, reminder resolution, or specific finding extract parameters. These patient lists are used only at local facilities.

Glossary

Reminder Terms	Predefined finding items that are used to map local findings to national findings, providing a method to standardize these findings for national use.
Reminder Totals	Totals that are accumulated from the reminder evaluation process based on the APPLICABLE, NOT APPLICABLE, DUE, AND NOT DUE statuses.
Report Reminders	Reminders may be defined specifically for national reporting. Report Reminders do not have a related Reminder Dialog in CPRS and are not used by clinicians for patient care. However, clinical reminders that are used in CPRS may also be used for national reminder reporting. All reminders targeted for national reporting are defined in Extract Parameters.
Reporting Period Extract	The extracts may be for monthly, quarterly, or yearly processing. The extracts are formatted and transmitted to the national database via HL7 messaging using a report format.
Resolved	An evaluation status that indicates a patient's reminder was satisfied by actions taken by the patient and/or clinician.
Total	The total number of patients in a patient list (denominator) based on the criteria defined in the Reminder List Rule file.
Transmission Run	The Transmission Run is started automatically by the Extract Run, but may also be manually scheduled. The extract process starts the Transmission Run just before completing the Extract Run. The Transmission Run transmits extract summary data to an AAC queue via HL7 transmissions. This data updates the Reminder Extract Summary entry for the reporting period.

APPENDIX A: Security Guide

Security for Clinical Reminders is managed by menu/option assignment and file access. There are no security keys.

Reports produced by this package are highly confidential and should be treated with the same security precautions as a patient's medical record.

Menu Access

The Clinical Reminders package contains the following menus/options. Assign these menus as follows.

Menu/Option	Option Name	Assignment
Reminder Computed Finding Management	PXRM CF MANAGEMENT	CACs, Reminders managers
Reminder Definition Management	PXRM REMINDER MANAGEMENT	CACs, Reminders managers
Reminder Sponsor Management	PXRM SPONSOR MANAGEMENT	CACs, Reminders managers
Reminder Taxonomy Management	PXRM TAXONOMY MANAGEMENT	CACs, Reminders managers
Reminder Location List Management	PXRM LOCATION LIST MANAGEMENT	CACs, Reminders managers
Reminder Term Management	PXRM TERM MANAGEMENT	CACs, Reminders managers
Reminder Exchange	PXRM REMINDER EXCHANGE	CACs, Reminders managers
Reminder Test	PXRM REMINDER TEST	CACs, Reminders managers
Other Supporting Menus	PXRM OTHER SUPPORTING MENUS	CACs, Reminders managers
Reminder Information Only Menu	PXRM INFO ONLY	Assign to users (e.g., clinicians) who need information about reminders but do not need the ability to make changes.
Reminder Dialog Management	PXRM DIALOG MANAGEMENT	CACs, Reminders managers
CPRS Reminder Configuration	PXRM CPRS CONFIGURATION	CACs, Reminders managers

APPENDIX A: Security Guide

Option	Option Name	Assignment
Reminder Reports	PXRM REMINDER REPORTS	This is a menu of Clinical Reminder reports that clinicians can use for summary and detailed level information about patients' due and satisfied reminders. This option also contains reports that clinical coordinators can use to assign menus to specific users.
Reminder Patient List Menu	PXRM PATIENT LIST MENU	CACs, Reminders managers
Reminders MST Synchronization Management	PXRM MST MANAGEMENT	CACs, Reminders managers
Reminder Parameters	PXRM REMINDER PARAMETERS	CACs, Reminders managers
Reminder Extract Management	PXRM EXTRACT MENU	CACs, Reminders managers
GEC Referral Report	PXRM GEC REFERRAL REPORT	This is the option that is used to generate GEC Reports. GEC (Geriatrics Extended Care) is used for referral of geriatric patients to receive further care

APPENDIX A: Security Guide

File Security

The table below indicates the security that the Clinical Reminders software package establishes for its files.

Number	Name	DD	RD	WR	DEL	LAYGO	AUDIT
800	CLINICAL REMINDER PARAMETERS	@		@	@	@	@
801.41	REMINDER DIALOG	@		@	@	@	@
801.42	REMINDER GUI PROCESS	@		@	@	@	@
801.43	REMINDER FINDING ITEM PARAMETER	@		@	@	@	@
801.45	REMINDER FINDING TYPE PARAMETER	@		@	@	@	@
801.5	REMINDER DIALOG PATIENT ASSOCIATION	@	@	@	@	@	@
801.9	REMINDER RESOLUTION STATUS	@		@	@	@	@
801.95	HEALTH FACTOR RESOLUTION	@		@	@	@	@
802.4	REMINDER FUNCTION FINDING	@	@	@	@	@	@
810.1	REMINDER REPORT TEMPLATE	@		@	@	@	@
810.2	REMINDER EXTRACT PARAMETERS	@		@	@	@	@
810.3	REMINDER EXTRACT SUMMARY	@		@	@	@	@
810.4	REMINDER LIST RULE	@		@	@	@	@
810.5	REMINDER PATIENT LIST	@		@	@	@	@
810.7	REMINDER EXTRACT FINDING RULE	@		@	@	@	@
810.8	REMINDER FINDING GROUP	@		@	@	@	@
810.9	REMINDER LOCATION LIST	@		@	@	@	@
811.2	REMINDER TAXONOMY	@		@	@	@	@
811.3	EXPANDED TAXONOMIES	@		@	@	@	@
811.4	REMINDER COMPUTED FINDINGS	@		@	@	@	@
811.5	REMINDER TERM	@		@	@	@	@
811.6	REMINDER SPONSOR	@		@	@	@	@
811.7	REMINDER CATEGORY	@		@	@	@	@
811.8	REMINDER EXCHANGE	@		@	@	@	@
811.9	REMINDER DEFINITION	@		@	@	@	@

Appendix B: Computed Expressions

From the FileMan Technical Manual

Clinical Reminders uses M Operators/Computed Expressions to Computed expressions can consist of a single [element](#). However, often several elements are joined together using operators. Operators are characters that perform some action on elements.

- [Unary Operators](#)
- [Binary Operators](#)
- [Boolean Operators](#)
- [Parentheses in Expressions](#)
- [Example of a Compound Expression](#)

Unary Operators

The simplest operators are the unary operators. They force a numeric interpretation of the element that follows. They can also affect the sign of the resulting number. The unary operators are:

Unary Operator	Description
+	Positive numeric interpretation (sign unchanged)
-	Negative numeric interpretation (sign changed)

Binary Operators

Another set of operators takes two elements, manipulates them, and returns a result. These are called binary operators. You can use the following binary operators in computed expressions:

Binary Operator	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division
**	Exponentiation (2**2=8)
\	Integer (truncated) division (e.g., 13\2 = 6)
_	Concatenation (e.g., "AB"_ "CDE" = ABCDE)
#	Modulo; returns the remainder of one number divided by another (7#3=1)

Boolean Operators

A third set of operators makes a comparison between two elements and returns a true or false value. These are known as Boolean operators. If the outcome of a Boolean operation is true, the value one (1) is returned; if false, zero (0) is returned. You can use these Boolean operators in computed expressions:

Boolean Operator	Description
>	Greater than
<	Less than
=	Equal to
]	Follows (in alphabetical order)
[Contains (e.g., "AB"["A" is true; "A"["AB" is false)
!	Or, either element is true [e.g., (2=3)!(5<10) is true]
&	And, both elements are true [e.g., (2=3)&(5<10) is false]

An apostrophe (') means negation or NOT. It can precede any of the Boolean operators. Thus, **6'>8** is read six is not greater than eight, which is true (a one is returned).

Parentheses in Expressions

In the absence of parentheses, the expression is evaluated strictly left to right. One operator is not given precedence over another. Use parentheses to control the order in which the operations of a computed expression are performed. Expressions within parentheses are evaluated first. Thus **3+4/2** is 3.5, whereas **3+(4/2)** is 5.

You can also use parentheses to ensure that the enclosed material is treated as an expression when there might be some ambiguity. For example, suppose you want to force a numeric interpretation of the SSN field. You need to use the + [unary operator](#).

However, the following will not yield the desired result:

`SORT BY: +SSN`

Is the + the unary operator or the sort specifier (meaning that you want to subtotal results by SSN)? In this case, it will be interpreted as the sort specifier. However, if you put the expression in parentheses, the + will definitely be interpreted as an operator:

`SORT BY: (+SSN)`

Example of Compound Expression

An example of a computed expression containing several elements and operators is:

`"Beds occupied: "_ (NUMBER OF BEDS*OCCUPANCY PERCENTAGE/100)`

First, the part within the parentheses is evaluated. NUMBER OF BEDS and OCCUPANCY PERCENTAGE are field names. Their contents are multiplied and the result is divided by 100. That result is concatenated with the literal string "Beds occupied: " giving a result like:

`Beds occupied: 484`

Boolean Logic Primer for Clinical Reminders

Thanks to Terri Murphy, Durham VAMC, 9/26/01

1. Findings are either found/present/true for a given patient at a given time, or not (0=not found, 1=found).
2. Logic statements join a series of findings together to form an equation that is overall either true or not.
3. There are four ways to join findings in this logic statement:
 - a. AND (&): $FI(1) \& FI(2)$ means that both findings 1 and 2 must be found for this overall logic statement to be true.
 - b. OR (!): $FI(1) ! FI(2)$ means that if either finding 1 or finding 2 is found, then the overall logic statement is true.
 - c. AND NOT (&'): $FI(1) \& 'FI(2)$ means that finding 1 must be found and also finding 2 is not found. Both of these must occur for this overall statement to be true.
 - d. OR NOT (!'): $FI(1) ! 'FI(2)$ means that finding 1 must be found or finding 2 is not found. If either of these occur, the overall logic statement is true.
4. There is a default way that these logic statements are formed, done by the computer, with the findings loaded into the logic statement in the order in which they are entered into the reminder definition. The computer works from left to right to work out the logic statement. This can have unintended consequences. For example, it is not always enough to give a finding an AND to be sure that this finding has to be present for the overall logic statement to be true. For example, let's say $FI(1)$ is not found (=0), $FI(2)$ is found (=1) and $FI(3)$ is found (=1).
 - a. $FI(1) \& FI(2) ! FI(3)$ would be evaluated as overall true, even though $FI(1)$ which was given an AND in the logic field is not found
5. The way around this is to do customized logic, by either changing the order of the findings in the logic statement OR by adding parentheses. The computer calculates the results of things within parentheses first, then goes back and moves from left to right; so, in the example above the outcome is changed with the addition of parentheses:
 - a. $FI(1) \& (FI(2) ! FI(3))$ would be evaluated as not true because finding 1 is not found. The steps the computer takes are first: $FI(2) ! FI(3) = \text{true}$, then $FI(1) \& (\text{true}) = \text{not true}$, because finding 1 is not found. In this case, giving $FI(1)$ in the logic field worked as intended.
6. This may be overly simplistic, but the way I think of it is to have a series of AND or AND NOTs in the cohort logic (ORs or OR NOTS can be inside parentheses) and a series of ORs in the resolution logic (ANDs, AND NOTs can be inside parentheses). This works for me, but each logic statement needs to be evaluated individually.

