

VistA Clinical Reminders and Reminder Patient Lists

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Session Objectives

- 1. Understand the vocabulary of technical terms associated with the VistA Clinical Reminders package**
- 2. Recognize the potential capabilities of a clinical reminder and a reminder patient list for two aspects common to research: patient cohort selection and rapid data extraction**
- 3. Understand the relative processing time that certain applications of clinical reminders would be expected to take**

VistA Clinical Reminders

- The Clinical Reminders package is basically designed as a tool to provide point-of-care information with regard to **clinical practice guidelines**

Clinical Reminder Terminology

- Terms common to researchers are often novel to programmers and application coordinators

Clinical Reminder Terminology

- § COHORT – the group to which a reminder applies, not necessarily 100% of the sample
- § APPLICABLE – does a given patient fall into the reminder's cohort?
- § DUE – does the computer think that there is something to be done for the patient to meet the selected guideline?

Available Reminders

View Action

Available Reminders	Due Date	Last Occurren...	Priority
Due			
**** HOW TO RESOLVE A REMINDER ****	DUE NOW		
Silverman Test	DUE NOW		High
Advance Directive Screening	DUE NOW		
TB: Screening for Signs/Symptoms	DUE NOW		
Hyperlipidemia	DUE NOW		
TBI Screening	DUE NOW		
Non-VA Meds Documentation	05/21/2007	01/19/2007	
Eva's Test Reminder and Dialog	DUE NOW		
Organ Donation Preference	DUE NOW		
HIV SCREENING	DUE NOW		
Evaluation of Positive PTSD Screen	DUE NOW		
Evaluation of Positive PTSD Screen	DUE NOW		
DRAFT Braden Scale	DUE NOW		
OIF/DEF Brain Injury Screening	DUE NOW		
Hines Hep C Has Risk	DUE NOW		
+ Applicable			
+ All Evaluated			
+ Other Categories			

More terminology

- § RESOLVED/SATISFIED – opposite of “due”, does the computer think that the patient has had whatever treatment/intervention is warranted by the guideline?
- § FREQUENCY – how often should the selected intervention be performed? (monthly, annually, once in a lifetime, etc.)

Available Reminders

View Action

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TBI Screening	DUE NOW		
Non-VA Meds Documentation	05/21/2007	01/19/2007	
Eva's Test Reminder and Dial	DUE M		
Organ Donation Preference	DUE M		
HIV SCREENING	DUE M		
Evaluation of Positive PTSD S	DUE M		
Evaluation of Positive PTSD S	DUE M		
DRAFT Braden Scale	DUE M		
OIF/DEF Brain Injury Screenin	DUE M		
Hines Hep C Has Risk	DUE M		
Applicable			
All Evaluated			
Other Categories			

Due
 Applicable
 All Evaluated
 Other Categories

Clinical Maintenance
 Education Topic Definition
 Reminder Inquiry
 Reference Information
 Evaluate Reminder
 Reminder Icon Legend

Clinical Maintenance: Non-VA Meds Documentation

--STATUS-- --DUE DATE-- --LAST DONE--

DUE SOON 5/21/2007 1/19/2007

Frequency: Due every 4 months for all ages.

Resolution: Last done 01/19/2007

Reminder Term: NVA - Non-VA Medications (HF)

Health Factor: NVA - No Non-VA Meds Reported
01/19/2007

Computed Finding: Non-VA Meds Last Documentation Date
01/19/2007; Jan 19, 2007

Information:
Computed Finding: Reminder Definition Computed Finding
03/08/2007 value - RESOLVED

Print Close

Clinical Reminder Processing

- Is the patient in the cohort?
- What is the patient-specific frequency for the reminder?
- Has the patient had any of the possible interventions performed?
- Was the most recent instance of the intervention within the designated time frame?

Clinical Reminder Processing

- The preceding 4 items (sample, cohort, resolution and frequency) are all evaluated **SEPARATELY** by VistA and can lead to potentially confusing results.

Use of Clinical Reminders

- Do you need to use the clinical reminder dialog (templated progress note writing tool) to record the selected intervention?
- PROCESS measurements
- OUTCOME measurements
- Example: ordering HgbA1c for a diabetic vs. documenting risk factors for hepatitis C

Clinical Reminders in CPRS GUI

- Cover Sheet
- Clock Menu
- Reminders Drawer
 - These are all SINGLE PATIENT applications of the clinical reminders package.
 - Cover Sheet Reminders vs. Reporting Reminders


[redacted]
Visit Not Selected
Current Provider Not Selected
Primary Care Team Unassigned

 Flag Remote Data Available  No Postings

Active Problems Major Depressive Disorder, Recurrent E	Allergies / Adverse Reactions No Known Allergies	Postings No Patient Postings Found.
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Active Medications	Clinical Reminders	Due Date
[redacted] Active	*** HOW TO RESOLVE A REMINDER ***	DUE NOW
[redacted] Active	Silverman Test	DUE NOW
Non-VA No Reported Usage Of Non-VA Meds Cap/Tab	Advance Directive Screening	DUE NOW
Non-VA No Reported Usage Of Non-VA Meds Cap/Tab	TB: Screening for Signs/Symptoms	DUE NOW
	Hyperlipidemia	DUE NOW
	TBI Screening	DUE NOW
	Non-VA Meds Documentation	May 21,07
	Eva's Test Reminder and Dialog	DUE NOW
	Organ Donation Preference	DUE NOW
	HIV SCREENING	DUE NOW
	Evaluation of Positive PTSD Screen	DUE NOW
	Evaluation of Positive PTSD Screen	DUE NOW

Recent Lab Results	Vitals	Appointments/Visits/Admissions
No Orders Found.	T 96 F Mar 08,2007 10:14 (35.6 C) P 90 Mar 08,2007 10:14 R 20 Mar 08,2007 10:14 BP 101/66 Mar 08,2007 10:14 HT 66 in Dec 14,2006 13:12 (167.6 cm) ACTUAL WT 120 lb Mar 08,2007 10:14 (54.4 kg) ACTUAL PN 0 Mar 08,2007 10:14 POX 97 Mar 08,2007 10:14 BMI 19.41 Mar 08,2007 10:14	Aug 06,07 11:00 Apr 13,07 11:00 Apr 06,07 10:00 Mar 19,07 11:00 Mar 16,07 10:00 Mar 09,07 10:00 Mar 08,07 10:00 Mar 02,07 10:00 Feb 28,07 11:00 Feb 16,07 14:00 Feb 16,07 10:00 Feb 14,07 11:00 Feb 09,07 10:00 Feb 02,07 10:00 Jan 24,07 11:00



ected

Primary Care Team Unassigned

Flag

Remote Data Available



No Postings

erse Reactions

Postings

Available Reminders



View Action

Available Reminders

Due Date

Last Occurren...

Priority

Due

- **** HOW TO RESOLVE A REMINDER ****
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- OIF/DEF Brain Injury Screening
- Hines Hep C Has Risk

DUE NOW		
DUE NOW		High
DUE NOW		
05/21/2007	01/19/2007	
DUE NOW		

- Applicable
- All Evaluated
- Other Categories

Last 100 Signed Notes

- New Addendum in Progress
- Mar 08,07 Addendum to: TELEPHONE CON
- All signed notes
- Assessment

Addendum to: TELEPHONE CONTACT
 Vst: 01/16/07
 Mar 08,2007@10:20
 Subject:

Templates
 Reminders

- Due
 - **** HOW TO RESOLVE A REMINDER ****
 - Silverman Test
 - Advance Directive Screening
 - TB: Screening for Signs/Symptoms
 - Hyperlipidemia
 - TBI Screening**
 - Non-VA Meds Documentation
 - Eva's Test Reminder and Dialog
 - Organ Donation Preference
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Reminder Resolution: TBI Screening

Information on the patient's service in OEF/OIF has already been entered in the record. Click here to re-enter.

TRAUMATIC BRAIN INJURY SCREENING

Has the veteran already been diagnosed as having TBI during OIF/OEF deployment?

Yes
 No

Section 1: During any of your OIF/OEF deployment(s) did you experience any of the following events?
 (Check all that apply)

Blast or Explosion (IED, RPG, Land Mine, Grenade, etc)
 Vehicular accident/crash (any vehicle, including aircraft)

Clear Clinical Maint Visit Info < Back Next > Finish Cancel

TBI Screening:

TRAUMATIC BRAIN INJURY SCREENING

Has the veteran already been diagnosed as having TBI during OIF/OEF

related to: MST, Combat Veteran Related

* Indicates a Required Field

Encounter
 New Note

TELEPHONE CONTACTS Intermediate Call related to: MST, Combat Veteran Related

Clinical Reminders in VistA

- Reminder Reports
- Reminder Patient Lists (**NEW!**)
 - Well, not really new, but less understood by the field, so as education is provided, it becomes the *tool du jour*.
- Who has access to these reports?
 - Data Requests
 - Exportability of reminder definitions

Reminder Reports

- You define the sample
 - Individually selected patients
 - Existing CPRS teams
 - Primary Care (PCMM) teams or “panels”
 - Previously generated reminder patient lists
 - Locations
 - Patients **seen** in certain clinics or stop codes
 - Currently admitted patients or admissions during a given time frame

Reminder Report Output

- Given the sample, the computer can evaluate the cohort, and for each patient, determine if the reminder applies and whether it has been resolved
- The typical output is a list of patients with the reminder DUE

[REDACTED]

Reminders due 2/15/2007 - COMBINED LOCATIONS for 2/15/2006 to 2/15/2007

Iraq&Afghan Post-Deployment Screen: 125 patients have the reminder due

		Date Due	Last Done	Next Appt
		-----	-----	-----
1	[REDACTED]	DUE NOW	N/A	None
2	[REDACTED] (2363)	DUE NOW	N/A	None
3	[REDACTED]	DUE NOW	N/A	None
4	[REDACTED]	DUE NOW	N/A	None
5	[REDACTED] IS (9457)	DUE NOW	N/A	None
6	[REDACTED] 9412)	DUE NOW	N/A	None
7	[REDACTED] 37)	DUE NOW	N/A	None
8	[REDACTED] A (6132)	DUE NOW	N/A	None
9	[REDACTED] 6290)	DUE NOW	N/A	None
10	[REDACTED] 0734)	DUE NOW	N/A	None
11	[REDACTED]	DUE NOW	N/A	None

Reminder Reports vs. Patient Lists

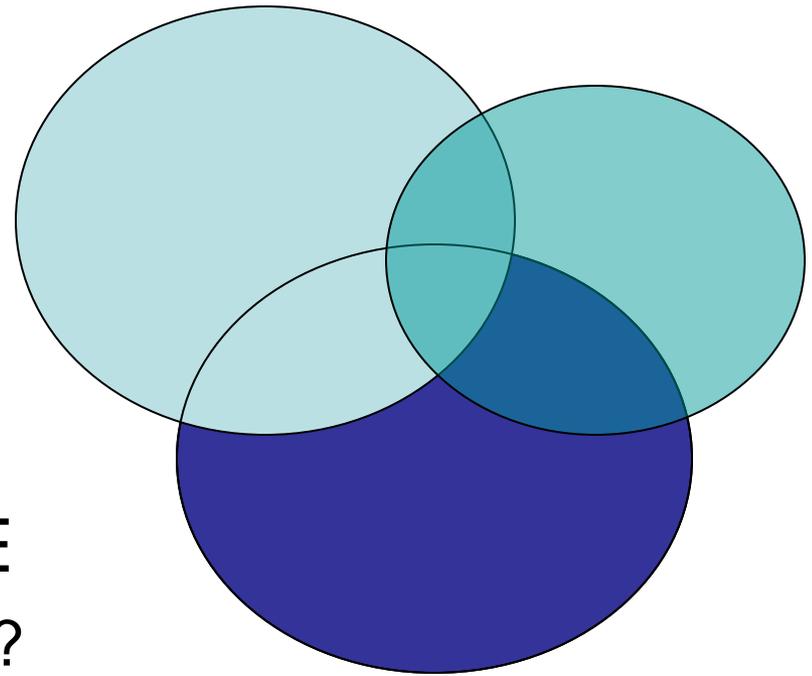
- Reminder Patient Lists have an advantage over Reminder Reports in the areas of:
 - Speed (CPU Efficiency)
 - Sample (defined cohort or the entire local database)
 - Output (list of patients MEETING the defined conditions instead of those NOT MEETING the criteria ... avoids double negatives in the computer logic)

Reminder Patient Lists

- Same components as clinical reminders
- New terminology
 - Reminder definitions used COHORT and RESOLUTION
 - Patient lists use FINDING RULES, REMINDER RULES, and PATIENT LIST RULES to make RULE SETS which are used to generate PATIENT LISTS

Mathematics and Logic

- Reminder definitions
 - AND, OR & AND NOT
- Patient lists
 - ADD PATIENT (OR)
 - SELECT (AND)
 - REMOVE (AND NOT)
- Life is one big SEQUENCE
 - So, does order really matter?
 - Add Diabetics, Select Foot Exam
 - Add Foot Exam, Select Diabetics



References and Related Topics

- VeHU 2006 course 309H Patient Lists
 - VeHU (Intranet) Site Hyperlink*
- Clinical Reminders Distance Learning Course #3 Reminder Reports and Patient Lists
 - Copies of presentations available
- Reminders Troubleshooting page
 - VistA (Intranet) Site Hyperlink*

* Hyperlinks available on the Intranet version of this presentation.

Ok, enough background ...
on to some research applications

- These are all real examples used in practice either at Hines or in response to a query from another station

A1c Performance Measure

- All diabetic patients should have a Hgb A1c measured at least annually, goal $\leq 9\%$
- Chart review of patients seen in a given provider's clinic recently
 - use a patient list of patients seen (ADD)
 - that are diabetic (SELECT)
 - display information about their A1c value, their diagnosis codes, and their primary care assignment

Hem/Onc High Risk Drugs

- Ensure all patients on a group of high risk drugs are followed by the unit's clinical nurse specialist
- No patient shall “fall through the cracks”
 - Create a patient list of all patients receiving the selected drugs in a given time frame
 - Alternative: Create a reminder that is applicable/due for patients on the selected drugs, with no “resolution logic”

Influenza Vaccination Measures

- Inpatient monitoring
 - Use a clinical reminder to identify all inpatients (sample) that should receive a flu shot (cohort) and have not already had it (resolution)
- Employee vaccination rates
 - Use a patient list to count all flu shots given
 - Reuse that same list to identify employees – CPU efficiency! (numerator)
 - Compare the employee count against personnel records (denominator)

Pharmacy Chart Reviews

- Identify all patients admitted to the long term care unit between dates x and y
 - Create a reminder with no logic
 - Run the reminder against known LTC locations
 - Save the “due” patients (everyone) to a patient list

New diagnosis of spinal cord injury

- Ensure that all newly diagnosed patients are seen in the appropriate SCI locations
- Patient List
 - Identify all patients with an SCI diagnosis between dates x and y (ADD PATIENT)
 - Remove patients with records of the same diagnoses prior to date x (REMOVE)

Monthly Performance Measure Reporting Process – VISN 12

- Via Clinical Reminders
 - Each site would manually run the Reminders Due Report for the nexus clinics as defined in the OQP Technical Manual

Monthly Performance Measure Reporting Process – VISN 12

- Via Reminder Patient Lists (Extracts)
 - VistA will automatically run the report on the 1st of the month
 - Subcohorts, Veteran eligibility, Terminal illness exclusions, Anchor visit

Excel-Ready Formatting

- Is data available in “delimited format” to be translated into a database table?
- Reminder Reports
 - Available both readable and delimited
 - Remember: the data presented is about patients with the selected clinical reminder “due” ... basically just a list of who they are

Excel-Ready Formatting for Patient Lists

- The standard output of a patient list is delimited
- Data is available for information related to
 - Address/Phone, Future Appointments, Demographics (SSN, DOB, etc.), Eligibility, Inpatient details
- Data is only available if added by the requestor related to clinical information such as
 - Lab results, Diagnosis codes (problem list, encounter data), Drug history and medication profile,
 - NOTE: EACH result type is added separately, since it's a separate column!

Audience Questions

Question 1: Can item-level responses to a clinical reminder be accessed? For example, AUDIT C (Alcohol Use Disorders Test-Consumption) responses to the 3 questions, so that a score might be obtained?

Answer: In the specific case of Audit-C, you may have heard reference to the fact that the Iraq & Afghanistan Post Deployment reminder is being updated. As it includes the Audit-C, that is one of the reasons for the update. The new standards for documentation require that the progress note text generated for this questionnaire (and also the PHQ-2 - Patient Health Questionnaire - for depression screening) contain the wording of the questions as asked and the individual responses as given by the patient. Audit-C is currently one of the few instruments available to clinical reminders directly from VistA's mental health package. So what actually happens is that the 3 questions are asked, and the computer has enough background programming to then calculate a score, and provide the appropriate text (positive/negative result) as the progress note text.

That's a special case. In more general cases, such as PHQ-2 today (before it is successfully moved into the Mental Health (MH) package so that it can be used as an automated instrument within CPRS Graphical User Interface (GUI)), to get the item-level responses, one would either check the progress note text that is created, or design the reminder dialog template so that each response generates a unique HEALTH FACTOR. Those health factors can then be sought out later via reminder patient lists as a unique item to the patient's chart. I like to think of health factors in the same way that an Internet cookie functions. It's just a tidbit of information associated with a patient, stored in VistA, for which there is no better place in the record to put the information.

Audience Questions

Question 2: Where can we find reminder source code examples?

Answer: Reminder definition examples are somewhat abundant on the reminders Intranet site [hyperlink available on the intranet version of this presentation]. There is an EXAMPLES section on that page. The definition itself can be shown either as a screen capture of the VistA output display, or in some cases is hosted on the web site as a .prd file. PRD in this case stands for Packed Reminder Definition, and is an XML-formatted method to share/exchange reminders between sites.

Audience Questions

Question 3: How can I do epidemiological studies using clinical reminders?

Answer: Studies through clinical reminders can only be done through VistA at the facility level. At varying facilities, it may be IRM to contact for clinical reminders. There may be a clinical informatics service separate from IRM, and there may be a non-IRM “clinical reminders manager”. There is no standardization on who holds the reminder keys at a given site.

Any VISN or National Data would have to be done by externally collating information from the facility level findings. Even those reminders that are designed to generate extracts (e.g., for Ischemic Heart Disease QUERI and Mental Health QUERI) still report individual station data.

If you’re looking for information on how to use databases for epidemiological/quality improvement studies, perhaps the VIREC Databases and Methods cyber seminar series would be of interest to you. Information on this series is available at:

<http://www.virec.research.va.gov/EducationResources/Seminars/Databases-Methods.htm>. Archived presentations (with audio) are available at:

http://www.hsrdr.research.va.gov/for_researchers/cyber_seminars/catalog.cfm#5

Audience Questions

Question 4: Where can I go for more information on clinical reminders?

Answer: More information can be found on the VHA Office of Information and Technology (OI&T) VistA clinical reminders home page: [hyperlink available on the intranet version of this presentation]

If you were looking for more information on how to “roll out” clinical reminders at a more national level, the following presentation may be useful for you:

<http://www.virec.research.va.gov/EducationResources/Seminars/Informatics051606.ppt> (New IT Service Requests and New Commercial Technology Requests: a How-To Guide for VHA Researchers).