

Innovation Initiative

Patient Search Tool: CPRS Extension

Facilities: Kansas City VA Medical Center
North Florida/South Georgia VA Medical
Center

Innovation Submitted by: Rachel Cornett



Session Objectives

- ▶ Describe the innovation process
- ▶ Describe goals of innovation
- ▶ Describe the CPRS search tool
- ▶ Describe potential benefits of the tool



Problem Statement

- ▶ Currently, only the “Notes” and “Labs” sections of the Computerized Patient Record System (CPRS) have text/data search function capabilities
- ▶ Many other components of CPRS contain a large amount of data and other information and it is very inefficient to manually search these records.
- ▶ Providers, nurses and other allied health professionals waste valuable time searching for data and other care related information that could be quickly retrieved with a search tool.



Description of Idea

- ▶ Our idea is to identify additional components of the CPRS that would benefit from a keyword or key term search option.
- ▶ Develop a method for CPRS users to be able to utilize a keyword or key term search tool in the identified CPRS components.



Strategic Goals

- ▶ Improve Care Quality
 - CPRS users will be able to obtain important care related information that was previously missed.
- ▶ Improve Efficiency and Access:
 - Reduce time spent researching care related information in the CPRS which will improve workflow efficiency and increase patient access to care.
- ▶ Meet Organizational Requirements – Research requirements for documentation of serious adverse events and medication logs would be met in a more timely fashion.



Success Metrics

- ▶ **Functional Prototype Success Metric:** Providers will be able to quickly search the CPRS for keywords in additional components.
- ▶ **Expected Results:** Reduce accidental duplication of therapy and reduce the time required to investigate prior treatment of patients.
 - This is expected to reduce the time spent searching the CPRS for specific information by 75%.



Technical Approach

- ▶ Program a search function into additional components of the CPRS similar to that found in Microsoft Office applications or Adobe programs which highlights the searched word.



- ▶ In which area of expertise do you work?
 - a. Clinical
 - b. Information and Technology
 - c. Administrative



Teams

- ▶ Kansas City: R. Spencer Schaefer, Pharm.D. and Donna Hoppe, CAC





Teams

- ▶ NFSG: Elaine Hill, Pharm.D. and Scott Anderson, Pharm.D.



- ▶ Innovation coordination transitioned from James McCain to Brian Stevenson



Implementation

- ▶ Office of Acquisition Operations, Technology Acquisition Center “The TAC”
- ▶ Initial Requests for Information
- ▶ Budget
- ▶ Solicitation
- ▶ Technical Evaluations
- ▶ Contracting

Technology Acquisition Center (TAC)





Technical Evaluations

- ▶ Teams identified components that would benefit from a search tool by completing a survey of end users.
- ▶ Vendors were evaluated for their strengths and weaknesses in several categories:
 - i. Understanding of the problem
 - ii. Delphi and Mumps programming experience
 - iii. Confine search to the CPRS program
 - iv. Mockups of end product
 - v. Labor categories and proposed rates were evaluated by the TAC



Delphi and Mumps





Implementation

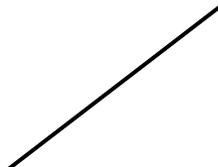
- ▶ Document Storage Systems, Inc. (DSS) was chosen to create the dynamic linked library “.dll” of the search tool
- ▶ Outstanding technical evaluation rating
- ▶ Successfully developed and tested in the Sandbox by DSS and team members





Addition to CPRS

- ▶ The tool is located by the drop down menus of CPRS



Vista CPRS in use by: Programmer,One (172.19.100.95)

File Edit View Tools Help Search

SEVENTEEN,PATIENT 666-00-0017 Apr 07,1935 (77)	Visit Not Selected Provider: PROGRAMMER,ONE	Primary Care Team Unassigned
--	---	------------------------------

Vista CPRS in use by: Wright,Kevin (LOCALHOST)

File Edit View Tools Help Search

CPRSPATIENT,EIGHT F 666-66-0008 Feb 01,1955 (57)	VCM-IN VCM-IN-18 Provider: WRIGHT,KEVIN	RED Atten
--	---	--------------

Active Problems Allergies / Adve

Diabetes Mellitus Without Mention Of Complication, Type II	Fish Oil
# Need For Prokubetic (Insulin) And Insulin Assis	Tuberc



The Search Tool Opens

Patient Names: BCMA,EIGHTYTWO-PATIENT
File Options Help

Patient Record Search

CPU Priority
 Patient Record Search
 CPBS Application

Standard Search | **Advanced Search** | Search Results

TIU Notes

Search Terms: _____ **Records Found:** _____

Filter by:
 Signed Notes (All)
 Unsigned Notes
 Unsigned Notes

Sort by Date/Time:
 Ascending
 Descending

Max Return Instances: 200 Document Class: Progress Notes
 Include Addenda

Problem Text

Search Terms: _____ **Records Found:** _____

Max Return Instances: 200

Consults

Search Terms: _____

Max Return Instances: 200

Orders

Search Terms: _____ **Records Found:** _____

Max Return Instances: 200

Reports

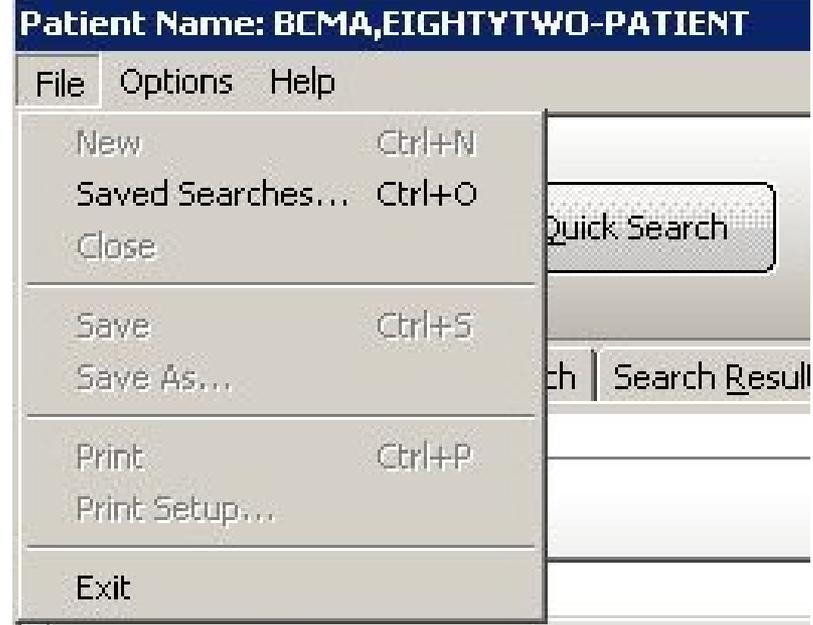
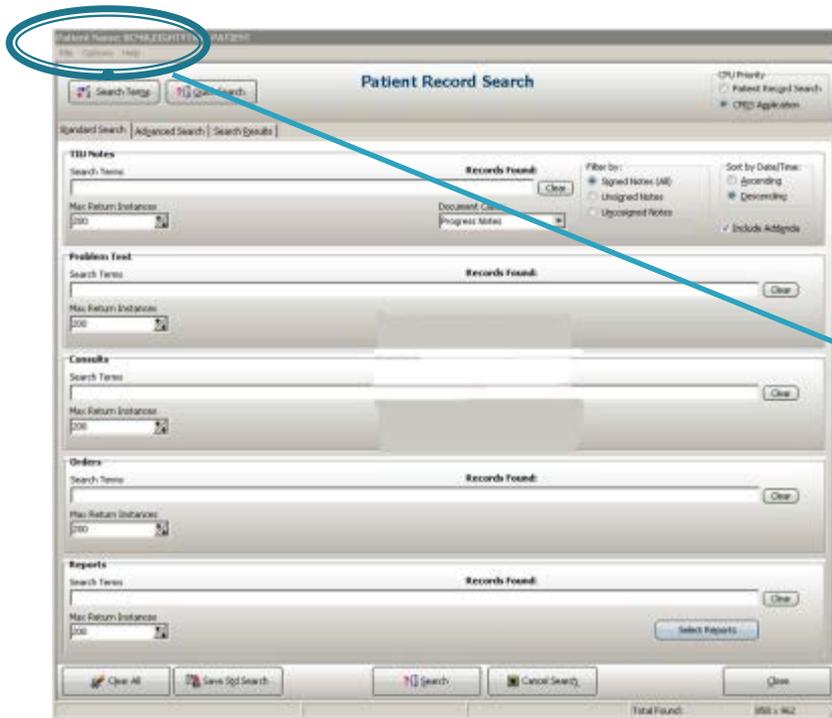
Search Terms: _____ **Records Found:** _____

Max Return Instances: 200

Total Found: 858 x 962

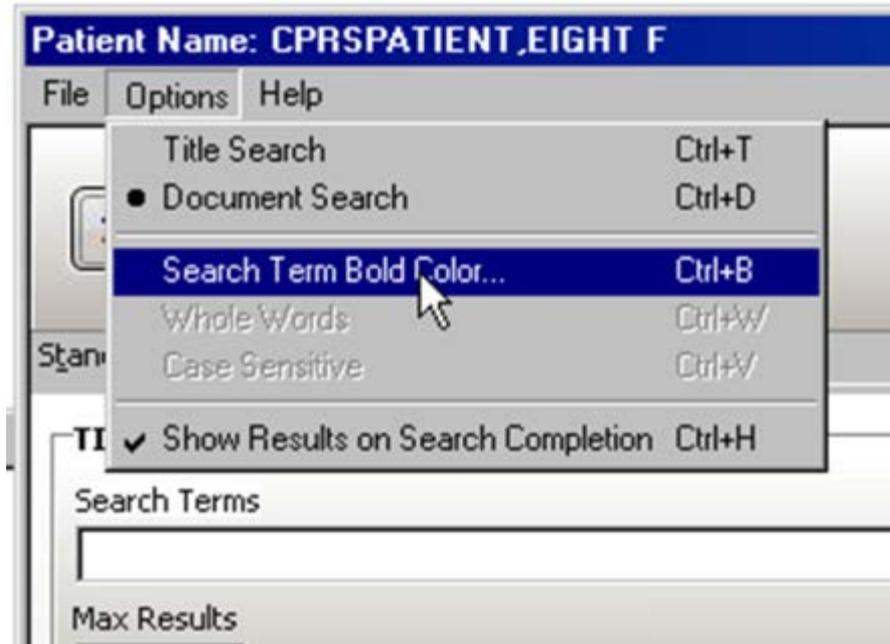


Drop Down Menus





Drop Down Menus





Drop Down Menus





Upper Tool Bar



Patient Record Search

- CPU Priority
- Patient Record Search
 - CPRS Application



CPU Priority

- ▶ Worried about CPRS slowing down?





Standard vs. Advanced

Patient Name: BCMA,EIGHTYTWO-PATIENT

File Options Help

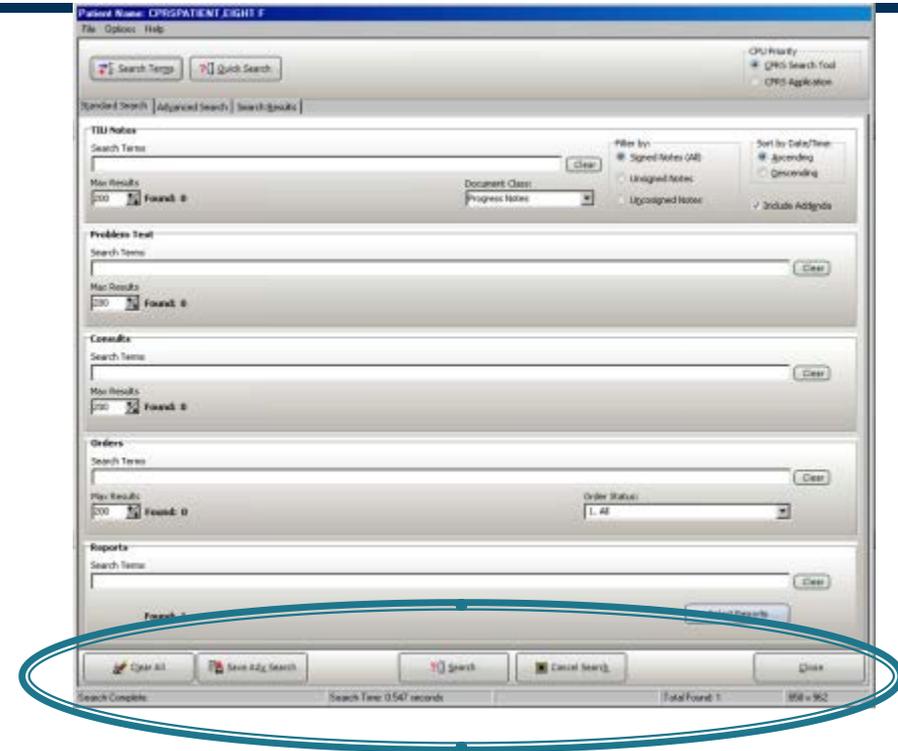
Patient Record Search

Search Terms Quick Search

Standard Search **Advanced Search** Search Results



Lower Tool Bar



Clear All

Save Std Search

Search

Cancel Search

Close



Standard Search

Patient Name: CPRSPATIENT_EIGHT F

File Options Help

Search Terms

Quick Search

CPU Priority
 CPRS Search Tool
 CPRS Application

Standard Search | Advanced Search | Search Results

TIU Notes

Search Terms

Max Results

200 Found: 0

Document Class:

Progress Notes

Filter by:

- Signed Notes (All)
 Unsigned Notes
 Ununsigned Notes

Sort by Date/Time:

- Ascending
 Descending

Include Addenda

Problem Text

Search Terms

Max Results

200 Found: 0

Consults

Search Terms

Max Results

200 Found: 0

Orders

Search Terms

Max Results

200 Found: 0

Order Status:

1. All

Reports

Search Terms

Found: 1

Clear All

Save Adv Search

Search

Cancel Search

Search Complete

Search Time: 0.547 seconds

Total Found: 1

858 x 962



Search Results Panes

Patient Name: BCMA,EIGHTYTWO-PATIENT
File Options Help

Search Terms Quick Search

Patient Record Search

CPU Priority
 Patient Record Search
 CPB5 Application

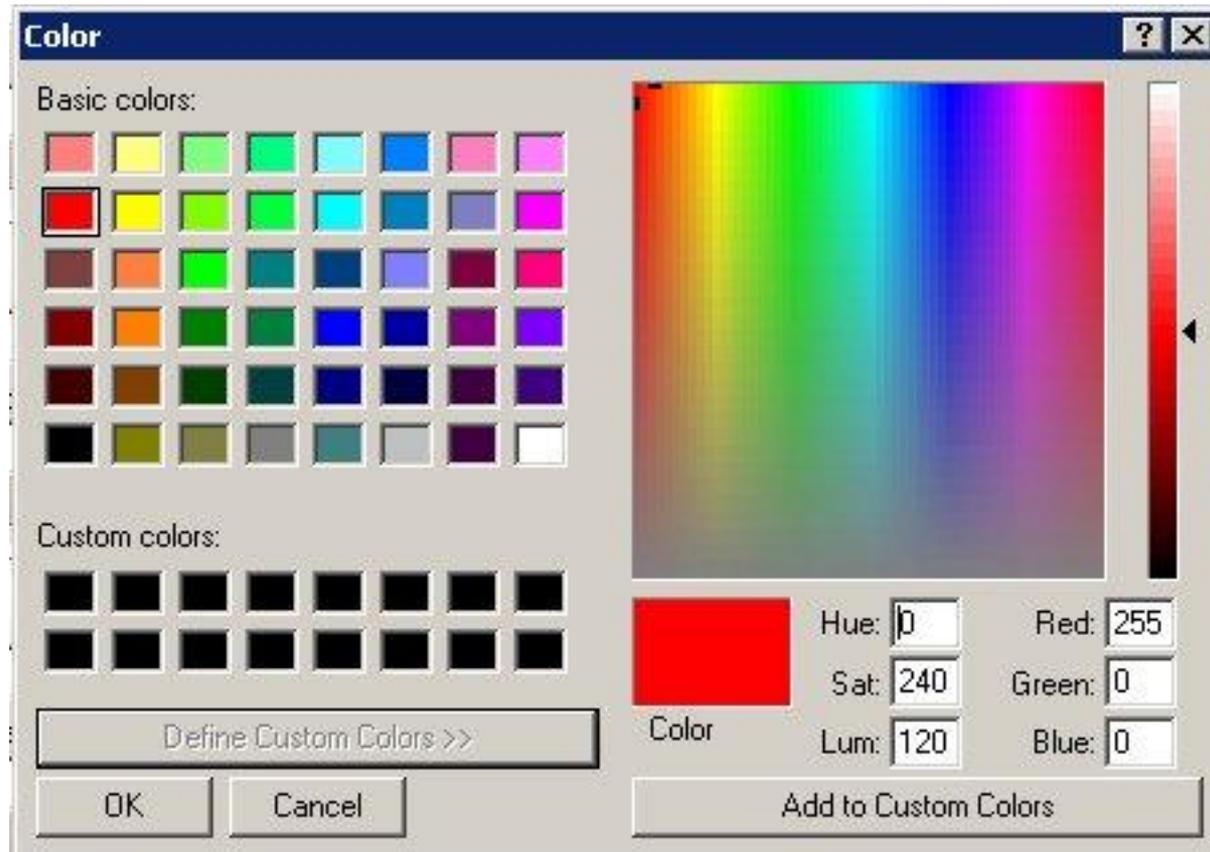
Standard Search Advanced Search Search Results

Clear All Save Adv. Search Search Cancel Search Close

Total Found: 858 x 962



Results Displayed in Color!





Standard Search for "lidocaine"

Standard Search | Advanced Search | Search Results

TIU Notes
Problem Text
Consults
606, 06/08/2012, p, HEMATOLOGY NEW NAME, BONE MARROW ASPIRATE
604, 11/01/2011, c, JEANIE'S SERVICE, Consult
600, 10/27/2011, c, JEANIE'S SERVICE, Consult
599, 10/02/2011, p, HEMATOLOGY NEW NAME, BONE MARROW ASPIRATE
598, 10/02/2011, c, JEANIE'S SERVICE, Consult
594, 09/25/2011, p, HEMATOLOGY NEW NAME, BONE MARROW BIOPSY
593, 09/25/2011, p, HEMATOLOGY SERVICE, Consult
592, 09/25/2011, p, HEMATOLOGY SERVICE, Consult
480, 05/30/2001, c, BONE MARROW, Consult
180, 01/07/1999, c, HEMATOLOGY NEW NAME, Consult
157, 12/02/1998, pr, HEMATOLOGY NEW NAME, Consult
156, 12/02/1998, c, HEMATOLOGY NEW NAME, Consult

Orders
LIDOCAINE SOLN , 06/29/2012, PENDING
ACETAZOLAMIDE INJ , 06/29/2012, PENDING
LIDOCAINE SOLN , 06/11/2012, PENDING
LIDOCAINE SOLN , 06/08/2012, PENDING
LIDOCAINE SOLN , 06/08/2012, PENDING

LIDOCAINE SOLN
1 GALLON TOP 5XDAY FOR 10 DAYS

Activity:
06/06/2012 10:10 New Order entered by ROISTAFF,CHIEF O (COMPUTER S
Order Text: **LIDOCAINE SOLN**
1 GALLON TOP 5XDAY FOR 10 DAYS
Nature of Order: ELECTRONICALLY ENTERED
Elec Signature: WRIGHT,KEVIN on 06/08/2012 17:32

Current Data:
Current Primary Provider: IDOSEDCTOR,FOUR
Current Attending Physician: IDOSEDCTOR,THREE
Treating Specialty:
Ordering Location: 242
Start Date/Time: 06/08/2012 22:00
Stop Date/Time:
Current Status: PENDING
Order #19156

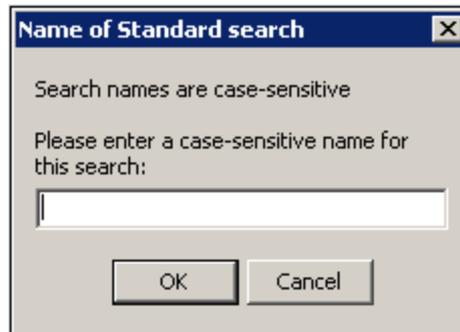
Order:
Medication: **LIDOCAINE SOLN**
Instructions: 1 GALLON TOPICAL 5XDAY 10 DAYS
Text:
1 GALLON TOP 5XDAY FOR 10 DAYS
Priority: ROUTINE
Comments:

Total Dose: 1 GALLON
Schedule Type: CONTINUOUS

First Party Pay Exemptions
Order Checks:
LOW: Order Checks could not be done for Drug: **LIDOCAINE SOLN**
complete a manual check for Drug Interactions and Dupli
Therapy.



Save your Search





Advanced Search Tab

Patient Name: CPRSPATIENT.EIGHT F
File Options Help

Search Terms Quick Search CPU Priority
 CPRS Search Tool
 CPRS Application

Standard Search **Advanced Search** Search Results

TIU Notes

Search Terms Clear

Filter by:
 Signed Notes (All)
 Unsigned Notes
 Unsigned Notes
 Signed Notes by Date Range

Sort by Date/Time:
 Ascending
 Descending
 Include Untranscribed
 Include Addenda

Max Results: 200 Found: 0 Start Date (Ref. date/time): End Date (Ref. date/time): Document Class: Progress Notes

Problem Text

Search Terms Clear

Max Results: 200 Found: 0 Start Date (Last modified): End Date (Last modified):

Consults

Search Terms Clear

Max Results: 200 Found: 0 Start Date (Req. date/time): End Date (Req. date/time):

Orders

Search Terms Clear

Max Results: 200 Found: 0 Start Date (Req. date/time): End Date (Req. date/time): Order Status: 1. All

Reports

Search Terms Clear

Found: Start Date: End Date: Select Reports

Clear All Save Adv. Search Search Cancel Search Close

Search Complete. Search Time: 0.547 seconds Total Found: 1 858 x 962



Advanced Search

Advanced Searches

This form allows you to select which reports you would like to include in your search.
The search term(s) you enter will be applied to All selected reports.
To select a single report, click a report in the left pane, then click the '>' button to add it to your list.
To deselect a single report, click a report in the right pane, then click the '<' button to remove it from your list.
To deselect ALL reports at the same time, click the 'Delete All' button.

*** Remote Reports are NOT supported at this time ***

Available Reports	Selected Reports
<ul style="list-style-type: none"><input type="checkbox"/> Clinical Reports<ul style="list-style-type: none"><input type="checkbox"/> Health Summary<input type="checkbox"/> HDR Reports<input type="checkbox"/> Dept. of Defense Reports<ul style="list-style-type: none"><input type="checkbox"/> Imaging<input type="checkbox"/> Graphing (local only)<input type="checkbox"/> Lab Status<input type="checkbox"/> Blood Bank Report<input type="checkbox"/> Anatomic Pathology<ul style="list-style-type: none"><input type="checkbox"/> Dietetics Profile<input type="checkbox"/> Nutritional Assessment<input type="checkbox"/> Vitals Cumulative<input type="checkbox"/> Procedures (local only)<input type="checkbox"/> Daily Order Summary<input type="checkbox"/> Order Summary for a Date Range<input type="checkbox"/> Chart Copy Summary<input type="checkbox"/> Outpatient RX Profile<input type="checkbox"/> Med Admin Log (BCMA)<input type="checkbox"/> Med Admin History (BCMA)<input type="checkbox"/> Surgery (local only)<input type="checkbox"/> Progress Notes<input type="checkbox"/> Progress Notes<input type="checkbox"/> Event Capture	<ul style="list-style-type: none">AllergiesChem & HematologyPatient Data SummaryPharmacy All Outpatient

> <



Patient Name: BCMA,EIGHTYTWO-PATIENT
File Options Help

Patient Record Search

CPU Priority
 Patient Recgdr Search
 CPRS Application

Standard Search | **Advanced Search** | Search Results

TIU Notes

Search Terms: _____ **Records Found:** _____

Filter by:
 Signed Notes (All)
 Unsigned Notes
 Unsigned Notes
 Signed Notes by Author
 Signed Notes by Date

Sort by Date/Time:
 Ascending
 Descending
 Include Untranscribed
 Include Addenda

Max Return Instances: 200 Start Date (Ref. date/time): _____ End Date (Ref. date/time): 3/29/2012 Document Class: Progress Notes

Problem Text

Search Terms: _____ **Records Found:** _____

Max Return Instances: 200 Start Date (Last modified): _____ End Date (Last modified): 3/29/2012

Consults

Search Terms: _____ **Records Found:** _____

Max Return Instances: 200 Start Date (Req. date/time): _____ End Date (Req. date/time): 3/29/2012

Name of Advanced search [X]

Search names are case-sensitive

Please enter a case-sensitive name for this search:

Orders

Search Terms: _____ **Records Found:** _____

Max Return Instances: 200 Start Date (Req. date/time): _____ End Date (Req. date/time): 3/29/2012

Reports

Search Terms: _____ **Records Found:** _____

Max Return Instances: 200 Start Date: _____ End Date: 3/29/2012



Saved Searches

Advanced Searches

KEVINS SAVED SEARCH

- RX#
- Search Adv Orders for 'a'
- TEST
- completed
- hello
- pharmacy ID
- provider
- test

Open Selected Search
Delete Selected Search
Delete All Advanced Searches
Delete ALL Searches

Close



Search Terms Button

Patient Name: SEVENTEEN,PATIENT

File Options Help

Search Terms Quick Search

Search Terms

1) Enter all desired search terms in the 'Search Terms' box below, with each term separated from adjacent terms by one or more spaces.
2) If on Advanced search tab, enter Start Date and End Date.
3) Indicate the search area(s) of interest by checking one or more checkboxes in the 'Apply To' box.
4) Click the 'Apply Search Terms' button.

Start Date: (mm/dd/yyyy) 1/1/2012 ... End Date: 8/13/2012 ...

Search Terms:

Apply To:

- IJU Notes
- Problem Text
- Consults
- Orders
- Reports
- ALL

Clear Search Terms Apply Search Terms Close



Make your Search Specific

Search Terms Quick Search

Standard Search | Advanced Search | Search Results

TIU Notes
Search Terms
Filter by: Signed Notes (All)
Max Results: 200 Found: 0

Problem Text
Search Terms
Max Results: 200 Found: 0

Consults
Search Terms
Max Results: 200 Found: 0

Orders
Search Terms

Search Terms

- 1) Enter all desired search terms in the "Search Terms" box below, with each term separated from adjacent terms by one or more spaces.
- 2) If on Advanced search tab, enter Start Date and End Date.
- 3) Indicate the search area(s) of interest by checking one or more checkboxes in the "Apply To" box.
- 4) Click the "Apply Search Terms" button.

search terms

Apply To:

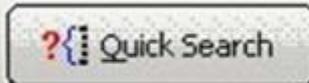
- TIU Notes
- Problem Text
- Consults
- Orders
- Reports
- ALL

Clear Search Terms Apply Search Terms Close



Quick Search

Patient Record Search



Quick Search [minimize] [maximize] [close]

Quick Search allows you to search all document types from the specified Start Date, until Today. The search term(s) you enter will be applied to All document types.

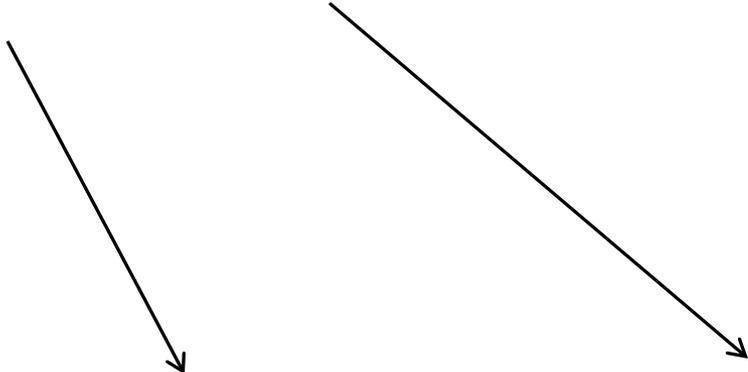
Enter all desired search terms in the 'Search Terms' box below, with each term separated from adjacent terms by one or more spaces.

Start Date: (mm/dd/yyyy)

Search Terms:



Cancel Search or Close



A horizontal toolbar with five buttons: 'Clear All' (with a trash icon), 'Save Std Searches' (with a floppy disk icon), 'Search' (with a magnifying glass icon), 'Cancel Search' (with a square icon), and 'Close' (with a window icon). Below the buttons, there is a status bar with the text 'Total Found: 858 x 962'.



- ▶ Do you think you would be able to use the CPRS search tool in your clinical practice?
 - a. Yes
 - b. no



Challenges & Risks

- ▶ Risk: accuracy
- ▶ Challenge: Clinicians may not embrace the program's technology
- ▶ Training



Impacts

- ▶ **Veterans**
 - Will have improved wait times during clinic visits and receive a higher quality of care.

- ▶ **VA Employees**
 - Time
 - Access

- ▶ **Additional support needed**
 - Class I development



What Do You *Really* think?

- ▶ The VA's CPRS is the most complete computerized charting system in the world
- ▶ A search function is a basic function found in several other computer programs, and should be available in CPRS
- ▶ We will know we are successful when we can find medical information within seconds



Next Steps

- ▶ Test search tool at volunteer test sites, currently available in the Sandbox, class III and class II development
- ▶ Implement search tool as a Class I component of a future version of the CPRS
- ▶ The dynamic linked library (.dll) is already available on the **Open Source Electronic Health Record Agent (OSEHRA)** website for downloading <http://www.osehra.org/>





Thank You!

- ▶ R. Spencer Schaefer, Pharm.D., and Donna Hoppe, RN of KC
 - ▶ Jim McCain
 - ▶ Jennifer Swick, Jelica Potter and Sarah Basilotto of the Technology Acquisition Center in Eatontown, NJ
 - ▶ Elaine Hill, Pharm.D., Scott Anderson, Pharm.D. of NFSG
 - ▶ VA Information Resource Center (VIReC)
 - ▶ Fabian Lopez and Kevin Wright of DSS
- Brian Stevenson and DSS!**



My Contact Information

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References

- ▶ CPRS Search Tool User and Administrator Guide, Version #1.0
August 2012 © 2012 Document Storage Systems, Inc. All rights reserved.
- ▶ <https://www.vxvista.org/display/vx4ext/DSS+Patient+Search+Tool#DSSPatientSearchTool-Webinar>
- ▶ <http://www.answers.com/topic/delphic-oracle#ixzz2hL57LZ1R>
- ▶ <http://www.northflorida.va.gov/locations/gainesville.asp>

Developer: DSS, Inc.
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