The After Visit Summary (AVS)
Outline

• Introduction
• Background
• AVS Development
• Software Features
• Initial Evaluation Plan
• Questions
Poll Question

In which area of expertise do you work?

• Clinical
• Information Technology
• Administrative
• Research
• Other
Background - Patient Retention of Clinical Information

• Patients forget 40-80% of information from healthcare providers\(^1\)

• What they do remember, they remember half incorrectly\(^1\)

• More information given, the less patients remember\(^2\)

• Poor retention leads to poor adherence, medication errors, missed appointments and perceptions of poor communication
Background – Patient Engagement

• Patients desire information about their care$^3$
• Patients desire more information than they typically receive about their illness and their treatment plan$^3$
• Combing oral and written information is better than oral or written only$^4$
• Sharing electronic health record information on personal health records increases patient engagement$^5$
Background – After Visit Summaries (AVS) and Personal Health Records (PHR)

• Why printed AVS and not just a PHR?
  – Printed after-visit summaries enhance patient trust and confidence in their physician $^3$
  – Veterans have access to My HealtheVet, however 65% not registered$^6$
  – Only 25% In-Person Authentication$^6$
  – Experience at other sites with PHR and AVS
    • AVS third most frequently accessed information on PHR Group Health, Seattle$^7$
Background – After Visit Summaries and Patient Satisfaction

• Kaiser Permanente found through regression analysis that AVS contributes to overall outpatient satisfaction.
Poll Question

• When you or your family have seen a physician, did you receive an after-visit-summary?
  • Always
  • Most of the time
  • Sometimes
  • Rarely
  • Never
Background - Meaningful Use Criteria

- Centers for Medicare and Medicaid Services (CMS) criteria for physician/hospital reimbursement for implementing an electronic health record (EHR)\(^9\),\(^{10}\)
  - Use computerized order entry
  - Drug-drug and drug-allergy checks
  - Maintain up-to-date problem list
  - Generate and transmit prescriptions electronically
  - Maintain active medication list
  - Maintain active medication allergy list
  - Record key demographics
  - Record and chart changes in vital signs
  - Record smoking status for patients 13-years and older
  - Exchange key information with other systems
  - At least one of 4 clinical decision support rules
  - Report hospital quality measures to CMS/state
  - Electronic copies to patients on request
  - **Provide clinical summaries for patients for each office visit**
  - Protect electronic health information
Background - Meaningful Use

• Objective
  – Provide clinical summaries for patients for each office visit

• Measure
  – Clinical summaries provided to patients for more than 50% of office visits within 3 days

• Additional parameters
  – May be provided through PHR, website, secure messaging, or printed copy
Background - Meaningful Use

- Clinical Summary Content from CMS
  - Patient’s name
  - Providers name, visit location and date and contact information
  - Updated medication list
  - Updated vitals, reason for visit
  - Procedures and instructions
  - Updated problem list
  - Upcoming appointments
  - Laboratory and test orders
  - Laboratory and other test results
Background - VA and Meaningful Use

• VA seeking meaningful use certification
  – "We're going to try to get certified on everything for inpatient and outpatient," said Dr. Theresa Cullen, director of health informatics for the VHA.
  – "If you look at what's required in certification, all of it benefits patient care. Striving for meaningful use will help us deliver better care for the veterans."
AVS Development
Purpose of the After Visit Summary (AVS)

• Promote patient-centered, outpatient care
• Summarize medications, appointments, tests, patient education material and other instructions
• Enhance communication
• Engage patients in their care
• Improve recall of medical instructions
• Meets electronic health record meaningful use criteria
AVS Development Project Goals

• For outpatient visits
  – Provide patients with relevant information about their office visit in a clinical summary
  – Develop patient-friendly language and format
  – Minimize work for the provider by automatically populating AVS with data from VistA
  – Provider user options
  – Save, print and upload to VistA Imaging and MyHealtheVet
AVS Development

- 2009 VHA Innovations Grant
- Requirements gathering through patient and clinician focus groups
- Contractor developed software framework
- VA Loma Linda Healthcare System (VALLHCS) IT developer refined software
- Pilot testing in VALLHCS clinics
- Close collaboration with Informatics Team and clinicians
AVS Development

- Clinician and Innovations input at VALLHCS
- Pharmacy Benefits Management (PBM) National Medication Reconciliation Workgroup
  - Add remote medications
  - Medication descriptions
- Region 1 Development Team
  - Changed from using a network service account to an application programming interface (API)
  - VistA service accounted changed to Application Proxy
AVS Features

- Web-based, launched from the CPRS toolbar
- Imports data VistA/CPRS, Remote Procedure Calls (RPC’s)
- Clinical Context Object Workgroup (CCOW)
- Auto refresh and manual refresh button
- Print, store VistA Imaging as PDF, stub note in CPRS
- Integration with Krames-On-Demand Patient Education
- Optionally saves and locks changes between users
AVS Features

• Technical
  – Java/J2EE with web-based front end
  – RPC’s through national software (VistALink)
  – No custom RPC’s or MUMPS code
  – Small Delphi client for CCOW
  – Hosted at Denver Regional Data Center
AVS Features - AVS Workflow

• Provider
  – Completes orders
  – Completes encounter

• Data
  – Automatically uploaded to AVS
  – Auto-refresh every 3 minutes, manual refresh available

• Additional instructions
  – Free text instructions
  – Krames-on-Demand Education Sheets

• Completed AVS
  – Printed to Windows printer or VistA printer
  – Stub note created in CPRS
  – PDF copy uploaded to VistA Imaging
Launched from the CPRS Tools menu, the AVS uses CCOW, changing patients with CPRS, therefore requiring only one launch per clinic.
AVS Features - View of AVS at Launch

After Visit Summary

TEST, PATIENT: 006-00-1234
Visit date: 09/18/2013
Date generated: 09/22/2013 12:58
LOMA LINDA HCS

Today's Visit

Clinics Visited
- 13:30 - Dr. Byrne, Module 4
- 15:00 - L/Surg/Pod/Wound Limb/Wed

Providers
- PROVIDER, JANE
  - Essential hypertension
  - Obesity
  - Dyslipidemia
  - Cholelithiasis without obstruction
  - Smoker
  - Coronary arteriosclerosis
  - Ankylosing spondylitis
  - Hypersomnia with sleep apnea
  - Dyspnea
  - Chronic obstructive lung disease
  - Diabetes mellitus type 2
  - Gastroesophageal Reflux Disease

Vitals as of This Visit
- Blood Pressure: 128/54
- Body Mass Index: 34.58
- Pain: 7
- Pulse Oximetry: 96 (Room Air)
- Pulse: 66
- Respirations: 18
- Temperature: 98.1 F
- Weight: 233.7 lb

Immunizations
- FLU, 3 YRS

New Orders
- Lab Tests

From This Visit

Please report to the lab for the following blood tests on the date listed for each test:
AVS Features – Visit Selection

The current visit is automatically selected, but other encounters may be selected from a drop-down of recent visits.
The header displays the patient name, visit date, date the AVS was generated, and the facility name.
AVS Features - Data from VistA/CPRS
AVS Features - Data from VistA/CPRS

<table>
<thead>
<tr>
<th>Immunizations</th>
<th>Lab Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Orders From This Visit</td>
<td>Please report to the lab for the following blood tests on the date listed for each test:</td>
</tr>
<tr>
<td>03/18/2013</td>
<td>- Occult Blood (Ht) Stool Faces</td>
</tr>
<tr>
<td>03/17/2014</td>
<td>- Basic Metabolic Panel (Chem 7) Blood Serum</td>
</tr>
<tr>
<td></td>
<td>- Hemoglobin A1c (Lab) Blood</td>
</tr>
<tr>
<td></td>
<td>- Lipid Profile Blood Serum</td>
</tr>
<tr>
<td></td>
<td>- Hepatic Function Panel Blood Serum</td>
</tr>
</tbody>
</table>

Medications

Note: This section only lists changes to your medication regimen. Please see your complete medication list under My Ongoing Care below.

Other:

- Mirtazapine Tab 15mg
- Finasteride Tab 5mg
- Zolpidem Tab 5mg

Other Orders

- Pneumovax Text Order
- Return To Clinic In 6 Months With Labs
- Return To Clinic In 6 Months

Immunizations are displayed.

Lab orders with scheduled date.

New medication orders and changes in medications are displayed here.

Text orders are included for such things as return visits, immunizations, etc.
AVS Features - Data from VistA/CPRS

Upcoming appointments within the next three months.

Upcoming Appointments

10/29/2013
13:30 - LI/Surg/Ortho/Rtn

Instructions
None

My Ongoing Care

Primary Care Provider: RATUSZYNSKI, MARK CHESTER
AVS Features - Data from VistA/CPRS

My Ongoing Care

Primary Care Provider and Team

- BERRIMAN, DIANE JO
- MOD 5 - PACT TEAM C

Allergies (Reactions)
- Citalopram (Sexual Dysfunction)
- Sertindole (Abnormal Sexual Function, Increased Body Temperature)
- Tramadol (Itch, Pain, Water Retention, Rash)

My Current VA Medications

- *Albuterol* 90mcg (HFA) 200d Oral Inhaler
  - INHALE 2 PUFFS BY MOUTH EVERY 4-6 HOURS FOR BREATHING (REPLACES LEVALBUTEROL INHALER)
  - Refills: 3 Last Filled: August 25, 13 Expires: June 06, 14

- *Artificial Tears Polyvinyl Alcohol* 
  - INSTILL 2 DROPS IN BOTH EYES TWICE A DAY AS NEEDED
  - Refills: 8 Last Filled: September 09, 13 Expires: June 06, 14

- *Chlorhexidine Gluconate 0.12% Mouthwash* 
  - USE ONE-HALF OUNCE 0.12% BY MOUTH TWICE A DAY AFTER MEALS FOR PERIODONTAL DISEASE **SWISH FOR 1 MINUTE AND SPIT** **DO NOT EAT/CHEW FOR 30 MINUTES AFTER USING**
  - Refills: 5 Last Filled: August 30, 13 Expires: June 06, 14

- *Galapentin 300mg Cap* 
  - TAKE THREE CAPSULES BY MOUTH TWICE A DAY
  - Refills: 6 Last Filled: November 06, 13 Expires: June 06, 14
  - Description: capsule, yellow, white, imprinted with AP0;113

- *Hydrocodone 5/Acetaminophen 500mg Tab* 
  - TAKE 2 TABLETS BY MOUTH THREE TIMES A DAY FOR PAIN. **DO NOT TAKE MORE THAN 4000MG OF ACETAMINOPHEN PER DAY**
  - Refills: 0 Last Filled: November 23, 13 Expires: December 06, 13
  - Description: oval, white, imprinted with N357

- *Lisinopril 5mg Tab* 

---

Physical descriptions of medications are obtained from the VA's Medication Image Library (MIL).

Updated medication list with number of refills, last fill, expiration, and description.
AVS Features - Data from VistA/CPRS

### Remote Medications

This patient has medications from other VA facilities. Please select the medications from the list below that the patient is currently taking.

<table>
<thead>
<tr>
<th>Name</th>
<th>Sig</th>
<th>Refills</th>
<th>Expiration Date</th>
<th>Last Filled</th>
<th>Facility</th>
<th>Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipitor</td>
<td>10 MG BY MOUTH DAILY</td>
<td>0</td>
<td>Jan 1, 14</td>
<td>Nov 1, 13</td>
<td>Cleveland VAMC</td>
<td>Physician, Jane</td>
</tr>
<tr>
<td>Nexium</td>
<td>20 MG BY MOUTH ONCE DAILY</td>
<td>0</td>
<td>Dec 15, 14</td>
<td>Oct 15, 13</td>
<td>West Palm Beach</td>
<td>Doc, John Q</td>
</tr>
</tbody>
</table>

If the patient has remote medications these are displayed in a pop-up dialog and the provider selects those medications that the patient is taking.
AVS Features - Data from VistA/CPRS

<table>
<thead>
<tr>
<th>My Non-VA Medications</th>
<th>Aspirin (Non-Enteric Coated) Tab, Chewable 81MG DAILY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minerals/Multivitamins Cap, Oral 1 CAPSULE DAILY</td>
</tr>
<tr>
<td></td>
<td>Ascorbic Acid Tab 1000MG DAILY</td>
</tr>
<tr>
<td></td>
<td>Vitamin E Cap, Oral 400UNIT DAILY</td>
</tr>
<tr>
<td></td>
<td>Vitamin B Complex Cap, Oral 1 CAPSULE DAILY</td>
</tr>
<tr>
<td></td>
<td>Docosahexanoic Acid/E Cap, Oral 1000MG DAILY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>My Medications From Other VAs</th>
<th>Lipitor 10 MG BY MOUTH DAILY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refills: 0 Last Filled: Nov 1, 13 Expires: Jan 1, 14</td>
</tr>
<tr>
<td></td>
<td>Facility: Cleveland VAMC Provider: Physician, Jane</td>
</tr>
<tr>
<td></td>
<td>Description: elliptical, white, imprinted with PD 155, 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medications You Are Taking</th>
<th>Nexium 20 MG BY MOUTH ONCE DAILY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refills: 0 Last Filled: Oct 15, 13 Expires: Dec 15, 14</td>
</tr>
<tr>
<td></td>
<td>Facility: West Palm Beach VAMC Provider: Doc, John Q</td>
</tr>
<tr>
<td></td>
<td>Description: purple, imprinted with 20 mg</td>
</tr>
</tbody>
</table>

Non-VA medications are displayed in a separate section.

Remote medications that the patient is currently taking.

Remote medications that the patient is not currently taking are displayed along with a disclaimer.
AVS Features - Footer

Footer section, customizable in the administration interface, provides contact information and other instructions for the patient.

This Information is meant to provide a summary of your appointment with your health care provider. If you have any questions about your care including test results, medications, diagnoses or other concerns, please contact your health care provider. Please bring this form to your next visit as a record of your medications and alert your provider to any changes in your medications.

To contact your primary care provider, please call 909-825-8084 or 1-800-741-8387 and follow the prompts to the Module where your primary care provider is located. To refill a prescription, please call 909-777-3259 or visit www.myhealth.va.gov. For care on evenings and weekends, please call 24 hour Telephone Care at 1-877-252-4866.

Access health resources. Track your health. Refill VA prescriptions. Visit www.myhealth.va.gov! Ask your health care team about in-person authentication and begin ordering medications and viewing appointments through My HealtheVet. After completing in-person authentication, click on "Secure Messaging" in My HealtheVet and select "I would like to opt in to secure messaging" in order to send email messages to your providers.
Click the "Edit Instructions" button to launch the text editor.

Text editor for free text entry for patient instructions.
AVS Features - Instructions

**Important Notes**

- **Upcoming Appointments**: Custom text entered by the provider appear in the Instruction section.

- **Instructions**: Check your blood sugar 3 times weekly and record the readings in the diabetes record book provided.

**My Ongoing Care**
AVS Features - Editor

Click the "Edit AVS" button to launch the AVS Editor to modify the contents of the AVS.

This warning about refreshing the AVS is displayed prior to opening the AVS Editor.
AVS Features - Editor

**New Orders**

*From This Visit*

*Lab Tests*

Please report to the lab for the following blood tests on the date listed for each test:

01/16/2014

- Basic Metabolic Panel (Chem 7) Blood Serum
- Hemoglobin A1c (Lab) Blood
- Lipid Profile Blood Serum
- Hepatic Function Panel Blood Serum

**Other Orders**

- Return To Clinic In 4 Months (Note: do lab tests prior to visit)

**Important Notes**

Important warning

*Any part of the content of the AVS can be modified or deleted.*
Clinical services information can optionally be included in AVS printouts. All clinical services may be printed, or selected clinical services.
Specific clinical services may be selected for inclusion in the AVS printout.
AVS Features - Clinical Services Information

**Behavioral Medicine**
- Location: Second Floor
- Hours of Operation: 0800-1630
- Phone: 909-583-6907

**Cardiology**
- Location: 4th Floor
- Hours of Operation: 0800-1630
- Phone: 909-583-6097

**Dermatology**
- Location: 3 Northeast
- Hours of Operation: 0800-1630
- Phone: 909-825-7084, ext 5379
AVS Features - Font Size

The AVS text size can be increased for visually impaired patients.
AVS Features - Lab Results

Recent lab results can be included in the AVS printout.
# AVS Features - Lab Results

### After Visit Summary

**Test, Patient:** 000-00-1234 | Jan 1, 1970 (43)

**Report Released Date/Time:** Sep 16, 2013 04:36

**Provider:** BYRNE, JOHN W

**Specimen:** BLOOD | MAN 0319 229

**Specimen Collection Date:** Sep 17, 2013 08:00

**Test Name** | **Result** | **Units** | **Ref. Range** | **Site Code**
---|---|---|---|---
Hemoglobin A1c (HbA1c) | 5.9 g | 4.2 - 5.8 | (605)

**Interpretation:** Suggested Interpretation: Glycosylated Hemoglobin Results:
- HbA1c of <6% consistent with normal glycemia
- HbA1c of 6-8% suggests acceptable glucose control
- HbA1c of 8-10% suggests fair glucose control
- HbA1c of over 10% suggests poor glucose control
- Results adversely affected by HbF >15%, Hgb's S and E,
- AND HEMOZYGOUS HGB S AND C.

---

### Recent Lab Results

**Report Released Date/Time:** Sep 17, 2013 08:38

**Specimen:** SERUM | EX 0917 612

**Specimen Collection Date:** Sep 17, 2013 08:00

**Test Name** | **Result** | **Units** | **Ref. Range** | **Site Code**
---|---|---|---|---
Sodium | 137 mEq/L | 136 - 144 | (605)
Potassium | 4.1 mEq/L | 3.6 - 5.1 | (605)
Chloride | 99 mEq/L | 101 - 111 | (605)
CO2 | 30 mEq/L | 22 - 32 | (605)
Urea Nitrogen | 20 mg/dL | 8 - 20 | (605)
Creatinine | 1.05 mg/dL | 0.64 - 1.27 | (605)
GFR | 460 mL/min | 460 - 460 | (605)

**Kv1:** GFR is calculated by 4-variable MDRD equation of Levey modified for
**Kv2:** standardized creatinine. Stable creatinine presumed - ignore GFR in
**Kv3:** dialysis patients. Interpret with caution in patients with acute renal
**Kv4:** failure. Units for GFR are in mL/min/1.73 square meters.

**Test Name** | **Result** | **Units** | **Ref. Range** | **Site Code**
---|---|---|---|---
Glucose | 80 mg/dL | 74 - 118 | (605)
Calcium | 9.4 mg/dL | 8.8 - 10.3 | (605)
Protein Total | 6.6 g/dL | 6.1 - 7.3 | (605)
Albumin | 4.1 g/dL | 3.8 - 4.9 | (605)
Total Bilirubin | 0.8 mg/dL | 0.2 - 1.2 | (605)
Direct Bilirubin | 0.10 mg/dL | 0.1 - 0.5 | (605)
Alkaline Phosphatase | 48 IU/L | 32 - 91 | (605)
ALT | 19 IU/L | 17 - 42 | (605)
AST | 24 IU/L | 18 - 41 | (605)
Cholesterol | 193 mg/dL | 150 - 200 | (605)

**Kv1:** Borderline Elevated: 201-239 mg/dL
**Kv2:** Elevated: Over 240 mg/dL

**Test Name** | **Result** | **Units** | **Ref. Range** | **Site Code**
---|---|---|---|---
LDL | 180 mg/dL | 150 - 189 | (605)

**Kv1:** Borderline: 160-189 mg/dL
Clinical charts for selected labs and vitals are available for graphical display and trending.
AVS Features - Clinical Charts

Clinical Graphs

LDL Cholesterol
Nov, 2012 to Sep, 2013

HDL Cholesterol
Nov, 2012 to Sep, 2013
AVS Features - Sections Displayed

The user can select the sections to display.
AVS Features - Integration with Krames-on-Demand

AVS automatically imports education topics based on CPRS encounter form diagnoses.

Select the “Krames” button from the AVS toolbar to open Krames-on-Demand patient education material.

Tips

- Click on a single document from the list of titles on the left to view the content.
- Select one or more titles and click the "Print Selected Articles" menu button to print all documents selected.
- Print all of a Krames article using the "Print Document" menu button.
- Print selected Krames content using the "Print Selection" menu button.
- Insert all of a Krames article into the Instructions section using the "Insert Document" menu button.
- Insert selected Krames content into the Instructions section using the "Insert Selection" menu button.
- Click "New Search..." to do a custom search based on keywords, MESH, ICD and CPT codes, and language preference.
- You may edit the content of Krames documents, including adding and modifying text and deleting text and images.
Article titles can be selected with the checkboxes and then printed with the "Print Selected Articles" button.

Tips

- Print selected Krames content using the "Print Selection" menu button.
- Insert all of a Krames article into the Instructions section using the "Insert Document" menu button.
- Insert selected Krames content into the Instructions section using the "Insert Selection" menu button.
- Click "New Search..." to do a custom search based on keywords, MESH, ICD and CPT codes, and language preference.
- You may edit the content of Krames documents, including adding and modifying text and deleting text and images.
When one or more articles are selected for printing in Krames, the line "Please read Krames..." is automatically inserted into the Instructions section.

Check your blood sugar 3 times weekly and record the readings in the diabetes record book provided.

Please read Krames on Demand articles: "Diabetes and Heart Disease"
AVS Features - Integration with Krames-on-Demand

A single article may be selected for display by clicking on the article title. The document may then be printed or inserted into the AVS Instructions section.

Diabetes and Heart Disease

If you have diabetes, you are two to four times more likely to have heart disease than someone without diabetes. This is because most people with diabetes also have the main risk factors for heart disease. But there's good news. You can help control your health risk by making some changes in your life.

Your main risk factors

Three major risk factors for heart disease are high blood sugar, high blood pressure, and high levels of lipids. By keeping risk factors under control, you can help keep your heart and arteries healthy. This may reduce your chances of a heart attack.
AVS Features - Integration with Krames-on-Demand

A part of an article that is highlighted for selection by the user may be printed...

...or the selected content may be inserted into the AVS Instructions section.
AVS Features - Integration with Krames-on-Demand

**Diabetes and Heart Disease**

If you have diabetes, you are two to four times more likely to have heart disease than someone without diabetes. This is because most people with diabetes also have the main risk factors for heart disease. But there’s good news. You can help control your health risks by making some changes in your life.

**Your main risk factors**

Three major risk factors for heart disease are high blood sugar, high blood pressure, and high levels of lipids. By keeping risk factors under control, you can help keep your heart and arteries healthy. This may reduce your chances of a heart attack.

- **Blood sugar.** High blood sugar can make artery walls rough. Plaque (waxy material in the blood) can then build up, making it harder for blood to flow through the arteries. Having high blood sugar increases the chances of having high blood pressure and high cholesterol.
- **Blood pressure.** When blood pressure is high all the time, artery walls become damaged, increasing the risk for plaque build up.
- **Lipids.** The body needs some lipids in the blood to stay healthy. But lipid levels that are too high can damage the artery walls. Lipids include cholesterol and triglycerides. There are two kinds of cholesterol. LDL ("bad") cholesterol can damage the arteries. But HDL ("good") cholesterol helps clear LDL cholesterol from the blood. This helps keep the arteries healthy. When blood sugar is high, the level of triglycerides in the blood may also be high. High blood triglyceride levels can cause plaque to form.

Krames content is inserted into the instructions section of the AVS.
AVS Features - Integration with Krames-on-Demand

A search function of the entire Krames-on-Demand library is also available.
AVS Features - Printing Functions

Print to the default printer: either the default Windows printer or network printer selected as the default.
AVS Features - Printing Functions

Print to a network printer selected from a list obtained from VistA.
AVS Features - Printing Functions

VistA printer search function.
Select the printer from the list.
Set the selected printer as the default.
AVS Features - Printing Functions

Select a printer from a list obtained from Windows.

After Visit Summary
TEST, PATIENT
Visit date: 09/18/2013
Date generated: 09/12/2013 11:37
LOMA LINDA HCS

Today's Visit
Clinics Visited
• 13:30 - Dr. Byrne, Module 4
• 15:00 - UT/Surg/Pod/Wound Limb/ Wed
AVS Features - Printing Functions
AVS Features - Note Creation

A stub note can be created in CPRS and a PDF copy of the AVS document uploaded to VistA Imaging.
AVS Note Creation

VistA Imaging

CPRS
AVS Features - PDF Generation

A PDF copy of the AVS can be generated for viewing, printing, or saving.
AVS Features - PDF Generation
Clinical Services information may be entered and may be printed with the AVS document.

Double-click on a row to edit the information for a clinical service.
AVS Administrative Functions

<table>
<thead>
<tr>
<th>ID</th>
<th>Type</th>
<th>Source String</th>
<th>Translation (Click a cell to edit it)</th>
</tr>
</thead>
<tbody>
<tr>
<td>322</td>
<td>Order Text</td>
<td>&gt;&gt; RTC 3 months</td>
<td>Return to Clinic in 3 months</td>
</tr>
<tr>
<td>307</td>
<td>Order Text</td>
<td>&gt;&gt; RTC 4 months with labs</td>
<td></td>
</tr>
<tr>
<td>312</td>
<td>Order Text</td>
<td>&gt;&gt; RTC 6 months</td>
<td></td>
</tr>
<tr>
<td>1148</td>
<td>Order Text</td>
<td>dm/chol in 3 month rtc in 6 months</td>
<td></td>
</tr>
<tr>
<td>2715</td>
<td>Order Text</td>
<td>lipid panel in 1 m enth rtc in 6 months</td>
<td></td>
</tr>
<tr>
<td>3108</td>
<td>Order Text</td>
<td>mammogram lve rtc 12 months w/ outside labs</td>
<td></td>
</tr>
<tr>
<td>201</td>
<td>Order Text</td>
<td>RTC 12 months</td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>Order Text</td>
<td>RTC 12 months or as needed</td>
<td></td>
</tr>
<tr>
<td>2756</td>
<td>Order Text</td>
<td>rtc 12 months w/ outside labs</td>
<td></td>
</tr>
<tr>
<td>3109</td>
<td>Order Text</td>
<td>rtc 12 months w/ outside labs or fasting labs</td>
<td></td>
</tr>
<tr>
<td>104</td>
<td>Order Text</td>
<td>RTC 3 months</td>
<td></td>
</tr>
<tr>
<td>142</td>
<td>Order Text</td>
<td>RTC 4 months</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>Order Text</td>
<td>RTC 6 months</td>
<td></td>
</tr>
<tr>
<td>3115</td>
<td>Order Text</td>
<td>rtc 6 months w/ fasting labs</td>
<td></td>
</tr>
<tr>
<td>2773</td>
<td>Order Text</td>
<td>rtc 6 months w/ fasting labs <em>UNSIGNED</em></td>
<td></td>
</tr>
<tr>
<td>1702</td>
<td>Order Text</td>
<td>rtc 6 months w/ fasting labs fit test</td>
<td></td>
</tr>
<tr>
<td>3185</td>
<td>Order Text</td>
<td>rtc 6 months with labs prior</td>
<td></td>
</tr>
<tr>
<td>2741</td>
<td>Order Text</td>
<td>rtc 6 weeks</td>
<td></td>
</tr>
<tr>
<td>2499</td>
<td>Order Text</td>
<td>rtc 6-8 weeks</td>
<td></td>
</tr>
<tr>
<td>2407</td>
<td>Order Text</td>
<td>rtc 6-8 weeks <em>UNSIGNED</em></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Order Text</td>
<td>RTC AS SCHEDULED</td>
<td></td>
</tr>
</tbody>
</table>

Patient-friendly text may be entered to replace abbreviations and obscure terms/orders.
Custom disclaimers may be added for the entire facility, a specific clinic, and the provider.
AVS Features - Administrative Functions

The HTML content of the header and footer may be edited. Optional string replacements may be used in the HTML.
Poll Question

• As a patient, what information on the AVS would be most important to you? (Pick your top 3)
  – Providers name, visit location and date and contact information
  – Updated medication list
  – Medication physical descriptions
  – Updated vitals
  – Reason for visit
  – Procedures and instructions
  – Updated problem list and diagnoses
  – Upcoming appointments
  – Laboratory and test orders
  – Laboratory and other test results
  – Clinical data charts
  – Patient education material
  – Large font size
Lessons Learned

• Software Development Plan

• Positives
  – Rapid development
  – Small development team, local programmer
  – Feedback directly from users
  – Informal, not bureaucratic
  – Flexibility
Lessons Learned

- Challenges
  - Feature creep/Scope bloat
  - Users are testers
  - Software bugs
  - Class III status
  - Class I approval process
    - Software changes for class I compliance
  - Requirements analysis might have missed things like medication reconciliation
  - Consistency with other patient-facing software
AVS - Current Status

• Presented to VHA Innovations Selection Board for possible funding for class I development (October 2013)

• Veterans Points of Service
  – Possible funding (September 2013)

• VA OI&T Region 1 approval for testing
  – September 2013
    • San Diego
  – October/November 2013
    • Long Beach, West LA, Las Vegas, Cleveland
AVS Evaluation

• Veterans Assessment and Innovation Laboratory (VAIL) Patient-Aligned Care Team (PACT) Demonstration Lab
  – $10,000 grant (September 2013)

• Evaluation Plan
  – Randomly select ~ 150 patients in primary care clinics
    • Patient satisfaction survey
    • Survey self-assessed knowledge of treatment plan
AVS Evaluation

• VAIL Grant
  – Collect usage statistics from primary care modules
    • Number of providers using AVS
    • Use of optional features
    • Saving and printing
  – Provider preferences for using AVS
    • Patient self-assessed health status on survey
    • Provider focus group
Contact Information

• John M. Byrne, D.O.
• Associate Chief of Staff for Education
• VA Loma Linda Healthcare System
• 11201 Benton Street
• Loma Linda, CA 92357
• 909-583-6004
• john.byrne3@va.gov
References


8. Throop C, The Ix After-Visit Summary (AVS), Center for Information Therapy. October 2009


# Appendix: AVS Example

## After Visit Summary

**Department of Veterans Affairs**

**Visit date:** 09/18/2013  
**Date generated:** 09/23/2013 06:48  
**LOMA LINDA HCS**

### Today’s Visit

| Clinics Visited | 13:30 - Dr. Byrne, Module 4 / PROVIDER, JANE  
|                | 15:00 - Li/Surg/Pod/Wound Limb/Wed / PROVIDER, JANE |

### Providers

| GOMEZ, LAUREN M  
| BYRNE, JOHN M |

### You Were Diagnosed With

- Essential hypertension  
- Obesity  
- Dyslipidemia  
- Cholelithiasis without obstruction  
- Smoker  
- Coronary arteriosclerosis  
- Ankylosing spondylitis  
- Hypersomnia with sleep apnea  
- Dyspnea  
- Chronic obstructive lung disease  
- Diabetes mellitus type 2  
- Gastroesophageal Reflux Disease

### Vitals as of This Visit

| Blood Pressure: 128/54  
| Body Mass Index: 34.58  
| Pain: 7  
| Pulse Oximetry: 96 (Room Air) |

- Pulse: 66  
- Respirations: 18  
- Temperature: 98.1 F  
- Weight: 233.7 lb

### Immunizations

- FLU, 3 YRS

### Lab Tests

Please report to the lab for the following blood tests on the date listed for each test:

- 01/16/2014  
  - Basic Metabolic Panel (Chem 7) Blood Serum  
  - Hemoglobin A1c (Lab) Blood  
  - Lipid Profile Blood Serum  
  - Hepatic Function Panel Blood Serum

### Other Orders

- Return To Clinic In 4 Months
**Important Notes**

**Upcoming Appointments**

Appointments in the next 3 months:

- **12/26/2013**
  - 13:00 - LJ/Surg/Eye/Comprehensive CI

**Instructions**

Monitor your blood pressure daily and keep a log.

**My Ongoing Care**

**Primary Care Provider**

BYRNE, JOHN M  
MOD 4 - PACT TEAM A

**Allergies/Reactions**

- Penicillin (Hives)

**My Current VA Medications**

The medications listed below were reviewed with you by your provider and is provided to you as an updated list of medications. Please remember to inform your provider of any medication changes or discrepancies that you note. Otherwise, please continue these medications as prescribed.

**Accu-Chek Aviva Plus (Glucose) Test Strip**

Use 1 strip for testing every other day to check blood sugars  
Refills: 2  Last Filled: December 26, 13  Expires: October 31, 14

**Aspirin 325mg Ec Tab**

Take one tablet by mouth daily with food  
Refills: 3  Last Filled: December 26, 13  Expires: October 31, 14  
Description: round, orange, imprinted with T,

**Glibizide 5mg Tab**

Take one tablet by mouth twice a day for diabetes **"Take in addition to Metformin"**  
Refills: 3  Last Filled: October 30, 13  Expires: October 31, 14  
Description: round, white, imprinted with GG,771

**Lancet, Softclix**

Use lancet as directed  
Refills: 1  Last Filled: October 31, 13  Expires: October 31, 14

**Latanoprost 0.005% Oph Soln**

Instill 1 drop in both eyes at bedtime  
Refills: 3  Last Filled: February 05, 14

**Lisinopril 10mg Tab**

Take one tablet by mouth daily for diabetic kidneys  
Refills: 3  Last Filled: January 21, 14  Expires: October 31, 14  
Description: round, white, imprinted with V, 3972

**Metformin Hcl 1000mg Tab**

Take one tablet by mouth twice a day with food  
Refills: 3  Last Filled: January 11, 14  Expires: October 31, 14  
Description: oval, white, imprinted with GF,126

**Simvastatin 80mg Tab**

Take one tablet by mouth at bedtime for high cholesterol  
Refills: 3  Last Filled: December 26, 13  Expires: October 31, 14  
Description: oval, pink, imprinted with B 304, 80
## AVS Example

### My Non-VA Medications
- **Docosanol 10% Cream, Top**
  - Small amount topically at bedtime
- **Alohe Dry Skin Oint, Top**
  - Liberal amount topically 5 times daily
- **Aspirin (Enteric Coated) Tab, Ec**
  - 81mg mouth daily

### My Medications From Other VAs
- **Lipitor**
  - 10 mg by mouth daily
  - Refills: 0  Last Filled: Nov 1, 14  Expires: Jan 1, 14
  - Facility: Cleveland VAMC  Provider: Physician, Jane
  - Description: elliptical, white, imprinted with PD 155, 10

**Medications You Are Not Taking**
You have stated that you no longer take the following medications prescribed at other VA facilities. Please remember to discuss each of these medications with your VA providers at these facilities.

- **Nexium**
  - 20 mg by mouth once daily
  - Refills: 0  Last Filled: Dec 15, 13  Expires: Dec 15, 14
  - Facility: West Palm Beach VAMC  Provider: Doc, John Q
  - Description: purple, imprinted with 20 mg

### Clinical Graphs

![Weight Graph]

**Weight**
- Nov, 2012 to Aug, 2013

<table>
<thead>
<tr>
<th>Date</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 12</td>
<td>155</td>
</tr>
<tr>
<td>Dec 12</td>
<td>165</td>
</tr>
<tr>
<td>Jan 13</td>
<td>185</td>
</tr>
<tr>
<td>Feb 13</td>
<td>165</td>
</tr>
<tr>
<td>Mar 13</td>
<td>165</td>
</tr>
<tr>
<td>Apr 13</td>
<td>165</td>
</tr>
<tr>
<td>May 13</td>
<td>185</td>
</tr>
<tr>
<td>Jun 13</td>
<td>165</td>
</tr>
<tr>
<td>Jul 13</td>
<td>185</td>
</tr>
<tr>
<td>Aug 13</td>
<td>165</td>
</tr>
</tbody>
</table>
AVS Example

**Triglycerides**

Nov, 2012 to Sep, 2013

<table>
<thead>
<tr>
<th>Date</th>
<th>Value (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/07/2012</td>
<td>145</td>
</tr>
<tr>
<td>05/07/2013</td>
<td>104</td>
</tr>
<tr>
<td>09/17/2013</td>
<td>203</td>
</tr>
</tbody>
</table>

**LDL Cholesterol**

Nov, 2012 to Sep, 2013

<table>
<thead>
<tr>
<th>Date</th>
<th>Value (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/07/2012</td>
<td>81.1</td>
</tr>
<tr>
<td>05/07/2013</td>
<td>88.5</td>
</tr>
<tr>
<td>09/17/2013</td>
<td>62.6</td>
</tr>
</tbody>
</table>


AVS Example

Body Mass Index (BMI)
Nov, 2012 to Sep, 2013

Recent Lab Results
Report Released Date/Time: Sep 18, 2013 04:06
Provider: SYKES, JOHN M
Specimen: BLOOD
Specimen Collection Date: Sep 17, 2013 08:00

Test name  Result  units  Ref. range  Site Code

HEMOGLOBIN (Hb)  8.6  g/dl  12 - 16  [004]

Eval: SUGGESTED INTERPRETATION GLYCOXYLATED HEMOGLOBIN RESULTS.
Eval: Hb A1C of ≤5% CONSISTENT WITH NORMAL GLYCEMIA.
Eval: Hb A1C of 6-9% SUGGESTS ACCEPTABLE GLUCOSE CONTROL.
Eval: Hb A1C of 8-10% SUGGESTS FAIR GLUCOSE CONTROL.
Eval: Hb A1C of OVER 10% SUGGESTS POOR GLUCOSE CONTROL.
Eval: RESULTS AFFECTED BY HGB 70%  75%, MCH 7.0 AND MCHC.
Eval: AND HOMOZYGOUS HGB S AND C.

Report Released Date/Time: Sep 17, 2013 08:00
Provider: SYKES, JOHN M
Specimen: BLOOD
Specimen Collection Date: Sep 17, 2013 08:00

Test name  Result  units  Ref. range  Site Code

SODIUM  137  mmol/L  135 - 145  [002]
KALCIUM  4.1  mmol/L  3.6 - 5.1  [002]
CHLORIDE  99  mmol/L  100 - 110  [002]
GLUcose  90  mg/dL  70 - 110  [002]
CREATININE  1.05  mg/dL  0.6 - 1.2  [002]
aGFR  >60  ml/min  Ref: >60  [002]

eGFR is calculated by 4-variable MDRD equation of Levy modified for
Eval: standardized creatinine. Stable creatinine presumed - ignore eGFR in
Eval: dialysis patients. Interpret with caution in patients with acute renal
Eval: failure. Units for eGFR are in ml/min/1.73 square meters.
GLUCOSE  80  mg/dL  70 - 110  [002]
CREATININE  9.4  mg/dL  5.8 - 10.6  [002]
PROTEIN TOTAL  6.8  g/dL  6.1 - 7.8  [002]
AVS Example

**ALBUMIN** 4.1 g/dL 3.5 - 4.6 [605]
**TOT. BILIRUBIN** 0.6 mg/dL 0.2 - 1.2 [605]
**DST. BILIRUBIN** 0.10 mg/dL 0.1 - 0.8 [605]
**ALKALINE PHOSPHATASE** 48 IU/L 32 - 81 [608]
**ALT** 19 IU/L 17 - 43 [608]
**AST** 24 IU/L 15 - 41 [608]
**CHOLESTEROL** 188 mg/dL 0 - 250 [608]
        Eval: BUN/CREATinine ELEVATED: 201-239 mg/dL
        Eval: ELEVATED: OVER 240 mg/dL
**TRIGLYCERIDES** 209 mg/dL 0 - 190 [608]
        Eval: BUN/CREATinine:
        Eval: HIGH: 200-499 mg/dL
        Eval: VERY HIGH: >500 mg/dL
**HDL CHOLESTEROL** 50 mg/dL 40 - 60 [605]
        Eval: High Risk = <40 mg/dL
        Eval: Low Risk = >60 mg/dL
**CALC LIT CHOL** 62.6 mg/dL 0 - 100 [605]
**HDL RISK FACTOR** 4.4 4.0 - 6.7 [605]
        Eval: RISK = CHOLESTEROL/HDL CHOLESTEROL

```
Report Released Date/Time: Sep 17, 2013 18:33
Provider: BYRNE, JOSH M
Specimen Collection Date: Sep 17, 2013 10:00
Urine Albumin: 1.7 mg/dL 0 - 1.9 [608]
Creatinine, Urine: 170.0 mg/dL [606]
Microhaematuria: 10.0
        Eval: Reference ranges for Albumin / creatinine ratio:
        Eval: <30 mg Albumin / gram Creatinine = Normal range
        Eval: 30 - 600 mg Albumin / gram Creatinine = Micro-albuminuria range
        Eval: >600 mg Albumin / gram Creatinine = Macro-albuminuria range
Eval: To establish a clinical diagnosis of microalbuminuria using these
Eval: Ratio not calculated if urine albumin is <0.2 mg/dL.
```

Performing Lab Sites:
[605] LONG ISLAND HCS [CLIA# 06D089208]
11501 BENTON ST LOMA LINEA, CA 92587-1000

This information is meant to provide a summary of your appointment with your health care provider. If you have any questions about your care including test results, medications, diagnoses or other concerns, please contact your health care provider. Please bring this form to your next visit as a record of your medications and alert your provider to any changes in your medications.

To contact your primary care provider, please call 909-825-8084 or 1-800-741-8387 and follow the prompts to the Module where your primary care provider is located. To refill a prescription, please call 909-777-2259 or visit www.myhealth.va.gov. For care on evenings and weekends, please call 24 hour Telephone Care at 1-877-292-4666.

Access health resources. Track your health. Refill VA prescriptions. Visit www.myhealth.va.gov. Ask your health care team about in-person authentication and begin ordering medications and viewing appointments through MyHealtheVet. After completing in-person authentication, click on “Secure Messaging” in MyHealtheVet and select “I would like to opt in to secure messaging” in order to send email messages to your providers.