The After Visit Summary (AVS)

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VA Loma Linda Healthcare System
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 care³
• Patients desire more information than they typically receive about their illness and their treatment plan³
• Combing oral and written information is better than oral or written only⁴
• Sharing electronic health record information on personal health records increases patient engagement⁵
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 MyHealththeVet, however 65% not registered⁶
  – Only 25% In-Person Authentication⁶
  – Experience at other sites with PHR and AVS
    • AVS third most frequently accessed information on PHR Group Health, Seattle⁷
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\textsuperscript{12}
  – "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."
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
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 - L1/Surg/Pod/Wound Limb/Wed

Providers
PROVIDER,JANE
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

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.
AVS Features – Header

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

Orders for consultations and imaging are also displayed if available.

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.
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: PATUSZYN, MARK CHESTER
**AVS Features - Data from VistA/CPRS**

### My Ongoing Care

<table>
<thead>
<tr>
<th>Primary Care Provider</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BERRIMAN, DIANE JO</td>
<td>MOD 5 - PACT TEAM C</td>
</tr>
</tbody>
</table>

#### Allergies (Reactions)
- Citalopram (Sexual Dysfunction)
- Sertraline (Abnormal Sexual Function, Increased Body Temperature)
- Tramadol (Itching, Watery Eyes)

### My Current VA Medications

- **Albuterol 90mcg (HFA) 200d Oral Inh**
  - 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

- **Gabapentin 300mg Cap**
  - TAKE THREE CAPSULES BY MOUTH TWICE A DAY
  - Refills: 6  Last Filled: November 08, 13  Expires: June 06, 14
  - Description: capsule, yellow/white, imprinted with APO: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 05, 13
  - Description: oval, white, imprinted with N357

- **Lisinopril 5mg Tab**

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

### My Non-VA Medications

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

### My Medications From Other VAS

<table>
<thead>
<tr>
<th>Medications You Are Taking</th>
<th>Quantity/Dosage</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipitor</td>
<td>10 MG BY MOUTH DAILY</td>
<td>Facility: Cleveland VAMC Provider: Physician, Jane Description: elliptical, white, imprinted with PD 155, 10</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Medications</th>
<th>Quantity/Dosage</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nexium</td>
<td>20 MG BY MOUTH ONCE DAILY</td>
<td>Facility: West Palm Beach VAMC Provider: Doc, John Q Description: purple, imprinted with 20 mg</td>
</tr>
</tbody>
</table>

Remote medications that the patient is currently taking.

Remote medications that the patient is not currently taking are displayed along with a disclaimer.
Footer section, customizable in the administration interface, provides contact information and other instructions for the patient.
Click the "Edit Instructions" button to launch the text editor.

Text editor for free text entry for patient 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.
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.

<table>
<thead>
<tr>
<th>Clinical Services</th>
<th>Location</th>
<th>Operating Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audiology</td>
<td>Building 30</td>
<td>0800-1630</td>
</tr>
<tr>
<td>Bariatric Surgery</td>
<td>3 Northwest</td>
<td>0800-1630</td>
</tr>
<tr>
<td>Behavioral Medicine</td>
<td>Second Floor</td>
<td>0800-1630</td>
</tr>
<tr>
<td>Cardiology</td>
<td>4th Floor</td>
<td>0800-1630</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Based Clinic, Blythe</td>
<td>1273 Hobson Way, Blythe, CA 92225</td>
<td>0800-1630</td>
</tr>
<tr>
<td>Community Based Clinic, Corona</td>
<td>800 MAGNOLIA, Corona, CA 92879</td>
<td>0800-1700 M-T</td>
</tr>
<tr>
<td>Community Based Clinic, Hurrieta</td>
<td>28078 Baxter Rd., Suite 540, Murrieta, CA</td>
<td>0800-1700 M-T</td>
</tr>
<tr>
<td>Community Based Clinic, Palm Desert</td>
<td>41-990 Cook St, Bldg F Ste 1004, Palm Desert, CA</td>
<td>0800-1700 M-T</td>
</tr>
<tr>
<td>Community Based Clinic, Rancho Cucamonga</td>
<td>8599 Haven Ave., Suite 102, Rancho Cucamonga, CA</td>
<td>0800-1700 M-T</td>
</tr>
<tr>
<td>Community Based Clinic, Victorville</td>
<td>12138 Industrial Boulevard, Suite 120</td>
<td>0800-1700 M-T</td>
</tr>
<tr>
<td>Dental Service</td>
<td>2F-10, Second Floor</td>
<td>0800-1630</td>
</tr>
<tr>
<td>Dermatology</td>
<td>3 Northeast</td>
<td>0800-1630</td>
</tr>
<tr>
<td>Ears, Nose and Throat</td>
<td>3 Northwest</td>
<td>0800-1630</td>
</tr>
<tr>
<td>Endocrine Clinic</td>
<td>3 Northeast</td>
<td>0800-1630</td>
</tr>
<tr>
<td>Eye Clinic (Ophthalmology)</td>
<td>First Floor, Building 51</td>
<td>0800-1630</td>
</tr>
<tr>
<td>General Surgery</td>
<td>3 Northwest</td>
<td>0800-1630</td>
</tr>
</tbody>
</table>

**Important Notes**

Upcoming Appointments

Appointments in the next 3 months:
AVS Features - Clinical Services Information

**Clinical Services**

**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
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.
### Recent Lab Results

**Report Released Date/Time:** Sep 18, 2018 04:36  
**Provider:** BYRNE, JOHN M  
**Specimen:** BLOOD  
**Specimen Collection Date:** Sep 17, 2018 10:00  
**Test name** | **Result** | **units** | **Ref. range** | **Site Code**  
--- | --- | --- | --- | ---  
HEMOGLOBIN A1C (LAB) | 5.9 | % | 4.2 - 5.9 | 1005  
**Eval:** SUGGESTED INTERPRETATION GLYCOZYLATED HEMOGLOBIN RESULTS:  
**Eval:** HGB A1C OF <6% CONSISTENT WITH NORMAL GLUCOSA  
**Eval:** HGB A1C OF 6-8% SUGGESTS ACCEPTABLE GLUCOSE CONTROL  
**Eval:** HGB A1C OF 8-10% SUGGESTS FAIR GLUCOSE CONTROL  
**Eval:** HGB A1C OF OVER 10% SUGGESTS POOR GLUCOSE CONTROL  
**Eval:** RESULTS ADVERSELY AFFECTED BY HGB F >14%, HGB S AND C,  
**Eval:** AND HOMOZYGOUS HGBS S AND C.  

**Report Released Date/Time:** Sep 17, 2018 16:58  
**Provider:** BYRNE, JOHN M  
**Specimen:** SERUM  
**Specimen Collection Date:** Sep 17, 2018 10:00  
**Test name** | **Result** | **units** | **Ref. range** | **Site Code**  
--- | --- | --- | --- | ---  
SODIUM | 137 | mEq/L | 136 - 144 | 1005  
POTASSIUM | 4.1 | mEq/L | 3.6 - 6.1 | 1005  
CHLORIDE | 99 | mEq/L | 101 - 111 | 1005  
CO2 | 30.0 | mEq/L | 22 - 32 | 1005  
UREA NITROGEN | 20 | mg/dL | 8 - 20 | 1005  
CREATININE | 1.08 | mg/dL | .64 - 1.27 | 1005  
eGFR | >40 | mL/min | >40 | 1005  
**Eval:** eGFR is calculated by 4-variable MDRD equation of Levey 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 | 74 - 118 | 1005  
CALCIUM | 9.4 | mg/dL | 8.9 - 10.3 | 1005  
PROTEIN TOTAL | 6.6 | g/dL | 6.1 - 7.9 | 1005  
ALBUMIN | 4.1 | g/dL | 3.8 - 4.8 | 1005  
TOT. BILIRUBIN | 0.8 | mg/dL | 0.2 - 1.2 | 1005  
DIR. BILIRUBIN | 0.10 | mg/dL | 0.1 - 0.6 | 1005  
ALKALINE PHOSPHATASE | 65 | IU/L | 32 - 91 | 1005  
ALT | 19 | IU/L | 17 - 43 | 1005  
**Eval:** New normal reference ranges in effect as of 6/7/13.  
AST | 24 | IU/L | 16 - 41 | 1005  
CHOLESTEROL | 133 | mg/dL | 0 - 200 | 1005  
**Eval:** BORDERLINE ELEVATED: 201-239 mg/dL  
**Eval:** ELEVATED: OVER 240 mg/dL  
TRIGLYCERIDES | 203 | mg/dL | 0 - 150 | 1005  
**Eval:**  
**Eval:** BORDERLINE: 150-199 mg/dL
AVS Features - Clinical Charts

Clinical charts for selected labs and vitals are available for graphical display and trending.
AVS Features - Clinical Charts
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.
AVS Features - Integration with Krames-on-Demand

Tips
- Click on a single document from the list of titles on the left to view the article content.
- Article titles can be selected with the checkboxes and then printed with the "Print Selected Articles" 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.
### Important Notes

<table>
<thead>
<tr>
<th>Upcoming Appointments</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/02/2013</td>
<td>Check your blood sugar 3 times weekly and record the readings in the diabetes record book provided. Please read Krames on Demand articles: &quot;Diabetes and Heart Disease&quot;</td>
</tr>
</tbody>
</table>

### My Ongoing Care

<table>
<thead>
<tr>
<th>Provider</th>
<th>BYRNE, JOHN M</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOD 4 - PACT TEAM A</td>
<td></td>
</tr>
</tbody>
</table>
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 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

Instructions

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.
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. You can 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.

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

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

After Visit Summary
TEST, PATIENT
Visit date: 09/18/2013
Date generated: 09/22/2013 11:37
LOMA LINDA HCS

Today's Visit

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

Select a printer from a list obtained from Windows.
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

After Visit Summary
TEST, PATIENT
Visit date: 09/16/2013
Date generated: 09/22/2013 12:03
LOMA LINDA HCS

Today's Visit
- 13:30 - Dr. Byrne, Module 4
- 15:00 - LI/Surg/Pod/Wound Limb/Wed

A PDF copy of the AVS can be generated for viewing, printing, or saving.
AVS Features - PDF Generation

After Visit Summary

TEST, PATIENT
Visit date: 09/18/2013
Date generated: 09/22/2013 12:04
LOMA LINDA HCS

Today’s Visit
Clinics Visited
• 13:30 - Dr. Byrne, Module 4
• 15:00 - LI/Surg/Pod/Wound Limb/Wed

Providers
PROVIDER, JANE

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
• Respiration: 18
• Temperature: 98.1 F
• Weight: 233.7 lb

Immunizations

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

Page 1 of 1
### AVS Features - Administrative Functions

#### Clinical Services Information

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.

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Operating Hours</th>
<th>Phone</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 3</td>
<td>First Floor</td>
<td>0800-1630</td>
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<td>0800-1630</td>
<td>909-825-7084, ext 2</td>
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<td>25828 Redlands Blvd, Redlands, CA</td>
<td>0800-1630</td>
<td>909-478-7070</td>
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</tbody>
</table>
AVS Administrative Functions

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

**TEST**, **PATIENT**

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

**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
AVS Example

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,

Glipizide 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: October 05, 13 Expires: 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, 3072

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
- **Absorbase Dry Skin Oint, Top**
  - LIBERAL AMOUNT TOPICALLY 5 TIMES DAILY
- **Aspirin (Enteric Coated) Tab, Ec**
  - 81MG MOUTH DAILY

**My Medications From Other VAs**

**Medications You Are Taking**

**Lipitor**

- 10 MG BY MOUTH DAILY
- Refills: 0  Last Filled: Nov 1, 13  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: Oct 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 Nov, 2012 to Aug, 2013](chart.png)
AVS Example
AVS Example

Recent Lab Results

AVS Example

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

---

Recent Lab Results

Report Released Date/Time: Sep 18, 2013@04:36
Provider: BYRN, JOHN M
Specimen: BLOOD:
MAN 0917 223
Specimen Collection Date: Sep 17, 2013@10:00

Test name Result units Ref range Site Code
Hemoglobin A1C (LB)
8.8 % 4.2 - 6.0 [605]
Eval: SUGGESTED INTERPRETATION GLYCOXYLATED HEMOGLOBIN RESULTS:
Eval: HbA1C <5% CONSISTENT W/ NORMAL GLYCEMIA
Eval: HbA1C of 6-8% SUGGESTS ACCEPTABLE GLUCOSE CONTROL
Eval: HbA1C of 8-10% SUGGESTS FAIR GLUCOSE CONTROL
Eval: HbA1C of OVER 10% SUGGESTS POOR GLUCOSE CONTROL
Eval: RESULTS ADVERSELY AFFECTED BY MDS B >1%, MDS C AND E,
Eval: AND HOMOZYGOUS HORE B AND C.

---

Recent Lab Results

Report Released Date/Time: Sep 17, 2013@16:59
Provider: BYRN, JOHN M
Specimen: BLOOD:
DX 0917 #12
Specimen Collection Date: Sep 17, 2013@13:00

Test name Result units Ref range Site Code
SODIUM 137 mEq/L 138 - 144 [605]
POTASSIUM 4.1 mEq/L 3.5 - 5.1 [605]
CHLORIDE 99 mEq/L 101 - 111 [605]
Urea nitrogen 30.8 mg/dL 9 - 20 [605]
CREATININE 1.06 mg/dL 0.8 - 1.27 [605]
eGFR >60 ml/min Ref: >60 [605]
Eval: eGFR is calculated by 4-variable MDRD equation of Levy modified for
Eval: standardised 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 72 - 110 [605]
CALCIUM 9.4 mg/dL 8.9 - 10.3 [605]
PROTEIN TOTAL 6.8 g/dL 4.1 - 7.8 [605]
**AVS Example**

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<td>0.2 - 1.2</td>
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<td>32 - 81</td>
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<td>ALT</td>
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<td>17 - 46</td>
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<td>0 - 200</td>
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<td>TRIGLYCERIDES</td>
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<td>HDL RISK FACTOR</td>
<td>4.4</td>
<td>4.0 - 6.7</td>
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**Test Results:**

- **ALBUNIN:** 4.1 g/dL (3.5 - 4.6)
- **TOT. BILIRUBIN:** 0.6 mg/dL (0.2 - 1.2)
- **DST. BILIRUBIN:** 0.10 mg/dL (0.1 - 0.8)
- **ALKALINE PHOSPHATASE:** 68 IU/L (32 - 81)
- **ALT:** 19 IU/L (17 - 46)
- **AST:** 24 IU/L (15 - 41)
- **CHOLESTEROL:** 185 mg/dL (Elevated)
- **TRIGLYCERIDES:** 202 mg/dL (Elevated)
- **HDL COLESTEROL:** 50 mg/dL (Normal)
- **CALC LCT CHOL.:** 62.6 mg/dL (Normal)
- **HDL RISK FACTOR:** 4.4 (4.0 - 6.7)

**Report Released Date/Time:** Sep 17, 2018 18:33

**Provider:** BYBB, JASON M

**Specimen Collection Date:** Sep 17, 2018 10:00

|_urine albumin_ | 1.7 | 0.8 - 1.9 | [805] |
|_creatinine_ | 170.0 | mg/dL | [805] |

**Microalbuminosis:**

- **Reference ranges for Albumin/creatinine ratio:**
  - <30 mg Albumin/gram Creatinine: Normal range
  - 30 - 300 mg Albumin/gram Creatinine: Microalbuminuria range
  - >300 mg Albumin/gram Creatinine: Gross albuminuria range

**Performing Lab Sites:**

| [805] LOMA LINDA HCS [CLIA #84D089208] | 10101 BENTON ST LOMA LINDA, CA 91748-1000 |

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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 909-777-3299 or visit www.myhealth.va.gov. For care on evenings and weekends, please call 24 hour Telephone Care at 1-877-232-4666.

Access health resources. Track your health. Refill VA prescriptions. Visit [www.myhealth.va.gov](http://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.