

A collection of historical artifacts is arranged on a light-colored surface. In the top left, a portion of a wooden chessboard with a checkered pattern and several chess pieces is visible. Below the chessboard, there are several medals and ribbons. A red ribbon with a circular medallion is at the top. A blue ribbon with a circular medallion is below it. A large, ornate silver medal with a star-shaped center is also present. A pair of round, gold-rimmed glasses lies horizontally across the middle. In the bottom left corner, a small, round, silver compass with a white face and black markings is visible.

# Implementing the VistA-Quest Labs Interface

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# Agenda

- ◆ System Overview
- ◆ System Layout
- ◆ Mapping VistA with the Quest Compendium
- ◆ The VistA-Edge client for Orders and Results
- ◆ Summary



# System Overview

3 basic areas involved

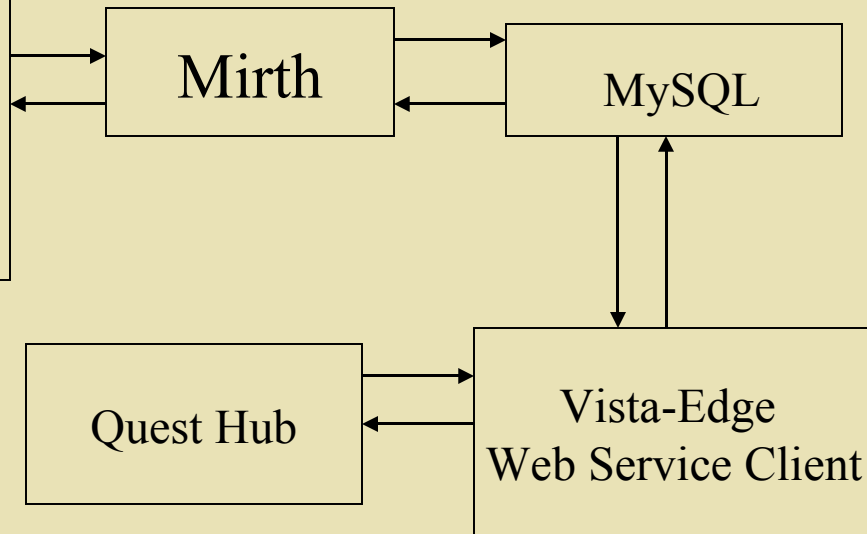
- ◆ The VistA Lab Process
- ◆ The Quest Hub Process
- ◆ Marrying the two
  - Compendium Mapping
  - Bi-directional HL7 interface (Mirth)
  - Vista-Edge Web service client

# System Layout / Workflow

## Message Flow:

### VistA:

Lab Order by Provider;  
Accessioning / shipping  
out the orders by  
Lab Personnel





# VistA Lab Test Mapping Issues - 1

## The Quest Clinical Data Compendium(CDC)

The CDC is a collection of all reference data—for example, test codes, diagnostics codes, and Ask on Order Entry (AOE) questions, some typical CDC files include:

- Analyte Details
- CPT-ICD9
- Container
- Specimen
- Transport temperature
- Order Code
- AOE
- Profile – Order code component
- Bill to
- Container
- Specimen volume



# VistA Lab Test Mapping Issues - 2

- VistA tests with single data names - profiles
- managing panels and profiles
- Absence of a numeric identifier apart from the name of the test/data name
  - Appended the code to the name
- Reflex tests
- Enhancements to the HL7 message
  - HRN of patient - the routine providing the patient demographic details to the Lab module has been modified to return the HRN of the patient rather than the SSN of the patient.
  - NPI for ordering provider...
- Importing the Quest Lab tests
  - Utilities to import the tests



# Mirth Functionality

## Basic message transformations

- Encoding character changes (|^&\)
- Case change – upper case
- Male/Female to 0/1...
- ◆ Quest result requirements –
  - Result date/time
  - Quest test Reference number



# VistA-Edge Client: Orders

- ◆ Billing (Insurance details)
  - Bill type (third party/client/patient bill)
  - Ensuring all the fields with conditions are sent to Quest
  - Mapping Quest specific bill codes
- ◆ AOE
- ◆ ABN for Medicare – cross checking with ICD/CPT
- ◆ Requisition forms/labels – splitting on transport temperature
- ◆ Special orders - Tissue orders with additional information
- ◆ Send out the order electronically to the Quest hub using the web service client.
- ◆ Add-on tests

# The GUI - LOGIN

**VistA Sign On - Quest Laboratory Interface**

Clinica Adelante, Inc.

Access is monitored and restricted  
No unauthorized access will be permitted



Access Code

Verify Code

# Additional Processes for Ordering

**Search Patient**

Search Patient By :

☐ Hr No.      ☐ Name  
☒ Test Code      ☐ Test Name

Enter Hr No. / Name / Test Code / Test name      8118

**Search**

HR No	Name	Test Code	Test Name	Date	Status
121	sat1	8118	Test Test	2007-03-03	N
122	sat2	8118	Test Test	2007-03-03	N

# Ask at Order Entry Questions

AOE Question ?

List of Question :

HOURS OF COLLECTION	ANS. : 20
TOTAL VOLUME, URINE	

Q2: TOTAL VOLUME, URINE

Answer TYPE -

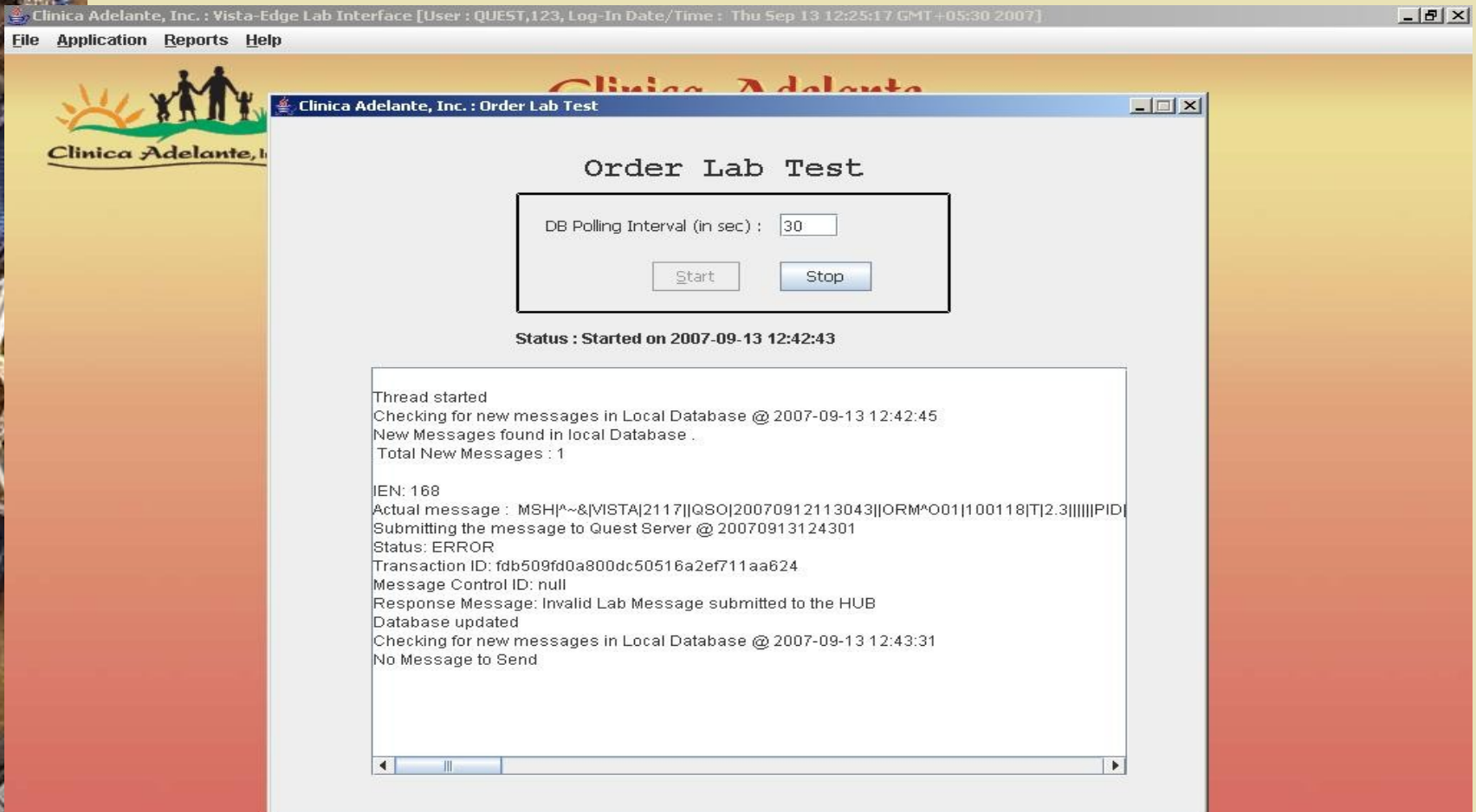
Should be a 1, 2, 3, 4, or 5 digit whole number

125

Submit

Close

# Sending the messages to Quest






# VistA-Edge Client: Results

- ◆ Download results in HL7 and forward to VistA through Mirth
- ◆ Download/search/view/print PDF results (external to VistA)
- ◆ Managing the HL7 ORM/OBX segments
- ◆ Additional NTE segments (comments) to document analyte names.

# Download HL7 results

Clinica Adelante, Inc. : Vista-Edge Lab Interface [User : QUEST,123, Log-In Date/Time : Thu Sep 13 12:25:17 GMT+05:30 2007]

File Application Reports Help

 **Clinica Adelante**  
Community Health Centers

**Clinica Adlenate, Inc. :LAB Result**

**LAB RESULT (HL7 format)**

Enter date range to fetch Lab Test Results

Start Date : 2/9/2006

End Date : 6/9/2008

Fetch Results

**LOG :**

Searching Lab Test Result with date range from 2/9/2006 to 6/9/2008

Lab Test Result: MSH|^~&|LAB|QSO||2117|20070723112233||ORU^R01|20070723553539040000|D|2.3|||

Repeated Record 20070723553539040000

Acknowledging Result

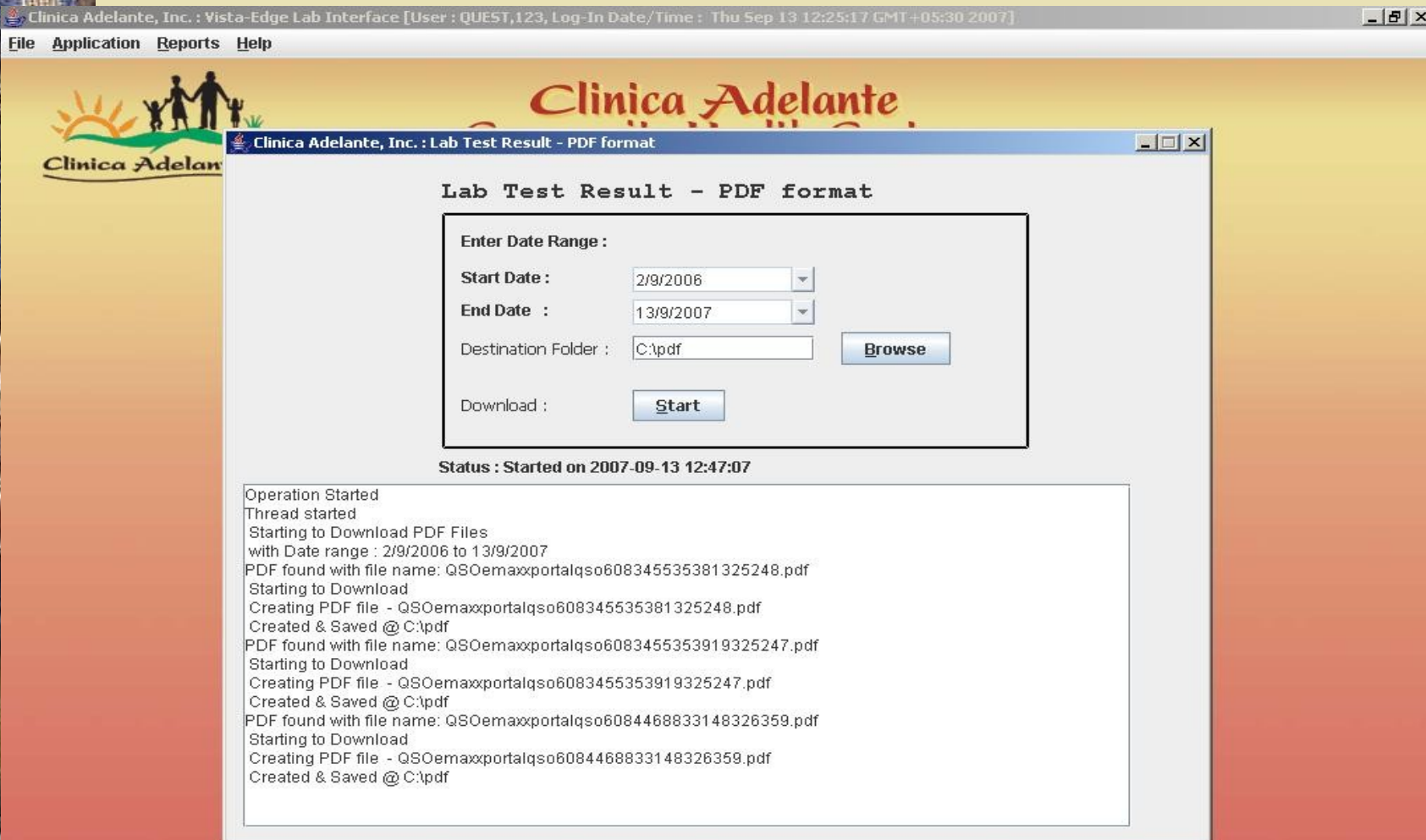
Lab Test Result: MSH|^~&|LAB|QSO||2117|20070723112233||ORU^R01|20070723553539350000|D|2.3|||

Repeated Record 20070723553539350000

Acknowledging Result

Lab Test Result: MSH|^~&|LAB|QSO||2117|20070723112233||ORU^R01|20070723553539350000|D|2.3|||

# Download the PDF Binaries



# PDF Results

QSOemaxportalqso6088448184027334791.pdf - Adobe Reader

File Edit View Document Tools Window Help

1 / 1 90% Find

**PATIENT INFORMATION**

QUEST DIAGNOSTICS INCORPORATED  
CLIENT SERVICE 602.685.5000

DOB: 05/02/2000 Age:  
GENDER: F Fasting: N

REPORT STATUS **Final**

ORDERING PHYSICIAN  
**KING, MATTHEW M**

CLIENT INFORMATION  
2117  
TIDWELL FAMILY CARE CTR.  
16560 N. DYSART  
SURPRISE, AZ 85374

**SPECIMEN INFORMATION**

SPECIMEN: Z00706140  
REQUISITION: ET200709072  
LAB REF NO: ET200709072

ID: [REDACTED]

COLLECTED: 08/31/2007 12:01  
RECEIVED: 09/10/2007 09:50  
REPORTED: 09/10/2007 16:24

Test Name	In Range	Out of Range	Reference Range	Lab
PROTHROMBIN TIME/INR				PAZ
PROTHROMBIN TIME	11.5		9.0-11.5 sec.	
INR		1.7 H	0.9-1.1	
Monitor patient based on INR value only.				
DRUG SCREEN 10 STD (CLINICAL)				PAZ
	SCREEN	SCREEN CUT-OFF		
ALCOHOL	Detected, see below	50 mg/dL		
AMPHETAMINES	Not Detected	1000 ng/mL		
BARBITURATES	Not Detected	200 ng/mL		
BENZODIAZEPINES	Detected, see below	200 ng/mL		
CANNABINOIDS 20 (MARIJUANA)	Not Detected	20 ng/mL		
COCAINE METABOLITE	Not Detected	300 ng/mL		
METHADONE	Not Detected	300 ng/mL		
OPIATES 2000	Not Detected	2000 ng/mL		
PHENCYCLIDINE (PCP)	Not Detected	25 ng/mL		
PROPOXYPHENE (PXY)	Detected, see below	300 ng/mL		

Performing Laboratory Information:

PAZ Sonora Quest Laboratories 1255 W. Washington Tempe AZ 85281

# Result in CPRS

## Pap 1 slide

VistA CPRS in use by: King,Matthew M (192.168.1.201)

File Edit View Tools Help

**ETIPL,TEST** Visit Not Selected Primary Care Team Unassigned Flag Remote Data ? No Postings

'154634' Mar 22,1972 (35) Provider: KING,MATTHEW M

Lab Results Laboratory Results - Most Recent

Most Recent  
Cumulative  
All Tests By Date  
Selected Tests By I  
Worksheet  
Graph  
Microbiology  
Anatomic Pathology  
Blood Bank  
Lab Status

Oldest Previous Collected Next Newest

<< < **Nov 07, 2007 19:12** > >>

**No Lab Results**

Test	Result	Flag	Units	Ref Range
SOURCE 99700001 A	NG			
LMP 99700002 A	NG			
CLINICAL INFORMATION 99700003 A	NG			
DIAGNOSIS 99700004 A	Negative for Intraepithelial Lesion or Malignancy			
COMMENTS 99700005 A	Scant squamous component.			
ORGANISM 99700006 A	Trichomonas vaginalis			
SPECIMEN ADEQUACY 99700007 A	NULL			
99700009 A	NULL			
CYTOTECHNOLOGIST 99700010 A	DNR			
PATHOLOGIST 99700011 A	electronically signed by Mike Espinosa			

Specimen: SLIDE; Accession: QC 1107 3; Provider: KING,MATTHEW M

Comment:

Specimen Adequacy  
Satisfactory for evaluation.  
Endocervical/transformation zone component present.

This is a screening test with an inherent, but low, probability of error. A negative report indicates a high probability of being negative.

KEY: "L" = Abnormal Low, "H" = Abnormal High, "C" = Critical Value

Cover Sheet Problems Meds Orders Notes Consults D/C Summ Labs Reports

# Result in CPRS

## HIV 1/O/2 SCREEN W/RFX WB-1

VistA CPRS in use by: Joseph,Anna (192.168.1.201)

File Edit View Tools Help

**ETIPL.TEST** Visit Not Selected Primary Care Team Unassigned  
'154634' Mar 22,1972 (35) Provider: JOSEPH,ANNA Flag Remote Data ? No Postings

Lab Results Laboratory Results - Most Recent

Most Recent  
Cumulative  
All Tests By Date  
Selected Tests By I  
Worksheet  
Graph  
Microbiology  
Anatomic Pathology  
Blood Bank  
Lab Status

Oldest Previous Collected Next Newest  
<< < **Nov 09, 2007 14:01** > >>

**Most Recent Lab Result**

Test	Result	Flag	Units	Ref Range
HIV-1, WESTERN BLOT 10003752 A	Positive			Negative
P18 10003754 A	Reactive			Non-reactive
P24 10003755 A	Reactive			Non-reactive
P32 10003756 A	Reactive			Non-reactive
GP41 10003757 A	Indeterminate			Non-reactive
P51/P55 10003758 A	Indeterminate			Non-reactive
P65 10003760 A	Reactive			Non-reactive
GP120/160 10003763 A	Reactive			Non-reactive
INTERPRETATION (HIV.WB) 10003764 A	POSITIVE			

Specimen: SERUM; Accession: QC 1109 1; Provider: KING,MATTHEW M  
Comment:  
See HIV-1 Western Blot result for interpretation.  
HIV-1 Western Blot results for this specimen meet the criteria for a positive result. According to CDC/ASTPHLD guidelines, a positive HIV-1 Western Blot requires the presence of antibody to any two of the following major products of the structural HIV genes: p24, gp41, and  
.....  
KEY: "L" = Abnormal Low, "H" = Abnormal High, "" = Critical Value

Cover Sheet Problems Meds Orders Notes Consults D/C Summ Labs Reports

A collection of historical artifacts is arranged on a light-colored, textured surface. In the top left, a portion of a wooden chessboard with a checkered pattern and several chess pieces is visible. Below the chessboard, there are two medals: one with a red ribbon and a white star, and another with a blue ribbon and a white star. A small, ornate compass is located in the bottom left corner. A pair of round, gold-rimmed glasses with thin temples is positioned in the center of the image, with the temples extending towards the right. The text "Thank you" is written in a large, black, serif font on the right side of the image, and "Questions??" is written in a smaller, black, serif font below it.

Thank you

Questions??