


CMI

RPMS

Reference Laboratory

Interface



Developed by:
Cimarron Medical Informatics, LLC
Tucson, AZ

Chronology

- **Task Order** – August 2001
- **Unidirectional** - Unilab – Karuk – October 2003
- **Bidirectional** – Santa Fe – Quest – June 2004
- **Lab Patch 21** – Ref Lab Interface – August 2006
- **GIS Patch 13** – Ref Lab Interface – August 2006
- **90+** Uni-Directional and Bidirectional interfaces in production in 11 IHS Areas - 2008

Designing the interface

- Communications
- HL7 Message Structure/Versions
- Test Matching
- Provider Matching
- Retain VA Compatibility
- Multi-Divisional Sites
- User Interaction
- Reference Lab Interface Conversion

Menus/Security Keys

- LRMENU - Laboratory DHCP Menu
 - LRLAB
 - BLRZMENU
 - BLRRLZ
 - Fileman Security Code: LI
- GIS - GIS Interface Menu
 - No National Security Key

Bulletins

Bulletin	Meaning
BHL NO TEST	No matching test in Laboratory Test file
BHL REFLAB NO PAT	No matching patient in Patient file (DOB, Sex, HRCN)
BLRTXERR	No entry made in IHS Lab Transaction file
BLRTXLOG	Informational – missing data for PCC record
BLRTXLOGERR	Fatal – no data will file into PCC

Tasks

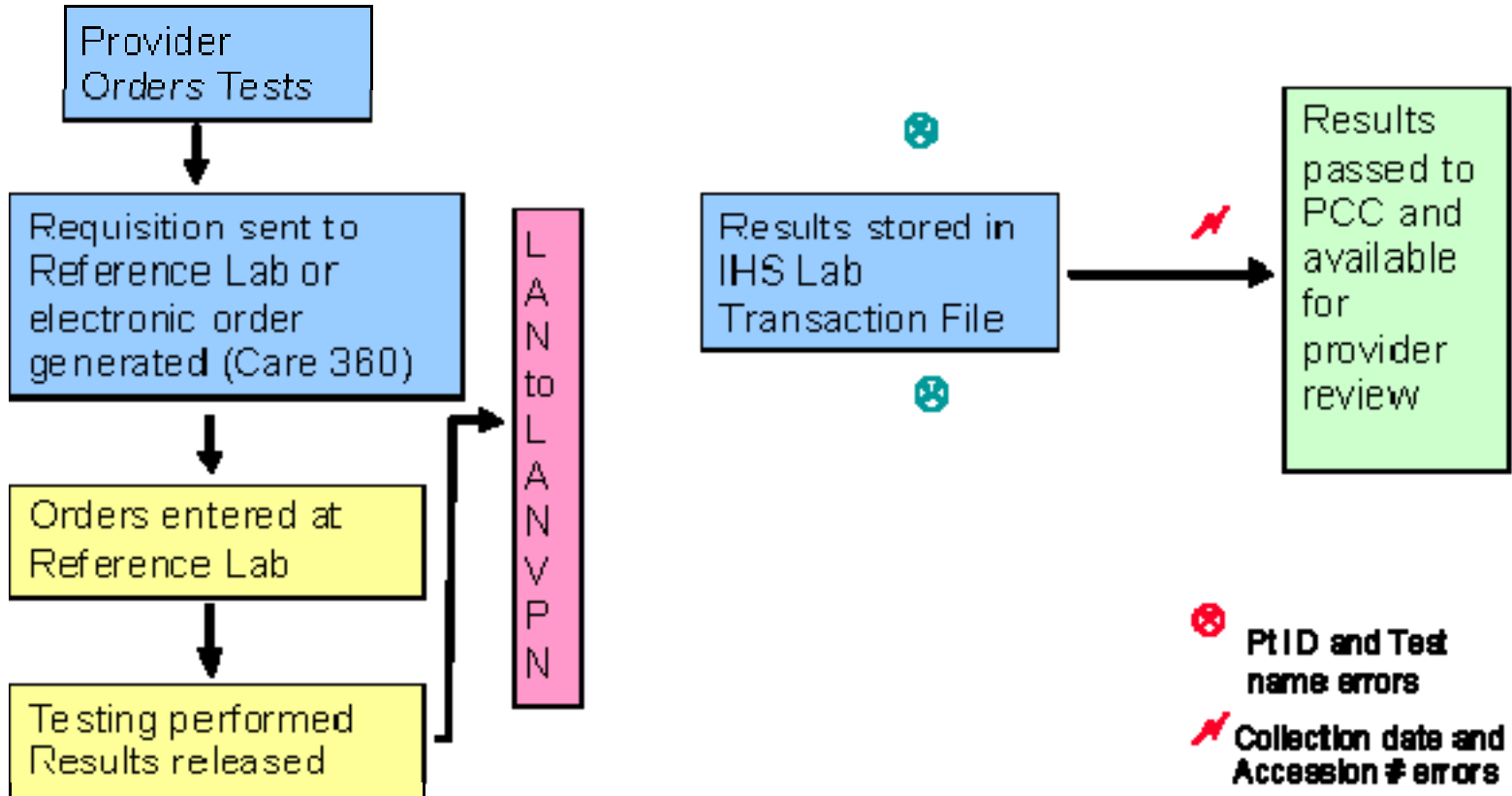
Task	Interface Type	Frequency
BLRTASK LAB LOG CLEANUP	BOTH	1D
INH AUTOPURGE	BOTH	14D
BLR REFLAB RESTART RECEIVER	BOTH	1H, STARTUP
BLR REFLAB RESTART TRANSMITTER	BIDIRECTIONAL	1H, STARTUP
INH BACKGROUND START ALL**	BOTH	STARTUP

** Be sure to inactivate all except desired interface processes.

Current Interfaces

Reference Laboratory	Interface
Quest	Unidirectional and Bidirectional
LabCorp	Unidirectional and Bidirectional
RML	Unidirectional and Bidirectional
Marquette General Hospital	Bidirectional
Soft Computer Corporation	Unidirectional
Unilab/Quest	Unidirectional and Bidirectional
Dynacare/LabCorp	Unidirectional and Bidirectional
DLO/Quest	Bidirectional

Unidirectional Interface



No Patient Match

Reference Lab Message [#10081] 17 Sep 03 10:19

8 Lines

From: POSTMASTER (Sender: GIS,USER) in 'IN' basket. Page 1 **NEW**

The following GIS HL7 Message failed to file due to a failed patient lookup:

GIS Message Number: 1327

Chart: 24646

Name: DUCK^DAISY^^^

DOB: 2810909

Sex: F

Collection Date: Oct. 26, 2004@16:37

Accession Number: CX6027128

No Test Match

Subj: Error Matching Reference Lab Test [#8805] 10/27/08@11:48 9 lines
From: GIS,USER 0 of 1 response read. In 'IN' basket. Page 1 *New*

The following reference lab test failed to match a lab test on file:

Test: 4500950
Test Name:FOLIC ACID
IHS Lab Tx Seq9
GIS HL7 Message #7792
Collection Date Oct 24, 2008@10:29
Accession #

PCC Filing Error

Subject: BLRTXLOGERR PCC FILING ERROR FOR THIS ENTRY (Securely delivered by Certified Mail)

An entry in PCC could not be created for the following lab order because there is a filing error reported in PCC.

PATIENT NAME: TEST,PATIENT TOO PATIENT DFN:

VISIT DATE: AUG 18, 2008

LAB SYSTEM ORDER NUMBER: 13591 ACCESSION NUMBER: POC 0818
1285

LAB TEST: POC URINE HCG TX LOG IEN: 649321

PCC ERROR: PCC Visit not created APCDFLG = 2

No results entered for this test were transferred into the PCC.

PCC Filing Error

Subj: PCC FILING ERROR FOR THIS ENTRY [#8724] 10/27/08@11:47 10 lines
From: POSTMASTER In 'IN' basket. Page 1

|NOWRAP| An entry in PCC could not be created for the following lab order because there is a filing error reported in PCC.

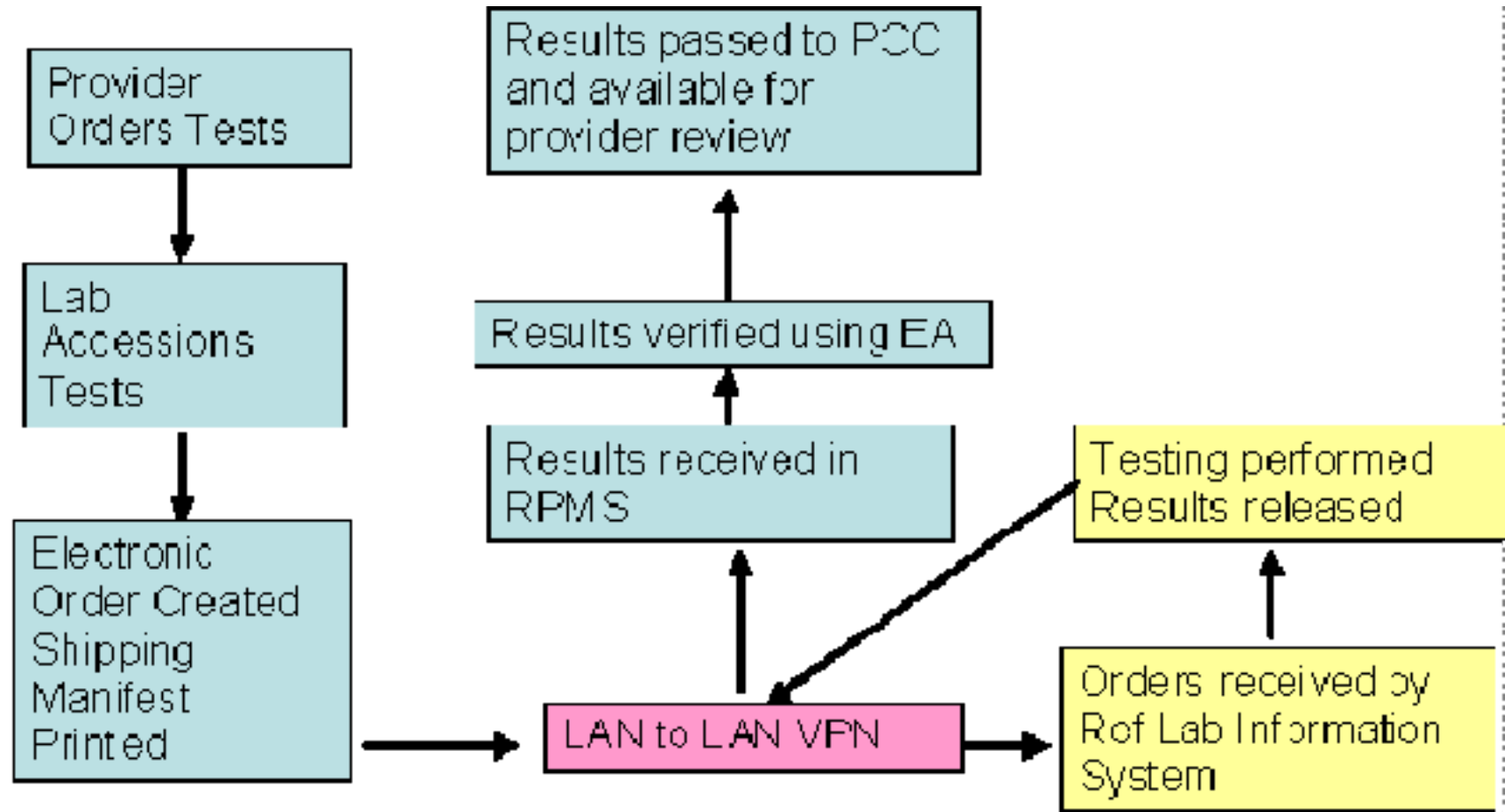
PATIENT NAME: WILLIAMS,LESLIE PATIENT DFN: VISIT DATE: OCT 24,2008
LAB SYSTEM ORDER NUMBER:
LAB TEST: TX LOG IEN: 17228
ACCESSION NUMBER:
PCC ERROR: No entry in Provider file for the Ordering Provider

No results entered for this test were transferred into the PCC.

Files for Unidirectional Interface

- BLR Master Control File
- Interface Activation
 - Billing vs no billing
 - User interaction vs auto filing
- Laboratory Test (File 60)
- BLR Reference Laboratory (MAP option in Reference Laboratory Menu)
- IHS Lab CPT Code (CPT option in IHS Lab Support Main Menu)

Bidirectional Interface



GIS Processes

(Generic Interface System)

- Format Controller
- Output Controller
- HL IHS Lab Receiver
- HL IHS Lab Transmitter

Format Controller

- Based on defined interface routines, formats the outgoing messages into the HL7 format expected by the receiving application.

Output Controller

- “The Traffic Controller”
- Files outgoing formatted messages into the outbound queue and incoming formatted messages into the correct queue to be filed.

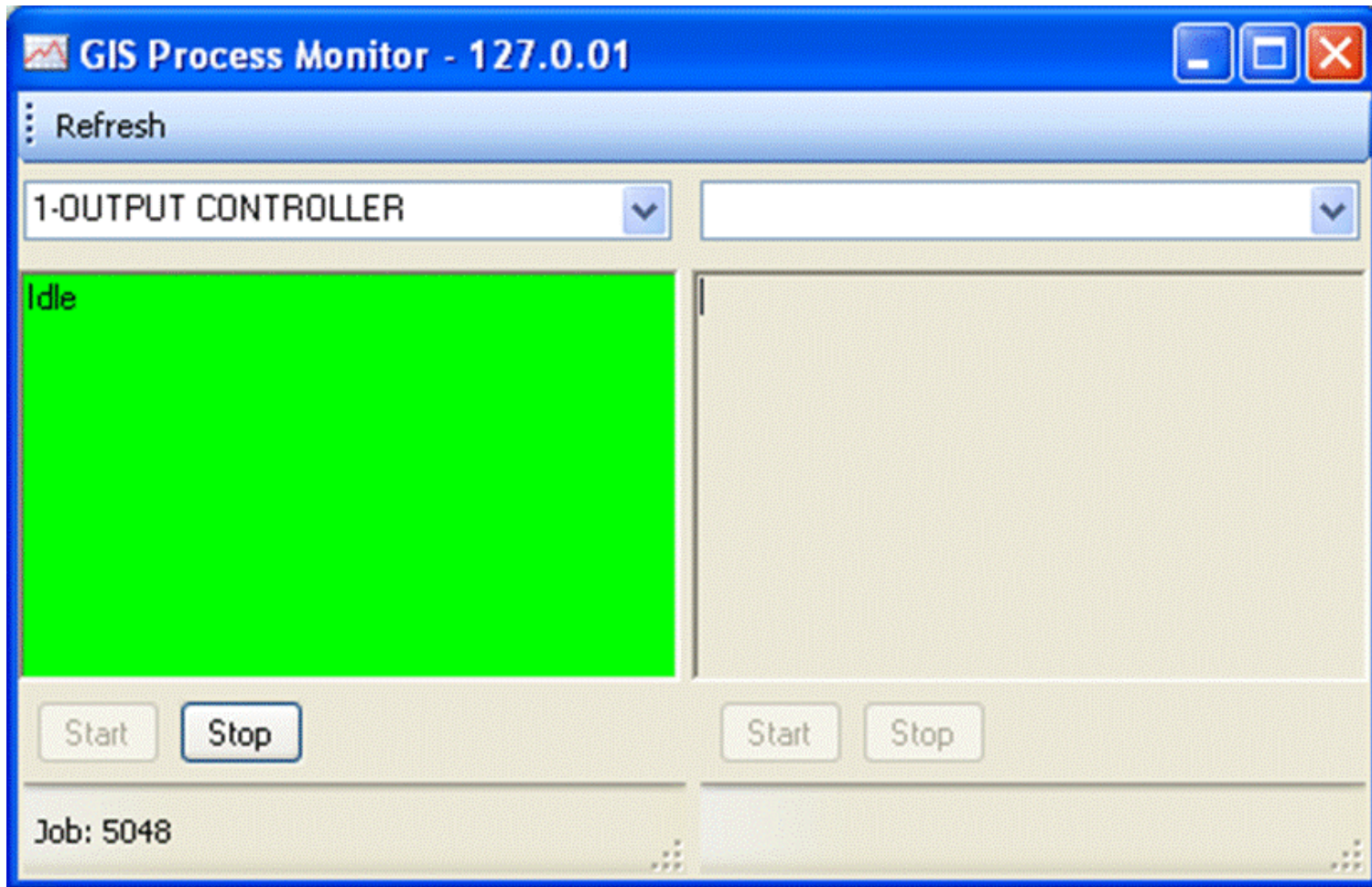
HL IHS Lab Receiver

- Used by both unidirectional and bidirectional interfaces.
- Associated with a pre-identified port and identifies the destination for incoming HL7 messages on that port.

HL IHS Lab Transmitter

- Used only by bidirectional interfaces.
- Identifies the address and port to which HL7 formatted reference lab messages will be sent.

GIS GUI Monitor



Setting up GIS

- Information in Installation Guide and Reference Laboratory Activation Guide (lr__0520.21i.pdf lr__0520.21o.pdf)
- Reference Lab will supply
 - Account number(s)
 - Test and Production IP addresses
 - Test and Production Ports
 - Entries for:
 - Sending Application (MSH3)
 - Sending Facility (MSH4)
 - Receiving Application (MSH5)
 - Receiving Facility (MSH6)

Example:

Account number(s): 5508

Test IP address: 199.4.216.32

Test and Production Ports:

Ports:	Orders (Inbound To RML)	Results (from RML outbound to WW Hastings)
Test	7915	7905
Prod	7910	7900

Entries for:

Sending Application: HASTINGS

Sending Facility: 5508

Receiving Application: LAB

Receiving Facility: RML

INDIAN HEALTH SERVICE EREQ

PAGE: 1 of 1

REF LAB NAME: RML

CLIENT #: 5508

FACILITY: W. W. HASTINGS INDIAN HOSPITAL Jan 10, [2006@12:00:59](#)

ADDRESS: 100 SOUTH BLISS AVE., TAHLEQUAH, 74464

=====

ORDER (Control): 16102

ORDER DATE: Jan 10, 2006 MID:

PATIENT: DEMO,PATIENT BETTY

CHART (Patient ID): 999994

SEX: F DOB: MAR 3,1950

SSN: 111000003

LOCATION: LAB

Bill Type: Client

PRACTITIONER: SWIMMER, EULA

UPIN:

LAB ARRIVAL (COLLECTION DATE/TIME): Jan 10, [2006@12:00:51](#)

TEST NAME: PROLACTIN R3602400 (3602400)

SAMPLE: BLOOD

SOURCE: BLOOD

ACCESSION: 0406000351

Outgoing Message

^INTHU(851132,3,1,0)=MSH|^~\&|HASTINGS|5508|LAB|RML|200603
22140219-0500||ORM^O01|IHS-1975691|P|2.3|||NE|NE||CR|

^INTHU(851132,3,2,0)=PID|1|91178|999999||DEMO^PATIENT^^^|
|19990101|F|||12345^^HULBERT^OK^74441||918-456-5193|800-
999-9999|||5508^^^C|333333333|CR|

^INTHU(851132,3,3,0)=ORC|NW|0406003580|||2006032214022
4||F80727^ANDINO^RAUL|CR|

^INTHU(851132,3,4,0)=OBR|1|0406003580||1501625^D-DIMER
QUANT REF
LAB(R1501625)||20060322140224|||N|||BLOOD|F80727^ANDI
NO^RAUL||171898|||CR|

^INTHU(851132,4)=35169^60346,50537

Incoming Message

^INTHU(851140,3,1,0)=MSH|^~\&|LAB|RML|Hastings|5508|20060322143700.0
000-0600||OR
U^R01|423|P|2.2|423|CR|
^INTHU(851140,3,2,0)=PID|1||999999||DEMO^PATIENT||19990101|F|||12345
^^HULBERT^OK74441|||||20060322|33333333|CR|
^INTHU(851140,3,3,0)=PV1|1||5508|||F80727^ANDINO,
RAUL|||||||R|0000000000^0
^0||C|||||||||||||||||20060322135700.0000-
0600|20060322000000.0000-0600|CR|
^INTHU(851140,3,4,0)=ORC|RE|0406003580|^LA||CM|||20060322143500.000
0-0600|||
5508|||^RESULT PERFORMED|CR|
^INTHU(851140,3,5,0)=OBR|1|0406003580|^LA|1501625^DDIMR QUAN^D-DIMER
QUANTITATIVE|||20060322140200.0000-
0600||HIS|||20060322143400.0000-0600||F80727^ANDINO,
RAUL||0406003580|011647240700010101501625246768597246768597000000
00101|0000608100049|20060322143500.0
^INTHU(851140,3,6,0)=000-0600|||F||^20060322140200.0000-
0600^^RM~^^^RM|CR|
^INTHU(851140,3,7,0)=OBX|1|NM|1501625^DDIMR QUAN^D-DIMER
QUANTITATIVE||5.70|FEU|< 0.47|H|||F|||20060322143500.0000-
0600|TRAINS^CERNER TRAINING ENV^^00060075^STAGO A|TRAINS^CERNER
TRAINING ENV|CR|
^INTHU(851140,3,8,0)=NTE|||Regional Medical Laboratory, Inc. 1923
South Utica, Tulsa OK 74104|CR|

RPMS Result

DEMO,PATIENT Report date: 03/26/2006 2:40 pm
HRCN: 999999 SEX: F AGE: 7 LOC: NEWBORN

Provider: ANDINO,RAUL R REVIEW STATUS: Not Reviewed
Specimen: BLOOD

Accession [UID]: REF 06 3580 [0406003580]

Specimen Collection Date: 03/22/06 14:02

Test name	units	Ref.	range	Site Code
DDIMRML	Result	5.170	FEU	[2582]

Comment: D-DIMER QUANT REF LAB (R1501625): ref range - < 0.47
D-DIMER QUANT REF LAB (R1501625): Result Flag – H

Regional Medical Laboratory, Inc. 1923 South Utica, Tulsa OK 74104

=====

KEY: "L"=Abnormal low, "H"=Abnormal high, "*" =Critical value

What makes it work?

- GIS Activation
- BLR Master Control File
- Accession file (#68)
- Laboratory test file (#60)
- Lab Data file (#63)
- Load/Worklist file (#68.2)
- Auto Instrument file (#62.4)
- IHS Lab CPT Code file
- BLR Reference Laboratory file

What tools are needed?

- Access to menus, correct fileman security code, and security keys
- Utilization Report
- Ref Lab Test Compendium
- Ref Lab Ask at Order Questions
- Account Number, MSH settings, and communication settings for testing and production

Test Compendium

TEST CODE	TEST NAME	ORDER CODE	RESULT CODE
TSH	THYROID STIMULATING HORMONE	4501925	4501925
FREE T4	FREE T4	4502550	4502550
SJOGRENS	SJOGRENS SSA/SSB	5508860	
SJOGRN A	SJOGRENS SSA		5508870
SJOGRN B	SJOGRENS SSB		5508880
NONHISINT	NONHISTONE ACID AG INTERP		5510425
TOXO AB	TOXOPLASMA ANTIBODIES	5505625	
G TOXO EIA	TOXOPLASMA IGG EIA		5591100
M TOXO EIA	TOXOPLASMA IGM EIA		5591125

Auto Instrument File

- An Auto Instrument must be created with name of Ref Lab, e.g. QUEST, RML
- Include each test that will have a result
- UI Test Code is Ref Lab Result Code
- Key fields:
 - Accept results for this test
 - Remove spaces from result
 - Store remarks
 - Store reference ranges
 - Store abnormal flags

Load/Worklist File

- Each orderable test must have an entry set as “Build Name Only”= NO
- Only one Load/Worklist is required for MultiDivisional Facilities – each facility has it’s own profile within that Load/Worklist

Add entry to IHS Lab CPT file

LAB → BLR → CPT

Select IHS LAB CPT CODE NAME: **FERRITIN**

NAME: FERRITIN//

LAB SECTION: **SENDOUTS**

CREATE DATE: **DEC 23,2008@11:16:06**

DATE/TIME ACTIVE: **DEC 23,2008@11:16:06**

DATE/TIME INACTIVE:

PANEL/TEST: **FERRITIN Q457**

INACTIVE FLAG:

Select CPT CODE: **82728/**

CPT CODE: 82728//

LAB LIST COST:

REVIEW CODE:

ACTION CODE:

Select MODIFIER: **90**

Select QUALIFIER:

Select CPT CODE:

DESCRIPTION:

No existing text

Edit? NO//

Map Test to Ref Lab Order Code

LAB→BLR→REFL→MAP

Select Which Reference Lab to Map Codes for: **RML**

Map which Reference Lab Test: **FERRITIN**

1 FERRITIN 4500800

2 FERRITIN 4500800

CHOOSE 1-2: **1** FERRITIN 4500800

TEST NAMES: FERRITIN//

LAB TEST POINTER: **FERRITIN R4500800**

ORDER CODE: 4500800//

RESULT CODE:

ORDER ENTRY QUESTION:

Select ORDER ENTRY RESULT CODE:

Map which Reference Lab Test:

Demonstration

- GIS Menu Options
- Monitoring GIS
- Reference Laboratory Menus
- “The moving parts”

Troubleshooting

- Check LS Link Status
- Monitor Error Trap
- Monitor GIS
- Display Lab Universal Interface Message
- Read Bulletins/Keep Mail Group current for Bulletins

Current Project Enhancements

- Third Party Billing
- Patient Phone Number on Ereq
- Specimen processing directions on Ereq
- Support both unidirectional and bidirectional interfaces in multidivisional databases
- Provider NPI or UPIN
- Store units as well as remarks, results, and reference ranges
- Option to purge old entries from shipping manifest

Desired Enhancements

Submit requests via:

<http://www.ihs.gov/Cio/RPMS/index.cfm?module=feedback&option=add&newquery=1>

Questions???

Comments???