Verification of Reference Laboratory Test Results in RPMS & Troubleshooting

PURPOSE:

This procedure provides instructions to the laboratory technical staff in performing the auto-verification of the reference laboratory tests via the Reference Laboratory Bi-directional Interface and follow troubleshooting steps for correcting test orders or test results that are missing or fail to transmit.

OVERVIEW OF INTERFACE SOFTWARE:

The interface is a two-part system. The Generic Interface System (GIS) accepts the data from the Reference Laboratory and stores it in the UNIVERSAL INTERFACE FILE (^INTHU). Check the GIS processors as well as the HIS Lab Transaction Processor at the beginning of each day, any time the RPMS system goes down, and whenever you are notified that the reference laboratory interface system has been shut down and restarted. Refer to the Laboratory Specimen Processing Manual for the laboratory on detailed instructions for ordering tests and accessioning electronic test orders.

The laboratory staff approving test results for the reference laboratory interface may go to the Laboratory LIS Coordinator or designee for assistance when help is needed.

Either the ordering medical provider will order the reference laboratory test in the E.H.R. or the laboratory staff will order the test manually in RPMS based on the paper laboratory requisitions. The laboratory staff only has the accession the order number and it automatically generates the order at the Reference Laboratory. The Reference Laboratory will return results into the interface and these results will appear in the E.H.R. once the laboratory has approved the electronic results, thereby, eliminating manual scans or files of the final report into the patient's medical record.

REFERENCE LABORATORY TESTS:

Only tests that are normally ordered from Laboratory Corporation of America are used with this interface system. Tests sent to other reference laboratories such as the Arizona Department of Health or Oregon State Department of Health will not be interface and are not part of this interface system. Refer to those individual procedures in this manual for processing and manual result entries.

FORWARDING PRINTED REPORTS TO CHEMISTRY SECTION:

The LCM printer connected to the Reference Laboratory's PC will automatically print complete reference laboratory test results on a daily basis.

1. The Medical Laboratory Aid or other assigned technical staff will take the printed reports off the printer and place in the TO BE REVIEWED file holder in the special chemistry section.

2. The assigned chemistry technical staff will follow the instructions in the LIS manual on approving the test results using the bi-directional interface.

APPROVING REFERENCE LAB RESULTS USING EA AutoVerify:

Finding the Specimen Sendout Accession Number

The final printed report from Lab Corp of America will not have the specimen accession number on it. There will be a patient name and medical record number. So use the order test status menu to find the accession number:

```
Select IHS Core Option: LAB  Laboratory (ANC-LAB)

    1       Phlebotomy menu ...
    2       Accessioning menu ...
    3       Process data in lab menu ...
    4       Quality control menu ...
    5       Results menu ...
    6       Information-help menu ...
    7       Ward lab menu ...
    8       Anatomic pathology ...
    9       Microbiology menu ...
    10      Supervisor menu ...

Select Laboratory (ANC-LAB) Option: 2  Accessioning menu


    1       Multipurpose accessioning
    2       Accessioning tests ordered by ward order entry
            Add tests to a given accession.
            Delete entire order or individual tests
            Delete test from an accession
            Inquiry to LAB TEST file
            Lab add test(s) to an existing order
            Lookup accession
            Order/test status
            Print accession list(s) ...
            Remove an accession
            Reprint accession label(s)
            Review by order number
            Show list of accessions for a patient
            Test description information

Select Laboratory (ANC-LAB) Option: Order/test status


Select Patient Name: 99999
  DAISY,DUCK                        F 03-01-1976 XXX-XX-9999  FDSU 99999

DATE to begin review: TODAY//  (JAN 25, 2011)
No orders for 01/25/11
No orders for 01/24/11
No orders for 01/23/11
No orders for 01/22/11
Orders for date: 01/21/11 OK? Yes//   (Yes)
  Test              Urgency   Status                          Accession
```

```
   -Lab Order # 5850                            Provider: FRANKENSTEIN, DR.
  Gen-Probe, Endocervix  ENDOCERVIX
  xChlamydia/GC,DNA Probe w/Rflx
                     ROUTINE  Collected      01/24/2011@12:35 SO 11 1265
Sign or Symptom: STD SCREENING/CHLAMYDIA
  -Lab Order # 5850                            Provider: FRANKENSTEIN, DR.
  SWAB, ENDOCERVIX
  xPap Lb, rfx HPV ASCU
                     ROUTINE  Collected      01/24/2011@12:36 SO 11 1266
Sign or Symptom: ANNUAL GYN
No orders for 01/20/11
No orders for 01/19/11
No orders for 01/18/11
No orders for 01/17/11
No orders for 01/16/11
No orders for 01/15/11
No orders for 01/14/11
No orders for 01/13/11
```

Once you have found the test name, make sure it matches the date/time of collection along with the test order that is printed on the final report. If it does match, then write down the send out accession number on the final printed report with a pen and go to the next section.

Verifying the Reference Lab Test Result

```
Select Accessioning menu Option:

   1       Phlebotomy menu ...
   2       Accessioning menu ...
   3       Process data in lab menu ...
   4       Quality control menu ...
   5       Results menu ...
   6       Information-help menu ...
   7       Ward lab menu ...
   8       Anatomic pathology ...
   9       Microbiology menu ...
   10      Supervisor menu ...

Select Laboratory (ANC-LAB) Option: 3  Process data in lab menu

   1       Clear instrument/worklist data
   2       Unload Load/Work List
   3       Build a load/work list
   BYP     Fast Bypass Data Entry/Verify
   DL      Download a load list to an Instrument.
   EA      Enter/verify data (auto instrument)
   EB      Batch data entry (chem, hem, tox, etc.)
   EM      Enter/verify/modify data (manual)
   EW      Enter/verify data (Work list)
   GA      Group verify (EA, EL, EW)
   GU      Group unverified review (EA, EL, EW)
           Accession order then immediately enter data
           Incomplete test status report
           Lab Interface menu ...
           Long form accession list
           Lookup accession
           Order/test status
           Print a load/work list
           Short accession list

Select Process data in lab menu Option: EA  Enter/verify data (auto instrument)
```

```
Select LOAD/WORK LIST NAME: SENDOUTS (Type in this word)
Select Referring Laboratory: LABCORP//                          AZ
 Would you like to see the list ? No//   NO

                    Do you wish to modify the test list
            i.e., would you like to add or subtract ATOMIC tests?

Enter Yes or No: No//   NO
You have selected 1190 tests to work with.
Do you want to review the data before and after you edit? YES//

      Select one of the following:

           1          Accession Number
           2          Unique Identifier (UID)

Verify by: 1//   Accession Number
Accession Date: TODAY// (If you are verifying test results from a previous year,
such as now it is 2011, you would need to type in the year 2010 here)

Accession NUMBER: 1266// 1265
DAISY,DUCK                           99999
ORDER #: 5850
  Seq #: 1199 Accession: SO 11 1265     Results received: Jan 07, 2011@15:05
                  UID: 6111001265        Last updated: Jan 25, 2011@15:10

Sample: Gen-Probe, Endocervix
Specimen: ENDOCERVIX
WARNING - NO MATCHING ACCESSION WAS FOUND.
You may need to Clear instrument/worklist data,
or correctly identify the sample to the system.
ARE YOU SURE THIS IS THE CORRECT DATA? No// Y  (Yes)

DAISY,DUCK                           99999  LOC: MD
Pat Info:                           Sex: FEMALE   Age: 34yr as of Jan 21, 2011
Provider: FRANKENSTEIN, DR.   Voice pager: 587
   Phone: 8784                                 Digital pager:

ACCESSION:                                     SO 11 1265
SENDOUTS                                       1/21 15:47d
_Chlamydia DNA                                 Negative
_GC DNA                                        Negative
_Chlamydia Rfx
_GC Rflx
COMMENTS: Performed at:  PD - LabCorp Phoenix
COMMENTS: 3930 E Watkins Suite 300, Phoenix, AZ  850347251
COMMENTS: Lab Director: Frank Ryan PhD, Phone:  6024548000

SELECT ('C' for Comments, 'W' Workload):
Approve for release by entering your initials: AJB (Enter your initials only if the
report printed matches against the results you see on the computer screen)
```

To Check if the Test is Complete

You can look up the specimen accession number to verify that the test was complete.

```
Select Process data in lab menu Option:

   1       Phlebotomy menu ...
   2       Accessioning menu ...
   3       Process data in lab menu ...
```

```
    4        Quality control menu ...
    5        Results menu ...
    6        Information-help menu ...
    7        Ward lab menu ...
    8        Anatomic pathology ...
    9        Microbiology menu ...
    10       Supervisor menu ...

Select Laboratory (ANC-LAB) Option: 3  Process data in lab menu

    1        Clear instrument/worklist data
    2        Unload Load/Work List
    3        Build a load/work list
    BYP      Fast Bypass Data Entry/Verify
    DL       Download a load list to an Instrument.
    EA       Enter/verify data (auto instrument)
    EB       Batch data entry (chem, hem, tox, etc.)
    EM       Enter/verify/modify data (manual)
    EW       Enter/verify data (Work list)
    GA       Group verify (EA, EL, EW)
    GU       Group unverified review (EA, EL, EW)
             Accession order then immediately enter data
             Incomplete test status report
             Lab Interface menu ...
             Long form accession list
             Lookup accession
             Order/test status
             Print a load/work list
             Short accession list

Select Process data in lab menu Option: LOOKUP accession
Select Accession or UID: SO 11 1265
SENDOUTS  (2011)  1265


-----------------------------------------------------------------------------
ACCESSION: SO 11 1265                     PATIENT: DAISY,DUCK
  ORDER #: 5850                           HRCN: 99999
      UID: 6111001265                        DOB: MAR 1,1976
 LOCATION: MD                           ORDERED: 01/21/2011@15:46
                                                 COLLECTED:
01/21/2011@15:47
 PROVIDER: FRANKENSTEIN, DR.  LAB ARRIVAL: 01/24/2011@12:35

  SAMPLE: ENDOCERVIX  Gen-Probe, Endocervix
  TEST: xChlamydia/GC,DNA Probe w/Rflx  ROUTINE
  COMPLETED: 01/25/2011@16:40
ALL COMPLETED
```

FILING VERIFIED PRINTED REPORTS:

Once the results have been verified or sent to medical records for scanning, the chemistry technical staff will write on the printed report the laboratory's unique accession number such as SO 11 3 along with their initials. The approving technical staff or the specimen processing staff member will then file the report(s) into the file drawer located in specimen processing by dates of collection rather than patient's last name initial. These records will be maintained for the current and last month in case reports need to be retrieved and then stored in the storage room for a period of 2 years.

PRINTING WEEKLY ACCESSION LOG & REVIEW FOR INCOMPLETE TESTS:

Once a week, print the accession logs until all tests have been verified or removed due to rejection or error.

```
Select IHS Core Option: lab  Laboratory (ANC-LAB)

   1       Phlebotomy menu ...
   2       Accessioning menu ...
   3       Process data in lab menu ...
   4       Quality control menu ...
   5       Results menu ...
   6       Information-help menu ...
   7       Ward lab menu ...
   8       Anatomic pathology ...
   9       Microbiology menu ...
   10      Supervisor menu ...

Select Laboratory (ANC-LAB) Option: 2  Accessioning menu

   1       Multipurpose accessioning
   2       Accessioning tests ordered by ward order entry
           Add tests to a given accession.
           Delete entire order or individual tests
           Delete test from an accession
           Inquiry to LAB TEST file
           Lab add test(s) to an existing order
           Lookup accession
           Order/test status
           Print accession list(s) ...
           Remove an accession
           Reprint accession label(s)
           Review by order number
           Show list of accessions for a patient
           Test description information

Select Accessioning menu Option: print accession list(s)

           Accession and test counts by shift
           Accession list by date
           Accession list by number
           Lab accession and test counts
           Test counts by treating specialty

Select Print accession list(s) Option: acc
   1     Accession and test counts by shift
   2     Accession list by date
   3     Accession list by number
CHOOSE 1-3: 2  Accession list by date

                 FORT DEFIANCE INDIAN HOSPITAL

Select ACCESSION AREA: SENDOUTS

                 SENDOUTS ACCESSION LIST
Start with Date: TODAY//

Start with Date: TODAY// Jan 25, 2011
Go back to  Date TODAY// T-1  (JAN 24, 2011)
```

```
List by (A)ccession number  (P)atient  (C)ollection Sample : Accession number
DEVICE: HOME// (You may type in the specific printer number here or SLAVE)
Jan 25, 2011 17:05    FORT DEFIANCE INDIAN HOSPITAL                    Pg: 1
SENDOUTS (Jan 24, 2011-Jan 25, 2011)
# = Not IHS patient                                     %=Test not verified
Acc #   Date  Patient          ID              Loc   Spec/sample       Test
        Tech
--------------------------------------------------------------------------
 1211   01/24 DOG,GOOFY        11111      ICU     SERUM   xPanel 083824           LG
 1212   01/24 DOG,GOOFY        11111      ICU     URINE   %xChlamydia/GC
 1213   01/24 DOG,GOOFY        11111      ICU     SERUM   %xHCV AB
```

The list above shows that if there is a % in front of the test name and NO Tech initials, then the test has not been completed or verified yet.

If the test is cancelled or removed, then you will see the following:

```
%xHBsAg Screen AJB
```

TROUBLESHOOTING TIPS – Normally done by the LIS Coordinator or Site Manager and may enlist help from Reference Laboratory TST Requests:

1. Shipping Manifests

    a. No shipping manifest prints

        Is the printer powered on?

        Is there paper in the printer?

        Can you print any other type of report to the manifest printer?

        Was an accession number generated?

        Incomplete build? – Ask the LIS Coordinator or designee for support.

            Is the test in the load/worklist file?

            Has the test been mapped to its order code?

    b. Shipping Manifest prints but test is not on it

        This generally indicates an incomplete build of the test ordered – Ask the LIS Coordinator or designee for support.

            Is the test set up with a unique accession number?

            Is the test in the load/worklist file?

            Has the test been mapped to its order code?

    c. Can't find shipping manifest to reprint

Shipping manifests are stored by the last accession number on them. So for a patient with 4 tests on a shipping manifest, there would be only one entry (with the highest accession number) to reprint.

Have to select a printer to print the shipping manifest on.

Use VA Fileman to Edit the BLR Master Control File as follows:

```
VA FileMan 22.0

Select OPTION: ENTER OR EDIT FILE ENTRIES

INPUT TO WHAT FILE: BLR MASTER CONTROL
                                   (1 entry)
EDIT WHICH FIELD: ALL// DEVICE FOR SHIPPING MANIFEST
THEN EDIT FIELD:


Select BLR MASTER CONTROL SITE:    CIMARRON HOSPITAL
DEVICE FOR SHIPPING MANIFEST: NAME or NUMBER of desired printer
```

2. No new results have come in. Contact your site manager or the LIS Coordinator for support.

    Check and restart GIS Processes (p. 13)
3. REF LAB calls to report that electronic orders have not been received. Contact your site manager or the LIS Coordinator for support.

    Check and restart GIS Processes (p. 13)
    If you see the message under the HL IHS LAB TRANSMITTER – Unable to open socket attempt 1 and then going up to 10, you have a network issue either at your facility or at REF LAB. Start with your Site Manager and then call the REF LAB if all looks OK on your end.
4. REF LAB changes test codes for existing tests (p. 19)

5. Problems with incoming results (p. 12)

    > **Note**: Always begin troubleshooting problems with results by Displaying the Universal Interface Message.

    a. When trying to verify test, see message, "What tray?"
        Has test already been verified? (LUA - Look up accession)
        Has test come in without an accession number or with the wrong accession number? Check the hard copy report from the Ref Lab for the IHS accession number (reference #).
    b. When trying to verify test, see "No test in editing profile."
        Most likely a problem with the test build. Call for support.
            Check the build in File 60 and the Load/Worklist file.
    c. When try to verify test, see message, "Do you wish to enter results manually?"
        Respond NO.
6. Are results back from REF LAB yet? Have you received a hard copy report with and IHS accession number?

Is there a problem with the test build? Ask the LIS Coordinator or designee for support.

Are correct result codes in Auto Instrument file?

d. When trying to verify test, see comments but no test results.
Most likely a problem with the test build. Ask the LIS Coordinator or designee for support.

Check the UI test code for the result in the Auto Instrument file.

e. When trying to verify test, see results and comments for ordered test but also see comments for an unrelated test.
Most likely a problem with the test build. Ask the LIS Coordinator or designee for support.

Two different tests have been returned on the same accession number – one is correct, one is not. Check Auto Instrument file.

7. Not getting prompted for ask at order questions when accession a test. (p. 23)

Problem with test mapping. Ask the LIS Coordinator or designee for support.

Troubleshooting Tools (Done by LIS Coordinator or Designee or Site Manager):

1. Check and Restart GIS processes:
   OUTPUT CONTROLLER
   FORMAT CONTROLLER
   HL IHS LAB TRANSMITTER
   HL IHS LAB RECEIVER

2. Display a Lab Universal Interface Message
   LAB >> SUP>> LAB INTERFACE >> LAB UNIVERSAL INTERFACE>> Display Lab Universal Interface Message >> REFLAB-I-xxxxxxxxxx

   a. Has a result message come in from the Reference Lab with the correct accession number?

   b. Does a result message from the Reference Lab have one or more errors with result codes that are not in the auto instrument file for Reference Lab?

   c. To print a Lab Universal Interface Message so that you have a hard copy to work from when reviewing incoming results:

```
Select Lab Universal Interface Menu Option:  Display Lab Universal Interface
Message

Select Message:    174164   REFLAB-I-6008000851
Select another Message:

Parse message fields based on HL7 segments? NO//
DEVICE: HOME// Enter Printer Name or Number
```

3. VA Fileman – Search Universal Interface file for an accession or patient
    a. Did an electronic order get created for a test going to REF LAB (Out Child)?
    b. Did an electronic result message come in from REF LAB (Receiver) for a test?

4. RAW – View/Refile a Universal Interface message
   LAB>> BLR >> REFL >> RAW >> Message >> Number of HL7 Message
   a. Display a Universal interface message to review the tests and result codes that have been returned to determine whether test codes have changed or an accession number is missing.
   b. Refile a Universal interface message once a result code has been updated as a UI test code in the auto instrument file.
   c. To print a RAW message in order to better review the order and result codes that have been returned, you may type PL at the Select Action prompt and then enter the RPMS Printer Name or Number.

```
View/Refile Ref Lab Records   Mar 02, 2008 16:47:02      Page:    1 of    1

DATE/TIME: NOV 06, 2007@11:57:44          DESTINATION: HL IHS LAB UNILAB
 STATUS: NEW                              ACKNOWLEDGE REQUIRED?: NO
 MESSAGE ID: IHS-188                      IN/OUT: OUT
 ORIGINATING TRANSACTION TYPE: HL IHS LAB UNILAB O01 OUT CHILD
 USER WHO CREATED: RUSSELL,DOROTHY K   PRIORITY: 0
 TIME TO PROCESS: 60940,43064             DIVISION: CIMARRON HOSPITAL
MESSAGE TEXT:
MSH|^~\&||5500|Quest Gateway|20071106115744-0500|ORM^O01|IHS-188|P|2.3||NE|NE||
PID|1|505201989898|989898||GUMP^FOREST^^^^||19700316|F|||||5500^^^C|234567890|C
ORC|NW|6007000014||||20071106115730||PHS000^CURTIS^A|CR|
OBR|1|6007000014|^^^4005050^THEOPHYLLINE||20071106115730|||N|||PHS000^CURTIS^A|
          Enter ?? for more actions                       >>>
R    Refile Message
Select Action:+// PL
```

Checking and Restarting GIS Processes for Reference Laboratory Interface (Done by LIS Coordinator or Designee or Site Manager):

If you do not see any laboratory results to verify, your RPMS system has been down, or you have had a power outage, check the Generic Interface System (GIS) as follows:

```
   GIS    Generic Interface System ...
          BPM   Background Process Control Menu
               VS   Verify Status of Background Processes
```

On the first screen displayed, accept the default entries and at COMMAND: type "S", <enter>, "E", <enter>. (or you may use the shortcut F1 E)

```
**Verify Status of Background Processes**
**Input Parameters**

Detailed report: YES        Repaint frequency: 5


Maximum number of iterations (printer only): 100


_____

COMMAND:    S <enter>                     Press <PF1>H for help    Insert
```

These steps will result in display of the status of the four processors required for a bidirectional interface.

```
Background Process/              Last Run/        (defaults in seconds)
      Message                      Last Msg   Elapsed   Min      Max
  ----------------------------   ----------  -------  ------  ------  ------
      OUTPUT CONTROLLER            18:53:08       0        0       0        0
         Idle
      FORMAT CONTROLLER            18:53:08       0        0       0        0
         Idle
      HL IHS LAB RECEIVER          18:38:13  14m 55s  14.9m   14.9m    14.9m
         Idle
  N   HL IHS LAB TRANSMITTER
```

In the example above, 3 processes are running, but the HL IHS LAB TRANSMITTER necessary for sending out orders is not running. (*Note the 'N' in the RUN column.*)

This menu may be left by typing "^" to return to the primary menu and typing EXIT <enter> to leave the menu. If one or more processors are not running ('N' in the RUN column, no text under the processor, and no numbers in the columns), restart them by using the menu option, S1 Startup a Background Process as follows:

```
GIS Generic Interface System
    BPM   Background Process Control Menu
       S1   Startup a Background Process

Select BACKGROUND PROCESS CONTROL NAME: OUTPUT CONTROLLER
. Started

Select BACKGROUND PROCESS CONTROL NAME: FORMAT CONTROLLER
. Started

Select BACKGROUND PROCESS CONTROL NAME: HL IHS LAB RECEIVER
. Started

Select BACKGROUND PROCESS CONTROL NAME: HL IHS LAB TRANSMITTER
. Started
```

Occasionally it may appear that the processors are running but no new results have been received. If the Ref Lab shuts down their side of the interface, it also shuts down ours. So the processors will need to be stopped and restarted. To do this, choose the menu option SH1 to shut down **ONLY THE LAB PROCESSORS**:

HL IHS LAB RECEIVER

HL IHS LAB TRANSMITTER

Once both processes have been stopped, they may be restarted as indicated above by using the menu option, S1.

The HL IHS LAB RECEIVER and HL IHS LAB TRANSMITTER are both set-up in TaskMan to restart every hour and at system Start-up. So if the RPMS server is rebooted, they both should start up on their own. The FORMAT CONTROLLER and OUTPUT CONTROLLER, however,

do not have such task, so if the RPMS server is rebooted, these two background processes with have to be started up manually via the GIS menu S1.

Finding and Refiling a Raw Message in the Universal Interface File (Done by LIS Coordinator or Designee or Site Manager):

1. Use FileMan to search the Universal Interface file for the raw message that came in from the ref lab.

```
Select Systems Manager Menu Option: FM  VA FileMan

        VA FileMan Version 22.0


        Enter or Edit File Entries
        Print File Entries
        Search File Entries
        Modify File Attributes
        Inquire to File Entries
        Utility Functions ...
        Data Dictionary Utilities ...
        Transfer Entries
        Other Options ...


Select VA FileMan Option: SEarch File Entries

OUTPUT FROM WHAT FILE: V LAB// UNIVERSAL INTERFACE    (131 entries)

  -A- SEARCH FOR UNIVERSAL INTERFACE FIELD: MESSAGE TEXT     (word-processing)
    -A- CONDITION: CONTAINS
    -A- CONTAINS: 6006110033

  -B- SEARCH FOR UNIVERSAL INTERFACE FIELD:

IF: A//     UNIVERSAL INTERFACE MESSAGE TEXT CONTAINS "6006110033"

STORE RESULTS OF SEARCH IN TEMPLATE:

SORT BY: DATE/TIME//
START WITH DATE/TIME: FIRST//
FIRST PRINT FIELD: [CAPTIONED

Include COMPUTED fields:  (N/Y/R/B): NO// BOTH Computed Fields and Record Number
 (IEN)
Heading (S/C): UNIVERSAL INTERFACE SEARCH  Replace
DEVICE:   Virtual
UNIVERSAL INTERFACE SEARCH                    NOV  4,2006  08:34    PAGE 1
----------------------------------------------------------------------
Note:  This is the outgoing order.

NUMBER: 28003                          DATE/TIME: NOV 01, 2006@13:22:12
  DESTINATION: HL IHS LAB REF LAB          STATUS: COMPLETE
  ACKNOWLEDGE REQUIRED?: NO              MESSAGE ID: IHS-1689527
  LAST DATE/TIME: NOV 01, 2006@13:22:17
  IN/OUT: OUT
  ORIGINATING TRANSACTION TYPE: HL IHS LAB REF LAB O01 OUT CHILD
  LAST ACTIVITY DATE: NOV 01, 2006@13:22:17
  USER WHO CREATED: RUSSELL,DOROTHY K   PRIORITY: 0
  TIME TO PROCESS: 60570,48132          DIVISION: 2522
```

```
ACTIVITY LOG: NOV 01, 2006@13:22:17      LOG ACTION: COMPLETE
 MESSAGE TEXT:
 MSH|^~\&|CLAREMORE|5512|LAB|REF LAB|20061101132212-0500|ORM^O01|IHS-
1689527|P|2.3||NE|NE||CR|
PID|1|145202|999998||DEMO^PATIENT^EIGHT^^^||19880808|F||101 S MOORE AVE^^SPRINGFIELD
^MO^65807||NONE||||5512^^^C|111223333|CR
 ORC|NW|66006110033|||20061101131940||E16509^OTT^PAUL|CR|
 OBR|1|6006110033|8090002^xxPAP SMEAR R8090002||20061101131940|||N|||CERVICAL
CYTOLOGIC MATERIAL|E16509^OTT^PAUL|69569|||||CR
 OBX|1|ST|0000012^IS THIS A LIQUID BASED PAP? YES/NO^REF
LAB||YES|||||20061101131940-0500|CR|
 OBX|2|ST|0000013^IS THIS HPV ONLY-HIGH RISK? YES/NO^REF LAB||NO|||||20061101131940-
0500|CR|
 OBX|3|ST|0000015^IS THIS HPV ASCUS ONLY-HIGH RISK? YES/NO^REF
LAB||NO|||||20061101131940-0500|CR|
 OBX|4|ST|0000017^IS THIS HPV ANY ATYPICAL HIGH RISK? YES/NO^REF
LAB||NO|||||20061101131940-0500|CR|
 OBX|5|ST|8090314^IS THERE PREVIOUS MALIGNANCY? YES/NO^REF LAB||||||20061101131940-
0500|CR|
 OBX|6|ST|8090455^DO YOU WISH A HORMONE EVALUATION? YES/NO^REF
LAB||YES|||||20061101131940-0500|CR|
 OBX|7|ST|8090470^HAS THE PT HAD PREVIOUS RAD THERAPY? YES/NO^REF
LAB||||||20061101131940-0500|CR|
 OBX|8|ST|8090475^ANY OTHER RISK FACTORS?^REF LAB||||||20061101131940-0500|CR|
 OBX|9|ST|8020490^SOURCE (CERVICAL/VAGINAL/BOTH/OTHER)?^REF
LAB||BOTH|||||20061101131940-0500|CR|
 OBX|10|ST|8090460^PROVIDE PT RELEVANT HISTORY:^REF LAB||||||20061101131940-0500|CR|
 OBX|11|ST|8020495^ENTER PREVIOUS CASE# IF KNOWN:^REF LAB||||||20061101131940-
0500|CR|
 OBX|12|ST|8090465^LMP? (MMDDYY)^REF LAB||092506|||||20061101131940-0500|CR|
   TASK NUMBER: 1620683                  TASK DATE/TIME:  2305
   COMPUTED DATE (c): NOV 1,2006

Note:  This is the incoming result and the GIS number for refiling is 28031.

NUMBER: 28031                           DATE/TIME: NOV 01, 2006@16:15:32
   DESTINATION: HL IHS LAB R01 REF LAB IN    STATUS: COMPLETE
   ACKNOWLEDGE REQUIRED?: NO            MESSAGE ID: 11-HL-1
   SOURCE: Incoming message from transceiver HL IHS LAB RECEIVER
   LAST DATE/TIME: NOV 01, 2006@16:15:33
   IN/OUT: IN
   LAST ACTIVITY DATE: NOV 01, 2006@16:15:33
   USER WHO CREATED: GIS,USER           PRIORITY: 0
   TIME TO PROCESS: 60570,58532         SUPRESS FROM OUTPUT: NO
ACTIVITY LOG: NOV 01, 2006@16:15:33      LOG ACTION: COMPLETE
   INCOMING MESSAGE ID: 11
   ORIGINATING SYSTEM: HL IHS LAB R01 REF LAB IN
 MESSAGE TEXT:
 MSH|^~\&|LAB|REF LAB|CLAREMORE|5512|20061101161527.0000-
0600|ORU^R01|11|P|2.3|11|CR|
 PID|1|999998^^^^MRN|999998||DEMO^PATIENT^EIGHT||19880808|F||101 S MOORE AVE^^SP
RINGFIELD^MO^65807^^CD:756||||20061101^^^^CD:1077|111223333|CR
 PV1|1|R||ENC16476795^^^^CD:10||E16509^OTT^PAUL^^^^^^^^^ORGANIZATION
DOCTOR|||||R||||||||||||CD||20061101145300.0000-0600|20061101000000.0000-0600|CR
ORC|RE|6061100033|CR|
 OBR|1|6006110033^HNAM_ORDERID|771980^AP|8850000^Gyn Cytology
Report||20061101123600.0000-0600|||||E16509^OTT^PAUL^^^^^^^^^ORGANIZATION
DOCTOR||00000 P20060000039^HNA_ACCN~2128721^HNA_ACCNID|0|20061101161459.0000-
0600|AP|F||1~^^^^^RM| |CR|
 OBX|1|NM|8850000^Gyn Cytology Report||FOOTNOTE|CR
 NTE|1|C|CR|
 NTE|2|C|CR|
 NTE|3|C|CR|
```

```
NTE|4|C|CR|
NTE|5|C|CR|
NTE|6|C|CR|
NTE|7|C|         GYN Cytology Report|CR
NTE|8|C|CR|
NTE|9|C|         Accession Number:  Collected          Verified|CR
NTE|10|C|                            Date/Time:         Date/Time:|CR
NTE|11|C|          P-06-0000039      11/1/06 12:36:00   11/1/06 4:14:59|CR
NTE|12|C|                            PM                 PM|CR
NTE|13|C|CR|
NTE|14|C|         Gyn Diagnosis Interpretation|CR
NTE|15|C|         General Category|CR
NTE|16|C|         Non-Neoplastic|CR
NTE|17|C|CR|
NTE|18|C|         Diagnosis / Interpretation|CR
NTE|19|C|         Negative for Intraepithelial Lesion or Malignancy|CR
NTE|20|C|CR|
NTE|21|C|         Adequacy Interpretation|CR
NTE|22|C|         Satisfactory for evaluation|CR
NTE|23|C|         Endocervical / transformation zone component present.|CR
NTE|24|C|CR|
NTE|25|C|         Cytotechnologist:  JC|CR
NTE|26|C|         Completed by:  Cai, John|CR
NTE|27|C|         (Electronically signed)|CR
NTE|28|C|         11/01/06|CR
NTE|29|C|CR|
NTE|30|C|         Gyn Specimen|CR
NTE|31|C|         Conventional Pap Test|CR
NTE|32|C|CR|
NTE|33|C|         Focal Point Review|CR
NTE|34|C|         Successful automated screening was performed by Focal Point.|CR
NTE|35|C|CR|
NTE|36|C|CR|
NTE|37|C|CR|
NTE|38|C|CR|
NTE|39|C|CR|
NTE|40|C|CR|
NTE|41|C|CR|
NTE|42|C|CR|
NTE||Regional Medical Laboratory, Inc. 1923 South Utica, Tulsa OK 74104|CR
 COMPUTED DATE (c): NOV 1,2006
```

2. Make a note of the incoming GIS message number(s) and correct any mapping and/or UI test codes before attempting to refile the message(s).

3. Refile the message

```
    LR >> BLR >> REFL >> RAW

Select Reference Lab Main Menu Option: RAW  View/Refile Failed Raw Message(s)

     Select one of the following:

          M        Message Number
          F        File

Select by Message Number or File Name : **Message Number**

Message number: 28031

View/Refile Ref Lab Records   Nov 04, 2006 08:46:02     Page:    1 of    5
```

When the message is displayed, select the option: **R** to Refile

```
DATE/TIME: NOV 01, 2006@16:15:32        DESTINATION: HL IHS LAB R01 REF LAB IN
  STATUS: COMPLETE                      ACKNOWLEDGE REQUIRED?: NO
  MESSAGE ID: 11-HL-1
  SOURCE: Incoming message from transceiver HL IHS LAB RECEIVER
  LAST DATE/TIME: NOV 01, 2006@16:15:33
  IN/OUT: IN
  LAST ACTIVITY DATE: NOV 01, 2006@16:15:33
  USER WHO CREATED: GIS,USER            PRIORITY: 0
  TIME TO PROCESS: 60570,58532          SUPRESS FROM OUTPUT: NO
ACTIVITY LOG: NOV 01, 2006@16:15:33     LOG ACTION: COMPLETE
  INCOMING MESSAGE ID: 11
  ORIGINATING SYSTEM: HL IHS LAB R01 REF LAB IN
 MESSAGE TEXT:
 MSH|^~\&|LAB|REF LAB|CLAREMORE|5512|20061101161527.0000-0600|ORU^R01|11|P|2.3|11|CR
 PID|1|999998^^^^MRN|999998||DEMO^PATIENT^EIGHT||19880808|F||101 S MOORE AVE^^SP
+        Enter ?? for more actions
Select action//R
```

Lab staff should now be able to verify this result using EA.

> **Note**: If a result message has come in without an accession
> number or the wrong accession number, Cimarron staff is
> able to provide directions on how to edit the incoming
> message with the correct identifier prior to refiling it. It is
> recommended that only those individuals very familiar with
> editing in FileMan to attempt to edit the messages.

Changing Order and Result Codes for Existing Tests (Done by LIS Coordinator or Designee or Site Manager):

Periodically the Reference Lab will make changes to order and/or result codes. This may affect
Reference Ranges and Abnormal Flags. This does not have to be too big a project because the
ref ranges, abnormal flags, and remarks that REF LAB sends us are automatically
stored. Basically, all that needs to be done is to change the codes on the existing tests, not build
all new tests.

For example, if you are ordering a CREATININE, current order code 2001900 and result code
2001900, you would do the following:

1. Use the MAP option and change the existing order code from 2001900 to 2025050.

2. Edit the auto instrument file and change the UI test code for CREATININE from 2001900 to
2025050.

For CREATININE SERUM

 1. Use the MAP option and change the existing order code from 3000470 to 2028025.

2. Edit the auto instrument file and change the UI test code for CREATININE SERUM from 3000470 to 2028025.

For COMPREHENSIVE METABOLIC PANEL, current order code 2006075.

1. Use the MAP option and change the existing order code from 2006075 to 2028075.

For BASIC METABOLIC PANEL, current order code 2006025.

1. Use the MAP option and change the existing order code from 2006025 to 2028100

For CREATININE CLEARANCE, current order code 3005350.

1. Use the MAP option and change the existing order code from 3005350 to 2028225.

Troubleshooting Example

This is how Creatinine Clearances look when they come back. I have looked at these and the results should be coming back. Also, these AOE questions do not show up when we order the test and REF LAB has to call and ask for these (HT, WT,& serum creatinine). Would you mind looking at it?

```
ACCESSION:                              SO 0200 816
SENDOUTS                                2/14 19:54d
 CREATININE MG/DL                          64    MG/DL
CR CL ML PLASMA/MIN
BODY SURFACE AREA
 CREATININE CLEARANCE                   244.1    ML/MIN
 CREA UR 24HR EST CALC
 CREA UR 24 HR                            1.9    GM/24
HRS OF COLLECTION                          24    HRS
HEIGHT IN INCHES                           67    INCHES
TOTAL URINE VOLUME                       3000    ML
 SER CREAT                               0.50    MG/DL
```

A. Results

 1. Display the incoming messages from REF LAB to see what was sent:

```
          81  REF LAB-I-6080200816  1164315
     82  REF LAB-I-6080200816  1164329
     83  REF LAB-I-6080200816  1165121
     84  REF LAB-I-6080200816  1165149

81
[************************** Message Statistics ***************************]

CONFIGURATION: REF LAB                    DATE/TIME ENTERED: FEB 15, 2008@15:14:
DATE/TIME OF MESSAGE: FEB 15, 2008@15:12
ENCODING CHARACTERS:  ~\&                  INSTRUMENT NAME: REF LAB-I-6080200816
MESSAGE CONTROL ID: 25108                 MESSAGE NUMBER: 1164315
```

```
MESSAGE TYPE: ORU R01                              MSH: MSH
PRIORITY: 3                                        PROCESSING ID: PRODUCTION
RECEIVING APPLICATION: CLAREMORE                   RECEIVING FACILITY: 5512
SENDING APPLICATION: LAB                           SENDING FACILITY: REF LAB
STATUS: ERROR                                      TYPE: INCOMING
VERSION ID: 2.2

[**************************** Error Message ****************************]

Date: Feb 15, 2008@15:14:47
Text: Msg # 1164315, Test code '3000675' was returned with a result but is not e


[**************************** Text of Message ****************************]

MSH|^~\&|LAB|REF LAB|CLAREMORE|5512|20080215151200.0000-0600||ORU^R01|25108|P|2.2|25
PID|1||150410||xxxxx^xxxx x||19720525|M||U|48716-S568 ROAD^^COLCORD^OK^7433
PV1|1||IH12||||H45107^TECHATHUVANAN, SUPHO|||OP|||||||||R|0000000000^0^0||C||||||
ORC|RE|6080200816|000000000^LA||CM||||20080215151200.0000-0600||||  IH12|||^RESU
OBR|1|6080200816|000000000^LA|3000675^UR MEAS^URINE MEASURE|||20080214195400.000
OBX|1|ST|3000675^UR MEAS^URINE MEASURE||COMPLETE|||||||F|||20080215151200.0000-06
NTE|||Regional Medical Laboratory, Inc. 1923 South Utica, Tulsa OK 74104

82
[**************************** Message Statistics ****************************]

CONFIGURATION: REF LAB                             DATE/TIME ENTERED: FEB 15, 2008@15:38:
DATE/TIME OF MESSAGE: FEB 15, 2008@15:36
ENCODING CHARACTERS:  ~\&                          INSTRUMENT NAME: REF LAB-I-6080200816
MESSAGE CONTROL ID: 25111                          MESSAGE NUMBER: 1164329
MESSAGE TYPE: ORU R01                              MSH: MSH
PRIORITY: 3                                        PROCESSING ID: PRODUCTION
RECEIVING APPLICATION: CLAREMORE                   RECEIVING FACILITY: 5512
SENDING APPLICATION: LAB                           SENDING FACILITY: REF LAB
STATUS: ERROR                                      TYPE: INCOMING
VERSION ID: 2.2

[**************************** Error Message ****************************]

Date: Feb 15, 2008@15:38:59
Text: Msg # 1164329, Test code '9999565' was returned with a result but is not e


[**************************** Text of Message ****************************]

MSH|^~\&|LAB|REF LAB|CLAREMORE|5512|20080215153600.0000-0600||ORU^R01|25111|P|2.2|25
PID|1||150410||xxxxxx^xxxx^x||19720525|M||U|48716-S568 ROAD^^COLCORD^OK^7433
PV1|1||IH12||||H45107^TECHATHUVANAN, SUPHO|||OP|||||||||R|0000000000^0^0||C||||||
ORC|RE|6080200816|000000000^LA||CM||||20080215153600.0000-0600||||  IH12|||^RESU
OBR|1|6080200816|000000000^LA|9999565^CANCEL^CANCELLED TEST|||20080214195400.000
OBX|1|ST|9999565^CANCEL^CANCELLED TEST||FOOTNOTE|||*|||F|||20080215153600.0000-0
NTE|1|C|UNABLE TO PERFORM 24 HOUR URINE PROTEIN, URINE SPECIMEN SUBMITTED WAS
NTE|2|C|COLLECTED IN AN ACID WASHED JUG WHICH IS UNACCEPTABLE.  PLEASE RECOLLECT
NTE|3|C|PLAIN URINE JUG. CHARGES HAVE BEEN CANCELLED.  NOTIFIED SUE THAT URINE W
NTE|4|C|NEED RECOLLECTED FOR PROTEIN ONLY, CREATININE CLEARANCE WOULD BE PERFORM
NTE|||Regional Medical Laboratory, Inc. 1923 South Utica, Tulsa OK 74104

83
[**************************** Message Statistics ****************************]

CONFIGURATION: REF LAB                             DATE/TIME ENTERED: FEB 18, 2008@13:23:
DATE/TIME OF MESSAGE: FEB 18, 2008@13:21
ENCODING CHARACTERS:  ~\&                          INSTRUMENT NAME: REF LAB-I-6080200816
```

```
MESSAGE CONTROL ID: 25265                    MESSAGE NUMBER: 1165121
MESSAGE TYPE: ORU R01                        MSH: MSH
PRIORITY: 3                                  PROCESSING ID: PRODUCTION
RECEIVING APPLICATION: CLAREMORE             RECEIVING FACILITY: 5512
SENDING APPLICATION: LAB                     SENDING FACILITY: REF LAB
STATUS: ERROR                                TYPE: INCOMING
VERSION ID: 2.2


[**************************** Error Message *****************************]


Date: Feb 18, 2008@13:24:01
Text: Msg # 1165121, Test code '2001935' was returned with a result but is not e



[*************************** Text of Message *****************************]

MSH|^~\&|LAB|REF LAB|CLAREMORE|5512|20080218132100.0000-0600||ORU^R01|25265|P|2.2|25
PID|1||150410||xxxxxx^xxxxx^xxx||19720525|M||U|48716-S568 ROAD^^COLCORD^OK^7433
PV1|1||IH12||||H45107^TECHATHUVANAN, SUPHO|||OP||||||||R|0000000000^0^0||C||||||
ORC|RE|6080200816|000000000^LA||CM||||20080218131300.0000-0600||||  IH12|||^RESU
OBR|1|6080200816|000000000^LA|2028225^CREA CL UR^CREATININE CLEARANCE|||20080214
OBX|1|NM|3000650^NBR HRS^NUMBER OF HOURS OF COLLECTION||24|HRS|||||F|||200802181
OBX|2|NM|2001935^SERCREATIN^SERUM CREATININE FOR CREAT CL||0.50|MG/DL|0.50-1.40|
OBX|3|NM|3000700^UR VOL^TOTAL URINE VOLUME||3000|ML||R|||F|||20080218131300.0000
OBX|4|NM|3002050^CREAT MG/D^24 HOUR CREATININE MG/DL||64|MG/DL||R|||F|||20080218
OBX|5|NM|2028025^SER CREAT^CREATININE SERUM||0.50|MG/DL|0.50-1.30||||F|||2008021
OBX|6|NM|2014150^CLEARANC^CREATININE CLEARANCE||244.1|ML/MIN|82.0-140.0|H||F|||
OBX|7|NM|3003600^HGHT INCH^CALCULATED HEIGHT IN INCHES||67|INCHES|0-130||||F|||2
OBX|8|NM|2014250^24 HR CRE^CREATININE URINE 24 HOUR||1.9|GM/24|0.8-1.8|H|||F|||2
NTE|||Regional Medical Laboratory, Inc. 1923 South Utica, Tulsa OK 74104

84
[*************************** Message Statistics ***************************]

CONFIGURATION: REF LAB                       DATE/TIME ENTERED: FEB 18, 2008@15:06:
DATE/TIME OF MESSAGE: FEB 18, 2008@15:04
ENCODING CHARACTERS:  ~\&                     INSTRUMENT NAME: REF LAB-I-6080200816
MESSAGE CONTROL ID: 25269                     MESSAGE NUMBER: 1165149
MESSAGE TYPE: ORU R01                         MSH: MSH
PRIORITY: 3                                   PROCESSING ID: PRODUCTION
RECEIVING APPLICATION: CLAREMORE              RECEIVING FACILITY: 5512
SENDING APPLICATION: LAB                      SENDING FACILITY: REF LAB
STATUS: ERROR                                 TYPE: INCOMING
VERSION ID: 2.2


[**************************** Error Message *****************************]


Date: Feb 18, 2008@15:06:18
Text: Msg # 1165149, Test code '2925235' was returned with a result but is not e



[*************************** Text of Message *****************************]

MSH|^~\&|LAB|REF LAB|CLAREMORE|5512|20080218150400.0000-0600||ORU^R01|25269|P|2.2|25
PID|1||150410||xxxxxx^xxxx^xxx||19720525|M||U|48716-S568 ROAD^^COLCORD^OK^7433
PV1|1||IH12||||H45107^TECHATHUVANAN, SUPHO|||OP||||||||R|0000000000^0^0||C||||||
ORC|RE|6080200816|000000000^LA||CM||||20080218150300.0000-0600||||  IH12|||^RESU
OBR|1|6080200816|000000000^LA|2925235^NOTIFY^AFTERHOURS CALL RESULTS|||200802141
OBX|1|ST|2925235^NOTIFY^AFTERHOURS CALL RESULTS||COMPLETE||||||F|||2008021815030
NTE|||Regional Medical Laboratory, Inc. 1923 South Utica, Tulsa OK 74104
```

2. Do a fileman inquiry from the Laboratory Test file to see how the test is defined. (May also use option to Inquire into a Test Entry. LAB >> SUP >> INQUIRE

```
LABTEST IEN: 9999624                    NAME: CREATININE CLEARANCE R2028225
 TYPE: INPUT (CAN BE ORDERED)
 SUBSCRIPT: CHEM, HEM, TOX, SER, RIA, ETC.
 UNIQUE ACCESSION #: YES            UNIQUE COLLECTION SAMPLE: YES
 LAB COLLECTION SAMPLE: URINE, 24 HOUR
 HIGHEST URGENCY ALLOWED: ROUTINE      REQUIRED TEST: YES
 PRINT NAME: CREA CL
NUMBER: 1                              LAB TEST: TOTAL URINE VOLUME
NUMBER: 2                              LAB TEST:  CREATININE MG/DL
NUMBER: 3                              LAB TEST:  SER CREAT
NUMBER: 4                              LAB TEST: CR CL ML PLASMA/MIN
NUMBER: 5                              LAB TEST: BODY SURFACE AREA
NUMBER: 6                              LAB TEST:  CREATININE CLEARANCE
NUMBER: 7                              LAB TEST:  CREA UR 24HR EST CALC
NUMBER: 8                              LAB TEST:  CREA UR 24 HR
NUMBER: 10                             LAB TEST: HEIGHT IN INCHES
NUMBER: 11                             LAB TEST: HRS OF COLLECTION
```

3. Add tests to Laboratory test file and panel as required.

4. If you make any changes to the panel, "reset the pointers" by re-entering the test in the load/worklist file and remapping.

5. Add additional tests or changed codes as UI test codes in the Auto Instrument file.

CREATININE CLEARANCE	NBR HRS	3000650	1 THROUGH 24
	HEIGHT FT	3003500	0 THROUGH 9
	HEIGHT IN	3003550	1 THROUGH 11
	WEIGHT	3000600	ANY
	SECREATIN	2001935	OPTIONAL

6. Find and refile raw message.

B: Ask at Order Questions:

1. Look at the mapping spreadsheet provided by REF LAB to see what tests and codes can be sent to REF LAB for ask at order questions.

2. Be sure these tests are members of your test panel. If not, build them and add them as members of the test panel.

3. **If you change the panel, reset the test pointers i**n the Load/Worklist and Mapping file.

4. Add the new tests with their result codes as UI test codes to the Auto Instrument file.

5. Add the 5 result codes associated with ask at order questions to the field ORDER ENTRY RESULT CODE: when mapping the order code.

```
TEST NAMES: CREATININE CLEARANCE R2028225  Replace
LAB TEST POINTER: CREATININE CLEARANCE R2028225//
```

```
ORDER CODE: 2028225//
RESULT CODE:
ORDER ENTRY QUESTION:
Select ORDER ENTRY RESULT CODE: 3000650
                                 3003500

                                                      3003550
                                                      3000600
                                                      2001915
```

6. Map each of the result codes and for each associated with an ask at order question, be sure to word your question to solicit the desired answer format:

```
Map which Reference Lab Test: 2001915  SERUM CREATININE          2001915
TEST NAMES: SERUM CREATININE//
LAB TEST POINTER: CREATININE//  ← not the right pointer
ORDER CODE:
RESULT CODE: 2001935//
ORDER ENTRY QUESTION: SERUM CREATININE? (VALUE IN MG/DL)

Map which Reference Lab Test: 3000650  NBR HRS          3000650
TEST NAMES: NBR HRS//
LAB TEST POINTER: HRS OF COLLECTION//
ORDER CODE:
RESULT CODE: 3000650//
ORDER ENTRY QUESTION: # OF HRS OF COLLECTION? (1-24)
```

RELATED DOCUMENTS:

2010SO-09   Reference Lab Interface: Ordering, Packaging Specimens with Shipping Manifest, Drop off Final Reports to Chemistry & Filing Reports

REFERENCE:

Training Manual RPMS Reference Laboratory Interface using the Generic Interface System. Developed by Cimarron Medical Informatics, LLC

Laboratory Reference (LR) User Manual, Version 5.2 Patch 21, Information Technology Support Center, Albuquerque, NM

Troubleshooting Guide for Bi-directional Interfaces (Cimarron Medical Informatics Personal)