RESOURCE AND PATIENT MANAGEMENT SYSTEM

Laboratory Reference

(LR)

Laboratorian Guide

Version 5.2 Patch 1030
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Office of Information Technology (OIT)
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Preface

The purpose of this guide is to provide the Lab Manager with documentation that will aid in their use of the enhancements and/or updates of RPMS Laboratory v5.2 Patch 1030.

1.0 Introduction

RPMS Laboratory v5.2 Patch 1030 incorporates changes to the IHS Lab Package that have either corrected identified issues or implemented enhancements. It also incorporates various Veteran Administration (VA) patches in order to facilitate the mandated process of VA and IHS convergence of the Lab Package.

This guide provides IHS Laboratorians with descriptions of the changes and/or enhancements and other information.

The first section of this guide provides IHS Laboratorians with descriptions of the changes and/or enhancements, testing steps, and a testing checklist. The second section of this guide provides detailed information about the reference laboratory interface changes and setup. A summary of some of the important changes is listed below.

1.1 Laboratory

- A reminder to add active lab users to the *LMI Mail Group*. It is imperative that this mail group be monitored in this release and future releases.
- New routines have been added for those sites that are having issues with their *Intermec Label Printers*. This enhancement will only need to be tested if your site uses Intermec printers and there are issues.
- For the *Count Accessioned Tests Reports* - a series of new routines were written that produce a report duplicating the results of the Count Accessioned Tests report, but uses the Lab Data file to gather information. This will aid those RPMS Electronic Health Record (EHR) sites that have a need to purge the Lab Order and Accession files frequently, the previous Count Accessioned Tests report can be incorrect because it uses the Accession file to gather information.
- The routine that is run when the **LS Link Transaction Processor Status** option on the BLRMENU is selected has been enhanced and will display more information.
- The *Order/test status* report has been modified for easier viewing.
- There have been changes to the *Estimated Average Glucose (EAG)* test. This includes storing the EAG calculation in the Lab Data file, as well the reference ranges and units.
- This new functionality has been added that will allow the Lab module to prompt a user ordering a test with a series of questions. These *Ask-at-Order* questions will only display during order entry in RPMS Laboratory in the following options:
  - Ward Order Entry

- Multipurpose Accessioning [LRQUICK]
- Fast Order Bypass

1.2 Reference Laboratory Interface Enhancements

- An addition has been made to the BLR Reference Laboratory file for Northern Plains Laboratory (NPL). (GIS Interface)
- An addition has been made to the BLR Reference Laboratory file for Pathology Associates Medical Laboratory (PAML). (GIS Interface)
- An addition has been made to the BLR Reference Laboratory file for Marshfield Clinic Laboratory.

> **Note:** This is a preliminary distribution for an interface that will be implemented in the future. (GIS Interface)

- The HL7 filers and Ensemble production that may be used to implement a bidirectional billing interface with Quest Diagnostics using HL7 Version 1.6 and Ensemble as the interface engine. (VA LEDI interface and Ensemble) have been added.

> **Note:** There is a technical addendum, *Laboratory Reference (LR) Technical Addendum Version 5.2 Patch 1030 September 2011 (File Name lr__0520.30oa.pdf)*, to this patch which includes the directions on how to install and configure the LEDI production (LR.VALediIII.htm) and set up the HL7 filers in RPMS.

- A modification has been made to the interface routines to permit display of a result flag of A for an Abnormal qualitative result transmitted by a reference laboratory. The Key on the Interim Report has been modified to include the reference, A=Abnormal

2.0 LMI Mail Group

In order for the Laboratory Module to function effectively, it is imperative that active lab users are assigned to the LMI Mail Group and that the LMI Mail Group is maintained.

Numerous Lab Module routines send informational MailMan messages to the members of the LMI Mail Group.

Members of the LMI Mail group should review their MailMan messages daily.

3.0 New Intermec Printer Lab Label Routines

Two new lab label routines for Intermec printers have been added to the IHS Lab namespace: BLRIPLZI and BLRIPLZP. These routines were developed to eliminate the necessity of sending binary code (i.e., ASCII code sequences less than 32 but greater than zero) from RPMS to the printer.

These routines will only work with Intermec printers that can interpret Intermec Printer Language (IPL) commands.

3.1 Barcode Label Printed Fields

For barcode labels, the fields that printed are:

- Accession Number in code 39 symbology
- Accession String
- Date/Time
- Date of Birth
- Health Record Number
- Location
- Order Number
- Patient Name
- Provider
- Sex
- Test(s)
- Top/Specimen
- Urgency

Note: These routines do not print any other barcode symbology

3.2 Plain Label Printed Fields

For plain labels, the fields that are printed are:

- Accession String
- Date/Time
- Date of Birth
- Health Record Number

- Location
- Order Number
- Patient Name
- Provider
- Sex
- Test(s)
- Top/Specimen
- Urgency

3.3 Initialization Routine: BLRIPLZI

The BLRIPLZI routine is the initialization routine that formats an Intermec Printer.

3.4 Print Routine: BLRIPLZP

The BLRIPLZP routine prints the lab variables on the Intermec printer.

3.5 ZLOAD and ZSAVE the BLRIPLZP Routine

LRLABEL4 is the routine used by the Laboratory system to print labels. This routine must be overwritten by the BLRIPLZP routine in order for the printer to work correctly. This is accomplished by using the ZLOAD (ZL) command to place the BLRIPLZP routine into the system's memory, followed by the ZSAVE (ZS) command that will save and overwrite the routine in memory to whatever routine name that follows the command.

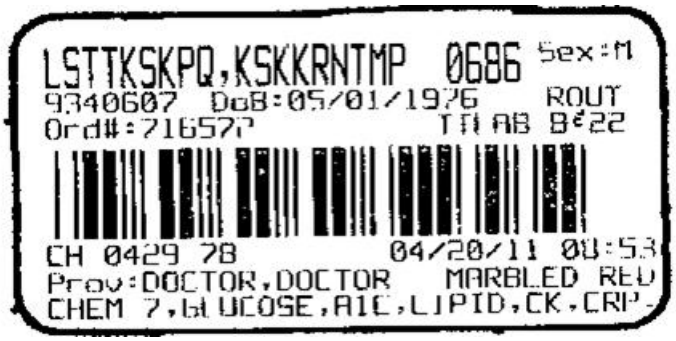
The following two commands accomplish the over-writing of the LRLABEL4 routine. The commands must be done in programmer mode after a successful installation of RPMS Laboratory v5.2 Patch 1030:

```
ZL BLRIPLZP
ZS LRLABEL4
```

Figure 3-1: Example of how to overwrite the LRLABEL4 routine

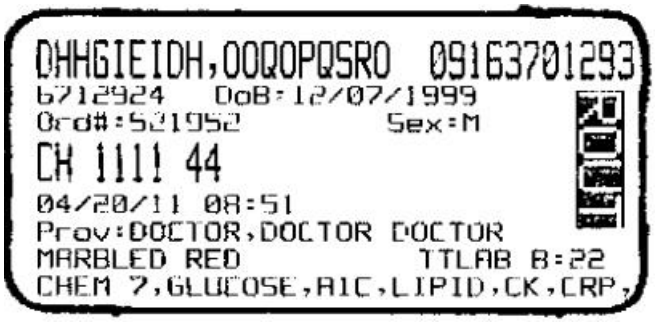
3.6 Barcode Label Example

The following is an example of how the barcode label will look:



3.7 Plain Label Example

The following is an example of how the plain label will look:



3.8 Modification of BLR STARTUP FOR INTERMEC 7421 Option

It is recommended that the option BLR STARTUP FOR INTERMEC 7421 in the OPTION (# 19) file be modified. Currently, it should be similar to the following:

```
NAME: BLR STARTUP FOR INTERMEC 7421
  MENU TEXT: Will restart the 7421 label routine if turned off.
  TYPE: run routine                    CREATOR: KRING,MICHAEL
 DESCRIPTION:   This option will run the routine BLRBARC to restart the
 Intermec 7421 label printer if it is turned off.
  ROUTINE: BLRBARC                     SCHEDULING RECOMMENDED: YES
  UPPERCASE MENU TEXT: WILL RESTART THE 7421 LABEL RO
```

Figure 3-2: Example of the BLR STARTUP FOR INTERMEC 7421 option

The ROUTINE field should be changed to BLRIPLZI. It then should look similar to the following:

```
NAME: BLR STARTUP FOR INTERMEC 7421
  MENU TEXT: Will restart the 7421 label routine if turned off.
  TYPE: run routine                    CREATOR: KRING,MICHAEL
 DESCRIPTION:   This option will run the routine BLRBARC to restart the
 Intermec 7421 label printer if it is turned off.
  ROUTINE: BLRIPLZI                     SCHEDULING RECOMMENDED: YES
```

```
  UPPERCASE MENU TEXT: WILL RESTART THE 7421 LABEL RO
```

Figure 3-3: Example of the BLR STARTUP FOR INTERMEC 7421 option with new routine

This change will allow users to access the 7421 option on the BLRMENU that will initialize the printer using the new barcode routine.

The BLRMENU should look like the following:

```
                          IHS Lab Main Support Menu

   LS     Link Transaction Processor Status
   7421   Will restart the 7421 label routine if turned off.
   INQ    Inquire into the IHS LAB Transaction Log
   FLD    Search Transactions for PCC LINK DISABLE Error
   RSN    Requeue by Sequence Number
   RST    Requeue Transaction by Sort Template
   CPT    Enter/edit IHS Lab CPT File
   FAL    Find ALL PCC Link Errors from Lab
   STP    Stop/restart Lab to PCC Transaction Processor
   MSTR   Enter/edit BLR MASTER CONTROL FILE
   POV    Purpose of Visit Compliance Report
   BZY    IHS Taskman Busy Device Rpt
   CLR    CLEAR BLR ERRORS ...
   CUM    IHS CUMULATIVE MENU ...
   ETP    LA7 Message Queue Error Messages to Purgeable
   LOI    IHS Lab Package LOINC Percentage Report
   LVP    IHS Lab Version & Patch Report
   MMR    Lab Description Abbreviation Report
   NLO    Lab Tests Without LOINC Entries Report
   REFL   Reference Lab Main Menu ...
   SHDR   State Health Dept Report

Select IHS Lab Main Support Menu Option:
```

Figure 3-4: Example of the BLRMENU with the 7421 option

3.9 TEST^BLRIPLZI

The BLRIPLZI routine has a test sub-routine that can be utilized from programmer mode by entering TEST^BLRIPLZI at the programmer prompt (note that the P3400E is only used as an example -- the DEVICE should be whatever the Intermec printer's name is in the DEVICE file):

```
D TEST^BLRIPLZI
DEVICE: HOME// P3400E  DESKTOP    Right Margin: 80//
```

Figure 3-5: Example of how to access test sub-routine

The routine prompts for the label printer's DEVICE name and then prints two labels: (1) a barcode label and (2) a plain label. The examples in Section 3.6 and Section 3.7 were created using the TEST^BLRIPLZI sub-routine.

4.0 Count Accessioned Tests Using Lab Data File

Due to the necessity for RPMS Electronic Health Record (EHR) sites to purge the Lab Order and Accession files frequently, the Count Accessioned Tests report can be incorrect because it uses the Accession file to gather information. A series of new routines were written that produce a report duplicating the results of the Count Accessioned Tests report, but uses the Lab Data file to gather information.

> **Note:** Because the compilation of data can take several hours, the report routine automatically tasks all requests for compilation.

The main algorithms of the original Count Accession Tests report have been replicated, though all data for the report comes from the Lab Data file and PCC.

4.1 New Options

Four new options have been created in order to facilitate the use of the new routines.

> **Note:** All options have been secured with the LRSUPER security key.

4.1.1 BLRLUOPT Option

The BLRLUOPT option is the option that displays the compilation, report, and purge options. Selecting the BLRLUOPT option will produce a display similar to the following:

```
                  Count Accessioned Tests Using Lab Data File


   COMP   Compile Data for Count Accessioned Tests Reports
   REPT   Count Accessioned Tests Reports
   PURG   Purge An Accessioned Tests Report

Select Count Accessioned Tests Using Lab Data File Option:
```

Figure 4-1: Example of the BLRLUOPT option

The BLRLUOPT option is a menu option composed of the Compilation (BLRLUPAC) option, the Reports (BLRLURPT) option, and the Purge (BLRLUPRG) option.

It is recommended that the BLRUOPT option be placed on the BLRMENU so that Lab personnel with the LRSUPER security key will have easy access.

> **Note:** The BLRLUOPT option is not added to the BLRMENU by this patch. That must be done manually by the site.

4.1.2 BLRLUPAC Option

The BLRLUPAC compilation option reads the Lab data file and compiles the information to be used for reporting. It allows the user to first select the Accession Area.

```
                              DEMO HOSPITAL
Date:01/19/11             Count Accessioned Tests             Time:11:35 AM
------------------------------------------------------------------------------

Select ACCESSION AREA:
Figure 3.2 Example of the BLRLUPAC Select Accession Area prompt
Once the Accession Area has been selected, the user is prompted for a
beginning date.

                              DEMO HOSPITAL
Date:01/19/11             Count Accessioned Tests             Time:11:36 AM
------------------------------------------------------------------------------

Start with Date: TODAY//
```

Figure 4-2: Example of the BLRLUPAC Start Date prompt

And then an ending date:

```
                              DEMO HOSPITAL
Date:01/19/11             Count Accessioned Tests             Time:11:36 AM
------------------------------------------------------------------------------

Start with Date: TODAY// 1/1/2010  (JAN 01, 2010)
Go back to   Date TODAY// 12/31/2010
```

Figure 4-3: Example of the BLRLUPAC End Date prompt

Once the ending date is entered, the task is queued to TaskMan.

```
                              DEMO HOSPITAL
Date:01/19/11             Count Accessioned Tests             Time:11:36 AM
------------------------------------------------------------------------------

Start with Date: TODAY// 1/1/2010  (JAN 01, 2010)
Go back to   Date TODAY// 12/31/2010  (DEC 31, 2010)

Queuing Compilation

     Job 112857 Queued

         Press RETURN Key:
```

Figure 4-4: Compilation queued

The compilation phase can take hours. Once the compilation has been completed, a MailMan e-mail is sent to the user who tasked the compilation job, informing them that it has finished. The MailMan message should look similar to the following in MailMan:

```
Subj: Compilation of Lab Accession and Test counts Report Completed.
[#10565]
04/27/11@11:35  10 lines
From: BLRLUPAC  In 'IN' basket.   Page 1  *New*
-------------------------------------------------------------------------
Compilation of Lab Accession and Test counts Report Completed.

Accession Area:URINALYSIS (UA)

Date Range: 01/01/2007 thru 12/31/2007.

START=04/27/2011@08:52  END=04/27/2011@11:35
     Compilation took: 2:43:43

Date/Time of compilation:04/27/2011@08:52

Enter message action (in IN basket): Ignore//
```

Figure 4-5: MailMan message example

The MailMan message will also indicate when the compilation process failed to discover data that fit the selection criteria, if it occurs. Such a message would look similar to the following:

```
Subj: Compilation of Lab Accession and Test counts Report Completed.
[#10562]
04/27/11@08:42  13 lines
From: BLRLUPAC  In 'IN' basket.   Page 1  *New*
-------------------------------------------------------------------------
Compilation of Lab Accession and Test counts Report Completed.

Accession Area:CHEMISTRY (CH)

Date Range: 01/01/2009 thru 12/31/2009.

START=04/27/2011@08:42  END=04/27/2011@08:42
     Compilation took:

Date/Time of compilation:04/27/2011@08:42

 >>> NO DATA GATHERED.  REPORTS WILL BE EMPTY. <<<

Enter message action (in IN basket): Ignore//
```

Figure 4-6: MailMan message example indicating no data found

4.1.3 BLRLURPT Option

The BLRLURPT option is used to print/view a compiled report.

It first displays a menu of compilations similar to the following:

```
                              DEMO HOSPITAL
Date:02/01/11         Lab accession and test counts            Time:8:35 AM
                               Report Selection
------------------------------------------------------------------------------

Select one of the Date/Time Compilations below:

            Compiled         Acc Area    Begin Date     End Date
         --------------      --------    ----------     ----------
      1) 3101230.155017      UA          01/01/2007     12/31/2007
      2) 3110113.09334       SO          01/01/2010     12/31/2010
      3) 3110119.113721      CH          01/01/2010     12/31/2010

Enter Response (1-3):
```

Figure 4-7: Compilation screen

Once the compilation is selected, the reports screen is displayed:

```
                              DEMO HOSPITAL
Date:02/01/11          Lab accession and test counts           Time:8:39 AM
                              Report Selection                    BLRLUAC2
------------------------------------------------------------------------------
    1    Topography File Counts
    2    Topography File & Laboratory Tests Counts
    3    Laboratory Test Counts
    4    Location File Counts
    5    Location File & Laboratory Tests Counts
    6    Institution File Counts
    7    Institution File & Laboratory Tests Counts
    8    Compilation Errors

Select:  (1-8):
```

Figure 4-8: Report Selection screen

The user will then select the report.

4.1.3.1 Topography File Counts report

The Topography File Counts report will look similar to the following:

```
                              DEMO HOSPITAL
Date:02/01/11          Lab accession and test counts                Page 1
Time:8:43 AM           SO Accession Area Counts Only              BLRLUAC6
                         Topography File (# 61) Report
                      Date Range: 01/01/2010 thru 12/31/2010

    IEN       Description                                            Count
------------------------------------------------------------------------------
    70        BLOOD                                                    280
    71        URINE                                                      3
    72        SERUM                                                     34
    73        PLASMA                                                     1
    140       EYE                                                        4
```

```
    6243      ENDOCERVICAL CYTOLOGIC MATERIAL                              1
    8848      SEE BELOW                                                   40
                                                                     ----------
              TOTALS                                                     363

         Press RETURN Key:
```

Figure 4-9: Topography File Report

4.1.3.2 Topography File and Laboratory Tests Counts report

The Topography File and Laboratory Tests Counts report will look similar to the following:

```
                                  DEMO HOSPITAL
Date:06/08/11            Lab Accession and Test Counts              Page 1
Time:1:07 PM             SO Accession Area Counts Only            BLRLUAC4
               Topography (# 61) & Laboratory Test (# 60) Report
                     Date Range: 01/01/2011 thru 05/31/2011

======= TOPOGRAPHY (File 61) =====   ==== LABORATORY TEST (File 60) ======
IEN     Description                   IEN       Description          Count
-------------------------------------------------------------------------
70       BLOOD                        36        FIBRIN SPLIT PRODU       1
                                      97        HEMOGLOBIN A1C
1
                                      114       ZZ-CORTISOL              1
                                      173       CREATININE               1
                                      174       UREA NITROGEN            1
                                      175       GLUCOSE (R)             90
                                      176       SODIUM                   4
                                      177       POTASSIUM                6
                                      178       CHLORIDE                 1
                                      179       CARBON DIOXIDE           1
                                      180       CALCIUM                  2
                                      227       ALDOLASE  Q227           1
                                      231       ZZ ANTI SMOOTH MUS       1
                                      252       ZINC                     1
                                      484       HLA B27                  2
                                      1160      ANION GAP                1
                                      9999017   BUN/CR RATIO             1
                                      9999049   ESTIMATED GFR            1
                                      9999072   THINPREP/GC/CHLAMY       1
                                      9999302   _HEPATITIS C AB          3
                                      9999404   HEP B CORE IGM Q48       1
                                      9999596   ESTIMATED AVERAGE        1
                                      9999611   eGFR IF AFR AM           1
                                                                   -------
70       BLOOD TOTALS                                                  124

71       URINE                         460       COCAINE                1
                                                                   -------
71       URINE TOTALS                                                    1

72       SERUM                         9999638   DTCFREE                1
                                       9999639   DTCSETC                2
                                                                   -------
72       SERUM TOTALS                                                    3
```

```
73       PLASMA                          9999613   _GLUCOSE                5
                                                                          -------
73       PLASMA TOTALS                                                        5

                                                                          -------
         TOPOGRAPHY (File 61) Totals                                        133
```

Figure 4-10: Topography File & Laboratory Tests Counts Report

4.1.3.3 Laboratory Tests Counts report

The Laboratory Tests Counts report will look similar to the following:

```
                              DEMO HOSPITAL
Date:02/01/11          Lab accession and test counts                Page 2
Time:8:52 AM           SO Accession Area Counts Only              BLRLUAC5
                        Laboratory Test File (# 60) Sort
                     Date Range: 01/01/2010 thru 12/31/2010

    IEN       Description                                             Count
-------------------------------------------------------------------------------
    183       Total Cholesterol                                           1
    184       PROTEIN,TOTAL                                              10
    185       ALBUMIN                                                    10
    186       T BILIRUBIN (R)                                            22
    188       ALKALINE PHOSPHATASE                                       10
    190       AST                                                        10
    191       ALT                                                        10
    232       _MITOCHONDRIAL AB                                           1
    262       _LEAD, BLOOD                                                1
    322       FREE T4                                                     3
    669       VITAMIN B-12  Q927                                          4
    835       GLOBULIN                                                   13
    1100      A/G RATIO                                                  10

Enter RETURN to continue or '^' to exit:
```

Figure 4-11: Laboratory Test File Report

4.1.3.4 Location File Counts report

The Location File Counts report will look similar to the following:

```
                              DEMO HOSPITAL
Date:02/01/11          Lab accession and test counts                Page 1
Time:8:56 AM           SO Accession Area Counts Only              BLRLUAC5
                        Hospital Location File (# 44) Sort
                     Date Range: 01/01/2010 thru 12/31/2010

    IEN       Description                                             Count
-------------------------------------------------------------------------------
    2         INPATIENT                                                   2
    40        HATCH - RHEUMATOLOGY                                        1
    103       EMERGENCY ROOM                                             19
    153       LAB                                                       257
    154       ER-LAB                                                     50
    227       INPATIENT-LAB                                               5
```

```
    379       MANISTIQUE                                                  1
                                                                    -----------
              TOTALS                                                    335


         Press RETURN Key:
```

Figure 4-12: Location File Report

4.1.3.5 Location File and Laboratory Tests Counts report

The Location File and Laboratory Tests Counts report will look similar to the following:

```
                                DEMO HOSPITAL
Date:06/08/11          Lab Accession and Test Counts                 Page 1
Time:1:11 PM           SO Accession Area Counts Only               BLRLUAC3
            Hospital Location (# 44) & Laboratory Test (# 60) Report
                     Date Range: 01/01/2011 thru 05/31/2011

== HOSPITAL LOCATION (File 44) ====   ==== LABORATORY TEST (File 60) ======
IEN      Description                   IEN       Description          Count
-------------------------------------------------------------------------
103      EMERGENCY ROOM                36        FIBRIN SPLIT PRODU       1
                                       97        HEMOGLOBIN A1C           1
                                       173       CREATININE               1
                                       174       UREA NITROGEN            1
                                       175       GLUCOSE (R)             60
                                       176       SODIUM                   1
                                       177       POTASSIUM                1
                                       178       CHLORIDE                 1
                                       179       CARBON DIOXIDE           1
                                       180       CALCIUM                  2
                                       231       ZZ ANTI SMOOTH MUS       1
                                       252       ZINC                     1
                                       484       HLA B27                  1
                                       1160      ANION GAP                1
                                       9999017   BUN/CR RATIO             1
                                       9999049   ESTIMATED GFR            1
                                       9999072   THINPREP/GC/CHLAMY       1
                                       9999302   _HEPATITIS C AB          3
                                       9999404   HEP B CORE IGM Q48       1
                                       9999611   eGFR IF AFR AM           1
                                                                     -------
         EMERGENCY ROOM TOTAL                                           82

153      LAB                           176       SODIUM                   1
                                       177       POTASSIUM                1
                                       9999638   DTCFREE                  1
                                       9999639   DTCSETC                  2
                                                                     -------
         LAB TOTAL                                                       5

154      ER-LAB                        114       ZZ-CORTISOL              1
                                       175       GLUCOSE (R)             25
                                       176       SODIUM                   2
                                       177       POTASSIUM                4
                                       227       ALDOLASE  Q227           1
                                       460       COCAINE                  1
```

```
                                    484       HLA B27                  1
                                    9999613   _GLUCOSE                 5
                                                                     -------
         ER-LAB TOTAL                                                   40
                                                                     -------
         HOSPITAL LOCATION (File 44) TOTALS                            127
```

Figure 4-13: Location File & Laboratory Tests Counts Report

4.1.3.6 Institution File Counts report

The Institution File Counts report will look similar to the following:

```
                              DEMO HOSPITAL
Date:02/01/11          Lab accession and test counts                Page 1
Time:9:04 AM           SO Accession Area Counts Only              BLRLUAC7
                          Institution File (# 4) Sort
                     Date Range: 01/01/2010 thru 12/31/2010

    IEN       Description                                            Count
-------------------------------------------------------------------------
    497       DEMO HOSPITAL                                            102
    7737      QUEST DIAGNOSTICS                                        261
                                                                   ----------
              TOTALS                                                   363

         Press RETURN Key:
```

Figure 4-14: Institution File Report

4.1.3.7 Institution File and Laboratory Tests Counts report

The Institution File and Laboratory Tests Counts report will look similar to the following:

```
                              DEMO HOSPITAL
Date:06/08/11          Lab Accession and Test Counts                Page 1
Time:1:12 PM           SO Accession Area Counts Only              BLRLUAC7
               Institution (# 4) & Laboratory Test (# 60) Report
                     Date Range: 01/01/2011 thru 05/31/2011

====== INSTITUTION (File 4) ======   ===== LABORATORY TEST (File 60) ======
IEN      Description                 IEN       Description            Count
-------------------------------------------------------------------------
-----
497      DEMO HOSPITAL               36        FIBRIN SPLIT PRODU         1
                                     97        HEMOGLOBIN A1C             1
                                     114       ZZ-CORTISOL                1
                                     173       CREATININE                 1
                                     174       UREA NITROGEN              1
                                     175       GLUCOSE (R)               90
                                     176       SODIUM                     4
                                     177       POTASSIUM                  6
                                     178       CHLORIDE                   1
                                     179       CARBON DIOXIDE             1
                                     180       CALCIUM                    2
                                     227       ALDOLASE  Q227             1
```

```
                                    231       ZZ ANTI SMOOTH MUS         1
                                    252       ZINC                       1
                                    460       COCAINE                    1
                                    484       HLA B27                    2
                                    1160      ANION GAP                  1
                                    9999017   BUN/CR RATIO               1
                                    9999049   ESTIMATED GFR              1
                                    9999072   THINPREP/GC/CHLAMY         1
                                    9999302   _HEPATITIS C AB            3
                                    9999404   HEP B CORE IGM Q48         1
                                    9999596   ESTIMATED AVERAGE          1
                                    9999611   eGFR IF AFR AM             1
                                    9999613   _GLUCOSE                   5
                                    9999638   DTCFREE                    1
                                    9999639   DTCSETC                    2
                                                                      -------
         DEMO HOSPITAL TOTAL                                              133
                                                                      -------
         TOTALS                                                           133
```

Figure 4-15: Institution File & Laboratory Tests Counts Report

4.1.3.8 Compilation Errors report

The Compilation Errors report will look similar to the following:

```
                              DEMO HOSPITAL
Date:04/28/11          Lab accession and test counts                 Page 1
Time:2:31 PM                 UA Accession Area                     BLRLUAC8
                           Compilation Errors Report
                      Date Range: 01/01/2007 thru 12/31/2007

                                    ====== LABORATORY TEST (File 60) ======
Error Description         Count     IEN       Description           Count
-------------------------------------------------------------------------
No File 44 Data in V FILE   26650   141       URINE COLOR              1420
                                    143       SPECIFIC GRAVITY         1420
                                    144       URINE UROBILINOGEN       1420
                                    146       URINE BILIRUBIN          1420
                                    147       URINE KETONES            1420
                                    148       URINE GLUCOSE            1420
                                    149       URINE PROTEIN            1420
                                    150       URINE PH                 1420
                                    151       URINE WBC                 722
                                    152       URINE EPITH CELLS         757
                                    153       URINE BACTERIA            616
                                    154       URINE MUCUS               338

Enter RETURN to continue or '^' to exit:
```

Figure 4-16: Compilation Errors Report

4.1.4 BLRLUPUR Option

The BLRLUPUR option allows the user to purge a compiled report. It first displays a menu of compiled reports similar to the following:

```
                              DEMO HOSPITAL
Date:02/01/11          Lab accession and test counts           Time:8:22 AM
                         Report To Be Purged Selection
------------------------------------------------------------------------------


Select one of the Date/Time Compilations below to be purged:

            Compiled         Acc Area    Begin Date     End Date
         --------------      --------    ----------     ----------
      1) 3101230.155017      UA          01/01/2007     12/31/2007
      2) 3110113.09334       SO          01/01/2010     12/31/2010
      3) 3110119.113721      CH          01/01/2010     12/31/2010


Enter Response (1-3):
```

Figure 4-17: Main Purge screen

Once the compiled test has been selected, the user is prompted to confirm the selection.

```
                              DEMO HOSPITAL
Date:02/01/11          Lab accession and test counts           Time:8:23 AM
                            Report Selected To Be Purged
------------------------------------------------------------------------------

The Date/Time Compilation below has been selected to be purged.

            Compiled         Acc Area    Begin Date     End Date
         --------------      --------    ----------     ----------
      1) 3101230.155017      UA          01/01/2007     12/31/2007

Purge the above compilation? NO//
```

Figure 4-18: Confirmation screen

The default answer is NO. If NO is selected, the following message is displayed:

```
                              DEMO HOSPITAL
Date:02/01/11          Lab accession and test counts           Time:8:23 AM
                            Report Selected To Be Purged
------------------------------------------------------------------------------

The Date/Time Compilation below has been selected to be purged.

            Compiled         Acc Area    Begin Date     End Date
         --------------      --------    ----------     ----------
      1) 3101230.155017      UA          01/01/2007     12/31/2007

Purge the above compilation? NO//

    NO Purge selected.  Routine Ends.


         Press RETURN Key:
```

Figure 4-19: No Purge screen

If the user selects YES, the following purge screen is displayed:

```
                              DEMO HOSPITAL
Date:02/01/11          Lab accession and test counts           Time:8:30 AM
                                Report Purged
------------------------------------------------------------------------------

The Date/Time Compilation below has been purged.

            Compiled         Acc Area    Begin Date     End Date
         --------------      --------    ----------     ----------
      1) 3101230.155017      UA          01/01/2007     12/31/2007


              Press RETURN Key:
```

Figure 4-20: No Purge screen

5.0 Link Transaction Processor Status Report Modification

The routine that is run when the LS option on the BLRMENU is selected has been modified to display more information: it will not only display the transaction number in the IHS LAB TRANSACTION LOG file, but also the date and time of that transaction.

5.1 Original Link Transaction Processor Status Report

The previous version of the report would look similar to the following once the LS option of the BLRMENU was selected:

```
                                DEMO HOSPITAL
                              Processor Status
                            JAN 18, 2011@15:51:16

                     Currently processing day JAN 18, 2011

                                        Entry Position     IHS Lab Transaction
                            Event           in Queue           Sequence Number
-------------------------------------------------------------------------------

Last Entry Assigned             9                 1                   1,182

Last Entry Processed            9                 1                   1,182

Press Enter to exit:
```

Figure 5-1: Example of the previous version of the report

5.2 Revised Link Transaction Processor Status Report

The report will look similar to the following after Laboratory Patch 1030 has been installed:

```
                                DEMO HOSPITAL
                              Processor Status
                           JAN 18, 2011@15:51:16

                     Currently processing day JAN 18, 2011

                                    Entry #     ==== IHS Lab Transaction ====
                          Event     in Queue     Sequence #    Date     Time
-------------------------------------------------------------------------------

Last Entry Assigned         9            1          1,182  01/18/2011 15:48

Last Entry Processed        9            1          1,182  01/18/2011 15:48

Press Enter to continue:
```

Figure 5-2: Example of the Patch 1030 version of the report

6.0 Order/test status Report Modification

The Order/test status report has been modified so that it highlights order numbers and groups information in a format that should aid in visually parsing the displayed information. It also no longer displays dates that have no orders for the patient.

6.1 Original Order/test status Report Layout

The following is an example of the original layout of the Order/test status Report.

```
  Test              Urgency   Status                              Accession
  -Lab Order # 3298                          Provider: USER,RSTUDENT
  BLOOD
  HEMOGLOBIN A1C    ROUTINE  Collected      12/06/2010@13:56 IM 10 5
Sign or Symptom:
  -Lab Order # 3298                          Provider: USER,RSTUDENT
  BLOOD
  GLUCOSE           ROUTINE  Test Complete  12/06/2010@13:57 EKT 1206 1
Sign or Symptom:
No orders for 12/05/2010
No orders for 12/04/2010
No orders for 12/03/2010
No orders for 12/02/2010
No orders for 12/01/2010
No orders for 11/30/2010
No orders for 11/29/2010
No orders for 11/28/2010
No orders for 11/27/2010
No orders for 11/26/2010
No orders for 11/25/2010
No orders for 11/24/2010
  PRESS '^' TO STOP
```

Figure 6-1: Example of the pre Patch 1030 version of the report

6.2 Revised Order/test status Report Layout

The following is an example of the Order/test status Report with its modified layout.

```
  Test              Urgency   Status                              Accession
Lab Order #  3298                      Provider: USER,RSTUDENT
  BLOOD
  HEMOGLOBIN A1C    ROUTINE  Collected      12/06/2010@13:56  IM 10 5
  Sign or Symptom:
Lab Order #  3298                      Provider: USER,RSTUDENT
  BLOOD
  GLUCOSE           ROUTINE  Test Complete  12/06/2010@13:57  EKT 1206 1
  Sign or Symptom:

NO REMAINING ACTIVE ORDERS

Select Patient Name:
```

Figure 6-2: Example of the Patch 1030 version of the report

7.0 New Estimated Average Glucose Delta Check: MEAG

A new Modified Estimated Average Glucose (MEAG) Delta Check for A1C tests has been created that will store not only the EAG calculation in the Lab Data file, but also the Reference Ranges and Units, if they have been defined for the test ESTIMATED AVERAGE GLUCOSE. If the calculation falls outside of the Reference Ranges, the Abnormal flag will also be stored.

7.1 MEAG Created During Post Install Phase of Patch 1030

The MEAG delta check is stored in the Delta Checks (# 62.1) file during the post install phase of Patch 1030. The following messages will appear during installation:

```
Adding MEAG to Delta Check Dictionary
     MEAG Delta Check added to Delta Check Dictionary. OK.
     MEAG Delta Check DESCRIPTION added to Delta Check Dictionary. OK.
     MEAG Delta Check TEXT added to Delta Check Dictionary. OK.

MEAG Successfully Added to Delta Check Dictionary
```

Figure 7-1: Example of the creation of the MEAG delta check during the post install of Patch 1030

7.2 MEAG Listing

The following is a listing of the MEAG delta check:

```
NAME: MEAG
  XECUTABLE CODE: S %X="" X:$D(LRDEL(1)) LRDEL(1) W:+$G(%X)>0 "  ESTIMATED AVERA
GE GLUCOSE:",$P(%X,"^") S:+$G(%X)>0 LRSB($$GETDNAM^BLREXECU("ESTIMATED AVERAGE G
LUCOSE"))=%X K %,%X,%Y,%Z,%ZZ
  OVERFLOW 1: S %ZZ=$$GETREFR^BLRUTIL3("ESTIMATED AVERAGE GLUCOSE")  S %XX=$FN((
((X)*28.7)-46.7),"",0)  S %YY=$S(%XX'>$P(%ZZ,"^",2):"L",%XX'<$P(%ZZ,"^",3):"H",1
:"")  S %X=%XX_"^"_%YY_"^!!!!!!^^"_%ZZ_"^^^^"_$G(DUZ(2))
 DESCRIPTION:   This delta check, when added to the A1C test, will calculate an
 Estimated Average Glucose (EAG) using the equation:
           EAG=((A1C)*28.7)-46.7.

 It will store the calculated result in the LAB DATA (# 63) File.  It will also
 store the UNITS, REFERENCE LOW, and REFERENCE HIGH values for the ESTIMATED
 AVERAGE GLUCOSE test in the LAB DATA (#63) file, if those entries exist.

NOTE: if the result of the A1C test is not numeric, OR if the EAG
       calculation < 1, then data will NOT be stored into the
       Estimated Average Glucose test.

SITE NOTES DATE: MAR 15, 2011
 TEXT:   Created by IHS Lab Patch 1030
```

Figure 7-2: Example of the listing of the MEAG delta check.

7.3 Add Reference Ranges to Estimated Average Glucose Test

In order to store the Reference Ranges, they must be added to the Estimated Average Glucose test in the Laboratory Test (# 60) file. The following is an example:

```
LABTEST IEN: 9999596                    NAME: ESTIMATED AVERAGE GLUCOSE
  TYPE: OUTPUT (CAN BE DISPLAYED)
  SUBSCRIPT: CHEM, HEM, TOX, SER, RIA, ETC.
  LOCATION (DATA NAME): CH;497534;1     UNIQUE ACCESSION #: NO
  LAB COLLECTION SAMPLE: BLOOD          FIELD: DD(63.04,497534,
  HIGHEST URGENCY ALLOWED: ROUTINE      REQUIRED TEST: YES
  PRINT NAME: EAG                       DATA NAME: ESTIMATED AVERAGE
GLUCOSE
SITE/SPECIMEN: BLOOD                    REFERENCE LOW: 65
  REFERENCE HIGH: 100                   CRITICAL LOW: 40
  CRITICAL HIGH: 500                    UNITS: mg/dL
SITE/SPECIMEN: SERUM
COLLECTION SAMPLE: BLOOD
SYNONYM: EAG
INSTITUTION: DEMO HOSPITAL              ACCESSION AREA: CHEMISTRY
```

Figure 7-3: Example of the listing of the Estimated Average Glucose definition in File 60.

7.4 Estimated Average Glucose Test Reference Ranges Example

If the MEAG delta check is used with the A1C test, the interim report will be similar to the following:

```
Printed at:                                                    page 1
       DEMO HOSPITAL (497)  HWY 1 BOX 497 STREET ADDR. 2  DEMO, MN 56671

TEST,PATIENT TEST                        Date/Time Printed: 04/19/11@11:49
     HRCN:000000         SEX:X     DOB:XXX XX, XXXX   CURRENT AGE:XX
Accession [UID]: CH 0419 8 [1011090008]
     Provider: PROVIDER,TEST TEST
     Specimen:BLOOD                   Spec Collect Date/Time:04/19/11@11:48
                         Res
Test name         Result Flg units         Ref.   range     Site  Result
Dt/Time
EAG                126  H  mg/dL       65 - 100        [497] 04/19/11@11:48
HEMOGLOBIN A1C       6     %           3.5 - 6.5       [497] 04/19/11@11:48
       Eval: ^SITE
================================================================================
        KEY: A=Abnormal          L=Abnormal Low          H=Abnormal High
                 *=Critical value          TR=Therapeutic Range



[497]  DEMO HOSPITAL   HWY 1 BOX 497   DEMO, MN 56671
```

```
TEST,PATIENT TEST          0000000     4/19/2011           PRESS '^' TO STOP
```

Figure 7-4: Example of the Interim Report that shows the Estimated Average Glucose test's reference ranges.

8.0 BLRTASKS – Lab Daily Processes Option

This new option will determine if the required RPMS Lab daily processes have been tasked into TaskMan appropriately.

If a required task is not tasked, or is tasked to be run in the past (which means it will not run), then an e-mail message is sent to all users on the LMI Mail Group informing them the option is not scheduled correctly. An Alert is also sent to all members of the LMI Mail Group.

8.1 Nightly Schedule

It is recommended that this option be tasked to run every night.

> **Note:** The tasking of the BLRTASKS option must be done manually by the site.

8.2 MailMan Message

The MailMan message that is sent if there is an issue will be similar to the following, though the number of reported issues may be less:

```
Subj: Daily LAB Option(s) Not Scheduled.  [#10505] 03/16/11@11:22  11 lines
From: BLRTASKS  In 'IN' basket.   Page 1
-------------------------------------------------------------------------------
Option >>> BLRTASK LAB LOG CLEANUP <<< Not Scheduled in TaskMan.
          Scheduled Date:03/14/2011 11:55 PM

Option >>> LA7TASK NIGHTY <<< Not Scheduled in TaskMan.
          Scheduled Date:03/14/2011 10:30 PM

Option >>> LRTASK NIGHTY <<< Not Scheduled in TaskMan.
          Scheduled Date:03/14/2011 10:45 PM

Option >>> LRTASK ROLLOVER <<< Not Scheduled in TaskMan.
          Scheduled Date:03/15/2011 5:00 AM
```

Figure 8-1: Example of the MailMan message

9.0 BLRPCCST - Lab to PCC Linker Status Option

A new option, BLRPCCST, has been created that will run a new routine, BLRPCCST, that will determine if the Lab to PCC linker has halted and, if it has, an e-mail message will be sent to all users on the LMI Mail Group informing them that someone will need to investigate.

9.1 Nightly Schedule

It is recommended that this option be tasked to run every night.

> **Note:** The tasking of the BLRPCCST option must be done manually by the site.

9.2 MailMan Message

The MailMan message that is sent if there is an issue will be similar to the following:

```
Subj: IHS Lab to PCC Link Process is Stopped  [#5569] 05/25/11@12:35  12 lines
From: BLRPCCST  In 'IN' basket.   Page 1  *New*
-------------------------------------------------------------------------------
                             DESKTOP PRD UCI
                             Processor Status
                            MAY 25, 2011@12:35
                    Currently processing day MAY 24, 2011

                                      Entry Position     IHS Lab Transaction
                          Event          in Queue          Sequence Number
-------------------------------------------------------------------------------

Last Entry Assigned           15                8                  1,933

Last Entry Processed          15                8                  1,933
```

Figure 9-1: Example of the MailMan message

10.0 IHS Lab "Ask At Order" (AAO)

This new functionality will allow the Lab module to prompt a user ordering a test with a series of questions.

These questions will only appear if a user has ordered a specific test from File 60.

10.1 LAB ASK AT ORDER (# 90475.4) Dictionary

A new dictionary, LAB ASK AT ORDER (# 90475.4), will be added to the Lab module.

10.1.1 Dictionary Definition

The LAB ASK AT ORDER (# 90475.4) dictionary is a FileMan compliant file and its standard definition follows.

```
STANDARD DATA DICTIONARY #90475.4 -- LAB ASK AT ORDER FILE
                                                MAY 11,2011@10:10:43  PAGE 1
STORED IN ^BLRAAOQ(  (1 ENTRY)   SITE: RED LAKE HOSPITAL   UCI: LAB,LAB

DATA          NAME                  GLOBAL        DATA
ELEMENT       TITLE                 LOCATION      TYPE
-------------------------------------------------------------------------------

              DD ACCESS: @
              RD ACCESS: @
              WR ACCESS: @
             DEL ACCESS: @
           LAYGO ACCESS: @
           AUDIT ACCESS: @

CROSS
REFERENCED BY: TEST(B)

   CREATED ON: MAY 2,2011 by KRING,MICHAEL

90475.4,.01   TEST               0;1 POINTER TO LABORATORY TEST FILE (#60)
                                (Required)

              LAST EDITED:      MAY 02, 2011
              HELP-PROMPT:      Laboratory Test with Ask At Order Questions
              CROSS-REFERENCE:  90475.4^B
                                1)= S ^BLRAAOQ("B",$E(X,1,30),DA)=""
                                2)= K ^BLRAAOQ("B",$E(X,1,30),DA)

90475.4,1     QUESTIONS             1;0 Multiple #90475.41

90475.41,.01    QUESTIONS             0;1 FREE TEXT (Required)
                                    (Multiply asked)

                INPUT TRANSFORM:  K:$L(X)>100!($L(X)<1) X
                LAST EDITED:      MAY 02, 2011
```

```
                HELP-PROMPT:      Answer must be 1-100 characters in
length.
                CROSS-REFERENCE:  90475.41^B
                                  1)= S
^BLRAAOQ(DA(1),1,"B",$E(X,1,30),DA)=""
                                  2)= K ^BLRAAOQ(DA(1),1,"B",$E(X,1,30),DA)

90475.41,1      Question Type          0;2 SET

                                  'Y' FOR YES/NO;
                                  'D' FOR DATE;
                                  'N' FOR NUMBER;
                                  'F' FOR FREE TEXT;
                                  'P' FOR POINTER;
                LAST EDITED:      MAY 11, 2011

90475.41,2      DEFAULT               0;3 FREE TEXT

                INPUT TRANSFORM:  K:$L(X)>50!($L(X)<1) X
                LAST EDITED:      MAY 02, 2011
                HELP-PROMPT:      Answer must be 1-50 characters in length.

90475.41,3      SELECT                0;4 POINTER TO FILE FILE (#1)

                LAST EDITED:      MAY 02, 2011

90475.41,4      UNITS               0;5 POINTER TO IHS UCUM FILE (#90475.3)

                LAST EDITED:      MAY 09, 2011
                HELP-PROMPT:      Units of Question


      FILES POINTED TO                      FIELDS

FILE (#1)                         QUESTIONS:SELECT (#3)

IHS UCUM (#90475.3)               QUESTIONS:UNITS (#4)

LABORATORY TEST (#60)             TEST (#.01)

INPUT TEMPLATE(S):

PRINT TEMPLATE(S):

SORT TEMPLATE(S):

FORM(S)/BLOCK(S):
```

Figure 10-1: Lab Ask At Order standard Data Definition

10.1.2 Test Field

The Test field points to the Laboratory Test (# 60) file so that the AAO questions will be tied to a specific test.

> **Note:** Only those tests in File 60 with a "CH" subscript are allowed to be entered.

10.1.3 Questions Multiple

The Questions multiple allows multiple questions to be tied to a specific test.

10.1.3.1 Questions Field

The question to be asked of the user. It is a free text field.

10.1.3.2 Question Type

- The type of answer to the question. This is a set of codes field:
- Y: Yes/NO
- D: Date
- N: Number
- F: Free Text

This is an optional field. If it is blank, the type of answer is assumed to be free text.

If the type is defined to be numeric, up to two decimal points are allowed in the answer.

If the type is defined to be a Pointer, then the Select field should be filled in with the dictionary number.

10.1.3.3 Default

This is an optional field. The question's default answer.

10.1.3.4 Select

This is an optional field. If the question should be restricted to a dictionary (for example, RACE), the dictionary can be selected here.

10.1.3.5 Units

This is an optional field. Note, however, that if used, the units selected must exist in the IHS UCUM (#90475.3) dictionary.

10.1.4 Adding questions to the Lab Ask at Order Dictionary

It is advised that all AAO questions be defined and categorized prior to entering data into the dictionary.

> **Note:** The AAO questions will be presented to the user in the order they are entered into the Lab Ask at Order Dictionary (#90475.4).

10.1.5 Example of adding questions to the Lab Ask at Order Dictionary

The following is an example of the recommended steps when adding questions to the Lab Ask at Order dictionary. It uses FileMan's ENTER OR EDIT FILE ENTRIES option.

10.1.5.1 Determine the File 60 entry and enumerate the questions to be asked

The example will use the Heavy Metals Screen test. There will be four questions asked of the use:

- Has responsible party signed ABN? A Yes/No question.
- What is the patient's weight? Answer will be in kilograms (kg).
- What is the patient's height? Answer will be in centimeters (cm)
- What is the patient's race? Answer will be from the RACE dictionary.

10.1.5.2 Select FileMan's ENTER OR EDIT FILE ENTRIES

```
VA FileMan 22.0
Select OPTION: ENTER OR EDIT FILE ENTRIES
```

Figure 10-2: FileMan Enter or Edit.

10.1.5.3 Select the Lab Ask at Order file

```
INPUT TO WHAT FILE: OPTION// LAB ASK AT ORDER    (1 entry)
EDIT WHICH FIELD: ALL//
```

10.1.5.4 Select the test from File 60

```
INPUT TO WHAT FILE: OPTION// LAB ASK AT ORDER    (1 entry)
EDIT WHICH FIELD: ALL//


Select LAB ASK AT ORDER TEST: HEAVY METAL
     1   HEAVY METAL MERCURY
     2   HEAVY METAL SCREEN
CHOOSE 1-2: 2 HEAVY METAL SCREEN
  Are you adding 'HEAVY METAL SCREEN' as a new LAB ASK AT ORDER (the 2ND)?
No// Y
  (Yes)
```

Figure 10-3: Select test from File 60.

10.1.5.5 Question 1: Has responsible party signed ABN?

```
Select QUESTIONS: Has responsible party signed ABN?
  Are you adding 'Has responsible party Signed ABN?' as
    a new QUESTIONS (the 1ST for this LAB ASK AT ORDER)? No// Y  (Yes)
  Question Type: Y  YES/NO
```

```
  DEFAULT:
  SELECT:
  UNITS:
```

Figure 10-4: Entering Question 1.

10.1.5.6 Question 2: What is patient's weight?

```
Select QUESTIONS: What is patient's weight (kg)?
  Are you adding 'What is patient's weight (kg)?' as
    a new QUESTIONS (the 2ND for this LAB ASK AT ORDER)? No// Y  (Yes)
  Question Type: N  NUMBER
  DEFAULT:
  SELECT:
  UNITS: KG  kg
```

Figure 10-5: Entering Question 2.

10.1.5.7 Question 3: What is patient's height?

```
Select QUESTIONS: What is patient's height (cm)?
  Are you adding 'What is patient's height (cm)?' as
    a new QUESTIONS (the 3RD for this LAB ASK AT ORDER)? No// Y  (Yes)
  Question Type: N  NUMBER
  DEFAULT:
  SELECT:
  UNITS: CM  cm
```

Figure 10-6: Entering Question 3.

10.1.5.8 Question 4: What is patient's race?

```
Select QUESTIONS: What is patient's race?
  Are you adding 'What is patient's race?' as
    a new QUESTIONS (the 4TH for this LAB ASK AT ORDER)? No// Y  (Yes)
  Question Type:
  DEFAULT:
  SELECT: RACE
     1   RACE
     2   RACE AND ETHNICITY COLLECTION METHOD
CHOOSE 1-2: 1  RACE
  UNITS:
```

Figure 10-7: Entering Question 4.

10.2 Answers

Answers, along with their questions, who answered the questions, and the date/time of the answers, are temporarily stored in a data file, ^BLRAAOD.

During Accessioning the questions and answers will be moved to the COMMENTS section of the Lab Data file for that accession.

The ^BLRAAOD data file will be automatically purged of successfully moved AAO questions and answers.

10.3 Errors

If the routines that store the answers into the COMMENTS section of the Lab Data file encounter an error, information regarding that error will be stored in the Lab Ask At Orders Error file, ^BLRAAOE.

The errors may be purged from the file.

10.4 New Options

Several new options have been added to the Option file for various AAO reports and tasks.

> **Note:** The BLRAAOMM Main Menu option has not been added to the BLRMENU by this patch. That must be done manually by the site.

10.4.1 BLRAAODR - Non-Accessioned IHS Lab Ask-At-Order Report

Report of data stored in the ^BLRAAOD file.

10.4.2 BLRAAOEP – Tasked option to purge errors

Option that can be tasked to purge the ^BLRAAORE file. This is the recommended method.

10.4.3 BLRAAOMM - IHS Lab Ask-At-Order Main Menu

Main Menu for IHS Lab Ask-At-Order options.

10.4.4 BLRAAORE - IHS Lab Ask-At-Order Main Menu

Report of any errors stored in the ^BLRAAOE file.

10.4.5 BLRAAORP - IHS Lab Ask-At-Order Main Menu

Interactively purge the ^BLRAAORE file.

10.5 IHS Lab Ask-At-Order Menu

The BLRAAOMM option will display the following menu

```
                              IHS Lab Ask-At-Order


   NONA   Non-Accessioned Questions & Results Report
   ERRS   Ask-At-Order Errors Report
   PURG   Purge Lab Ask-At-Order Errors

Select IHS Lab Ask-At-Order Option:
```

Figure 10-8: Report of data stored in the ^BLRAAOD file.

10.5.1 Non-Accessioned Questions and Results Report

An example of such a report will be similar to the following:

```
                        LAB PATCH LR*5.2*1029 DESKTOP UCI
Date:05/11/11             Lab Ask At Order Questions                  Page 1
Time:3:07 PM              Non Accessioned Responses                 BLRAAORU

Order #  Test IEN  Question                          Answer  Date/Time Answrd
-------------------------------------------------------------------------------
3732     175       Has responsible party signed ABN? Y     05/09/2011@12:19
3732     175       What is patient's weight (kg)?    27.2   5/09/2011@12:19
3732     175       What is patient's height (cm)?    107   05/09/2011@12:19
3732     175       What is patient's race?           Native  /09/2011@12:19

    Press RETURN Key:
```

Figure 10-9: Report of data stored in the ^BLRAAOD file.

If there is no data in the ^BLRAAORD file, the report will be similar to the following:

```
                       LAB PATCH LR*5.2*1029 UCI
Date:05/12/11          Lab Ask At Order Questions              Time:7:18 AM
                       Non Accessioned Responses                   BLRAAORU
-------------------------------------------------------------------------------

         No Data in Lab Ask-At-Order Data file.

    Press RETURN Key:
```

Figure 10-10: Report of empty ^BLRAAOD file.

10.5.2 Ask-At-Order Errors Report

```
An example of such a report will be similar to the following:
                           LAB PATCH LR*5.2*1029 UCI
Date:05/11/11              Lab Ask At Order Questions
Time:8:10 AM
                                   Errors File
-------------------------------------------------------------------------------
```

Figure 10-11: Report of data stored in the ^BLRAAORE file.

If there is no data in the ^BLRAAORE file, the report will be similar to the following:

```
                          LAB PATCH LR*5.2*1029 UCI
Date:05/12/11           Lab Ask At Order Questions            Time:7:19 AM
                        Transactions With Errors                 BLRAAORU
------------------------------------------------------------------------------

         No Data in Errors Database.

    Press RETURN Key:
```

Figure 10-12: Report of empty ^BLRAAORE file.

10.5.3 Errors Purge

Because errors will accumulate forever in the ^BLRAAORE file, it is necessary for Lab personnel to periodically purge the file. There are two methods to purge the file.

10.5.3.1 Interactive Purge Routine Option

It is possible to use a new option that will run a purge option routine.

> **Note:** The tasking of the BLRAAOEP option is the recommended method of purging the Lab Ask-At-Orders errors file.

Once the option is selected, the routine will first display:

```
                        LAB PATCH LR*5.2*1029 UCI
Date:05/11/11           Lab Ask At Order Questions            Time:8:10 AM
                              Purge Errors File
------------------------------------------------------------------------------

Do you want to purge the Lab Ask At Order Error (LAAOE) File?
```

Figure 10-13: First Display from interactive purge routine

If the user does not enter Y or YES, the routine will display

```
                        LAB PATCH LR*5.2*1029 UCI
Date:05/11/11           Lab Ask At Order Questions            Time:8:27 AM
                              Purge Errors File
------------------------------------------------------------------------------

    Do you want to purge the Lab Ask At Order Error (LAAOE) File? NO


         Quit/No/Invalid response. Routine Ends.

         Press RETURN Key:
```

Figure 10-14: First Display NO response.

and then exit once the user presses the RETURN key.

If the user enters YES, they do want to purge the file, the routine then displays:

```
                            LAB PATCH LR*5.2*1029 UCI
Date:05/11/11               Lab Ask At Order Questions
Time:8:30 AM
                                Purge Errors File
------------------------------------------------------------------------------

    Are you CERTAIN you want to purge the LAAOE File?
```

Figure 10-15: Second Display from interactive purge routine

If the user does not enter Y or YES, the routine will display

```
                          LAB PATCH LR*5.2*1029 UCI
Date:05/11/11             Lab Ask At Order Questions            Time:8:30 AM
                          Purge Errors File
------------------------------------------------------------------------------

    Are you CERTAIN you want to purge the LAAOE File? NO

         Quit/No/Invalid response. Routine Ends.

         Press RETURN Key:
```

Figure 10-16: Second Display NO response

and then exit once the user presses the **RETURN** key.

If the user again enters YES, they are certain they do want to purge the file, the routine then displays:

```
                          LAB PATCH LR*5.2*1029 UCI
Date:05/11/11             Lab Ask At Order Questions            Time:8:36 AM
                              Purge Errors File
------------------------------------------------------------------------------

    LAST CHANCE: Are you really certain you want to purge the LAAOE File?
```

Figure 10-17: Third Display from interactive purge routine

If the user does not enter Y or YES, the routine will display

```
                          LAB PATCH LR*5.2*1029 UCI
Date:05/11/11             Lab Ask At Order Questions            Time:8:36 AM
                                Purge Errors File
------------------------------------------------------------------------------

   LAST CHANCE: Are you really certain you want to purge the LAAOE File? NO


         Quit/No/Invalid response. Routine Ends.

         Press RETURN Key:
```

Figure 10-18: Third Display NO response

and then exit once the user presses the **RETURN** key.

If the user again enters YES, they are really certain they want to purge the file, the routine then displays:

```
                            LAB PATCH LR*5.2*1029 UCI
Date:05/11/11             Lab Ask At Order Questions            Time:8:37 AM
                                Purge Errors File
------------------------------------------------------------------------------


Very Well.  LAAOE File Purged.



    Press RETURN Key:
```

Figure 10-19: Final Display from interactive purge routine

and then exits once the user presses the **RETURN** key.

10.5.3.2 Tasked Purge Routine Option

The preferred method to purge the ^BLRAAORE file is to task the new option, BLRAAOEP, on a periodic basis in Taskman.

It is advised that the option be tasked monthly.

The tasked process will send an e-mail to all members of the LMI Mail group. The e-mail message will look similar to the following in MailMan:

```
Subj: Lab Ask-at-Order Task  [#10572] 05/11/11@09:06  4 lines
From: BLRAAORE  In 'IN' basket.   Page 1  *New*
------------------------------------------------------------------------
Lab Ask-at-Order File (^BLRAAORE) has been purged.

          DATE:05/11/2011
          TIME:09:06
```

Figure 10-20: Example of the MailMan message from tasked purging of the ^BLRAAORE file

10.6 Successfully Stored Questions/Answers

The comments may be viewed after resulting the test via the Interim Reports. They will look similar to the following:

```
Printed at:                                                        page 1
       DEMO HOSPITAL (497)  HWY 1 BOX 497 STREET ADDR. 2  DEMO, MN 56671

DEMO,PATIENT TWO                          Date/Time Printed: 05/12/11@09:00
   HRCN:777777  SEX:F  DOB:Mar 31, 1996  CURRENT AGE:17  LOC:EMERGENCY ROOM
Accession [UID]: SO 11 37 [6011000037]
     Provider: DEMO,DOCTOR
     Specimen:BLOOD                   Spec Collect Date/Time:05/12/11@06:56
                          Res
Test name        Result Flg units     Ref.   range     Site  Result Dt/Time
GLUCOSE (R)          89    mg/dL        65 - 100       [497] 05/12/11@06:57
Comment: The following Lab ASK AT ORDER Questions
         Answered by DEMO,USER (1111)
         Has responsible party signed ABN? N        05/17/2011@07:49 {2011}
         What is patient's weight (kg)     27.2     05/17/2011@07:49 {2011}
         What is patient's height (cm)     107      05/17/2011@07:49 {2011}
         What is patient's race?           Native   05/17/2011@07:49 {2011}
================================================================================
        KEY: A=Abnormal          L=Abnormal Low          H=Abnormal High
                 *=Critical value          TR=Therapeutic Range

[497]  DEMO HOSPITAL   HWY 1 BOX 497   DEMO, MN 56671

DEMO,PATIENT TWO          116524      5/12/2011           PRESS '^' TO STOP
```

Figure 10-21: Interim Report example showing Ask At Order Questions and Answers

11.0 Reference Laboratory Enhancements

Several enhancements have been added in Lab patch 30 which allow implementation of interfaces with new reference laboratories or provide a new functionality to an existing interface.

- A new entry has been made in the BLR Reference Laboratory file for future implementation of an interface with Marshfield Clinic Laboratory.
- A new entry has been made in the BLR Reference Laboratory file for a bidirectional interface with Northern Plains Laboratory (NPL). This interface uses the Generic Interface System (GIS) and has been tested as a client bill only interface. Directions for configuration are contained in section 11.1. Note that specific directions for handling LEDI interface results are covered in the Laboratorian Guide for Lab patch 27.
- A new entry has been made in the BLR Reference Laboratory file for a bidirectional interface with Pathology Associates Medical Laboratory (PAML). This interface uses the Generic Interface System (GIS) and will offer a third party billing component when the interface is completed. Directions for configuration are included in section 11.2. Note, however, that this interface will not be ready for the billing release in August 2011. Note that specific directions for handling LEDI interface results are covered in the Laboratorian Guide for Lab patch 27.
- A complete redesign of the bidirectional Quest interface has been undertaken to meet needs of I/T/U facilities requiring that Quest perform billing of third party payors. The redesigned interface uses Ensemble and HL7 version 1.6 options for formatting and routing orders from the I/T/U facility to Quest and for formatting and routing results from Quest back to the I/T/U facility. Directions for installing and configuring this interface are included in the Technical Addendum accompanying this patch release. Section 11.3 of this manual provides directions for setting up, validating, and using this interface.
- A modification of the interface result filing routine has been to allow display of an A for Abnormal qualitative results. The Key on the interim report has been modified to include the legend, A=Abnormal. See Section 11.4.

Note: Existing interface sites should not be impacted by the installation of Lab patch 30. No changes should be made to existing Reference Laboratory Interfaces, GIS processes or Laboratory interface files.

11.1 Interface Configuration for NPL

Most of the Aberdeen Area sites currently have bidirectional interfaces with Northern Plains Laboratory (NPL) mediated by a High Volume Receiver (HVR) and Data Innovations Instrument Manager. This interface has proven to be hardware dependent and difficult to maintain. Directions are provided in this section on how to convert this interface to a Generic Interface System (GIS) interface requiring no hardware. Arrangements must be made with NPL staff and Office of Information Technology (OIT) staff to facilitate this change without disruption of the current interface. Interface conversion will require configuration of GIS processes which are covered in section 11.1.1 and updating of several Laboratory files which is covered in section 11.1.2. This interface is certified as a Client Bill Only interface.

11.1.1 Configuration of GIS for NPL interface

11.1.1.1 First Time GIS Interface sites:

If a site has never used the Generic Interface System before, the system must be set up to accept incoming acknowledgements from the reference laboratory.

- Activating HL IHS Accept Acknowledgement (add Destination and mark as Active)

```
GIS Interface Menu
FTM File and Table Menu
TTE Transaction

Select Transaction Type: HL IHS ACCEPT ACKNOWLEDGEMENT
*** Transaction Type Definition, Screen 1 of 2 ***
Name: HL IHS ACCEPT ACKNOWLEDGEMENT
In/Out: OUT Active: ACTIVE
Destination: HL APPL ACK OUT
Script Generated: HL IHS ACCEPT ACKNOWLEDGEMENT-O
Parent:
Dependency: Retry Rate: Max # of attempts:
Acknowledge expected from remote: Application Ack Conditions:
Acknowledge Message:
Format Controller---Priority: Process time:
Output Controller---Priority: Process Time:
Description:
Application Process:
_____________________________________________________________________________
COMMAND: Save and Exit
```

Figure 11-1: Activating HL IHS Accept Acknowledgement

- Generate the script for the HL IHS ACCEPT ACKNOWLEDGEMENT.

```
GIS Interface Menu
SGM Script Generator Menu ...
MM Message Menu ...
MD Message Definition
```

```
Select HL IHS ACCEPT ACKNOWLEDGEMENT
```

Figure 11-2: Menu for Generating Script for Accept Acknowledgement

```
                    *** Message Definition ***                  pg 1 of 2

 Message Name: HL IHS ACCEPT ACKNOWLEDGEMENT                  Inactive: NO
   Event Type: ACK                  Message Type: ACK           Audit:
 Send Applic.: RPMS                  Rec. Applic.:
     Facility:                       Facility:
Processing ID: PRODUCTION  HL7 Version: 2.4    Lookup Parameter: NO LAYGO
   Accept Ack:                     Application Ack:
    Root File: INTERFACE TRANSACTION TYPE
  Routine for Lookup/Store:
  Description:
               Field Separator: |  Encoding Characters: ^~\&
Segments:
HL ACKNOWLEDGEMENT
HL IHS MSH (GENERIC)



_______________________________________________________________________________


COMMAND:  < Save and Exit               Press <PF1>H for help    Insert


Generate Scripts? Y// Y (Yes)

Generation for message: HL IHS ACCEPT ACKNOWLEDGEMENT.....................

The following scripts were generated:
     Generated: HL IHS ACCEPT ACKNOWLEDGEMENT-O

Do you wish to compile the script(s) now? Y//  (Yes)

Compiling Script: Generated: HL IHS ACCEPT ACKNOWLEDGEMENT-O
..
MUMPS section....
DATA section.............................
END section.

Compile completed with 0 warnings and 0 errors.
Linking...  Filing generated routines...

Routine IS00024    ...Filed
```

Figure 11-3: Generating Script for Accept Acknowledgement

11.1.1.2 Configuring HL IHS LAB RECEIVER and HL IHS LAB TRANSMITTER

```
GIS Interface Menu
FTM File and Table Menu ...
BPE Background Process Entry/Edit
Select HL IHS LAB RECEIVER or HL IHS LAB TRANSMITTER
```

Figure 11-4: Menu for Configuring GIS Background Processes

- Activate and identify the Destination for the HL IHS LAB RECEIVER.

```
             *** Background Process Entry/Edit ***     Screen 1 of 3

 Name: HL IHS LAB RECEIVER
         Active: ACTIVE           Priority:
         Device:
         Routine: INHVTAPR
     Destination: HL IHS LAB R01 NPL IN
Destination Determination Code:
D NPL^INHVIHS
       Client/Server: SERVER         Connection Type: PERSISTENT
Server Ports:
8081 < Site specific as determined by NPL and site.


Client Addresses:


_____________________________________________________________________________




COMMAND: < Save and Exit                    Press <PF1>H for help    Insert
```

Figure 11-5: Activating the HL IHS LAB RECEIVER

- Activate the HL IHS LAB TRANSMITTER.

```
             *** Background Process Entry/Edit ***     Screen 1 of 3

 Name: HL IHS LAB TRANSMITTER
         Active: ACTIVE           Priority:
         Device:
         Routine: INHVTAPT
     Destination: HL IHS LAB NPL
Destination Determination Code:

       Client/Server: CLIENT         Connection Type: PERSISTENT
Server Ports:



Client Addresses:
92.0.0.5 < Place cursor on IP address and press enter to open box to enter
port for the transmitter. The IP address and port will be provided by NPL.

_____________________________________________________________________________
COMMAND:< Save and exit                  Press <PF1>H for help    Insert
```

Figure 11-6: Activating the HL IHS LAB TRANSMITTER

11.1.1.3 Turn on message acknowledgement for NPL results

```
GIS    GIS Interface Menu ...
DE     Destination Entry/Edit
Select INTERFACE DESTINATION:  HL IHS LAB R01 NPL IN
```

```
             *** Interface Destination Definition, Screen 1 of 3 ***

         Name: HL IHS LAB R01 NPL IN
Acceptance TT: HL IHS ACCEPT ACKNOWLEDGEMENT
Accept Ack Conditions: ALWAYS

Priority:          Retry Rate:          Max # of Attempts:
 *** Enter a value for ONE of the following:
    Transaction Type: HL IHS LAB R01 NPL IN
 Transceiver Routine:
      Mail Recipient:
     Message Subject:
Device for Output:


Code to Edit Transactions:

_____________________________________________________________________________
Exit     Save     Next Page     Refresh

Enter a command or '^' followed by a caption to jump to a specific field.


COMMAND: < Save and Exit                 Press <PF1>H for help    Insert_
```

Figure 11-7: Turning on Acknowledgement for NPL incoming results

11.1.1.4 Activating Transaction Types

Transaction Types will need to be activated for:

HL IHS LAB O01 NPL OUT CHILD (for outgoing orders)

HL IHS LAB R01 NPL IN (for incoming results)

```
 GIS    GIS Interface Menu ...
 TTE    Transaction Type Enter/Edit
Select TRANSACTION TYPE:  HL IHS LAB RO1 NPL IN
```

Figure 11-8: Menu for activating Transaction Types

```
             *** Interface Destination Definition, Screen 1 of 3 ***

         Name: HL IHS LAB R01 NPL IN
Acceptance TT: HL IHS ACCEPT ACKNOWLEDGEMENT
Accept Ack Conditions: ALWAYS

Priority:          Retry Rate:          Max # of Attempts:
 *** Enter a value for ONE of the following:
    Transaction Type: HL IHS LAB R01 NPL IN
 Transceiver Routine:
      Mail Recipient:
     Message Subject:
Device for Output:
```

```
Code to Edit Transactions:

_____________________________________________________________________________

COMMAND:  < Save and Exit                Press <PF1>H for help    Insert
```

Figure 11-9: Activating Transaction Type for incoming results

Repeat the process for the second transaction type, HL IHS LAB O01 NPL OUT CHILD.

```
        *** Transaction Type Definition, Screen 1 of 2 ***


       Name: HL IHS LAB NPL O01 OUT CHILD
     In/Out: OUT                                          Active: ACTIVE
Destination: HL IHS LAB NPL
     Script: Generated: HL IHS LAB O01 NPL-O
     Parent: HL IHS O01 OUT PARENT
 Dependency:           Retry Rate:               Max # of attempts:
 Acknowledge expected from remote:       Application Ack Conditions:
 Acknowledge Message:
     Format Controller---Priority:        Process time:
     Output Controller---Priority:        Process Time:
 Description:
 Application Process:


_____________________________________________________________________________



COMMAND: - Save and Exit              Press <PF1>H for help    Insert
```

Figure 11-10: Activating Transaction Type for outgoing order

11.1.1.5 Start the GIS processes for the interface

```
GIS Interface Menu
BPM Background Process Control Menu ...
S1 Startup a Background Process
Select OUTPUT CONTROLLER
.Started
Select FORMAT CONTROLLER
.Started
Select HL IHS LAB TRANSMITTER
.Started
Select HL IHS LAB RECEIVER
.Started
```

Figure 11-11: Starting the GIS Background Interface processes

11.1.1.6 Run the BLR Menu option, SIT

As the last step to activating the interface, the menu option, SIT, must be run to set the HL7 message structure for the MSH on the outgoing message. Be sure to have the account number and settings for the Sending Application (MSH.3), Sending Facility (MSH.4), Receiving Application (MSH.5), and Receiving Facility (MSH.6) and Accession Area(s) before running this option.

In the example below, the settings used are as follows:

Reference Laboratory: NPL

Account Number: RAP

Sending Application: RPMS

Sending Facility: RAP

Receiving Application: LAB

Receiving Facility: NPL

Accession Area: PATH. NPL,SEND OUT

```
LAB     Laboratory DHCP Menu ...
BLR     IHS Lab Main Support Menu
REFL    Reference Lab Main Menu ...
SIT     Reference Lab Site Parameter Add/Edit
```

Figure 11-12: Menu to configure HL7 menu structure

```
Select Reference Lab Main Menu Option: SIT  Reference Lab Site Parameter
Add/Edit
Now setting up reference lab parameters..
Setup Parameters for which Reference Lab: NPL

Now setting up GIS HL7 Message Parameters..
SENDING APPLICATION: RPMS
SENDING FACILITY: RAP
RECEIVING APPLICATION: LAB
RECEIVING FACILITY: NPL
Add this Reference Lab to which Site: RAPID CITY       ABERDEEN       RAPID
CITY       01                     SD            8030
REF LAB DEV FOR SHIP MANIFEST: < Printer for shipping manifests
REF LAB CLIA NUMBER:
REF LAB LAB MANAGER:
REF LAB EXPORT DIRECTORY:
REF LAB RES FILE NAME PREFIX:
REF LAB STORAGE DIRECTORY:
REF LAB HL7 FILE FORMAT:
REF LAB ORDERING LOCATION:
REF LAB HOLD LABS FOR VERIF:
REF LAB DAYS TO KEEP FILES:
REF LAB DEF ORDERING LOCATION:
```

```
REF LAB IMPORT DIRECTORY:
REF LAB PASS CPT CODES:
REF LAB BILLING TYPE: Client
REF LAB PRT SHP MAN BY STORAGE:
REF LAB PRT PT PHONE MANIFEST:
REF LAB BI/UNIDIRECTIONAL: BIDIRECTIONAL
REF LAB NPI OR UPIN ON ORDER: NPI
REF LAB NAME FOR SHIP MANIFEST: NPL
REF LAB USE INSURANCE SEQ:
Select REF LAB CLIENT ACCOUNT NUMBER: RAP
Select REF LAB ACCESSION AREA: PATH. NPL,SEND OUT

Now setting up Lab HL7 Message Parameter File..

Now activating Reference Lab Interface..

Generation for message: HL IHS LAB O01
NPL.....................................
..............

The following scripts were generated:
     Generated: HL IHS LAB O01 NPL-O


Compiling Script: Generated: HL IHS LAB O01 NPL-O
..
MUMPS section....
DATA section.............................................................
.........
END section.

Compile completed with 0 warnings and 0 errors.
Linking...  Filing generated routines...

Routine IS00036    ...Filed
Routine IS00036A   ...Filed
Routine IS00036B   ...Filed
```

Figure 11-13: Running SIT option for NPL script

11.1.2 Laboratory File Set up for NPL

11.1.2.1 Configuring LA7 Message Parameter File

```
Use VA Fileman to create a new entry for NPL as follows:
Select VA FileMan Option: Enter or Edit File Entries



INPUT TO WHAT FILE: V LAB// 62.48    LA7 MESSAGE PARAMETER
                                          (1 entries)
EDIT WHICH FIELD: ALL//


Select LA7 MESSAGE PARAMETER CONFIGURATION: NPL  Are you adding NPL as a
new LA7 MESSAGE PARAMETER CONFIGURATION?  YES
CONFIGURATION: NPL//
PROTOCOL: HEALTH LEVEL SEVEN
```

```
STATUS: ACTIVE
GRACE PERIOD FOR MESSAGES:
LOG ERRORS: ON
PROCESS IN: D QUE^LA7VCIN
PROCESS DOWNLOAD:
HL7 NON-DHCP APPLICATION:
MULTIPLE ORDERS:
INTERFACE TYPE: LEDI
Select ALERT CONDITION:
Select REMOTE SYSTEM ID: LABNPLRAPRPMS < Note these are the same MSH
segments as used in SIT except in reverse order.
```

Figure 11-14: Creating a LA7 Message Parameter entry for NPL

11.1.2.2 Auto Instrument File

Rename the existing Auto Instrument file for the DI interface to NPL. Reset each of the entries in that file as follows. The script below shows how to create a template and how to "stuff" the desired entry into each of 7 Chem Test subfields by using the VA Fileman "loop" function.

```
Select VA FileMan Option: Enter or Edit File Entries



INPUT TO WHAT FILE: AUTO INSTRUMENT
EDIT WHICH FIELD: ALL// CHEM TESTS    (multiple)
   EDIT WHICH CHEM TESTS SUB-FIELD: ALL// TEST
   THEN EDIT CHEM TESTS SUB-FIELD: REMOVE SPACES FROM RESULT///N
   THEN EDIT CHEM TESTS SUB-FIELD: DOWNLOAD TO INSTRUMENT///N
   THEN EDIT CHEM TESTS SUB-FIELD: NOTIFY ABNORMAL FLAGS///N
   THEN EDIT CHEM TESTS SUB-FIELD: STORE REMARKS///Y
   THEN EDIT CHEM TESTS SUB-FIELD: STORE REFERENCE RANGE///Y
   THEN EDIT CHEM TESTS SUB-FIELD: STORE UNITS///Y
   THEN EDIT CHEM TESTS SUB-FIELD: ACCEPT RESULTS FOR THIS TEST///Y
   THEN EDIT CHEM TESTS SUB-FIELD:
THEN EDIT FIELD:
STORE THESE FIELDS IN TEMPLATE: NPL GIS
  Are you adding 'NPL GIS' as a new INPUT TEMPLATE? No// Y  (Yes)


          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: Enter or Edit File Entries



INPUT TO WHAT FILE: AUTO INSTRUMENT
EDIT WHICH FIELD: ALL// [   NPL GIS
                              (Jul 03, 2011@15:08) User #667 File #62.4
```

```
WANT TO EDIT 'NPL GIS' INPUT TEMPLATE? No// N  (No)


Select AUTO INSTRUMENT NAME: ^LOOP
EDIT ENTRIES BY: NAME//
START WITH NAME: FIRST// NPL
GO TO NAME: LAST// NPL
  WITHIN NAME, EDIT ENTRIES BY: CHEM TESTS    (multiple)
  CHEM TESTS SUB-FIELD: TEST
  START WITH TEST: FIRST// <enter>
    WITHIN TEST, EDIT ENTRIES BY: <enter>

   NPL
Select TEST:  3-METHOXYTYR//
  TEST:  3-METHOXYTYR//

   NPL
Select TEST:  BEEF INSULIN AB//
  TEST:  BEEF INSULIN AB//

   NPL
Select TEST:  COPROPORPHYRN//
  TEST:  COPROPORPHYRN//

   Select TEST:  HEPTACARBOXYPORPH.//
  TEST:  HEPTACARBOXYPORPH.//

   NPL
Select TEST:  HEXACARBOXYPORPHYRIN//
  TEST:  HEXACARBOXYPORPHYRIN//

   NPL
Select TEST:  HUMAN INSULIN ABS//
  TEST:  HUMAN INSULIN ABS//

   NPL
Select TEST:  IBUPROPHEN//
  TEST:  IBUPROPHEN//

   NPL
Select TEST:  LD//
  TEST:  LD//

   NPL
Select TEST:  LEGIONELLA//
  TEST:  LEGIONELLA//
```

Figure 11-15: Looping through Auto Instrument file

Continue looping until all entries are updated.

11.1.2.3 Load/Worklist File

The existing Load/Worklist file for NPL may be used. All orderable tests, types BOTH and INPUT must have entries with a BUILD NAME ONLY of NO. OUTPUT type tests need not be entered into the Load/Worklist file.

See example below:

```
Select VA FileMan Option: Enter or Edit File Entries

INPUT TO WHAT FILE: LA7 MESSAGE PARAMETER// LOAD/WORK LIST
                                          (14 entries)
EDIT WHICH FIELD: ALL//< Type PROFILE once Load/Worklist is created

Select LOAD/WORK LIST NAME: SENDOUTS
NAME: SENDOUTS//
LOAD TRANSFORM: UNIVERSAL       L
TYPE: TRAY/CUP
CUPS PER TRAY: 0
FULL TRAY'S ONLY: NO//
EXPAND PANELS ON PRINT: YES// NO
INITIAL SETUP:
VERIFY BY: ACCESSION
SUPPRESS SEQUENCE #:
INCLUDE UNCOLLECTED ACCESSIONS: NO
SHORT TEST LIST:
AUTO MICRO EDIT TEMPLATE:
WKLD METHOD:
MAJOR ACCESSION AREA: SENDOUTS
LAB SUBSECTION: SENDOUTS
WORK AREA:
DATE OF SETUP: OCT 10,1996//
FIRST TRAY:
STARTING CUP:
LAST TRAY:
LAST CUP:
BUILDING IN PROGRESS: NO//
Select PROFILE: SENDOUTS//
PROFILE: SENDOUTS//
 Select TEST: ALPHA-1-ANTITRYPSIN
   SPECIMEN:
   BUILD NAME ONLY: NO
 Select TEST:
```

Figure 11-16: Setting up Load Worklist for Referral tests

11.1.2.4 Mapping to BLR Reference Laboratory File

Once tests have been defined, they must be mapped to the appropriate order code in the BLR Reference Laboratory file. This file is used to identify tests which will be electronically handled by the Generic Interface System when they are ordered.

- Only type BOTH and type INPUT tests will be mapped.
- Tests may be cross–referenced either by name or by order code.
- If a test cannot be found by either method, then a new test name must be added to the BLR Reference Laboratory file.

```
LAB    Laboratory DHCP Menu ...
BLR    IHS Lab Main Support Menu
REFL   Reference Lab Main Menu ...
MAP    Map Reference Lab Test
```

Figure 11-17: Menu to map Laboratory Tests to NPL Order Codes

```
Select Reference Lab Main Menu Option: MAP  Map Reference Lab Test

Select BLR REFERENCE LAB REFERENCE LAB NAME: NPL
Select TEST NAMES: A1A
 Select TEST NAMES: A1A//
 LAB TEST POINTER: ALPHA-1-ANTITRYPSIN <  this is your file 60 test
 ORDER CODE: A1A
 RESULT CODE:
 ORDER ENTRY QUESTION:
 Select ORDER ENTRY RESULT CODE:
Select TEST NAMES:
```

Figure 11-18: MappingNPL test order codes

11.2 Interface Configuration for PAML

The bidirectional GIS interface with PAML is undergoing testing at the time of this patch release. It is currently available for Client billing interfaces but has not yet been certified for Third Party Billing. If your facility requires that PAML do billing of third party insurers for your patients, you must provide a spreadsheet of the insurers that you wish PAML to code as soon as a project manager is assigned. Once the spreadsheet of insurers has been prepared, provide it to the business office manager at your facility to review and remove any insurers which are not used. Directions for creating the insurer file are provided in section 11.2.1 below.

11.2.1 Creating an Insurer File

Begin by creating a fixed-column-width report of your insurer file using VA FileMan. Create this file by turning on session logging for your terminal emulation program and capturing the following fields from your insurer file into a text file to be imported into an Excel spreadsheet:

- Insurer Name
- Insurer Address
- City
- State
- Zip Code
- Telephone Number

```
        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: PRINT FILE ENTRIES

OUTPUT FROM WHAT FILE: INSURER    (3458 entries)
SORT BY: NAME// STATUS
START WITH STATUS: FIRST// BILLABLE    USES INTERNAL CODE: 1
GO TO STATUS: LAST// BILLABLE    USES INTERNAL CODE: 1
 WITHIN STATUS, SORT BY: NAME
 START WITH NAME: FIRST// <ENTER>

FIRST PRINT FIELD: NAME;L15
THEN PRINT FIELD: STREET;L15
THEN PRINT FIELD: CITY;L12
THEN PRINT FIELD: STATE;L4
THEN PRINT FIELD: ZIP;L5
THEN PRINT FIELD: PHONE;L15
THEN PRINT FIELD:
Heading (S/C): INSURER LIST//
STORE PRINT LOGIC IN TEMPLATE:    RL INSURER
(May 25, 2009@15:24) User #1  File #9999999.18
DEVICE: ;;999  Virtual
INSURER LIST                                    MAY 25,2009  15:24    PAGE 1
NAME             STREET           CITY           STATE  ZIP    PHONE
-------------------------------------------------------------------------
EMPLOYEE BENEF   1717 SO. BOULDE  TULSA          OKLAH  74119
MANAGED CARE A   4100 E. 51ST, S  TULSA          OKLAH  74135  664-0220
METROPOLITAN L   P.O. BOX 14105   ORANGE         CALIF  92613  (800)438-9599
MUTUAL OF OMAH   P.O. BOX 3189    DALLAS         TEXAS  75221  (214)630-4100
MUTUAL OF OMAH   P.O. BOX 620022  DALLAS         TEXAS  75262  (214)630-4100
NORTHWESTERN N   P.O. BOX 1195    MINNEAPOLIS    MINNE  55440
PROVIDENT        P.O. BOX 105694  ATLANTA        GEORG  30348
PROVIDENT LIFE   P.O. BOX 219722  HOUSTON        TEXAS  77218  (800)423-3341
THE PRUDENT. IN  P.O. BOX 59054   MINNEAPOLIS    MINNE  55459  (800)446-8182
THE TRAVELERS    P.O. BOX 59049   MINNEAPOLIS    MINNE  55459  (800)551-3642
"PRUDENTIAL"     BOX 34890        LOUISVILLE     KENTU  40232
AARP             3200 E. CARSON   LAKEWOOD       CALIF  90712  (800)523-5800
AARP             P.O. BOX 7000    ALLENTOWN      PENNS  18175  (800)523-5800
AARP             P.O. BOX 13999   PHILADELPHIA   PENNS  19187  (800)523-5800
AARP             P.O. BOX 1011    MONTGOMERYVI   PENNS  18936
AARP HEALTH CAR  P.O. BOX 7000    ALLENTOWN      PENNS  18175
```

Figure 11-19: Creating a report in VA Fileman

Turn off session logging when the entire insurer file has been captured. Next you will import this fixed-width file into Excel.

11.2.2 Import Insurer File into Excel

The insurer file that was captured is in text file format. Follow these steps to import the file into Excel:

Open Excel and click on the **Open File** menu. Navigate to the directory in which you placed the captured insurer file and click on the **All Files** option, as this file is not yet in Excel format.

Figure 11-20: The open window with Creating Insurer File highlighted

Click **Open**. This will trigger the Excel Import Wizard, but you may see the following warning message.

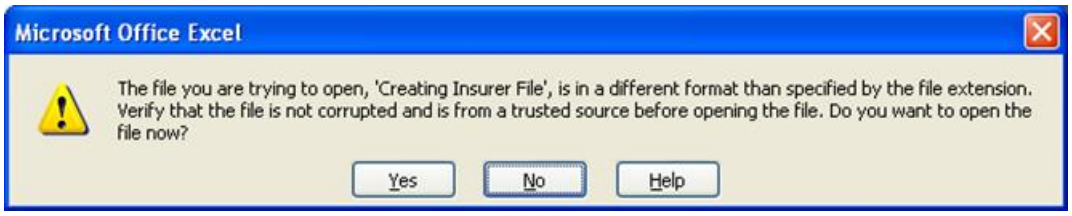


Figure 11-21: Warning message

Click **Yes** to proceed.

The text import wizard will open and the original data type will be selected as fixed column width. Note, however, that the header and formatting at the top of the file may interfere with the import wizard. Therefore, you will wish to alter the line at which you will begin the import to Line 6 or the first full line that contains only insurer information before clicking **Next**.

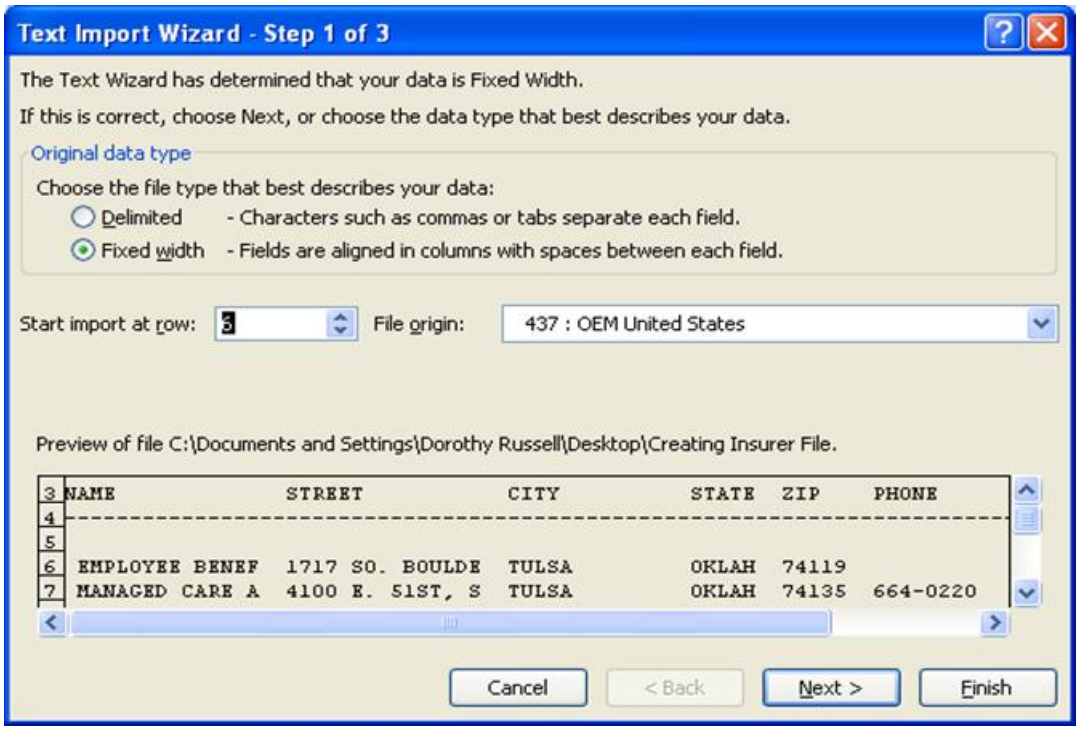


Figure 11-22: The Text Import Wizard, step 1 of 3

When you click **Next**, the Excel Import Wizard will insert lines at expected column breaks. If the lines appear to be correctly located, click **Finish**. If a line is placed inappropriately, it may be removed by placing your cursor on the line and double-clicking to remove the line. If you wish to add a break line, you may put your cursor in the desired location, and click just once. Click **Finish** to complete the import.

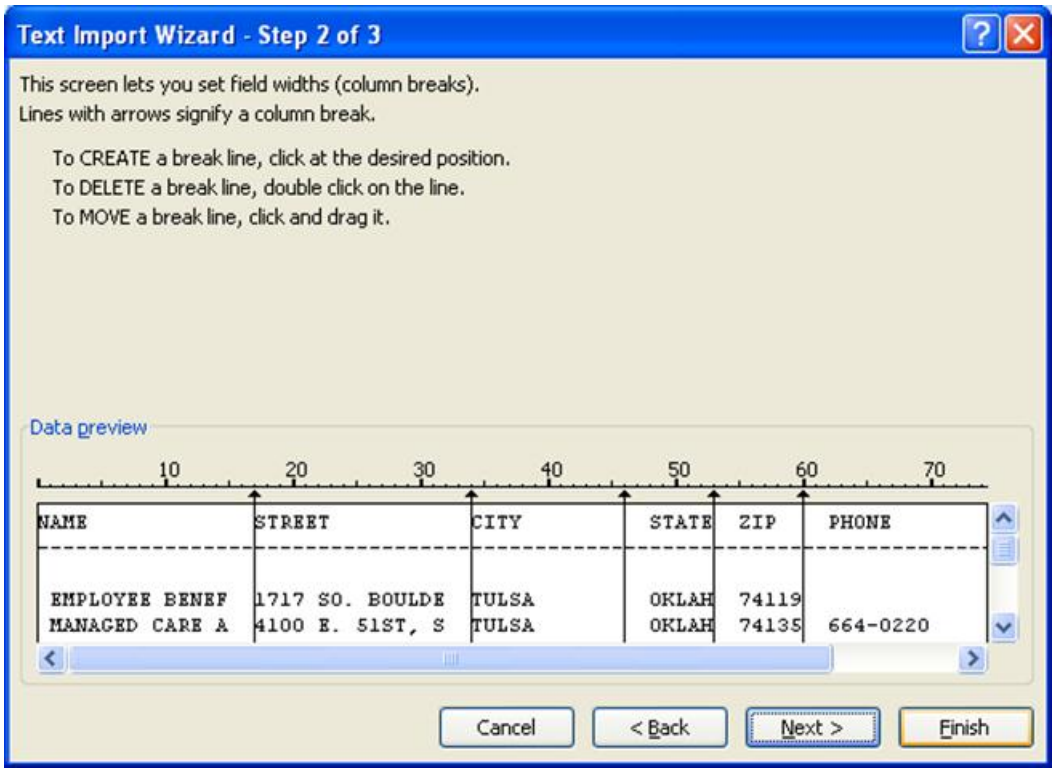


Figure 11-23: Text Import Wizard, Step 2 of 3

Expand the columns in the Excel Spreadsheet to ensure that the data has formatted correctly.

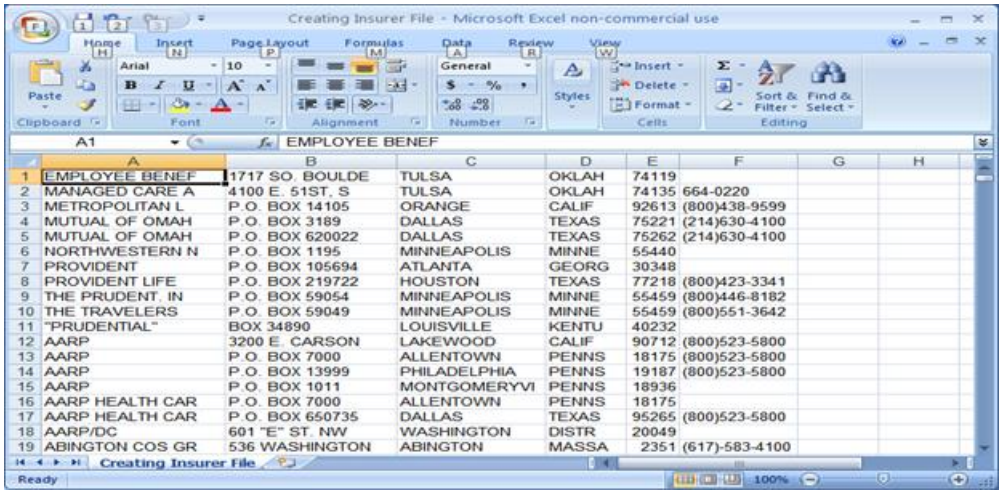


Figure 11-24: Creating Insurer File open as an Excel Spreadsheet

Save the newly created file in Excel Format so that it can be reviewed by your business office staff and unused insurers may be deleted from the Excel spreadsheet before submission to PAML.

Send a copy of the revised Insurer file to your PAML project manager so that PAML codes may be identified for your insurers.

As part of your interface set up, insurance codes provided by the reference laboratory will be added to the INSURER file in the field, EXTERNAL ID 3(REF LAB) using VA Fileman.

11.2.3 Configuration of GIS for PAML interface

11.2.3.1 First Time GIS Interface sites:

If a site has never used the Generic Interface System before, the system must be set up to accept incoming acknowledgements from the reference laboratory.

- Activating HL IHS Accept Acknowledgement (add Destination and mark as Active)

```
GIS Interface Menu
FTM File and Table Menu
TTE Transaction

Select Transaction Type: HL IHS ACCEPT ACKNOWLEDGEMENT
*** Transaction Type Definition, Screen 1 of 2 ***
Name: HL IHS ACCEPT ACKNOWLEDGEMENT
In/Out: OUT Active: ACTIVE
Destination: HL APPL ACK OUT
Script Generated: HL IHS ACCEPT ACKNOWLEDGEMENT-O
Parent:
Dependency: Retry Rate: Max # of attempts:
Acknowledge expected from remote: Application Ack Conditions:
Acknowledge Message:
Format Controller---Priority: Process time:
Output Controller---Priority: Process Time:
Description:
Application Process:
_____________________________________________________________________________
COMMAND: Save and Exit
```

Figure 11-25: Activating HL IHS Accept Acknowledgement

- Generate the script for the HL IHS ACCEPT ACKNOWLEDGEMENT.

```
GIS Interface Menu
SGM Script Generator Menu ...
MM Message Menu ...
MD Message Definition
Select HL IHS ACCEPT ACKNOWLEDGEMENT
```

Figure 11-26: Menu for Generating Script for Accept Acknowledgement

```
                    *** Message Definition ***                  pg 1 of 2

 Message Name: HL IHS ACCEPT ACKNOWLEDGEMENT                 Inactive: NO
   Event Type: ACK                  Message Type: ACK           Audit:
 Send Applic.: RPMS                  Rec. Applic.:
```

```
     Facility:                          Facility:
Processing ID: PRODUCTION  HL7 Version: 2.4    Lookup Parameter: NO LAYGO
   Accept Ack:                       Application Ack:
    Root File: INTERFACE TRANSACTION TYPE
  Routine for Lookup/Store:
  Description:
               Field Separator: |  Encoding Characters: ^~\&
Segments:
HL ACKNOWLEDGEMENT
HL IHS MSH (GENERIC)



_______________________________________________________________________________
COMMAND:  < Save and Exit                Press <PF1>H for help    Insert

Generate Scripts? Y// Y (Yes)

Generation for message: HL IHS ACCEPT ACKNOWLEDGEMENT.....................

The following scripts were generated:
     Generated: HL IHS ACCEPT ACKNOWLEDGEMENT-O

Do you wish to compile the script(s) now? Y//  (Yes)

Compiling Script: Generated: HL IHS ACCEPT ACKNOWLEDGEMENT-O
..
MUMPS section....
DATA section.............................
END section.

Compile completed with 0 warnings and 0 errors.
Linking...  Filing generated routines...

Routine IS00024    ...Filed
```

Figure 11-27: Generating Script for Accept Acknowledgement

11.2.3.2 Creating HL IHS LAB RECEIVER and HL IHS LAB TRANSMITTER

```
GIS Interface Menu
FTM File and Table Menu ...
BPE Background Process Entry/Edit
Select HL IHS LAB RECEIVER or HL IHS LAB TRANSMITTER
```

Figure 11-28: Menu for Configuring GIS Background Processes

- Activate and identify the Destination for the HL IHS LAB RECEIVER.

```
             *** Background Process Entry/Edit ***     Screen 1 of 3

 Name: HL IHS LAB RECEIVER
         Active: ACTIVE           Priority:
         Device:
         Routine: INHVTAPR
     Destination: HL IHS LAB R01 PAML IN
Destination Determination Code:
D PAML^INHVIHS
       Client/Server: SERVER         Connection Type: PERSISTENT
Server Ports:
```

```
15312 < Site specific as determined by PAML and site.

Client Addresses:

_____________________________________________________________________________

COMMAND: < Save and Exit                    Press <PF1>H for help    Insert
```

Figure 11-29: Activating the HL IHS LAB RECEIVER

- Activate the HL IHS LAB TRANSMITTER.

```
             *** Background Process Entry/Edit ***     Screen 1 of 3

 Name: HL IHS LAB TRANSMITTER
         Active: ACTIVE           Priority:
         Device:
         Routine: INHVTAPT
     Destination: HL IHS LAB PAML
Destination Determination Code:

       Client/Server: CLIENT         Connection Type: PERSISTENT
Server Ports:

Client Addresses:
206.82.175.252 < Place cursor on IP address and press enter to open box to
enter port for the transmitter. The IP address and port will be provided by
PAML.
_____________________________________________________________________________

COMMAND: < Save and exit                  Press <PF1>H for help    Insert
```

Figure 11-30: Activating the HL IHS LAB TRANSMITTER

11.2.3.3 Turn on message acknowledgement for PAML results

```
GIS    GIS Interface Menu ...
DE     Destination Entry/Edit
Select INTERFACE DESTINATION:  HL IHS LAB R01 PAML IN

             *** Interface Destination Definition, Screen 1 of 3 ***

         Name: HL IHS LAB R01 PAML IN
Acceptance TT: HL IHS ACCEPT ACKNOWLEDGEMENT
Accept Ack Conditions: ALWAYS

Priority:          Retry Rate:          Max # of Attempts:
 *** Enter a value for ONE of the following:
    Transaction Type: HL IHS LAB R01 PAML IN
 Transceiver Routine:
      Mail Recipient:
     Message Subject:
Device for Output:


Code to Edit Transactions:

_____________________________________________________________________________
Exit     Save     Next Page     Refresh
```

```
Enter a command or '^' followed by a caption to jump to a specific field.


COMMAND: < Save and Exit                      Press <PF1>H for help
Insert_
```

Figure 11-31: Turning on Acknowledgement for PAML incoming results

11.2.3.4 Activating Transaction Types

Transaction Types will need to be activated for:

HL IHS LAB O01 PAML OUT CHILD (for outgoing orders)

HL IHS LAB R01 PAML IN (for incoming results)

```
 GIS    GIS Interface Menu ...
 TTE    Transaction Type Enter/Edit
Select TRANSACTION TYPE:  HL IHS LAB RO1 PAML IN
```

Figure 11-32: Menu for activating Transaction Types

```
            *** Interface Destination Definition, Screen 1 of 3 ***

         Name: HL IHS LAB R01 PAML IN
Acceptance TT: HL IHS ACCEPT ACKNOWLEDGEMENT
Accept Ack Conditions: ALWAYS

Priority:          Retry Rate:          Max # of Attempts:
 *** Enter a value for ONE of the following:
    Transaction Type: HL IHS LAB R01 PAML IN
 Transceiver Routine:
      Mail Recipient:
     Message Subject:
Device for Output:

Code to Edit Transactions:

_____________________________________________________________________________
COMMAND:  < Save and Exit                Press <PF1>H for help    Insert
```

Figure 11-33: Activating Transaction Type for incoming results

```
Repeat the process for the second transaction type, HL IHS LAB O01 PAML OUT
CHILD.

        *** Transaction Type Definition, Screen 1 of 2 ***


       Name: HL IHS LAB PAML O01 OUT CHILD
     In/Out: OUT                                        Active: ACTIVE
Destination: HL IHS LAB PAML
     Script: Generated: HL IHS LAB O01 PAML-O
     Parent: HL IHS O01 OUT PARENT
 Dependency:           Retry Rate:               Max # of attempts:
```

```
 Acknowledge expected from remote:       Application Ack Conditions:
 Acknowledge Message:
     Format Controller---Priority:        Process time:
     Output Controller---Priority:        Process Time:
 Description:
 Application Process:


_____________________________________________________________________________


COMMAND:  < Save and Exit               Press <PF1>H for help    Insert
```

Figure 11-34: Activating Transaction Type for outgoing order

11.2.3.5 Start the GIS processes for the interface

```
GIS Interface Menu
BPM Background Process Control Menu ...
S1 Startup a Background Process
Select OUTPUT CONTROLLER
.Started
Select FORMAT CONTROLLER
.Started
Select HL IHS LAB TRANSMITTER
.Started
Select HL IHS LAB RECEIVER
.Started
```

Figure 11-35: Starting the GIS Background Interface processes

11.2.3.6 Run the BLR Menu option, SIT

As the last step to activating the interface, the menu option, SIT, must be run to set the HL7 message structure for the MSH on the outgoing message. Be sure to have the account number and settings for the Sending Application (MSH.3), Sending Facility (MSH.4), Receiving Application (MSH.5), and Receiving Facility (MSH.6) and Accession Area(s) before running this option. These settings will be provided to you by your project manager.

In the example below, the settings used are as follows:

Reference Laboratory: PAML

Account Number: M169

Sending Application: 1531

Sending Facility: M169

Receiving Application: CAPS

Receiving Facility: PAML

Accession Area: SENDOUTS

```
LAB    Laboratory DHCP Menu ...
BLR    IHS Lab Main Support Menu
REFL   Reference Lab Main Menu ...
SIT    Reference Lab Site Parameter Add/Edit
```

Figure 11-36: Menu to configure HL7 menu structure

```
Select Reference Lab Main Menu Option: SIT  Reference Lab Site Parameter
Add/Edit
Now setting up reference lab parameters..
Setup Parameters for which Reference Lab: PAML

Now setting up GIS HL7 Message Parameters..
SENDING APPLICATION: 1531
SENDING FACILITY: M169
RECEIVING APPLICATION: CAPS
RECEIVING FACILITY: NPL
Add this Reference Lab to which Site: TEST HEALTH CENTER    PORTLAND
TRIBE/638   PUGET SOUND            11                OR            8410
REF LAB DEV FOR SHIP MANIFEST: < Printer for shipping manifests
REF LAB CLIA NUMBER:
REF LAB LAB MANAGER:
REF LAB EXPORT DIRECTORY:
REF LAB RES FILE NAME PREFIX:
REF LAB STORAGE DIRECTORY:
REF LAB HL7 FILE FORMAT:
REF LAB ORDERING LOCATION:
REF LAB HOLD LABS FOR VERIF:
REF LAB DAYS TO KEEP FILES:
REF LAB DEF ORDERING LOCATION:
REF LAB IMPORT DIRECTORY:
REF LAB PASS CPT CODES:
REF LAB BILLING TYPE: Client
REF LAB PRT SHP MAN BY STORAGE:
REF LAB PRT PT PHONE MANIFEST:
REF LAB BI/UNIDIRECTIONAL: BIDIRECTIONAL
REF LAB NPI OR UPIN ON ORDER: NPI
REF LAB NAME FOR SHIP MANIFEST: PAML
REF LAB USE INSURANCE SEQ:
Select REF LAB CLIENT ACCOUNT NUMBER: M169
Select REF LAB ACCESSION AREA: SENDOUTS
Now setting up Lab HL7 Message Parameter File..
Now activating Reference Lab Interface..

Generation for message: HL IHS LAB O01
NPL.....................................
..............

The following scripts were generated:
     Generated: HL IHS LAB O01 NPL-O


Compiling Script: Generated: HL IHS LAB O01 NPL-O
..
MUMPS section....
DATA section.............................................................
.........
END section.
```

```
Compile completed with 0 warnings and 0 errors.
Linking...  Filing generated routines...

Routine IS00036    ...Filed
Routine IS00036A   ...Filed
Routine IS00036B   ...Filed
```

Figure 11-37: Running SIT option for PAML script

11.2.4 Laboratory File Set up for PAML

11.2.4.1 Configuring LA7 Message Parameter File

```
Use VA Fileman to create a new entry for PAML as follows:
Select VA FileMan Option: ENter or Edit File Entries

INPUT TO WHAT FILE: V LAB// 62.48    LA7 MESSAGE PARAMETER
                                          (1 entries)
EDIT WHICH FIELD: ALL//

Select LA7 MESSAGE PARAMETER CONFIGURATION: PAML  Are you adding PAML as a
new LA7 MESSAGE PARAMETER CONFIGURATION?  YES
CONFIGURATION: PAML//
PROTOCOL: HEALTH LEVEL SEVEN
STATUS: ACTIVE
GRACE PERIOD FOR MESSAGES:
LOG ERRORS: ON
PROCESS IN: D QUE^LA7VLIN
PROCESS DOWNLOAD:
HL7 NON-DHCP APPLICATION:
MULTIPLE ORDERS:
INTERFACE TYPE: LEDI
Select ALERT CONDITION:
Select REMOTE SYSTEM ID: JCAPSPAML1531THC  <  Note these MAY be the same
MSH segments as used in SIT except in reverse order or they may differ.
Confirm the MSH settings of result messages being returned from PAML.
```

Figure 11-38: Creating a LA7 Message Parameter entry for PAML

11.2.4.2 Create a Load/Worklist File for Sendouts

Using VA Fileman, create a Load/Worklist file for Sendouts. All orderable tests, types BOTH and INPUT must have entries with a BUILD NAME ONLY of NO. OUTPUT type tests need not be entered into the Load/Worklist file.

See example below:

```
Select VA FileMan Option: Enter or Edit File Entries

INPUT TO WHAT FILE: LA7 MESSAGE PARAMETER// LOAD/WORK LIST
                                         (14 entries)
EDIT WHICH FIELD: ALL//< Type PROFILE once Load/Worklist is created

Select LOAD/WORK LIST NAME: SENDOUTS
```

```
NAME: SENDOUTS//
LOAD TRANSFORM: UNIVERSAL       L
TYPE: TRAY/CUP
CUPS PER TRAY: 0
FULL TRAY'S ONLY: NO//
EXPAND PANELS ON PRINT: YES// NO
INITIAL SETUP:
VERIFY BY: ACCESSION
SUPPRESS SEQUENCE #:
INCLUDE UNCOLLECTED ACCESSIONS: NO
SHORT TEST LIST:
AUTO MICRO EDIT TEMPLATE:
WKLD METHOD:
MAJOR ACCESSION AREA: SENDOUTS
LAB SUBSECTION: SENDOUTS
WORK AREA:
DATE OF SETUP: OCT 10,1996//
FIRST TRAY:
STARTING CUP:
LAST TRAY:
LAST CUP:
BUILDING IN PROGRESS: NO//
Select PROFILE: SENDOUTS//
  Select TEST: xLIPID PANEL (R)
    TEST: xLIPID PANEL (R)//
    SPECIMEN:
    BUILD NAME ONLY: YES//NO
    POC WKLD METHOD:
    POC COLLECTION SAMPLE:
  Select TEST:
```

Figure 11-39: Setting up Load Worklist for Referral tests

11.2.4.3 Auto Instrument File

Create an Auto Instrument file for PAML using VA Fileman. Add an entry for each result which you anticipate being returned from PAML under the CHEM TEST multiple. The UI test code for returned results will be the result code provided by PAML on the test compendium.

- Mark the field, Remove spaces from result as 'NO'. This will prevent the text of non-numeric results from running together, i.e. Not Detected versus NotDetected.
- Mark the fields, Accept Results for this Test, Store Remarks, Store Reference Range, and Store Units as 'YES". This permits storing those fields as they are transmitted by the reference laboratory interface.

```
Select VA FileMan Option: Enter or Edit File Entries

INPUT TO WHAT FILE: AUTO INSTRUMENT                 (105 entries)
EDIT WHICH FIELD: ALL//

Select AUTO INSTRUMENT NAME: PAML
 Are you adding 'QUEST' as a new AUTO INSTRUMENT (the 106TH)? No// Y  (Yes)
  AUTO INSTRUMENT NUMBER: 4// (Be sure that this number is less than 100)
VENDOR CARD ADDRESS:
SHORT ACCESSION # LENGTH:
```

```
WKLD METHOD:
ECHO DEVICE:
PROGRAM:
LOAD/WORK LIST: SENDOUTS
ENTRY for LAGEN ROUTINE: ACC  Accession cross-reference
CROSS LINKED BY: ID
MESSAGE CONFIGURATION: PAML (This corresponds to the entry in the LA7
Message Parameter file (62.48)
*ECHO ALL INPUT:
METHOD:
DEFAULT ACCESSION AREA: SENDOUTS
OVERLAY DATA: YES//
STORE REMARKS: YES//
NEW DATA:
NEW DATA:
RESTART:
HANDSHAKE RESPONSE:
ACK TRIGGER VALUE:
ACK RESPONSE VALUE:
DIRECT DEVICE:
Select TEST: Select TEST: xPSA
 Are you adding 'xPSA' as a new CHEM TESTS (the 1ST for this AUTO
INSTRUMENT)? No// Y  (Yes)
  CHEM TESTS NUMBER: 1//
 PARAM 1:
 PARAM 2:
 PARAM 3:
 UI TEST CODE: 84153
 ACCESSION AREA:
 SPECIMEN:
 URGENCY:
 NUMBER OF DECIMAL PLACES:
 CONVERT RESULT TO REMARK:
 ACCEPT RESULTS FOR THIS TEST: YES
 DOWNLOAD TO INSTRUMENT:
 IGNORE RESULTS NOT ORDERED:
 REMOVE SPACES FROM RESULT: NO
 STORE REMARKS: YES
 REMARK PREFIX:
 STORE PRODUCER'S ID:
 STORE REFERENCE RANGE: YES
 NOTIFY ABNORMAL FLAGS: NO
 STORE UNITS: YES
Select TEST:
LOAD CHEM TESTS:
Select ALARM TERMINAL:
Select MICRO CARD TYPE:
INTERFACE NOTES:
 No existing text
 Edit? NO//
DOWNLOAD ENTRY:
DOWNLOAD PROTOCOL ROUTINE:
FILE BUILD ENTRY:
FILE BUILD ROUTINE:
SEND TRAY/CUP LOCATION:
QUEUE BUILD:
MICRO INTERPRETATION CHECK:
AUTO DOWNLOAD:
METH NAME:
MEAN DATA VALUE 1:
MEAN DATA VALUE 2:
```

```
MEAN DATA VALUE 3:
MICRO AUTO APPROVAL METHOD:
DEFAULT AUTO MICRO TEST:
Select SITE NOTES DATE: APRIL 10,2011
 SITE NOTES DATE: APRIL 10, 2011//
TEXT:
ADDED AS NEW AUTO INSTRUMENT. DKR

   Edit? NO//
Select ACCESSION: SENDOUTS (enter all accession areas that will be using
this autoinstrument)
```

Figure 11-40: Setting up Auto Instrument file for reference laboratory

11.2.4.4 Mapping to BLR Reference Laboratory File

Once tests have been defined, they must be mapped to the appropriate order code in the BLR Reference Laboratory file. This file is used to identify tests which will be electronically handled by the Generic Interface System when they are ordered.

- Only type BOTH and type INPUT tests will be mapped.
- Tests may be cross–referenced either by name or by order code.
- If a test cannot be found by either method, then a new test name must be added to the BLR Reference Laboratory file.

```
LAB    Laboratory DHCP Menu ...
BLR    IHS Lab Main Support Menu
REFL   Reference Lab Main Menu ...
MAP    Map Reference Lab Test
```

Figure 11-41: Menu for mapping PAML order codes

```
Select Reference Lab Main Menu Option: MAP  Map Reference Lab Test

Select BLR REFERENCE LAB REFERENCE LAB NAME: PAML
Select TEST NAMES: PSA
 Select TEST NAMES: PSA//
 LAB TEST POINTER: xPSA < this is your file 60 test
 ORDER CODE: 84153
 RESULT CODE:
 ORDER ENTRY QUESTION:
 Select ORDER ENTRY RESULT CODE:
Select TEST NAMES:
```

Figure 11-42: Mapping PAML test order codes

11.2.4.5 IHS Lab CPT Code

If you have a client bill contract with your reference laboratory and all billing is done by your facility using the IHS Third Party Billing Package, you will need to make an entry for each test that is ordered in the IHS Lab CPT Code file. If your reference laboratory bills patients directly, no entry needs to be made for tests ordered from the reference laboratory. However, please keep in mind that many tribal facilities have a mix of third party billing, patient pay, and contract health. It is highly recommended that the IHS Lab CPT Code file be populated regardless of what the current billing structure is.

Entries are made exactly the same for reference laboratory tests as tests performed in the facility except each send out test should have a modifier of 90 defined for each CPT code. CPT Codes should be included in the Service Directory provided by your reference laboratory. See example below.

If you are unable to make a new entry in this file but can see existing entries, please have your site manager check to be sure that you have L as a Fileman access code.

```
LAB >BLR > CPT

INPUT TO WHAT FILE: AUTO INSTRUMENT// IHS LAB CPT CODE
EDIT WHICH FIELD: ALL//


Select IHS LAB CPT CODE NAME: PSA (R)
 Are you adding 'PSA (R)' as
   a new IHS LAB CPT CODE (the 485TH)? No// Y  (Yes)
LAB SECTION: SENDOUTS
CREATE DATE: N  (DEC 10, 2010@14:33:04)
DATE/TIME ACTIVE: N  (DEC 10, 2010@14:33:05)
DATE/TIME INACTIVE:
PANEL/TEST: xPSA (R) < the new test you created in Laboratory Test file
INACTIVE FLAG:
Select CPT CODE: 84153    ASSAY OF PSA TOTAL
       Prostate specific antigen (PSA); total
         ...OK? Yes// <enter>

Are you adding '84153' as a new CPT CODE (the 1ST for this IHS LAB CPT
CODE)?  No// Y  (Yes)
 LAB LIST COST:
 REVIEW CODE:
 ACTION CODE:
 Select MODIFIER: 90
 Are you adding '90' as a new MODIFIER (the 1ST for this CPT CODE)? No// Y
 (Yes)
 Select MODIFIER:
 Select QUALIFIER:
Select CPT CODE:
DESCRIPTION:
 No existing text
 Edit? NO//
```

Figure 11-43: Adding IHS Lab CPT Code entry for referral test

11.3 Quest Billing Interface

The Quest billing interface has been extensively redesigned to meet the needs of I/T/U facilities that require Quest to bill third party insurers for their patients. In addition, the redesign meets the Quest requirements for clients to submit laboratory orders with billing information in a CMS compliant format. The redesigned Quest interface uses ENSEMBLE, HL7 version 1.6, and the VA's LEDI software for creating and routing HL7 laboratory order and result messages. This is the first reference laboratory interface using these tools for both outgoing Laboratory orders and incoming Laboratory results. LEDI was introduced in Laboratory patch 27 for filing incoming results only.

Directions for installing and configuring the ENSEMBLE and HL7 pieces of this interface are contained in the Technical Addendum to this patch (lr__0520.30oa.pdf), Laboratory patch 30.

Note that the IP address and ports that Quest wishes to use for this interface, the MSH segments, and the account numbers to be used for the interface (both test mode and production mode) must all be available before the interface can be installed and configured.

Existing Quest unidirectional and bidirectional reference laboratory interface sites will continue to use GIS unless or until they are provided directions on how to convert to this new interface structure.

The major differences users will notice with this interface are listed below:

- Manifests do not print out when each order is accessioned.
- A manifest must be opened to accumulate accessions as they are generated.
- Manifests must be 'built' in order to review tests that are slated to be transferred to Quest.
- Manifests print by storage temperature.
- Tests may be added or deleted from a manifest before shipment.
- One or more manifests may be generated during the course of the day.
- Electronic orders are not transferred to Quest until the manifest is Closed/Shipped.
- The menu option, Look up Accession, shows when a test has been built onto a Shipping Manifest.
- The primary identifier used by Quest is the RPMS order number, not the accession number.

The interface uses many of the same files as other interfaces and because these are standard file configurations and well documented in other parts of this manual and previous patch Laboratorian Guides, they will not be repeated here.

- Accession file (68): A SENDOUT accession area will be created for each facility using the interface. Long form accession numbers will be used.
- Laboratory Test file (60): Tests will be set up as single tests and as panels just as they would for any other interface. The accession area for each facility using the interface will be identified in the accession area multiple.
- Load/Worklist file (68.2): A single load/worklist will be created for SENDOUTS. Each facility using the interface will have a profile within the Load/Worklist. (See section 11.x.x).
- Auto Instrument file (62.4): An Auto Instrument will be created called QUEST. Each test which will be returned as a result will have an entry in the CHEM TEST multiple of the Auto Instrument with the UI test code equal to the result code provided by Quest. (See section 11.x.x).
- IHS Lab CPT Code file (9009021): Despite the fact that Quest will be doing billing for patient insurers, all tests will be entered into the IHS Lab CPT Code file so that appropriate billing may be generated by the facilities Third Party Billing system if desired. (See section 11.x.x).
- Insurer file (9999999.18): Prior to interface development, a spreadsheet of the insurers used by the I/T/U Facility must be submitted to the Quest project manager for coding with Quest insurer codes. (See section 11.2.1).

11.3.1 RPMS Configuration

Because this is a new bidirectional interface design using billing for Quest Diagnostics, directions are provided below for several RPMS files and options that must be configured for this interface to work.

- BLR Master Control File (#9009029)
- LA7 Message Parameter File (#62.48)
- Institution (#4) : An entry must be created for the Reference Laboratory
- SMGR Lab Shipping Management Menu ...

  CFE Edit Shipping Configuration

  Edit Shipping Container

  CME Edit Shipping Method

  CDE Edit Shipping Condition

LSU LEDI Setup

11.3.1.1 BLR Master Control File

Use VA Fileman to edit the BLR Master control file for each facility that will be using the Quest bidirectional billing interface. Settings that are already in place for a unidirectional interface need not be altered as the new LEDI interface will not impact a unidirectional GIS interface.

```
Select VA FileMan Option: ENter or Edit File Entries



INPUT TO WHAT FILE: BLR MASTER CONTROL//
EDIT WHICH FIELD: ALL//


Select BLR MASTER CONTROL SITE: TEST HEALTH CLINIC       CALIFORNIA TRIBE/638
TEST       10    CA       8358
         ...OK? Yes//   (Yes)

SITE: TEST HEALTH CLINIC//
LAB LOG TRANSACTION: YES//
LAB LOG TO PCC: YES//
LOG PAT DATA ONLY: YES//
*DEFAULT DIRECTORY PATH:
START PROCESSING DATE: JUL 03, 2011//
START EVENT DATE: JUL 03, 2011//
DAYS TO KEEP TRANSACTIONS: 180//
STOP PROCESSOR: NO//
TAKE SNAPSHOTS:
ERROR OVERFLOW LIMIT:
PATH INST:
PATH NAME:
PATH TITLE:
PATH ADDR1:
PATH ADDR2:
PATH CITY:
PATH STATE:
PATH ZIP:
PATH PHONE:
INTERIM REPORT LINE 1:
INTERIM REPORT LINE 2:
INTERIM REPORT DO NOT FILE:
INTERIM REPORT ADDRESS PAGE:
LOINC EXPORT DESTINATION IP:
LOINC EXPORT DEST. FOLDER:
LOINC LOCAL DESTINATION:
LOINC DAYS TO KEEP EXPORT LOG:
LOINC LOG IN ID:
LOINC LOG IN PASSWORD:
ACCESSION TEST GROUP TEMPLATE:
Select EVENT DATE: JUN 29,2011//
  EVENT DATE: JUN 29,2011//   (No Editing)
  LAST EVENT ASSIGNED: 33//   (No Editing)
  LAST EVENT PROCESSED: 33//
  Select EVENT: C//
Select PROCESSING DATE: JAN 1,2011//
  PROCESSING DATE: JAN 1,2011//   (No Editing)
```

```
  LAST TRANSACTION SEQ ASSIGNED: 1//   (No Editing)
  LAST TRANSACTION SEQ PROCESSED: 1//
  TRANSACTION LOG # ASSIGNED:
Select LAB APPLICATION PLUG-IN: LR*5.2*1021//
  LAB APPLICATION PLUG-IN: LR*5.2*1021//
  PLUG-IN ON/OFF?: ON//
Select LAB APPLICATION PLUG-IN:
REFERENCE LAB: QUEST//< Do not alter if entry is already present.
REF LAB DEV FOR SHIP MANIFEST:
REF LAB CLIA NUMBER:
REF LAB LAB MANAGER:
REF LAB EXPORT DIRECTORY:
REF LAB RES FILE NAME PREFIX:
REF LAB STORAGE DIRECTORY:
REF LAB HL7 FILE FORMAT:
REF LAB ORDERING LOCATION: TEST LAB//< Do not alter if entry is already present
REF LAB HOLD LABS FOR VERIF:
REF LAB DAYS TO KEEP FILES:
REF LAB DEF ORDERING LOCATION:
REF LAB IMPORT DIRECTORY:
REF LAB PASS CPT CODES:
REF LAB BILLING TYPE: Third Party - Must be Third Party to trigger insurance
information in outgoing message
REF LAB PRT SHP MAN BY STORAGE:
REF LAB PRT PT PHONE MANIFEST:
REF LAB BI/UNIDIRECTIONAL: UNIDIRECTIONAL//< Do not alter if entry is already
present
REF LAB NPI OR UPIN ON ORDER: NPI//- NPI is required
REF LAB NAME FOR SHIP MANIFEST: < No entry is required for using LEDI
REF LAB USE INSURANCE SEQ: YES < Recommended to set to YES so that staff
accessioning lab orders do not have to pick from a list of insurers.  If insurers
are regularly sequenced, the reference laboratory software will automatically send
the insurers as sequenced.
REF LAB USING LEDI?: YES < This is the key field for identifying a LEDI outgoing
orders interface.
Select REF LAB CLIENT ACCOUNT NUMBER: 91901619//<Enter one or more account numbers
used by this facility.  If more than one facility is using this interface, enter the
account number(s)for each under their own BLR Master Control file entry.
Select REF LAB ACCESSION AREA: SENDOUTS//< Enter accession area(s) used by this
facility. If more than one facility is using this interface, enter the accession
area(s) for each facility under its corresponding BLR Master Control file entry.
```

Figure 11-44: Editing BLR Master Control file to use LEDI Outbound

11.3.1.2 LA7 Message Parameter Configuration

Use VA Fileman to edit the LA7 Message Parameter file (#62.48). A new entry will need to be made for Quest. The Remote ID field matches the MSH segments in the result message returned by Quest. The MSH segments are concatenated to create the remote ID. If this interface will be used by more than one facility in a multidivisional RPMS environment, a Remote ID must be added for each facility.

```
Select VA FileMan Option: enter or Edit File Entries



INPUT TO WHAT FILE: LA7 MESSAGE PARAMETER//
EDIT WHICH FIELD: ALL//
```

```
Select LA7 MESSAGE PARAMETER CONFIGURATION: QUEST Are you adding QUEST as a
new LA7 Message Parameter Configuration? YES
CONFIGURATION: QUEST//
PROTOCOL: HEALTH LEVEL SEVEN
STATUS: ACTIVE
GRACE PERIOD FOR MESSAGES:
LOG ERRORS: ON
PROCESS IN: D QUE^LA7VQIN
PROCESS DOWNLOAD:
HL7 NON-DHCP APPLICATION:
MULTIPLE ORDERS: IHS SINGLE ORDER
INTERFACE TYPE: LEDI
Select ALERT CONDITION:
Select REMOTE SYSTEM ID: MET91901008 < This will be the header information
returned on the result message from Quest.  This information will be
provided by your Quest project manager.  If more than one facility in a
multidivisional environment is using this interface, an entry must be made
for each distinctive message header.
```

Figure 11-45: Configuring LA7 Message Parameter file

11.3.1.3 Creating an Institution entry for Quest

Use VA Fileman to create a new entry in the Institution file for your reference laboratory as is demonstrated below for Quest Diagnostics. Be sure to specify that the STATUS is Local and that the AGENCY CODE is OTHER. Use the address of the Quest Diagnostics Laboratory that you use. Shown below is just an example.

```
VA FileMan 22.0

Select OPTION: ENTER OR EDIT FILE ENTRIES

INPUT TO WHAT FILE: INSTITUTION  (3834 entries)
EDIT WHICH FIELD: ALL// <ENTER>
Select INSTITUTION NAME: QUEST DIAGNOSTICS  Are you adding QUEST
DIAGNOSTICS as a new INSTITUTION (the 3835TH)? No//YES
NAME: QUEST DIAGNOSTICS  Replace
STATE: TEXAS
DISTRICT:
SHORT NAME: QUEST
VA TYPE CODE:
REGION:
STREET ADDR. 1: 4770 REGENT BLVD.
STREET ADDR. 2:
CITY: IRVING
ZIP: 75063
Select CONTACT:
ST. ADDR. 1 (MAILING):
ST. ADDR. 2 (MAILING):
CITY (MAILING):
STATE (MAILING):
ZIP (MAILING):
MULTI-DIVISION FACILITY:
STATUS: Local
FACILITY TYPE:
Select ASSOCIATIONS:
```

```
NPI: ^95  AGENCY CODE
AGENCY CODE: OTHER
```

Figure 11-46: Create a new entry in the Institution file for the reference laboratory

11.3.1.4 Lab Shipping Configuration

In the Laboratory Shipping Configuration Menu, five configurations must be created via the menu options below. Note that this menu is locked with the LRLIASON key.

```
   LR     Laboratory DHCP Menu ...
11     Supervisor menu ...
Lab liaison menu ...
SMGR   Lab Shipping Management Menu ...
```

Figure 11-47: Lab Shipping Configuration Menu

11.3.1.4.1 CDE Shipping Condition

Begin by identifying the Shipping Conditions to be used for specimens sent to the Reference Laboratory. At a minimum, you should create entries for REFRIGERATED, ROOM TEMPERATURE, and FROZEN. Specimens will be separated onto separate pages for specimens to be submitted under different shipping conditions.

```
   CFE    Edit Shipping Configuration
   CTE    Edit Shipping Container
   CME    Edit Shipping Method
   CDE    Edit Shipping Condition
   LSU    LEDI Setup
   CAT    Electronic Catalog Menu ...

Select Lab Shipping Management Menu Option: CDE  Edit Shipping Condition
Select SHIPPING CONDITION: RE  FRIGERATE
NAME: REFRIGERATE//
ABBREVIATION: REF//

Select Lab Shipping Management Menu Option:  Edit Shipping Condition
Select SHIPPING CONDITION: ?
    Answer with LAB SHIPPING CONDITIONS NAME
   Choose from:
   FROZEN
   REFRIGERATE
   ROOM TEMPERATURE

        You may enter a new LAB SHIPPING CONDITIONS, if you wish
        NAME MUST BE 3-30 CHARACTERS, NOT NUMERIC OR STARTING WITH
        PUNCTUATION
```

Figure 11-48: Creating Shipping Conditions

11.3.1.4.2 CME Edit Shipping Method

This option may be used to identify how specimens will be transported to the reference laboratory. The most common entry may be Courier but some facilities may need to create entries for FEDEX or MAIL as well.

```
Select Lab Shipping Management Menu Option: CME  Edit Shipping Method
Select SHIPPING METHOD:    COURIER
NAME: COURIER//
```

Figure 11-49: Creating a Shipping Method

11.3.1.4.3 CTE Edit Shipping Container

All shipping containers and packaging that will be used for submitting specimens must be identified by using the Edit Shipping Container menu option. At a minimum, Shipping containers of Primary and Aliquot should be created.

```
Select Lab Shipping Management Menu Option: CTE  Edit Shipping Container
Select SHIPPING CONTAINER: ?
    Answer with LAB SHIPPING CONTAINER NAME
   Choose from:
   ALIQUOT
   PLASTIC BAG
   PLASTIC SCREW CAP VIAL
   PRIMARY
   RACK
   STYROFOAM PACK
   SUREPATH VIAL

        You may enter a new LAB SHIPPING CONTAINER, if you wish
        NAME MUST BE 3-30 CHARACTERS, NOT NUMERIC OR STARTING WITH
        PUNCTUATION

Select SHIPPING CONTAINER: PRIMARY
NAME: PRIMARY//
TYPE: PRIMARY// ?
     Enter what this container is used for.
     Choose from:
       1        PACKAGING
       2        PRIMARY
       3        ALIQUOT
TYPE: PRIMARY//


Select Lab Shipping Management Menu Option:  Edit Shipping Container
Select SHIPPING CONTAINER: PLAST
     1   PLASTIC BAG
     2   PLASTIC SCREW CAP VIAL
CHOOSE 1-2: 1  PLASTIC BAG
NAME: PLASTIC BAG//
TYPE: PACKAGING
```

Figure 11-50: Creating Shipping Containers

11.3.1.4.4 LSU LEDI Setup

The LEDI Setup option is used to define the relationship between the collecting facility and the Reference Laboratory (Host Facility).

```
                                LEDI Setup
------------------------------------------------------------------------

COLLECTION Labs:  Use option #1 to setup HOST labs.
  HOST Labs    :  Use option #2 to setup COLLECTION labs.


1.   Add/Edit HOST Lab
2.   Add/Edit COLLECTION Lab



------------------------------------------------------------------------
                                 HOST Lab(s)
------------------------------------------------------------------------


1.   Add HOST Lab



------------------------------------------------------------------------
                                 HOST Lab(s)
------------------------------------------------------------------------



1. HOST Lab:


Enter a number (1-1): 1
Select INSTITUTION NAME: QUEST DIAGNOSTICS                        CA
999
Setting up the following Host Labs for TEST HEALTH CLINIC
  Updating HL7 APPLICATION PARAMETER file (#771).
     Adding LA7V REMOTE 8358
     Adding LA7V HOST TDA
  Updating PROTOCOL file (#101).
LA7V Receive Results from TDA
LA7V Process Results from TDA
LA7V Order to TDA
LA7V Send Order to TDA
Updating LA7 MESSAGE PARAMETER file (#62.48) for the HOST Lab QUEST
DIAGNOSTICS.
     Adding LA7V HOST TDA
Updating LAB AUTO INSTRUMENT file (#62.4) for HOST Lab QUEST DIAGNOSTICS.
     Adding LA7V HOST TDA

HL7 v1.6 Environment setup is complete!!

------------------------------------------------------------------------
                                 HOST Lab(s)
------------------------------------------------------------------------
```

```
1. HOST Lab:   QUEST DIAGNOSTICS  (Uneditable)
2. Logical Link:
3. Message Configuration: LA7V HOST TDA
4. Auto Instrument: LA7V HOST TDA



---------------------------------------------------------------------
                                  HOST Lab(s)
---------------------------------------------------------------------
```

Figure 11-51: LSU LEDI Setup

11.3.1.4.5 CFE Edit Shipping Configuration

The Shipping Configuration is the file that is used to establish the relationship between tests in the RPMS Laboratory Test file and tests in the Quest test menu. In addition, when tests are added to this file, a shipping condition may be identified for each test, so that when the manifest is printed, the tests may be sorted onto separate pages of the manifest. For single facilities only one shipping configuration will be made. For multidivisional RPMS sites, a separate shipping configuration will be needed for each facility.

Note that adding test to the Shipping Configuration file is the equivalent of MAPPING tests for a bidirectional interface using GIS. Each orderable test that will be sent to Quest must be entered into the Shipping Configuration. Note that the Ask at Order Questions will not be populated in this file; they will be handled via the MAP option in the BLR Reference Laboratory Main Menu.

```
Select Lab Shipping Management Menu Option: CFE  Edit Shipping
Configuration
Select SHIPPING CONFIGURATION: ?
    Answer with LAB SHIPPING CONFIGURATION NAME, or COLLECTING FACILITY, or
        HOST FACILITY'S SYSTEM, or COLLECTING FACILITY'S SYSTEM
   Choose from:
   FACILITY A TO QUEST
   FACILITY B TO QUEST

        You may enter a new LAB SHIPPING CONFIGURATION, if you wish
        Answer must be 3-30 characters in length.

Select SHIPPING CONFIGURATION: FACILITY A TO QUEST

     Select one of the following:

          1         Collecting facility
          2         Host facility

Are you editing this entry as the: 1  Collecting facility
NAME: FACILITY A TO QUEST//
COLLECTING FACILITY: FACILITY A
COLLECTING FACILITY'S SYSTEM: FACILITY A
HOST FACILITY: QUEST DIAGNOSTICS
HOST FACILITY'S SYSTEM: QUEST DIAGNOSTICS
OTHER SYSTEM IDENTIFIER: TDA < Receiving Facility as Identified by QUEST
ACCOUNT NUMBER: 91901619 < Account Number for FACILITY A
```

```
TEST CODING SYSTEM: NON-VA
SPECIMEN CODING SYSTEM: HL7 TABLE 0070
STATUS: ACTIVE
LAB MESSAGING LINK: QUEST
SHIPPING METHOD: COURIER
BARCODE MANIFEST: NO
MANIFEST RECEIPT: YES
INCLUDE UNCOLLECTED SPECIMENS: NO
Select TEST/PROFILE: PROTEIN & SPEP < Test as defined in Laboratory Test
file
  TEST/PROFILE: PROTEIN & SPEP//
  ACCESSION AREA: SENDOUTS
  DIVISION: FACITIY A
  SPECIMEN:
  URGENCY:
  SPECIMEN CONTAINER: ALIQUOT
  SHIPPING CONDITION: REFRIGERATE
  PACKAGING CONTAINER: PLASTIC BAG
  NON-NLT TEST ORDER CODE: 747 < QUEST Order Code
  NON-NLT TEST ORDER NAME: SERUM PROTEIN ELECTROPHORESIS < Quest Orderable
test name
  NON-NLT TEST CODING SYSTEM:
  REQUIRE PATIENT HEIGHT:
  REQUIRE PATIENT WEIGHT:
  REQUIRE COLLECTION VOLUME:
  REQUIRE COLLECTION WEIGHT:
  REQUIRE COLLECTION END D/T:
Select TEST/PROFILE: < Add all tests that are to be referred to Quest over
the interface
```

Figure 11-52: Editing the Shipping Configuration

11.3.2 HL7 Interface Monitoring

The bidirectional reference laboratory interface for the Quest billing interface uses HL7 Version 1.6 filers. Normally the HL7 main menu is found on the Operations Management Menu of the Site Manager's menu, AKMOEVE. In the event the site manager is not available, directions are provided below for monitoring, stopping, and restarting the Link Manager, and the HL7 filers for the Quest interface, LA7VQT and LA7VQR.

```
   SM     Operations Management ...

   HL7    HL7 Main Menu ...

          Event monitoring menu ...
          Systems Link Monitor
          Filer and Link Management Options ...
          Message Management Options ...
          Interface Developer Options ...
          Site Parameter Edit
   HLO    HL7 (Optimized) MAIN MENU ...
```

Figure 11-53: Accessing HL7 Main Menu

The tools that will be used for monitoring the Quest interface are found under Filer and Link Management Options. The Quest specific filers, LA7VQR and LA7VQT, will be installed and available when lr__0520.30k is installed.

> **Note:** Taskman must be running for the Link Manager to be active.

Begin by confirming that the Link Manager is running. Note that even though it may appear to be running, you may wish to stop it and restart it.

```
Select HL7 Main Menu Option: Filer and Link Management Options


   SM     Systems Link Monitor
   FM     Monitor, Start, Stop Filers
   LM     TCP Link Manager Start/Stop
   SA     Stop All Messaging Background Processes
   DF     Default Filers Startup
   SL     Start/Stop Links
   PI     Ping (TCP Only)
   ED     Link Edit
   ER     Link Errors ...

Select Filer and Link Management Options Option: LM  TCP Link Manager
Start/Stop
Link Manager already running!

Would you like to stop the Link Manager now? NO//
```

Figure 11-54: Start/Stop Link Manager

You can confirm that the Link Manager is running by checking the List of Running Tasks in Taskman. Look for the Link Manager as follows:

```
TM     Taskman Management ...
          List Tasks
                Running tasks.


1214207: EN^HLCSLM, HL7 Link Manager.  No device.  SIH,SIH.
         From 7/1/2011 at 14:30,  By you.  Started running 7/1/2011 at
14:30.
         Job #: 6312 [18A8]
```

Figure 11-55: Checking Taskman for running Link Manager

Next you will need to check that the Quest incoming and outgoing filers are active. Use the menu option Systems Link Monitor from the HL7 Main Menu. This option will also show you if the Link Manager is running and if Taskman is running. You may type Q to exit from this screen.

```
HL7    HL7 Main Menu ...
Systems Link Monitor
```

```
                    SYSTEM LINK MONITOR for TEST FACILITY (P System)

                MESSAGES  MESSAGES   MESSAGES  MESSAGES  DEVICE
     NODE       RECEIVED  PROCESSED  TO SEND   SENT      TYPE     STATE

     LA7VQR     16        16         26        15         SS      Reading
     LA7VQT     26        26         26        26         NC      Enabled
     PSOTPBAA                        69                   NC      Open




     Incoming filers running => 1            TaskMan running
     Outgoing filers running => 1            Link Manager running
                                             Monitor current [next job 0.7
hr]
     Select a Command:
 (N)EXT  (B)ACKUP  (A)LL LINKS  (S)CREENED  (V)IEWS  (Q)UIT  (?) HELP:
```

Figure 11-56: Checking incoming and outgoing filers for Quest

In Figure 11-57, it can be noted that LA7VQR, the Quest Receiver shows that it is Reading and that LA7VQT, the Quest Transmitter is Enabled. If this were not the case and either or both of these filers were not running or appear to have gone to sleep (no data filing), they may be stopped and restarted as shown on the next page.

To stop and restart the Quest filers, use the menu option, SL Start/Stop Links, from the Filer and Link Management Options menu. Confirm that the filers have stopped, and then use the same option to restart them.

```
Select HL7 Main Menu Option: Filer and Link Management Options

   SL     Start/Stop Links
Select Filer and Link Management Options Option: SL  Start/Stop Links

This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
to communicate

Select HL LOGICAL LINK NODE: LA7VQT
The LLP was last started on JUL 01, 2011 14:35:20.

Okay to shut down this job? Y

Select Filer and Link Management Options Option:  Start/Stop Links

This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
to communicate

Select HL LOGICAL LINK NODE: LA7VQR
The LLP was last started on JUL 01, 2011 14:33.

Okay to shut down this job? Y
```

Figure 11-57: Stopping Quest Receiver and Transmitter

Confirm that the links have stopped using the System Monitor option.

```
                    SYSTEM LINK MONITOR for SONOMA (P System)

                MESSAGES  MESSAGES   MESSAGES  MESSAGES  DEVICE
     NODE       RECEIVED  PROCESSED  TO SEND   SENT      TYPE     STATE

     LA7VQR     16        16         26        15         SS      Shutdown
     LA7VQT     26        26         26        26         NC      Shutdown
     PSOTPBAA                        69                   NC      Open



     Incoming filers running => 1            TaskMan running
     Outgoing filers running => 1            Link Manager running
                                             Monitor current [next job 0.5
hr]
     Select a Command:
 (N)EXT  (B)ACKUP  (A)LL LINKS  (S)CREENED  (V)IEWS  (Q)UIT  (?) HELP:
```

Figure 11-58: Confirming that Quest links have stopped

Restart the links using the SL Start/Stop Links option again. Confirm that the links are now active.

```
Select Filer and Link Management Options Option: SL  Start/Stop Links

This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
to communicate

Select HL LOGICAL LINK NODE:    LA7VQR
The LLP was last shutdown on JUL 03, 2011 09:53:02.


     Select one of the following:

          F         FOREGROUND
          B         BACKGROUND
          Q         QUIT

Method for running the receiver: B// <enter>

Select Filer and Link Management Options Option:  Start/Stop Links

This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
to communicate

Select HL LOGICAL LINK NODE: LA7VQT
The LLP was last shutdown on JUL 03, 2011 09:51:15.
This LLP has been enabled!
```

Figure 11-59: Restarting the Quest links

11.3.3 Validation

Prior to using the interface for patient testing, arrangements must be made with the Quest project manager to validate the interface. Extensive testing has already been performed to validate this interface, so validation usually involves a short set of scenarios with Demo Patients to confirm that interface configuration has been properly completed. Note that while only five scenarios are listed on this sample test plan from Quest, it is highly recommended that every test that is routinely ordered from Quest, be tested while the interface is pointed to Quest's test server.

```
Dear Valued Client,

In preparation for Quest Diagnostics to implement your CIMARRON/RPMS
interface, we would like to verify that the interface has been properly
loaded in your system. While there is no testing required by you, we are
requesting that you please help us to verify your interface by placing the
following orders in your CIMARRON/RPMS system and sending Quest Diagnostics
the hard copy requisitions.  When Quest Diagnostics has completed the
verification, we will ask that you send Quest Diagnostics copies of the
reports generated from your CIMARRON/RPMS system.  Quest Diagnostics will
review the reports, and contact you with the results of our verification.

As discussed on our recent kick off call the milestone dates are listed
below:
Software install date: TBD
Communication Test: TBD
Begin Functional Testing: TBD
Complete Functional Testing TBD
Go Live Date: TBD
Support turnover: TBD
```

```
Requisition #1
Quest Account Number:  98374700
Patient Name:      TEST,MALE (or use an existing Test/Demo Patient already
created)
Gender:      MALE
Bill Type:      CLIENT
Diagnosis Codes:    Please enter any two DX codes

Tests to order:
866 - Free T4
7600 - Lipid Panel
4446 – Culture, Aerobic & Anaerobic w/ Gram Stain (enter sources when
prompted)
```

```
Requisition #2
Patient Name:      TEST,FEMALE (or use an existing Test/Demo Patient
already created)
Gender:      FEMALE
Bill Type:      PATIENT
Order Comment      Please add an instructional comment to the order, such
as:
         "Please add test 899 TSH at order entry"
```

```
Tests to order:
10231 - Comprehensive Metabolic Panel
683 – ACE – Angiotensin Converting Enzyme
```

```
Requisition #3

Patient Name:      TEST,MALE (or use an existing Test/Demo Patient already
created)
Gender:         MALE
Bill Type:      INSURANCE
Carrier:        MEDICARE (ABN should generate for Hgb, TSH, & HIV but NOT
for UA)
Diagnosis:      V771 (36262)

Tests to order:
496 - Hemoglobin A1c
36127 – TSH w/ Reflex to FT4
5463 – Urinalysis
19728 – HIV 1/2 w/ Reflex
Requisition #4 - (THIS ORDER WILL NOT BE RECEIVED ELECTRONICALLY, BUT WILL
BE MANUALLY ENTERED BY QUEST)

Patient Name:      TEST,MALE (or use an existing Test/Demo Patient already
created)
Gender:         MALE
Bill Type:      CLIENT

Tests to order:
496 - Hemoglobin A1c
Requisition #5 – PLEASE SEND AS PSC HOLD

Patient Name:      TEST,MALE (or use an existing Test/Demo Patient already
created)
Gender:         MALE
Bill Type:      CLIENT

Tests to order:
5463 – Urinalysis
```

Figure 11-60: Sample Quest Validation Plan

11.3.4 Using the Interface

With the exception of the new options to build and ship a manifest, there are no new menu options required by Laboratory staff using the Quest Billing Interface. There are new prompts at the time of accessioning to identify the client account number if there is more than one in use, the patient diagnosis, and to identify the billing type. The greatest challenges faced by users of the interface are related to work flow so that the information related to diagnoses and billing type are available to the individual at the time of accessioning.

Order entry is initiated by the provider either via an EHR Order entry session, a traditional RPMS Ward Order Entry menu option, or via a paper requisition. The interface process is initiated at the time of accessioning, either using Multipurpose Accessioning or Accessioning tests ordered by ward order entry.

The creation of shipping manifests and transmittal of electronic orders is handled via the Lab Shipping Menu, [[LA7S MAIN MENU]. The options that will be used for test management will be shown in sections 11.3.4.3 through 11.3.4.5 below.

```
   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      Blood bank ...
   10     Microbiology menu ...
   11     Supervisor menu ...
   BLR    IHS Lab Main Support Menu ...
   LSM    Lab Shipping Menu ...

Select Laboratory DHCP Menu Option: LSM  Lab Shipping Menu


   SMB    Build Shipping Manifest
   SSM    Start a Shipping Manifest
   SMS    Close/Ship a Shipping Manifest
   ART    Add/Remove a Shipping Manifest Test
   SMR    Edit Required Test Information
   SMI    Edit Relevant Clinical Information
   SMC    Cancel a Shipping Manifest
   PSM    Print Shipping Manifest
   STA    Order Status Report
   RSM    Retransmit Shipping Manifest
   RLR    Retransmit LEDI Lab Results
   SMP    Print LEDI Pending Orders
```

Figure 11-61: The LEDI Lab Shipping Menu

11.3.4.1 Multipurpose Accessioning

Multipurpose accessioning is a menu under the Laboratory Menu that can be used to accession a test that has not been previously ordered. Some sites that have not implemented EHR Ordering or Ward Order Entry may always use Multipurpose Accessioning. Other sites may only use Multipurpose accessioning for an occasional test order that is submitted on a paper requisition or when a correction must be made to a previously accessioned test. Shown below is a typical script for a Multipurpose Accessioning session.

```
Laboratory DHCP Menu
Accessioning menu
Multipurpose accessioning
```

```
WANT TO ENTER COLLECTION TIMES? Y//<enter>
Select ACCESSION TEST GROUP:    QUICK PICK

Select Patient Name: DEMO,FEMALE         <CA>   F 06-15-1981     SIHC 38608

     Select one of the following:

          LC        LAB COLLECT(INPATIENTS-MORN. DRAW)
          SP        SEND PATIENT
          WC        WARD/CLINIC   COLLECT
Specimen collected how ? : SP// WC  WARD/CLINIC   COLLECT
PATIENT LOCATION: SIHC LAB
PROVIDER: TRAINING,DOCTOR, MD//
LAB Order number: 14713
'?' for list,  TEST number(s): <enter>
Other tests? N//Y
Select LABORATORY TEST NAME: URINE CULTURE
Is URINE, STERILE   STERILE CUP the correct sample to collect?Y// <enter>
Same specimen/source for the rest of the order? No//   (No)
Select LABORATORY TEST NAME: <enter>
Nature of Order/Change: WRITTEN       W

You have just selected the following tests for DEMO,FEMALE  38608
     entry no. Test                          Sample
     1         CULTURE, URINE                URINE, STERILE  URINE

All satisfactory? Yes// <enter>  (Yes)

LAB Order number: 14713
Collection Date@Time: NOW//T@1000
Print labels on: INTERMEC

Do you wish to test the label printer: NO// <enter>
~For Test: CULTURE, URINE   URINE, STERILE   URINE
Enter Order Comment:  PT STARTED ON KEFLEX

ENTER SOURCE OF SPECIMEN: CLEAN CATCH URINE
Are the responses to the Ask At Accession questions correct ? Y// <enter>
Enter ICD Diagnosis code for billing: UTI
599.0 (URIN TRACT INFECTION NOS)
URINARY TRACT INFECTION, SITE NOT SPECIFIED

 OK? Y// <enter>
  Are you adding '599.0' as a new DIAGNOSIS (the 1ST for this BLR REFERENCE
LAB ORDER/ACCESSION)? No// Y  (Yes)
Enter ICD Diagnosis code for billing: DYSURIA( DYSURIA )
..Search was unsuccessful.

788.1 (DYSURIA)
DYSURIA

 OK? Y// <enter>

  Are you adding '788.1' as a new DIAGNOSIS (the 2ND for this BLR REFERENCE
LAB ORDER/ACCESSION)? No// Y  (Yes)
Enter ICD Diagnosis code for billing:
Enter Sign or Symptom for LAB Order number 14713
(DO NOT USE 'RULE OUT', 'PROBABLE', 'QUESTIONABLE', etc.): TESTING
Is this correct? YES// <enter>
```

```
ACCESSION:  SO 11 28  <6011000028>
CULTURE, URINE                URINE, STERILE  URINE
Are the responses to the Ask At Accession questions correct ? Y// ES

     Select one of the following:

          C         Client
          T         Third Party
          P         Patient

Which Party is Responsible for Billing: : T// Third Party
1)MEDICAID                    Policy #: 123456A   Elg/Exp Date: Sep 05,
2006/
2)PRIVATE PAY                 Policy #: 00000     Elg/Exp Date: Jan 01,
2008/
3)RAILROAD RETIREMENT         Policy #: 3860801   Elg/Exp Date: Jan 01,
2010/
Select the insurer for this accession: :  (1-3): 1
```

Figure 11-62: Multipurpose Accessioning with Third Party Billing and Ask at Order Question

11.3.4.2 Accessioning Tests Ordered by Ward Order Entry

If tests have been previously ordered by a Provider either in EHR or RPMS Ward Order Entry, this option in the Laboratory Accessioning Menu may be used to accession that order. The provider will be given an opportunity to provide the answers to 'ask at order' questions during the RPMS Ward Order Entry and an opportunity will be provided during accessioning to review and alter the answers to those questions. Not all tests have 'ask at order' questions.

```
Laboratory DHCP Menu
Accessioning menu
Accessioning tests ordered by ward order entry

Select  Order Number:  14712


DEMO,ADULT                    77778          Requesting location: LAB SIH
Date/Time Ordered: 07/04/11 13:22            By: RUSSELL,DOROTHY
  -Lab Order # 14712                         Provider: SCHUMAKER DO,EDWARD
  BLOOD (TIGER)  SERUM
  TSH, SERUM         LAB ONLY
                           Requested (SEND PATIENT) for:  07/04/2011
Sign or Symptom: TESTING
   : ~For Test: TSH, SERUM
   : ~FAX RESULTS TO DR. BROWN AT 541-675-5678
  CMP W/EGFR         LAB ONLY
                           Requested (SEND PATIENT) for:  07/04/2011
Sign or Symptom: TESTING
  LIPID PNL W/RF TO DIR LDL
                     ROUTINE Requested (SEND PATIENT) for:  07/04/2011
Sign or Symptom: TESTING
Is this the correct order? Yes// <enter>
Collection Date@Time: //Now or enter actual collection date and time in
format T@1015
```

```
Print labels on: INTERMEC// <enter>

Do you wish to test the label printer: NO// <enter>


ACCESSION:  SO 11 25  <6011000025>
TSH, SERUM                    BLOOD (TIGER)  SERUM

     Select one of the following:

          C         Client
          T         Third Party
          P         Patient

Which Party is Responsible for Billing: : T// Third Party
1)PRIVATE PAY                 Policy #: 000000    Elg/Exp Date: Jan 01,
2009/
2)CALIFORNIA MED-CAL 5.1      Policy #: 111111111111Elg/Exp Date: Jan 01,
2011/
3)IRON WORKERS HEALTH PLAN    Policy #: 7777801   Elg/Exp Date: Jan 01,
2011/
Select the insurer for this accession: :  (1-3): 3

ACCESSION:  SO 11 26  <6011000026>
CMP W/EGFR                    BLOOD (TIGER)  SERUM
 GENERAL PROCESSING INST.:   DO NOT ACCESSION A CMP.  INSTEAD USE BMP.  KLM
 01/26/09


ACCESSION:  SO 11 27  <6011000027>
LIPID PNL W/RF TO DIR LDL     BLOOD (TIGER)  SERUM
```

Figure 11-63: Accessioning a test with Ward Order Entry and Third Party Billing

11.3.4.3 Start a Shipping Manifest

A Shipping Manifest may be started at the beginning of the day and kept open all day until it is reviewed, closed and shipped when the courier picks up specimens.

```
Laboratory DHCP Menu
LSM    Lab Shipping Menu ...
SSM    Start a Shipping Manifest

Select Lab Shipping Menu Option: SSM  Start a Shipping Manifest
Select Shipping Configuration: QUEST DIAGNOSTICS                  CA    999
FACILITY A TO QUEST
There's no open shipping manifest for FACILITY A TO QUEST
Do you want to start one? NO// YES
     Shipping manifest# 8358-20110704-1 is available
```

Figure 11-64: Starting a Shipping Manifest

11.3.4.4 Build a Shipping Manifest

The Shipping Manifest may be built in preparation for packaging specimens up for shipping with the courier to Quest. All specimens for tests that have been added to the Lab Shipping Configuration file will automatically be built onto the open manifest. This manifest may be printed and specimens matched up to confirm that all specimens on the manifest are ready to be sent with the courier. If it is noted that one or more specimens have not been built onto the manifest they may be added. In addition, if a specimen was accessioned but never collected or will not be sent for some reason, it may be removed from the manifest.

Patient insurance information for Third Party Billing will only print on the manifest for the first specimen for that patient order.

You will notice in the example below, the Shipping Manifest is clearly labeled:

*** DO NOT USE FOR SHIPPING DOCUMENT - WORK COPY ONLY ***

The LIPID PNL W/RF TO DIR LDL, which was accession SO 11 27 above, failed to print on the manifest. That is usually indicative that the test has not been added to the Shipping Configuration. Notify your Interface support staff that this test will need to be added to the Shipping Configuration.

```
Laboratory DHCP Menu
LSM  Lab Shipping Menu . . .
SMB    Build Shipping Manifest

Select Lab Shipping Menu Option: SMB  Build Shipping Manifest
Select Shipping Configuration: QUEST DIAGNOSTICS                          CA
999    SIHC TO QUEST
Use default accession dates? YES//
Exclude previously removed tests from building? YES//
     Using shipping manifest# 8358-20110704-1
     Searching accession area: SENDOUTS
     There were 3 specimens added
Print Shipping Manifest? NO// YES
DEVICE: HOME// Printer Name or Number

     *** DO NOT USE FOR SHIPPING DOCUMENT - WORK COPY ONLY ***
 Shipping Manifest: 8358-20110704-1         Page: 1
           to Site: QUEST DIAGNOSTICS    Printed: Jul 04, 2011@13:58
         from Site: SO. INDIAN HEALTH COUNCIL
            Status: OPEN                Ship via: COURIER
Shipping Condition: REFRIGERATE        Container: STYROFOAM PACK

           Patient Name                  Patient ID           Lab Reference
#
           Date of Birth                 Sex                  Specimen UID
           Requested By                  Collect Date/Time
--------------------------------------------------------------------------------
Item: 1    DEMO,FEMALE                   38608                  14713
           JUN 15,1981                   Female                 6011000028
           1639105497-TOBIN DO,CHARLENE  Jul 04, 2011@10:00

           Requestor's Phone: 6194451188
```

```
           Specimen Container: ALIQUOT
           ---------------------------------------
           Account Number: 91901619
           Bill Type: T
           Insurer ID: MCDEG
           Insurer Name: MEDICAID                      Telephone:
           Insurer Address: P O  BOX 15600  SACRAMENTO CA 95814
           Insured Name:                            Relationship: Self
           Insured Address:
           Guarantor: DEMO FEMALE                     Telephone: 619-555-
1212
           Guarantor Address: 4058 WILLOWS RD  ALPINE CA 91901
           Insured ID: 123456A
           ---------------------------------------
           Diagnosis: 599.0   Description: URIN TRACT INFECTION NOS
           Diagnosis: 788.1   Description: DYSURIA
           ---------------------------------------
           CULTURE, URINE                  URINE
           QUEST DIAGNOSTICS Order Code [Name]: 395 [URINE CULTURE,
ROUTINE]

ORDER ENTRY QUESTIONS:
           ENTER SOURCE OF SPECIMEN   CLEAN CATCH URINE
--------------------------------------------------------------------------
--
     *** DO NOT USE FOR SHIPPING DOCUMENT - WORK COPY ONLY ***
Notice that this is a page break and the next two specimens print on page 2
for ROOM TEMPERATURE SPECIMENS

     *** DO NOT USE FOR SHIPPING DOCUMENT - WORK COPY ONLY ***
 Shipping Manifest: 8358-20110704-1         Page: 2
           to Site: QUEST DIAGNOSTICS    Printed: Jul 04, 2011@13:58
         from Site: SO. INDIAN HEALTH COUNCIL
            Status: OPEN                Ship via: COURIER
Shipping Condition: ROOM TEMPERATURE   Container:

           Patient Name                  Patient ID           Lab Reference
#
           Date of Birth                 Sex                  Specimen UID
           Requested By                  Collect Date/Time
--------------------------------------------------------------------------
--
Item: 2    DEMO,ADULT                    77778                  14712
           JAN 1,1949                    Female                 6011000025
           1184616872-SCHUMAKER DO,EDWARDJul 04, 2011@13:24

           Requestor's Phone: 800-400-1189

           Specimen Container: PLASTIC SCREW CAP VIAL
           ---------------------------------------
           Account Number: 91901619
           Bill Type: T
           Insurer ID: INS                                  Group: 9997
           Insurer Name: IRON WORKERS HEALTH PLAN    Telephone: (801)263-
2692
           Insurer Address: 3785 SOUTH 700 EAST  SALT LAKE UT 84106
           Insured Name: DEMO DAD                   Relationship: SPOUSE
           Insured Address: PO BOX 155  ALPINE CA 91091
           Guarantor: DEMO ADULT                    Telephone: 619-445-1188
           Guarantor Address: PO BOX 155  ALPINE CA 91091
```

```
           Insured ID: 7777801
           ----------------------------------------
           Diagnosis: 250.00  Description: DIABETES II/UNSPEC NOT UNCONTR
           Diagnosis: 401.9   Description: HYPERTENSION NOS
           ----------------------------------------
           TSH, SERUM                        SERUM
           QUEST DIAGNOSTICS Order Code [Name]: 899 [TSH]
-------------------------------------------------------------------------
--
Item: 3    DEMO,ADULT                    77778                  14712
           JAN 1,1949                    Female                 6011000026
           1184616872-SCHUMAKER DO,EDWARDJul 04, 2011@13:24

           Requestor's Phone: 800-400-1189

           Specimen Container: PLASTIC SCREW CAP VIAL
           ----------------------------------------
           CMP W/EGFR                        SERUM
           QUEST DIAGNOSTICS Order Code [Name]: 10231 [COMPREHENSIVE
           METABOLIC PANEL]


End of Shipping Manifest
     *** DO NOT USE FOR SHIPPING DOCUMENT - WORK COPY ONLY ***
```

Figure 11-65: Building a Shipping Manifest

11.3.4.5 Add/remove a Shipping Manifest Test

The contents of an open manifest may be edited – tests added or deleted depending on what is determined as specimens are matched up with tests on the manifest. Shown below is an example of removing a specimen from a manifest. In this case, the Urine Culture will be removed because it is determined that another staff member inadvertently discarded it when cleaning up the Laboratory. Note that if several tests are to be removed it, this can be done all at the same time.

```
Laboratory DHCP Menu
Laboratory DHCP Menu
LSM    Lab Shipping Menu ...

Select Lab Shipping Menu Option: Add/remove a Shipping Manifest Test
Select Shipping Configuration:    FACILITY A TO QUEST
Select Shipping Manifest:    8358-20110704-1 FACILITY A TO QUEST Status:
OPEN as of Jul 04, 2011@13:48

     Select one of the following:

          1         Add test to manifest
          2         Remove test from manifest

Select action to perform: 1// 2  Remove test from manifest
Select Accession or UID: SO 28
so  SENDOUTS
SENDOUTS  (JUL 04, 2011)  28
     1 CULTURE, URINE
Select test(s) to remove:  (1-1): 1
Select Accession or UID:
```

```
Print Shipping Manifest? NO// Y< A work copy of the Shipping Manifest may
be reprinted once specimens have been added or removed to confirm the final
specimen count.
```

Figure 11-66: Removing a test from a Shipping Manifest

11.3.4.6 Close/Ship a Shipping Manifest

When the specimens to be shipped have been reconciled with the Shipping Manifest, it may be closed and shipped. The final copy of the manifest may be given to the courier and an additional copy may be printed for laboratory reference by using the menu option, PSM Print Shipping Manifest. Note that the final shipping manifest no longer says WORK COPY.

```
Laboratory DHCP Menu
LSM    Lab Shipping Menu ...
SMS    Close/Ship a Shipping Manifest
PSM    Print Shipping Manifest

Select Lab Shipping Menu Option: SMS  Close/Ship a Shipping Manifest
Select Shipping Configuration:    FACILITY A TO QUEST
Select Shipping Manifest:    8358-20110704-1 FACILITY A TO QUEST Status:
OPEN as of Jul 04, 2011@13:48

     Select one of the following:

          1         Close manifest
          2         Ship manifest

Select action to perform: 1// 2  Ship manifest
Enter Manifest Shipping Date:  NOW// <ENTER>  (JUL 04, 2011@14:37)
Print Shipping Manifest? NO// Y < Print a hard copy of the manifest to
accompany the specimens the courier picks up.  The menu option,

Shipping Manifest: 8358-20110704-1         Page: 1
           to Site: QUEST DIAGNOSTICS    Printed: Jul 04, 2011@14:39
         from Site: SO. INDIAN HEALTH COUNCIL
      Date Shipped: Jul 04, 2011@14:37  Ship via: COURIER
Shipping Condition: ROOM TEMPERATURE   Container:

           Patient Name                  Patient ID         Lab Reference #
           Date of Birth                 Sex                  Specimen UID
           Requested By                  Collect Date/Time
-------------------------------------------------------------------------------
Item: 1    DEMO,ADULT                    77778                    14712
           JAN 1,1949                    Female                   6011000025
           1184616872-SCHUMAKER DO,EDWARDJul 04, 2011@13:24

           ----------------------------------------
           Account Number: 91901619
           Bill Type: T
           Insurer ID: INS                                  Group: 9997
           Insurer Name: IRON WORKERS HEALTH PLAN    Telephone: (801)263-
2692
           Insurer Address: 3785 SOUTH 700 EAST  SALT LAKE UT 84106
           Insured Name: DEMO DAD                   Relationship: SPOUSE
           Insured Address: PO BOX 155  ALPINE CA 91091
```

```
           Guarantor: DEMO ADULT                    Telephone: 619-445-
1188
           Guarantor Address: PO BOX 155  ALPINE CA 91091
          Insured ID: 7777801
           ----------------------------------------
           Diagnosis: 250.00  Description: DIABETES II/UNSPEC NOT UNCONTR
           Diagnosis: 401.9   Description: HYPERTENSION NOS
           ----------------------------------------
           TSH, SERUM                       SERUM
           QUEST DIAGNOSTICS Order Code [Name]: 899 [TSH]
-------------------------------------------------------------------------------
Item: 2    DEMO,ADULT                    77778                  14712
           JAN 1,1949                    Female                 6011000026
           1184616872-SCHUMAKER DO,EDWARDJul 04, 2011@13:24

           ----------------------------------------
           CMP W/EGFR                       SERUM
           QUEST DIAGNOSTICS Order Code [Name]: 10231 [COMPREHENSIVE
          METABOLIC PANEL]

-------------------------------------------------------------------------------

End of Shipping Manifest
```

Figure 11-67: Close/Ship a Shipping Manifest

When tests have been built onto a shipping manifest, form of status tracking is turned on. That can be seen in the option, Lookup Accession, as follows.

```
Select Accessioning menu Option: lookup accession
Select Accession or UID: so 26
so  SENDOUTS
SENDOUTS  (JUL 04, 2011)  26

-------------------------------------------------------------------------------
ACCESSION: SO 11 26                     PATIENT: DEMO,ADULT
  ORDER #: 14712                           HRCN: 77778
      UID: 6011000026                       DOB: JAN 1,1949
 LOCATION: LAB SIH                     ORDERED: 07/04/2011@13:22
                                     COLLECTED: 07/04/2011@13:24
 PROVIDER: SCHUMAKER DO,EDWARD      LAB ARRIVAL: 07/04/2011@13:25

  SAMPLE: SERUM  BLOOD (TIGER)
  TEST: CMP W/EGFR                       LAB ONLY
     REFERRAL STATUS: Test shipped (Jul 04, 2011@14:37)
        SHIPPING MANIFEST: 8358-20110704-1
```

Figure 11-68: Lookup Accession for a test that has been shipped to a reference laboratory

The same option, Lookup Accession, will also display the status of the test when results have been returned and released into RPMS as shown in Section 11.3.4.7.

```
-------------------------------------------------------------------------------
--
ACCESSION: SO 11 7                      PATIENT: DEMO,ADULT
  ORDER #: 14503                           HRCN: 77778
      UID: 6011000007                       DOB: JAN 1,1949
 LOCATION: NC                          ORDERED: 06/10/2011@07:34
```

```
                                        COLLECTED: 06/10/2011@07:34
 PROVIDER: JALISI,NIKI                LAB ARRIVAL: 06/10/2011@07:34
Enter RETURN to continue or '^' to exit:


  SAMPLE: BLOOD  BLOOD (BLUE)
  TEST: PTT                                LAB ONLY
   : ~For Test: PTT
   : ~TEST
     REFERRAL STATUS: Test shipped (Jun 10, 2011@07:35)
        SHIPPING MANIFEST: 8358-20110610-1
  COMPLETED: 06/10/2011@10:58
ALL COMPLETED
```

Figure 11-69: Lookup Accession for a completed reference laboratory test

11.3.4.7 Verifying receipt of Reference Lab Results in RPMS

Reference Laboratory results returned over an interface are treated exactly the same as results transferred over an auto instrument interface and may be reviewed and released into RPMS as follows. The reference ranges, abnormal flags, comments, and units displayed are those that are passed across the interface from the reference laboratory interface.

```
Laboratory DHCP Menu
3      Process data in lab menu ...
EA     Enter/verify data (auto instrument)

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

Select LOAD/WORK LIST NAME:    SENDOUTS
Select Performing Laboratory: QUEST DIAGNOSTICS   < Default should be set
to reference laboratory
Would you like to see the list ? No//  <enter> 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// <enter>  NO
You have selected 522 tests to work with.
Do you want to review the data before and after you edit? YES// <enter>

    Select one of the following:

         1         Accession Number
         2         Unique Identifier (UID)

Verify by: 1//  <enter> Accession Number
Accession Date: TODAY// <enter> (MAR 29, 2010)
Accession NUMBER: 44// 43

GIBBS,KEITH COCHISE           100650
ORDER #: 35878
 Seq #: 9991 Accession: SO 10 43        Results received: Mar 29,
2010@20:56
```

```
                   UID: 6010000043          Last updated: Mar 29,
2010@20:56

Sample: BLOOD
Specimen: BLOOD

GIBBS,KEITH COCHISE  HRCN: 100650      LOC: INPATIENT
Pat Info:                           Sex: MALE     Age: 91yr as of Mar 16,
2010
Provider: ADAJAR,KATHRYN A               Voice pager:
  Phone: 218-679-3912                 Digital pager:

ACCESSION:                                  SO 10 43
SENDOUTS                                    3/16 12:53d
GLUCOSE                                          130 H  mg/dL
Inst Comments: GLUCOSE:
Inst Comments: GLUCOSE:            Fasting reference interval
Inst Comments: GLUCOSE: Test Performed at:
PRESS ANY KEY TO CONTINUE, '^' TO STOP
Inst Comments: GLUCOSE: QUEST DIAGNOSTICS-IRVING
Inst Comments: GLUCOSE: 4770 REGENT BLVD.
Inst Comments: GLUCOSE: IRVING, TX  75063     SUZANNE H. KREISBERG, MD
COMMENTS: GLUCOSE:
COMMENTS: GLUCOSE:            Fasting reference interval
COMMENTS: GLUCOSE: Test Performed at:
COMMENTS: GLUCOSE: QUEST DIAGNOSTICS-IRVING
COMMENTS: GLUCOSE: 4770 REGENT BLVD.
COMMENTS: GLUCOSE: IRVING, TX  75063     SUZANNE H. KREISBERG, MD

SELECT ('C' for Comments, 'W' Workload):
Approve for release by entering your initials: DR
```

Figure 11-70: Verifying Receipt of reference lab results

11.4 Posting Abnormal Flag for Qualitative Results

A modification has made to an interface routine that permits posting of an A as an Abnormal Flag to RPMS. An addition has been made in the KEY on the Interim reports to indicate that A=Abnormal. See below:

```
               DEMO HOSPITAL (497)  HWY 1 BOX 497  DEMO, MN 56671

TEST,CASE FOUR                              Date/Time Printed:
07/03/11@12:57
     HRCN:105555         SEX:F     DOB:Jan 17, 1985   CURRENT AGE:26
Accession [UID]: SO 11 121 [6011000121]
     Provider: THOMPSON,MOHAMMAD
     Specimen:BLOOD                        Spec Collect
Date/Time:04/17/11@14:21
                          Res
Test name         Result Flg units      Ref.   range     Site  Result
Dt/Time
 Screen         POSITIVE  A            Ref: NEGATIVE   [7737]
04/29/11@11:49
_ANA PATTERN    SPECKLED  A                            [7737]
04/29/11@11:49
```

```
_ANA TITER      > OR = 1:1280Atiter                    [7737]
04/29/11@11:49
Comment: ~For Test: ANA SCR W/REFL Q249
         ~TESTING INSURANCE GROUP
          RECEIVED DATE: 201104272017
          REPORTED DATE: 201104272000
          LAB REF#: 46208/QUEST ACCESSION #: DL098824T

         Test Performed at:
================================================================================
  KEY: A=Abnormal          L=Abnormal Low          H=Abnormal High
                *=Critical value          TR=Therapeutic Range


[7737] QUEST   4770 REGENT BLVD.   IRVING, TX 75063
```

Figure 11-71: Posting Abnormal Flag from Reference Laboratory Interface

12.0 New Options

The following new options will be added to the OPTION (# 19) file.

> **Note:** None of the new options have been added to the BLRMENU by this patch.

12.1 Options Recommended to be Added to BLRMENU

The following options are recommended to be placed on the BLRMENU by the site manager.

12.1.1 BLRAAOMM – IHS Lab Ask At Order Main Menu

The main menu for the IHS Lab Ask-At-Order options. This option is recommended to be placed upon the BLRMENU. It is secured with the LRSUPER Security Key.

12.1.2 BLRLUOPT – Count Accessioned Tests Using Lab Data File Main Menu

The main menu for the Count Accessioned Tests Using Lab Data File routines. It is secured with the LRSUPER Security Key.

12.2 Options Recommended to be tasked

The following options are recommended to be tasked by the site manager.

12.2.1 BLRAAOEP

The purge of the Lab Ask-At-Orders errors file. It is the recommended method of purging the Lab Ask-At-Orders errors file. This option should be tasked to run monthly.

12.2.2 BLRPCCST

The option to run the BLRPCCST routine to determine if the IHS Lab to PCC Linker has stopped. This option should be tasked to run daily.

12.2.3 BLRTASKS

The option to run the BLRTASKS routine to determine if the required RPMS Lab processes have been tasked appropriately. This option should be tasked to run daily.

12.3 Other Options

The following are new options that are accessed through the main menu options. They are not recommended to be added to the BLRMENU.

12.3.1 BLRAAODR – Non Accessioned IHS Lab Ask-At-Order Report

The report option for non-accessioned ask-at-order report. Accessed from the BLRAAOMM menu.

12.3.2 BLRAAORE – IHS Lab Ask-At-Order Errors Report

The report option for the Lab ask-at-order errors report. Accessed from the BLRAAOMM menu.

12.3.3 BLRAAORP –Interactive Purge of IHS Lab Ask-At-Order Errors File

The purge of the Lab ask-at-order errors file. Accessed from the BLRAAOMM menu.

> **Note:** The BLRAAOEP option is the recommended method of purging the Lab Ask-At-Orders errors file.

12.3.4 BLRLUPAC – Compile Data for Count Accessioned Tests Using Lab Data File

The compilation option for the Count Accessioned Tests Using Lab Data File routines. Accessed from the BLRUOPT menu.

12.3.5 BLRLUPUR – Purge Compiled Data of Count Accessioned Tests Using Lab Data

The purge compilation option for the Count Accessioned Tests Using Lab Data File routines. Accessed from the BLRUOPT menu.

12.3.6 BLRLURPT – Report Menu for Count Accessioned Tests Using Lab Data

The report option for the Count Accessioned Tests Using Lab Data File routines. Accessed from the BLRUOPT menu.

13.0 VA Lab Patches

There are numerous VA Lab patches included in this IHS Lab Patch that address various issues. Some are required for subsequent VA Lab patches but are not relevant to IHS, but many are updates and/or fixes to current RPMS Lab functionality.

13.1 Required VA Patches Not Relevant to RPMS

The following is a listing of VA Patches that will be added to the RPMS Laboratory module that are required for the installation of other VA Patches, but do not effect IHS functionality and/or the VA's functionality is not used by IHS.

13.1.1 Sequence 199, LR5.2*260: Hepatitis C Extract

This patch adds two new segments to the HL7 transmissions generated by the Emerging Pathogens Initiative (EPI) software, clears fifteen NOIS calls, and eliminates the National Center for Health Promotion (NCH) data transmissions.

13.1.2 Sequence 230, LR5.2*294: VBECS API'S For CPRS and Lab

This patch is being released in support of the VBECS (VistA Blood Establishment Computer Software) Blood Bank Modernization Project. In the future, data will be transitioned from the existing M database to a Microsoft SQL database. The API's release in this patch will allow CPRS and the Lab packages to transition to the new database when it is released.

13.1.3 Sequence 239, LR*5.2*281: EPI Enhancement

The EPI Enhancement patch, LR*5.2*281, contains enhancements and modifications to the Emerging Pathogens Initiative (EPI) software.

13.1.4 Sequence 241, LR*5.2*320: EPI Historical Reseeding

The EPI Historical Reseeding patch, LR*5.2*320, contains modifications to the Emerging Pathogens Initiative (EPI) software that corrects fatal errors received during the historical reseeding of the EPI data.

13.1.5 Sequence 244, LR*5.2*295: LAB Clinical Reminder Index

This patch provides the necessary routines for Clinical Index Reminders patch 12, which is currently not scheduled for inclusion into RPMS.

13.1.6 Sequence 246, LR*5.2*326: Enhanced DSS LAR Extract

This patch implements a request from Decision Support System to expand the LAB DSS LAR EXTRACT (#64.036) file to include the passing ordering provider in DSS LAR API. The companion DSS patch is ECX*3.0*71.

13.1.7 Sequence 249, LR*5.2*311: LRWOMEN Routine Change

Currently the ADD^LRWOMEN utility notifies a Women's Health package utility whenever a Cytology or Surgical Pathology report is verified for a female patient. This functionality was provided with LR*5.2*231.

After installation of patch LR*5.2*311, the ADD^LRWOMEN utility will also notify a new CPRS utility (LAB^ORB3LAB) for all patients, not just female patients. Integration Agreement #4287 grants the LABORATORY package permission to call the ORB3LAB routine.

13.2 VA Lab Patches That Fix/Enhance RPMS Lab Package

The following is a listing of VA Patches that will be added to the RPMS Laboratory module that do affect IHS functionality: they are either enhancements and/or fixes to problems.

13.2.1 Sequence 148, LR*5.2*200: TDM Comment Not Stored

This patch fixes the issue with required comments using the TDM (PEAK/TROUGH) execute code not being stored in file 69 when using Lab (LR) options to create the order. The solution was to modify routine LREXECU to ensure the comments are stored.

13.2.2 Sequence 154, LR*5.2*217: Locking LRO(68) During UID Creation

This patch will address a locking problem concerning the LRO global and a fix to Laboratory Unique Identifier (UID) creation.

13.2.3 Sequence 236, LR*5.2*259: Anatomic Pathology Electronic Signature

This patch implements the new electronic signature functionality within the Autopsy, Cytology, Electron Microscopy, and Surgical Pathology sections for the Autopsy protocol, Standard Form 515 (SF 515), and supplementary reports. This new electronic signature functionality can be activated or inactivated at the discretion of the site.

13.2.4 Sequence 255, LR*5.2*336: Update Provider Class Checks

This patch updates the AP ESIG RELEASE REPORT / ALERT. The process requires a Physician Provider Class to also have one of several Person Class Codes to validate the users Electronic Signature. This list of Person Class Codes was updated to match the new codes to be released in Patch XU*8*377.

13.2.5 Sequence 258, LR*5.2*324: Anatomic Pathology Electronic Signature

This patch updates the LRAPOLD (Enter old anat path records), to not send ENTRY/RESULT notifications. Since this processes the entry of old reports, no notification should be sent.

13.2.6 Sequence 285, LR*5.2*317: AP Modifications / Enhancements to Address PSI-04-025

VistA Laboratory Anatomic Pathology (AP) Modifications/Enhancements patch LR*5.2*317 addresses two patient safety issues (PSI) reported in PSI-04-025 that arose from the release and implementation of the VistA Laboratory Anatomic Pathology Electronic Signature Patch LR*5.2*259.

13.2.7 Sequence 286, LR*5.2*369: Multiple Corrections to The Lab Service Package

This patch corrects several issues in the Lab Service package.

13.2.8 Sequence 297, LR*5.2*365: AP Alerts and CPRS Report Changes

VistA Laboratory Anatomic Pathology (AP) Alerts and Computerized Patient Record System (CPRS) Report Changes Patch LR*5.2*365 software release addresses 7 Patient Safety Issues (PSIs).

Appendix A: Modified Routines

Several routines have been modified in order to prevent errors and/or add new functionality.

A.1 BLR7OGMP – Lab Interim Report for EHR

Modified the key at the bottom of the page. It will now print.

```
------------------------------------------------------------------------------
 KEY: A=Abnormal    L=Abnormal Low     H=Abnormal High     *=Critical value
TR=Therapeutic Range
```

Figure 13-1: Example of the new EHR Interim Report Key.

A.2 BLRLINK – Lab Hook for APCDALV (PCC)

Modified to use new bulletin code in BLRUTIL3 routine.

A.3 BLRLINK1 – Cont. of IHS Lab Link to PCC

Modified to skip IHS CMOP entries in the Universal Interface global in order enhance the processing speed of Lab entries to PCC. Also modified to reference new BLRLINKU routine.

A.4 BLRLINK3 – Cont. of BLR

Modified to reference new BLRLINKU routine.

A.5 BLRMERGT – Manual Process Merge BLRMERG

Modified to correct error in retrieving VA PATIENT information.

A.6 BLRNLINK – Lab Hook for APCDALV (PCC)

Modified to use new bulletin code in BLRUTIL3 routine.

A.7 BLRPOC – EHR POC Component Support

Modified to prevent <UNDEFINED> error when EHR POC button is selected, but the Lab Package has not been setup. Some code was removed and put into the new BLRPOC2 routine due to SAC size restriction regarding size of routines.

A.8 BLRPST – Show processor status

Modified to display more information.

A.9 BLRQINST – Synchronize All Queues Before Installing Patch for One Queue

Modified to standardize Bulletins.

A.10 BLRTNM – Set IHS Lab Transaction Log – Micro

Modified to ensure Delta Check result has numeric value.

A.11 BLRTNM1 – Set IHS Lab Transaction Log - Micro

Modified to prevent <UNDEFINED> error when adding information to a Micro test after data have been purged from the Order file.

A.12 BLRUTIL – BLR Link Utilities And Testing Subroutines

Modified CAPVARS subroutine to ensure that the Y variable is not modified during data capture.

A.13 BLRUTIL2 – Misc IHS Lab Utilities (Continued)

Modified to ensure that the Institution line is centered on Interim Report headers.

A.14 BLRUTIL3 – Misc IHS Lab Utilities (Continued)

Added new code to standardize Bulletins. Added new code to return reference ranges for Delta Checks.

A.15 LA7ADL – Automatic Download of Test Orders

Added new functionality to alert user when Accession is created that does not have a Specimen.

A.16 LR7OSMZU – Silent Micro rpt cont.

Added code for new "key" for Micro Reports.

A.17 LRLABLD – Labels On Demand

Modified to prevent <UNDEFINED> error when LRMT60 variable is not set.

A.18 LRMIPSU – Micro Patient Report

Modified to use new MI key as well as modified header of report.

A.19 LROE – Lab Order Entry and Accession

Modified to store Lab Ask-At-Order questions into the Lab Data (#63) file during resulting of data.

A.20 LRORD1 – Lazy Accession Logging

Modified to ask Lab Ask-At-Order questions.

A.21 LRORD2 – More of Lazy Accession Logging

Modified to prevent an endless loop when the % variable is not set.

A.22 LROS – Lab Order Status

Modified to highlight the order numbers on the report.

A.23 LROW2 – Test & Sample Verification

Modified for Lab Ask at Order questions.

A.24 LRRP1 – Print the Data For Interim Reports

Modified the key at the bottom of the page. It will now print two (2) lines.

```
=========================================================================
KEY: A=Abnormal          L=Abnormal Low          H=Abnormal High
                *=Critical value          TR=Therapeutic Range
```

Figure 13-2: Example of the new Interim Report Key.

The LOCATION was added back to the display. The following is an example:

```
   HRCN:000000    SEX:F  DOB:Jan 04, 1991  CURRENT AGE:20   LOC:URGENT CARE
```

Figure 13-3: Example of the LOCATION on Interim Report

A.25 LRUER – Error Tracking

Modified to track accessions that have either "reported incorrectly as" or "previously reported as" entries in the Comments field, which indicates a result has been modified. Previously, it only tracked accessions with "reported incorrectly as" comments.

A.26 LRUPACA – Lab Acc Counts By Loc

Modified to prevent an <UNDEFINED> error when there are zero counts.

A.27 LRUPAD1 – Lab Accession List Continued

Modified to prevent <UNDEFINED> error when invalid accessions encountered.

A.28 LRUPAD2 – Lab Accession List By Patient

Modified to prevent <UNDEFINED> error when invalid accessions encountered.

A.29 LRVER – Lab Routine Data Verification

Modified to prevent <UNDEFINED> when LRAN variable is null.

A.30 LRVER2 – Lab Routine Data Verification

Modified to prevent <UNDEFINED> when LRMT60 variable is null.

A.31 LRVER4 – Lab Routine Data Verification

Modified for Lab Ask At Order questions.

A.32 LRWLST – Accession Setup

Modified for Lab Ask At Order questions.

A.33 LRWLST2 – Accession Setup

Modified to more clearly define in an Alert where in the routine an invalid Accession was created.

A.34 LRWU6 – Modify An Existing Data Name

Modified to prevent editing of the COMMENTS field in the Lab Data (# 63) file.

Appendix B: New Routines

The following new routines will be added to the IHS Lab module.

B.1 BLRAAORR – IHS Lab Ask-At-Order Reports

Reports for new Lab Ask-At-Orders functionality.

B.2 BLRAAORU – IHS Lab Ask-At-Order Utilities

Utilities for new Lab Ask-At-Orders functionality.

B.3 BLRIPLZI – Intermec IPL Accession Number Barcode 39 Lab Label Initialization

New initialization lab label routine for Intermec Printers. It adds the fields Date-of-Birth, Provider, and Sex to the barcode labels.

B.4 BLRIPLZP – Intermec IPL Accession Number Barcode 39 Lab Label Print

New print lab label routine for Intermec Printers. It adds Date-of-Birth, Provider, and Sex to the barcode labels.

B.5 BLRLINKU – IHS Lab Link To PCC Utilities

New routine to standardize HL7 Reference Range routines.

B.6 BLRLUAC1 – IHS LRUPAC Compilation

Emulates the VA's Count accessioned tests report: compiles data.

B.7 BLRLUAC2 – IHS LRUPAC Reports Driver

Emulates the VA's Count accessioned tests report: the reports driver.

B.8 BLRLUAC3 – IHS LRUPAC, Files 44 & 60 report

Emulates the VA's Count accessioned tests report: counts by the Location (# 44) and Laboratory Test (# 60) files.

B.9 BLRLUAC4 – IHS LRUPAC, File 61 & 60 Report

Emulates the VA's Count accessioned tests report: counts by the Topography (# 61) and Laboratory Test (# 60) files.

B.10 BLRLUAC5 – IHS LRUPAC File 60 Report

Emulates the VA's Count accessioned tests report: counts by tests in Laboratory Test (# 60) file.

B.11 BLRLUAC6 – IHS LRUPAC File 61 Report

Emulates the VA's Count accessioned tests report: counts by tests in Topography Field (# 61) file.

B.12 BLRLUAC7 – IHS LRUPAC, Files 4 & 60 report

Emulates the VA's Count accessioned tests report: counts by the Institution (# 4) and Laboratory Test (# 60) files.

B.13 BLRLUAC8 – IHS LRUPAC Error Report

Emulates the VA's Count accessioned tests report: reports on errors encountered during compilation

B.14 BLRLUAC9 – IHS LRUPAC IO

Emulates the VA's Count accessioned tests report: handles the I/O.

B.15 BLRLUACA – IHS LRUPAC Purge Of Old Data

Emulates the VA's Count accessioned tests report: handles the purging of previously compiled datasets.

B.16 BLRPCCST – Lab To PCC Linker Status Check

Determines if the Lab to PCC Linker has been stopped. If it has, a MailMan message will be sent to all members of the LMI Mail Group.

B.17 BLRPOC2 – EHR POC Component Support, Part 2

Created from BLRPOC due to the BLRPOC routine becoming too large.

B.18 BLRPR29P – IHS Lab Patch 1030 Post Install Routine

Post Install routine for IHS Lab Patch 1030. Creates a new Modified Estimated Average Glucose (MEAG) Delta Check that will also store reference ranges, abnormal flag, and units.

B.19 BLRPRE29 – IHS Lab Patch 1030 PRE Install & Environment Checking

IHS Lab PATCH 1030 Environment/Pre Install Routine.

B.20 BLRTASKS – IHS Lab Tasks Report

Determines if the daily RPMS Lab Tasks have been submitted to TaskMan appropriately. If not, an Alert and a MailMan message will be sent to all members of the LMI Mail Group.

Appendix C: VA Patches Routines

The following is a list of the routines that were either modified or added by the various VA Patches included in IHS Lab Patch 1030. Please note that some routines may appear more than once due to subsequent patches adding functionality and/or correcting bugs.

C.1 Sequence 148, LR*5.2*200 - TDM Comment Not Stored

Routine	Routine Description
LREXECU	Execute Code Utility

C.2 Sequence 154, LR*5.2*217 - Locking LRO(68) During UID Creation

Routine	Routine Description
LR217	LR*5.2*217 Patch Environment Check Routine
LRX	Utility Routines -- Previously ^LAB("X","...")

C.3 Sequence 199, LR*5.2*260 - Hepatitis C Extract

Routine	Routine Description
LR260	Patch 260 Post-Init Routine
LREPI	Emerging Pathogens Search
LREPI1	Emerging Pathogens HI7 Builder
LREPI1A	Emerging Pathogens HI7 Builder
LREPI2	Emerging Pathogens HI7 Build
LREPI3	Emerging Pathogens HI7 Segments
LREPI4	Emerging Pathogens Inpatient Update
LREPIAK	Extract Acknowledgement
LREPIPH	Emerging Pathogens HI7 Segment Builder
LREPIRP	Emerging Pathogens Verification Report
LREPISRV	EPI data server

C.4 Sequence 230, LR*5.2*294 - VBECS API'S For CPRS And Lab

Routine	Routine Description
VBECA1	APIs To Return Blood Bank Data For Lab

Routine	Routine Description
VBECA1A	Verify Patient
VBECA3A	API interface for CPRS
VBECA3B	API interfaces for CPRS

C.5 Sequence 236, LR*5.2*259 - Anatomic Pathology Electronic Signature

Routine	Routine Description
LR259	LR*5.2*259 Patch Environment Check Routine
LR7OSAP	Silent AP rpt (compare to LRAPCUM)
LR7OSAP1	Silent AP rpt cont.
LR7OSAP2	Silent Routine for autopsy report
LR7OSAP3	Silent AP Rpt from TIU
LRAP	Anatomic Path Utility
LRAPAUPT	Autopsy Print
LRAPAUSR	Autopsy Supplementary Report
LRAPBR	AP Browser Print/TIU TMP Global
LRAPBR1	AP Browser Print Cont.
LRAPBR2	AP Browser Print
LRAPBR3	AP Browser Print Cont.
LRAPBR4	Autopsy Browser Display
LRAPBR5	Autopsy Browser Display/TIU Storage
LRAPBRPW	POW Patient Browser Print
LRAPBS1	Block/Slide Data Entry
LRAPCUM	AP Patient Cum
LRAPD	AP Data Entry
LRAPD1	AP Data Entry
LRAPDA	Anatomic Path Data Entry
LRAPDSR	AP Supplementary Report Entry
LRAPED	Anatomic Path Edit Log-In
LRAPEDC	Edit Anatomic Path Comments
LRAPESON	AP Turn ESIG On
LRAPF	CY/EM/SP Rpt
LRAPFICH	Microfich Path Reports
LRAPLG	AP Log-In
LRAPMOD	Print Path Micro Modifications

Routine	Routine Description
LRAPMRL	AP Modify Released Report
LRAPMRL1	AP Modify Released Report Cont'd
LRAPMV	Move AP Accession
LRAPP	AP Print
LRAPPF1	Anat Path File Print By PT
LRAPPOW	POW Patient Look-Up
LRAPR	Anat Release Reports
LRAPRES	AP ESIG Release Report
LRAPRES1	AP ESIG Release Report/Alert
LRAPS1	Anatomic Path Print
LRAPSNMD	Display/print SNOMED codes
LRAPT1	Anatomic Path Print
LRAPT2	Autopsy PRT
LRAPT3	Autopsy RPT Print Cond(1)'T
LRAPTIUP	API Print AP Reports from TIU
LRAPUTL	AP Utilities
LRAPV	Anat Path Reports Not Verified
LRAPX	AP Coding
LRAUDA	Autopsy Path Data Entry
LRAURPT	Autopsy RPT
LRCAPES	Manual PCE CPT Workload Capture
LRSPRPT	CY/EM/SP Patient RPT
LRSPRPT1	Surg Path RPT Print Cont.
LRSPRPT2	Surg Path Print SNOMED
LRSPT	AP Preliminary Reports
LRUA	Anat Path Utility
LRUPS	Patient SPEC Look-Up

C.6 Sequence 239, LR*5.2*281 - EPI Enhancement

Routine	Routine Description
LR281	LR*5.2*281 Patch Environment Check Routine
LREPI	Emerging Pathogens Search
LREPI1	Emerging Pathogens HL7 Builder
LREPI2	Emerging Pathogens HL7 Build
LREPI2A	Emerging Pathogens HL7 Build

Routine	Routine Description
LREPI3	Emerging Pathogens HL7 Segments
LREPI5	Emerging Pathogens Search
LREPIPH	Emerging Pathogens HL7 Segment Builder
LREPIPI	Local Pathogens Input
LREPIRM	Emerging Pathogens Search
LREPIRP	Emerging Pathogens Verification Report
LREPIRP1	Emerging Pathogens HL7 Report Conversion
LREPIRP2	Emerging Pathogens HL7 Report Conversion
LREPIRP3	Emerging Pathogens HL7 Report Conversion
LREPIRP4	Emerging Pathogens HL7 Report Conversion
LREPIRP5	Emerging Pathogens HL7 Report Conversion
LREPIRP6	Emerging Pathogens Detailed Verification Report
LREPIRP7	EPI-Print Verification Report
LREPIRP8	EPI-Print Verification Report
LREPIRP9	Emerging Pathogens Verification Report
LREPIRS	Epi-Local Report/Spreadsheet
LREPIRS1	Emerging Pathogens Local Report
LREPIRS2	EPI-Print Local Report/Spreadsheet
LREPIRS3	Emerging Pathogens Local Report-Generate SPSHT
LREPISRV	EPI data server
LREPISV1	LAB EPI Extract Server

C.7 Sequence 241, LR*5.2*320 - EPI Historical Reseeding

Routine	Routine Description
LR320	LR*5.2*320 Patch Environment Check Routine
LREPI1	Emerging Pathogens HL7 Builder
LREPI2	Emerging Pathogens HL7 Build
LREPI3	Emerging Pathogens HL7 Segments
LREPIRP	Emerging Pathogens Verification Report
LREPIRP5	Emerging Pathogens HL7 Report Conversion
LREPIRP7	EPI-Print Verification Report

C.8 Sequence 244, LR*5.2*295 - Lab Clilnical Reminder Index

Routine	Routine Description
LRAPDA	Anatomic Path Data Entry
LRAPDSR	AP Supplementary Report Entry
LRAPM	Anatomic Path Modify MICRO/DX
LRAPMRL	AP Modify Released Report
LRAPRES	AP ESIG Release Report
LRLOG	Edit Log
LRMIEDZ	Microbiology Edit Routine
LRMIEDZ2	Microbiology Edit Routine
LRMINEW1	New Data To Be Reviewed/Verified
LRMISTF1	Mass Data Entry Into File 63.05
LRMIV	Microbiology Verify Auto Inst Routine
LRMIV1	Lab Routine Data Verification
LRMIV2	Microbiology Verify Auto Inst Routine
LRMIVER1	Micro Chart Copy Approval Cont.
LROC	Order List Clean-Up
LRPX	Process lab indexes
LRPXAPI	Lab Extract APIs
LRPXAPI1	Lab Extract API code
LRPXAPI2	Lab Extract API code
LRPXAPI3	Micro and AP
LRPXAPI4	Exact Match
LRPXAPI5	Match
LRPXAPI6	Lab Extract API code
LRPXAPIU	Lab Extract API Utilities
LRPXAPP	Test Lab APIs
LRPXAPPU	Test Lab APIs Utilities
LRPXCHK	Lab PXRMINDX Index Validation
LRPXCHKA	Lab PXRMINDX Index Validation AP
LRPXCHKM	Lab PXRMINDX Index Validation Micro
LRPXRM	Lab reminder index for micro and ap
LRPXSXRA	Build indexes for Lab Anatomic Path.
LRPXSXRB	Build indexes for Lab Microbiology.
LRPXSXRL	Build indexes for Lab.
LRVER3A	Data Verification

C.9 Sequence 246, LR*5.2*326 - Enhanced DSS LAR Extract ECX*3.0*71

Routine	Routine Description
LR326	LR*5.2*326 Patch Environment Check Routine
LRCAPDAR	Lab DSS Results Extract (LAR)

C.10 Sequence 249, LR*5.2*311 - LRWOMEN Routine Change

Routine	Routine Description
LR311PST	Create New-Style XREF
LRWOMEN	Link To Women's Health Program

C.11 Sequence 255, LR*5.2*336 - Update Provider Class Checks

Routine	Routine Description
LRAPRES1	AP ESIG Release Report/Alert

C.12 Sequence 258, LR*5.2*324 - Stop SNOMED Coding Old AP Reports From Sending Alerts

Routine	Routine Description
LRAPOLD	Enter Old AP Accessions
LRWOMEN	Link To Women's Health Program

C.13 Sequence 285, LR*5.2*317 - AP Modifications / Enhancements To Address PSI-04-025

Routine	Routine Description
LR317	LR*5.2*317 Patch Environment Check Routine
LR7OSAP	Silent AP rpt (compare to LRAPCUM)
LR7OSAP1	Silent AP rpt cont.
LR7OSAP2	Silent Routine for autopsy report
LRAPAUSR	Autopsy Supplementary Report
LRAPBR1	AP Browser Print Cont.
LRAPBR4	Autopsy Browser Display
LRAPD1	AP Data Entry

Routine	Routine Description
LRAPDA	Anatomic Path Data Entry
LRAPDSR	AP Supplementary Report Entry
LRAPMRL	AP Modify Released Report
LRAPMRL1	AP Modify Released Report Cont'd
LRAPR	Anat Release Reports
LRAPR1	Anat Release Reports Cont'd
LRAPRES	AP ESIG Release Report
LRAPV	Anat Path Reports Not Verified
LRSPRPT	CY/EM/SP Patient RPT

C.14 Sequence 286, LR*5.2*369 - Multiple Corrections To The Lab Service Package

Routine	Routine Description
LRAPRES1	AP ESIG Release Report/Alert
LRCAP64S	Search 64 For Codes
LRDRAW	Ward Collection Summary
LRSORA	High/Low Value Report
LRSORA2	Search Lab Data And Print Report

C.15 Sequence 297, LR*5.2*365 - AP Alerts And CPRS Report Changes

Routine	Routine Description
LR365	LR*5.2*365 Patch Environment Check Routine
LR7OSAP2	Silent Routine for autopsy report
LR7OSAP4	Silent AP API
LRAPALRT	Send An AP Alert After The Report Has Been Released
LRAPDA	Anatomic Path Data Entry
LRAPR	Anat Release Reports
LRAPRES1	AP ESIG Release Report/Alert
LRWOMEN	Link To Women's Health Program

Appendix D: Notes

Various Notes in this document have been reproduced here in order to facilitate easier access to pertinent information.

D.1 Count Accessioned Tests Using Lab Data File

D.1.1 All options have been secured with the LRSUPER security key.

D.1.2 The BLRLUOPT option is not added to the BLRMENU by this patch. That must be done manually by the site.

D.2 BLRTASKS Option

D.2.1 The BLRTASKS option is not added to the BLRMENU by this patch. That must be done manually by the site.

D.3 Lab to PCC Linker Status

D.3.1 The BLRPCCST option is not added to the BLRMENU by this patch. That must be done manually by the site.

D.4 Lab "Ask At Order" (AAO)

D.4.1 Only those tests in File 60 with a "CH" subscript are allowed to be entered.

D.4.2 The Ask At Order questions will be presented to the user in the order they are entered into the Lab Ask At Order Dictionary (#90475.4).

D.4.3 The BLRAAOMM Main Menu option has not been added to the BLRMENU by this patch. That must be done manually by the site.

D.4.4 The tasking of the BLRAAOEP option is the recommended method of purging the Lab Ask-At-Orders errors file.

Glossary

Accession Area

A functional area or department in the laboratory where specific tests are performed.

Accession Number

A unique alpha-numeric (combination of letters and numbers) assigned to an individual patient specimen when it is received in the laboratory.

Alert

Brief on-line notice issued to users as they complete a cycle through the menu system.

ANSI

American National Standards Institute. A private non-profit organization that oversees the development of voluntary consensus standards.

API

Application Program Interface. Program calls provided for use by application programmers in order to carry out standard computing activities without needing to duplicate utilities.

ASCII

American Standard Code for Information Interchange. A code for information exchange between computers.

Bidirectional

A two way exchange of data. In the case of reference laboratory interfaces, this refers to the electronic transfer of orders to an external reference laboratory and the electronic receipt of results into RPMS from that external reference laboratory.

CPRS

Computerized Patient Record System. The VA's Electronic Health Record (EHR).

EHR

Electronic Health Record. A system that integrates all elements of a patient's health history, including medications, lab work, x-rays, scans, EKGs, medical diagnoses, etc.

Ensemble

A single, architecturally consistent technology stack (integration server, data server, application server, and portal development software) used for running RPMS server applications and interfaces.

EPI

Emerging Pathogens Initiative. The VA's Infectious Disease Program Office Emerging Pathogens Initiative is used to identify new antibiotic-resistant and otherwise problematic pathogens within the Veterans Health Administration (VHA) facilities. Not used by IHS.

File

A set of related records or entries treated as a single unit.

Filer

An application specific routine that controls filing of HL7 messages to a designated RPMS application or to an external entity.

FileMan

The database management system for the VA's VistA system and IHS' RPMS system.

Global

In MUMPS, global refers to a variable stored on disk (global variable) or the array to which the global variable may belong (global array).

HL7

Health Level Seven. An ANSI approved American National Standard for electronic data exchange in health care

IEN

Internal Entry Number. A unique number used to identify an entry within a file.

IHS

Indian Health Service. An Operating Division (OPDIV) within the U.S. Department of Health and Human Services (HHS).

Interface

An interface is a tool and concept that refers to a point of interaction between components, and is applicable at the level of both hardware and software. It allows a component, whether a piece of hardware or a piece of software to function independently while using interfaces to communicate with other components via an input/output system and an associated protocol.

LEDI

The Veteran's Administration's Laboratory Electronic Data Interchange standard.

Link Manager

An HL7 tool in RPMS that allows monitoring and control of HL7 filers. Taskman must be running in order for the Link Manager to run.

Menu

A list of choices for computing activity. A menu is a type of option designed to identify a series of items (other options) for presentation to the user for selection. When displayed, menu-type options are preceded by the word "Select" and followed by the word "option" as in Select Menu Management option: (the menu's select prompt).

MUMPS

Massachusetts General Hospital Utility Multi-Programming System. A procedural, interpreted general-purpose programming language oriented towards database applications.

NOIS

National Online Information Sharing. A computer program that provides a means of logging and tracking problems associated with the daily operation of computer systems within VistA. Not used by IHS.

Parameter

A name in a function or subroutine definition that is replaced by, or bound to, the corresponding actual argument when the function or subroutine is called.

<PARAMETER>

A Caché error caused by the number of parameters passed to a labeled routine by a user-written function reference or a DO command exceeding the number of formal parameters declared for the labeled line.

PCE

Patient Care Encounter. The VA's system that helps sites collect, manage, and display outpatient encounter data (including providers, procedure codes, and diagnostic codes) in compliance with the 10/1/96 Ambulatory Care Data Capture mandate from the Under Secretary of Health. Not used by IHS.

POC

Point Of Care. A Laboratory test that is performed at the site of care (examination, treatment, diagnosis, etc.).

Production

An application-specific Ensemble component that can be configured to both translate and route HL7 messages to and from either RPMS applications or interfaces.

RPMS

Resource and Patient Management System. A suite of software applications used at IHS facilities to support administrative, clerical, and clinical functions.

<SYNTAX>

A Caché error caused by the malformation of a language construct, such as a misspelled or missing keyword.

<UNDEFINED>

A Caché error caused by a reference to an undefined variable.

VA

Veteran's Administration. United States Department of Veterans Affairs

VBECS

VistA Blood Establishment Computer Software. The VA's current Blood Bank software system. Not used by IHS.

VistA

The Veterans Health Information Systems and Technology Architecture. An enterprise-wide information system built around an Electronic Health Record (EHR), used throughout the VA medical system.

Acronym List

None

Contact Information

If you have any questions or comments regarding this distribution, please contact the OIT Help Desk (IHS).

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