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LIS Downtime Plan - Automated Chemistry Core Lab - Royal Oak

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

A. The purpose of this document is to define laboratory protocol for times when the Network Laboratory Information System (LIS) or Hospital Information System (HIS) is unavailable to process orders for Automated Chemistry Core Laboratory testing.

B. Stats will continue to be immediately processed for:

1. HBsAg (Hepatitis B Surface Antigen) (obstetric)
2. Outreach STATS received with downtime requisition
3. IVF (In-Vitro Fertilization Clinics)

C. Should any downtimes for OneChart/EPIC or Beaker exceed two (2) hours, Automated Chemistry will begin to test samples from:

1. ICU (Intensive Care Unit)
2. Nursing Homes

D. All other specimens will be centrifuged and held (refrigerated) until Beaker and/or OneChart /EPIC is available for order entry and analytical processing.

E. Should downtime exceed six (6) hours, the Automated Chemistry Manager or designee will consult with Medical Director and Clinical Pathology Administration regarding subsequent options for Inpatient, Outpatient and Outreach specimens. Options may include:

1. limit test requests for all patients to Stat procedures only
2. test specimens with short stability

3. process only basic chemistry panels
4. process all Inpatient routines on the Chemistry Line
5. continue to spin and hold specimens for Outpatient/Outreach routine requests until system recovery
6. refer Outpatient/Outreach work externally

F. Automated Chemistry Manager or designee will maintain close communication with the LIS manager, Lab Administration, ICU Nursing Administration, Outreach Client Services and Specimen Processing throughout the downtime period.

II. DEFINITIONS:

A. **LIS** - Laboratory Information System, currently EPIC Beaker.

B. **HIS** – Hospital Information System, currently OneChart/EPIC.

C. **Network, Core Lab Down** - there are communication problems in the Core Laboratory, which manifest as the inability to access e-mail or LIS. Stat Lab operations are unaffected.

D. **Network, Hospital Down** - there are communication problems in the hospital, which manifest as the inability to access e-mail or LIS in the Stat Lab. Nursing cannot order tests or access any results in One Chart/EPIC. Core Lab operations are not affected.

E. **Network, Completely Down** - there are communication problems, which affect both the Stat Lab (main hospital) and Core Lab (research building) operations.

F. **LIS Down** - there is a problem with LIS, either scheduled or unscheduled, whereby we cannot access the LIS to input/retrieve laboratory orders and results.

G. **Rover ID Wireless Down** – Rover is the specimen collection system used by Nursing and Inpatient Phlebotomy. This module supports positive patient identification (PPID) bar code technology. Collection labels cannot be printed for specimens ordered in One Chart/EPIC when Rover is down. Specimens must be collected/received in Beaker by Laboratory personnel.

H. **One Chart/EPIC Down** - Order or result interfaces between One Chart/EPIC and ADT (Admission/Discharge/Transfer) registration interfaces are down. There may be new patient registration problems that impact Emergency Center (EC), preOP and Outpatient Labs. EC and Nursing Units cannot order labs or review results. Documentation and delivery of lab STAT results on paper requisition or instrument printout is required.

I. **Abbott Instrument Manager (IM) Down -** Orders and results do not interface between Beaker and the Abbott Analyzers. Patients must be manually ordered at the instrument and manually resulted in Beaker.

J. **Beaker Downtime Label** - pre-printed generic specimen label with bar code downtime number (DT #) only. These labels are printed from Beaker. Each specimen type (e.g. SST, PST EDTA, UA [urine]) must receive its own downtime number to maintain ability for specimen tracking. The patient's name, medical record number (MRN), and test(s) requested are handwritten prior to labeling the specimen. The downtime number (DT#) is also assigned to the requisition.

K. **Downtime (DT) requisition** - pre-printed requisition form used to order tests and report results. The DT requisition for Inpatients is carbon 4-ply for results to be separated into copies

for requester (white), shared samples (yellow and pink) and lab file (goldenrod). Outreach supplies their own downtime requisition form. The DT requisition must accompany the specimen and be minimally complete with demographics of

1. patient's name
2. MRN
3. location
4. test(s) requested
5. date/time of collection
    a. When collection time is not provided, the requisition must be time-stamped or date/time of specimen receipt in the laboratory should be noted as "rcd_____".
6. collector ID
7. phone or p-Tube station number for returning results

L. **"Go to Paper"** - process and report specimens received using downtime requisitions.

M. **Specimen Linking** - Process performed once Beaker is up to link results in Epic Beaker to patient orders placed after downtime. Once specimens are linked and the results are final verified all information will be complete and data will route to appropriate reporting method.

III. SPECIMEN COLLECTION AND HANDLING:

A. Specimens to be tested in the Core Lab must be labeled with either the LIS collection bar code label or a downtime label. They must be accompanied with a properly prepared downtime requisition slip.

IV. SUPPLIES:

A. Beaker downtime labels- Reference Laboratory Downtime
B. Chemistry downtime requisitions
C. Time Clock
D. Printer paper for Chemistry Line analyzers and IM printer
E. Staplers
F. Calculators
G. Automated Chemistry Manual Calculations Worksheet
H. Chemistry Reference Range and Critical Value Tables
I. Racks to sort specimens
J. File box with alphabetic folders for lab (goldenrod) downtime copies

V. PROCEDURE:

A. **Determine what is "down"**

1. Call Help Desk (888-481-2448) to report problems.

B. **If only Core Lab Network down:**

1. Nursing can order tests and review results from OneChart/EPIC. All Inpatient specimens will have Beaker collection labels.
2. *Receive* designated specimens (see list of tests/sites eligible for downtime testing) in Beaker.
3. Spin and hold all other Core Lab Chemistry specimens. Wait to *Receive* in Beaker.

C. **If Beaker is down:**

1. Process all Stat HBsAg (obstetric), ICU and Nursing Home specimens using downtime process.
2. Report Inpatient stats immediately "on paper".
3. Hold remaining Inpatient/ Outreach/ and OP specimens (centrifuge and refrigerate).

D. **If entire Network or OneChart/EPIC downtime exceeds two hours, we will process only those limited specimens as previously defined in Section I.**

1. NOTIFY ICU Administration and Outreach.
2. Clinical Pathology Specimen Processing lab assistant will:
    a. Manually centrifuge all gold top (SST), green top plasma separator (PST) and red top specimens received.
    b. Sort them into green wire racks for processing together with any downtime requisitions received.
        i. ICU
        ii. Inpatients
        iii. Outpatients
        iv. HbsAg (Mom)
    c. Prepare downtime requisitions and/or downtime bar code labels for defined tests (HBsAg (Mom) and ICU) as follows: **Do NOT prepare downtime paperwork/labels for other Inpatients or Outpatients at this time.**

If sample arrives in Core Lab...	Then...
with Beaker label	• Prepare DT requisition • Include full Name, MRN, Location • Write "ORDER #___ (i.e. Beaker assigned instrument identification number] through all copies of requisition • Mark test(s) requested
with mylar label and DT requisition	• Prepare one DT label for each specimen received • Include full Name, MRN, test(s) • Write "DT #___ through all copies of requisition

d. **Be sure collection date and time are legible on the DT requisition or write "rcd" (date/time) if information is missing. Press hard so information goes through all copies. Do NOT use a felt pen.**

e. Continue to sort/process all other incoming Inpatient and Outpatient work in Specimen Processing this way but hold until further notice.

3. Outreach processing lab assistants will:
   a. Check that all SST, PST, red top and 16 x 100 specimens received are well-centrifuged.
   b. Deliver ONLY the following specimens together with downtime paperwork. Specimens must be labeled with downtime bar code labels.
      i. Nursing Home – to Line operator
      ii. Outreach STAT- to Line operator
      iii. Fertility (IVF) – to Line operator
      iv. HbsAg (obstetric) to Line operator
   c. HOLD all other OUTREACH specimens until Beaker is available for processing.
4. ”Go to Paper” once Beaker is inaccessible as listed below:

Stat HBsAG (obstetric)	Immediate	
Outreach STAT	Immediate	Must be received with downtime requisition
IVF (In-Vitro Fertility)	Immediate	Must be received with downtime requisition
ICU	2 hours	Notify ICU Nursing Administration
Nursing Home	2 hours	Notify Outreach Specimen Processing

5. Instrument Manager (IM) Downtime Order Entry: Beaker downloads sample test orders into IM at the time of specimen collection. IM Manual Order Entry allows repeat test and orders using downtime style samples. Orders can be placed on a new bar code number or added to an existing bar code number.

E. **To Add a test to a new downtime order in IM**

1. In IM, Open the Specimen Management window, Patient and Order Management
2. Scan Bar code in Specimen Sample ID box
3. Click the "Order Tests" button next to the Specimen ID box to add tests.
4. Enter Patient MRN and Name. Demographic information entered will print on the IM downtime chart report.
5. Click on the "Save" button once all tests have been selected for this ORDER# or DT#.

F. **To Add a test to an existing order in IM:**

1. Open the Specimen Management window, on the tool bar.
2. Enter the ORDER# or DOWNTIME# for the specimen that needs additional testing and search.
3. Sample will appear.
4. Click Order Tests and the additional test(s) can be added in the same manner as manual order entry.

G. **Alternate Option for Architect if IM is not functioning**

1. To manually order tests at the Architect:
    a. Manually program Beaker instrument # or DT#, Patient Name, MRN and tests using Orders – Patient Orders.
        i. Type in SID and select tests individually or use the "PANELS" key and choose the correct panel.
        ii. Select Sample Details and type in last name, first name, and PID.
        iii. Select Add order.

H. **Print a Patient Report from Instrument Manager**

1. Turn on the printer. Select System on the tool bar in IM. Click on Status. Locate IM Printer RO and select. Right click and choose Start Selected Connection.
2. Find the sample using Specimen Management, Patient and Order Management.
3. Select Print Specimen.
4. IM Printer Driver Selection box appears. Select the IM Printer RO.
5. The report appears on the screen. Click on Print.
6. Print 2 copies of the report.

I. **Retransmit Results from IM to Beaker**

1. Find the sample in Specimen Management, SM Workspace.
2. Select Send to Host

J. **Process ICU specimens**

1. If the specimen has a Beaker collection label and has been received, test orders are already in IM.
2. If the specimen has a DT barcode number, program tests from DT requisition into IM.
    a. Deliver requisitions to LINE operator.
    b. Input demographics (Name, MRN, Room #) into IM from requisition slip.
3. Call and document any critical results onto IM printout.
4. Print two reports from IM as each patient's results are completed
5. Initial, date and time on bottom of DT requisition when testing complete.
6. Check for clarity and completeness before separating copies.
7. Staple IM printout to top white copy of requisition slip and deliver to unit.
8. Staple 2nd IM copy to Lab's goldenrod copy of requisition slip.
9. File lab goldenrod copies alphabetically.
10. Refrigerate any off-line aliquots for later testing.

K. **Process Outreach Nursing Home, STATS , Fertility Clinic IVF, and HBsAg (obstetric)** - Outreach must label specimens with DT bar code and send two downtime requisitions for each patient.

1. If the specimen has a Beaker collection label and has been received, test orders are already in IM.
2. If the specimen has a DT barcode, program that number into IM and proceed under Order Entry.
3. Deliver requisitions to LINE operator.
4. Input demographics (Name, Client #, MRN) into IM from requisition slip.
5. Specimens can be front-loaded on analyzers or loaded on the track at the Input Output Module (IOM).
6. Call and document any critical results onto IM printout.

7. Print two reports from IM as each patient's results are completed.
8. Initial, date and time bottom of DT requisition when testing complete.
9. Check for clarity and completeness before separating copies.
10. Staple IM printout to one Outreach requisition slip and deliver to Outreach.
11. Staple second IM copy to 2nd Outreach requisition slip.
12. File alphabetically in "Outreach" folder.
13. Refrigerate any off-line aliquots for later testing.
14. Notify Customer Service of any critical values during Beaker downtime so they can be called to the clients.
15. Document the following on DT requisition:
    a. "notified CS of critical _(test)_", along with the date and time.
    b. employee ID# of the phone recipient (To:____ By:_____)
    c. employee ID# of caller of the results.
    d. Note "readback received"
16. Deliver Reports:

IF...	THEN...
STAT HBsAG	Tube top white copy with i2000 results to Inpatient unit or deliver IM printout with Outreach downtime request
IVF	Deliver IM printout with Outreach downtime request
ICU	Tube top white copy with IM printout to ICU unit
Nursing Home	Deliver IM printout with Outreach downtime request

17. Retain ALL goldenrod and Outreach file copies for phone queries and lab recovery.
18. File goldenrod lab copies alphabetically in file folder (A-Z) box.
19. File Outreach copies separately in "Outreach" folder by date.
20. Midnight shift will start a new dated set of file folders (A-Z) if downtime goes past midnight. Rubber band previous date set (A-Z) and place at back of box.
21. Continue to monitor downtime Status every ½ hour.
22. Note: Goldenrod copy follows primary tube. Recovery occurs at final destination of sample.
23. ***ADD-ON requests will not be honored during downtimes***. Off-line aliquots prepared manually will be refrigerated until Beaker labeled specimens and assigned DT numbers are *Received* via the Recovery Process.

VI. RECOVERY PROCEDURES:

A. For specimens that have been processed and tested, move through the A-Z folders (goldenrod lab copies) by DATE.

1. Receive specimens with Beaker collection number (ORDER #).
2. Order/Collect/Receive test requests with downtime barcode (DT#) numbers. Reference Laboratory Beaker Downtime Procedure for complete instructions.
3. Samples with a Beaker collection number that were not received before the downtime need to be retransmitted from Abbott IM once they are received in Beaker.
4. Samples processed on Beaker Downtime Labels are manually linked to the patient using the MRN in Specimen Linking. Reference Laboratory Beaker Downtime Procedure for complete instructions.
5. Using goldenrod requisition copy, retransmit IM results or Link results to Beaker Downtime number one at a time once all requisitions are Received.
    a. Replace any repeat result values that were reported from another analyzer.
    b. Document critical calls with actual date/time, caller's ID# and recipient's employee ID # from goldenrod lab copy.
    c. Document any other required comments.
6. Start two (2) new file folders for each date.
7. Label file folders as: Received, and Resulted
8. Retain goldenrod copies for a minimum of 2 years.
9. Recycle alphabetic folders.

Approval Signatures

Step Description	Approver	Date
Medical Director	Ann Marie Blenc: System Med Dir, Hematopath	6/7/2023
Lab Chemistry Best Practice Committee	Caitlin Schein: Staff Physician	5/25/2023
Lab Chemistry Best Practice Committee	Qian Sun: Tech Dir, Clin Chemistry, Path	5/24/2023
Policy and Forms Steering Committee Approval (if needed)	Colette Kessler: Mgr, Division Laboratory	5/24/2023
	Colette Kessler: Mgr, Division Laboratory	5/24/2023