Status **Active** PolicyStat ID **14279510**

Origination	6/22/2021
Last Approved	10/1/2023
Effective	10/1/2023
Last Revised	10/1/2023
Next Review	9/30/2025

Document Contact	Brittnie Berger: Dir, Lab Operations C
Area	Laboratory
Applicability	All Beaumont Hospitals
Key Words	GEN.43837

Laboratory Downtime Procedure

COPY

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

This procedure is to provide general guidance on various downtimes that can happen within the laboratory. This can include, but is not limited to, the laboratory information system (LIS), instrument software, and testing instrumentation/equipment. Refer to the department downtime procedures for department/section specific downtime processes.

II. COMMUNICATION/ROUTING SPECIMENS:

A. The laboratory has defined test turnaround times (i.e. the interval between specimen receipt by laboratory personnel and results reporting). These are located in the Lab Test Directory (LTD). In the event of an extended LIS downtime and/or a prolonged instrument downtime, which causes a significant delay in the expected turn around time for patient testing, initiate the site specific escalation process on who to notify. This can include medical technologist shift leads, supervisors, managers, lab operations directors, lab medical directors, and site hospital leadership such as nurse managers and site administration. Refer to your site specific escalation process.

B. Initiate communication to affected users at the site. General guidelines for when to begin the notification process:

   1. For unexpected downtime for equipment performing Stat/Inpatient testing, begin notification process within 30 minutes of downtime.
   2. For unexpected downtime for equipment performing routine/batched testing, begin notification process the morning of the next business day.
   3. Notify the following:

a. Lab Medical Director and Lab Operations Director
b. Administrator on Call: via Mobile Heartbeat.
c. Emergency Center (EC) Charge Nurse: call EC desk or via Mobile Heartbeat
d. Nursing Supervisor House: Via Mobile Heartbeat.
e. Laboratory Customer Service
    i. Farmington Hills, Grosse Pointe, Royal Oak and Troy: (248) 551-1155, option 5
    ii. Dearborn, Taylor, Trenton and Wayne: (800) 245-3725, option 1
f. Lab Outreach Operations and Laboratory Director of Sales and Marketing

4. Explain the reason for the delayed lab testing and inform them they will be contacted when the instrument is operational.
5. When instrument is operational, notify the above users.
6. Enter the information on the inter-shift report.
7. The information is also conveyed at the daily hospital morning huddle when significant delays are anticipated.

C. In the event of a complete instrument or equipment downtime at a site (i.e. entire site laboratory experiences a complete loss of functionality), specimens should be routed to another Beaumont Laboratory campus for testing as determined by laboratory leaders (i.e. medical directors, laboratory operations director).

D. In the event of an individual instrument and/or equipment downtime (i.e. single instrument/ equipment is not functional):
    1. Information is communicated to the site team members regarding the event. This may be done via email, log and/or huddle.
    2. Alternate testing is established by the site leader depending upon other instruments/ equipment availability and need. This is communicated to the team via email, huddle and/or log.
    3. Follow the site/department communication plan to indicate status on the non-functioning unit.

E. During a downtime, routine testing is usually held until the system is back up. In an extended downtime, it may be determined to start testing specimens with a shorter stability or process appropriately to preserve the stability. The testing departments will work closely with lab leadership in this situation to determine the actions needed in an extended downtime.

III. PROCEDURE:

A. Unexpected instrument downtime:

A. To assist in the determination of the source of the instrument downtime, refer to the "Instrument Issues Workflow" attached.

COPY

B. Instrument/middleware downtime investigation

1. If all the instruments are down in the laboratory, determine if there was a power outage and verify the required instruments are plugged into an emergency (red) outlet

    a. If there was not a power outage, call in an IT incident (888-481-2448). Include the following information:

        i. Laboratory Site

        ii. Instrument Name

        iii. Description of the issue (i.e. no orders, no results or both)

        iv. Time the problem started

    b. If there was a power outage, verify if the instrument is connected to a server (i.e. Abbott, WAM).

        i. If no, refer to below section on instruments not connected to a server.

        ii. If yes, call other site laboratories to determine if they are having the same issue.

            a. If yes, this suggests the middleware is not speaking to Beaker. Call in an IT incident.

            b. If no, consult the department procedure to reconnect the instruments. If this does not resolve the issue, call in an IT ticket.

    c. If the instrument is not connected to a server, check the instrument settings from the procedure manual.

    d. Check if there is a Lantronix box.

        i. If yes, check the color lights on the box.

            a. If green, call in an IT incident.

            b. If red, unplug the box and wait at least 30 seconds before reconnecting. If the lights turn green, try running samples/sending results. If this does not resolve the issue, call in an IT incident.

        ii. If no, check if the instrument is connected directly to the network. (Examples: Euroimmuno, Solana, Cepheid).

            a. If yes, call in an IT incident.

            b. If no, check if the instrument uses FTP to send results to Beaker (Examples: Navigator, Mass Lynx, MagPix)

                i. Verify the file name is correct and in the share drive. If it is not, call in an IT incident.

C. Refer to Suspension of Clinical Pathology Laboratory Autoverification Process if it becomes necessary to suspend auto-verification processes in the event of a problem with a test method,

COPY

instrument or the auto-verification program.

B. LIS Downtime: Printing Beaker Downtime Labels

1. Refer to the attachment "Printing Beaker Downtime Labels".
2. Downtime labels are a set of labels with a Beaker specimen identification (ID). These labels can be printed in sets to place on the specimen, the requisition and/or the results. Refer to the department/site specific instructions on the number of downtime labels to print.
3. 

4. Prior to downtime, the lab must have pre-printed downtime Labels. These labels are printed on each campus by the staff preparing downtime materials. Downtime labels do not expire and each site should always have a supply. The number of labels that should be available at each site is determined by the size of the lab and its testing volume.
5. To create the downtime labels, search for "Downtime Specimen Creation".
6. Select the facility campus to create campus specific downtime labels. The default campus location is the user's current campus login location. This can be manually edited as needed.
7. Number of label sets to print per request ranges from 1 to 500. Default copies is set to two identical copies per set. If more identical copies are desired, increase the value accordingly.
8. Search for the desired label printer for output. The user must select a networked Epic label printer. Confirm the printer name prior to executing the print job.
9. Confirm there is adequate stock of labels in the label printer before printing labels. Execute print request by selecting "Create". The Summary box displays contents of the print job. Each time the "Create More" button is selected, the Summary box updates.

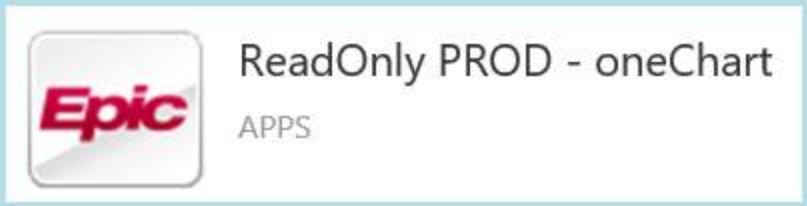
C. Handling of specimens and result reporting during LIS Downtime:

1. Specimens received in the laboratory from inpatient and emergency floors during downtime arrive with a paper order. This downtime requisition contains:
    1. Patient Name
    2. Date of birth (DOB)

COPY

3. Medical Record Number (MRN)
4. B Number (Band Number)
5. Patient Room/Location
6. Tests Requested
7. Date and time of collection
8. Collector employee identification number

2. A downtime computer, **Epic oneChart Business Continuity Access (BCA),** holds a snapshot of Epic prior to the system going down. Epic BCA downtime computers are located throughout the facilities and managed by each department. Note: For more information on BCA computers, refer to Downtime Instructions on the Beaumont intranet.



3. Each technical department should have their own individual downtime procedure as it relates to testing specimens and result reporting. These can include the following:
    1. Testing Specimens:
        a. Manual programming of specimen on instruments
        b. Manual Logs
    2. Resulting:
        a. Sending results via pneumatic tube system to the unit(s)
        b. Calling results to the unit

COPY

4. Critical Results should be called by the reporting technologist to the patient nurse for inpatients. Outreach critical results can be sent to Customer Service to contact the client.
5. Outreach Stat results can be sent to Customer Service to contact the client. Refer to the site specific work flow for Outreach work.
6. Significant diagnosis and/or critical diagnosis from Anatomic Pathology, determined by resulting pathologist, will be called to the requesting physician by the resulting pathologist or manager.

D. LIS Downtime Recovery: Order Entry and Specimen Linking

A. Results held in the middleware during downtime may be sent to Epic without patient information or order information. Unmatched results populate the Epic Beaker work queue "Specimen Linking". During the downtime recovery, results are manually associated with an order and specimen in Epic. Specimen Linking is the process performed once Beaker is up to link results in Epic Beaker to patient orders placed after downtime. Once specimens are linked

results will either auto-validate or go to the Outstanding List for the tech to complete. When the results are final verified, all information will be complete and data will route to appropriate reporting method.

B. **Order Entry**

1. Refer to the attachment "Beaker OE for IP_EC Patients"
    a. For outpatients or Outreach patients, use the One Click or requisition entry process.
        i. Specimen Processing Beaker Requisition Entry
        ii. Beaumont Laboratory Future Order Processing in Epic Beaker
    b. For inpatients and emergency center patients order entry, use the process described below.
        i. Use Patient Station to locate the correct patient. Double click on the proper admission/encounter.
        ii. Check in the Order Inquiry tab to check if an order(s) were already placed. If there is an order(s), proceed to collecting the specimen.
        iii. If no orders are present, a new order will need to be placed. Go to the Order Entry tab and you will be redirected to the Manage Orders page. Type in the test(s) to be ordered and click New.
        iv. The orders will populate under the order field. Click on the test to open and change the frequency to LAB ONCE.
        v. Change each order to LAB ONCE and Accept.
        vi. Click Sign and verify the correct ordering information is filled in.
        vii. After the order is entered, the order must be marked as collected. Go back to Order Inquiry in the patient's chart and locate the order.
        viii. A check mark must be next to the specimen order(s) to collect and click on Collect Specimens.
        ix. On the next screen, enter the Band Number (B#). This is a hard stop.
        x. After the B# is entered, click on Print labels.
        xi. Scan or click on the "Scan the label or click to document the collection".
        xii. Click on Receive.

C. **Specimen Linking**

1. Refer to the attachment "Specimen Linking".
2. Searching the word "link" and select "Specimen Linking".
3. Specimen Linking lists default view filter displays the user's current laboratory

COPY

location. Manually modify the filter under Views-Settings.

4. Scan Downtime Label on requisition/specimen or click on specimen already in the list.
5. Test results will appear on the top right. The target specimen window will be below the results under "Link to". Enter the patient Medical Record Number (MRN) or Target specimen.
6. A box will appear with the patient information. Review the order. Collection information can be updated, if needed. If everything is correct, click "Link" in the lower right corner. The order will go to the Outstanding List or the chart.
7. The user can also work from the list of Downtime specimens. Select the downtime results from the grid on the left side of the activity.
8. Enter the patient you want to link to in the Patient field on the right side of the activity. The linking target report that appears shows a patient's existing encounters, specimens, and orders.

D. **Downtime Recovery Review**

1. After all downtime specimens have been entered, review the current outstanding list for any missing or duplicate specimens.

IV. REFERENCES

A. See attached "Laboratory Downtime Procedure References".

COPY

Attachments

b64_f13b77a0-bc3a-431b-ada0-41d09233f213

Beaker Downtime General Workflow.docx

Beaker OE for IP_EC Patients.docx

Instrument Issues Workflow.pdf

Laboratory Downtime Procedure References V_6_2022.docx

Printing Beaker Downtime Labels.docx

Specimen Linking.docx

Approval Signatures

Step Description	Approver	Date

CLIA Site Licensed Medical Directors	Ann Marie Blenc: System Med Dir, Hematopath	10/1/2023
CLIA Site Licensed Medical Directors	Subhashree Mallika Krishnan: Staff Physician	9/21/2023
CLIA Site Licensed Medical Directors	Vaishali Pansare: Chief, Pathology	9/21/2023
CLIA Site Licensed Medical Directors	Muhammad Arshad: Chief, Pathology	9/15/2023
CLIA Site Licensed Medical Directors	Jeremy Powers: Chief, Pathology	9/14/2023
CLIA Site Licensed Medical Directors	Kurt Bernacki: System Med Dir, Surgical Path	9/11/2023
CLIA Site Licensed Medical Directors	Ryan Johnson: OUWB Clinical Faculty	9/8/2023
CLIA Site Licensed Medical Directors	John Pui: Chief, Pathology	9/8/2023
Policy and Forms Steering Committee Approval (if needed)	Brittnie Berger: Dir, Lab Operations C	9/8/2023
	Sarah Britton: VP, Laboratory Svcs	9/5/2023
Operations Directors	Joan Wehby: Dir, Lab Operations C	9/5/2023
Operations Directors	Amy Knaus: Dir, Lab Operations C	9/1/2023
Operations Directors	Kimberly Geck: Dir, Lab Operations B	8/30/2023
Operations Directors	Elzbieta Wystepek: Dir, Lab Operations B	8/30/2023
Operations Directors	Brittnie Berger: Dir, Lab Operations C	8/30/2023
	Brittnie Berger: Dir, Lab Operations C	8/30/2023