SUNY Downstate Medical Center -University Hospital of Brooklyn Network
Department of Pathology Policy and Procedure

Subject: LAB 17 COMPUTERIZED TRANSPORT TUBE SYSTEM CTS

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Supporting Documents:

Approval Workgroup: Laboratory Administration Approval Group

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I. PURPOSE

To provide the listed Patient Care Units procedures for operating the CTS transport equipments.

II. DEFINITION

Computerized tube system applied to transporting specified materials.

III. POLICY

The CTS is used to transport laboratory specimens, medications, records, and other small items. The purpose of this policy is to establish procedures and guidelines for the operation of the system.

IV. RESPONSIBILITIES

The following departments are responsible for the proper utilization and maintenance of the system, Emergency, Nursing, Medicine, Pediatric, Pharmacy Labor and Delivery and Pathology Departments.

V. PROCEDURES/GUIDELINES

This system consists of the following 8 computerized tube stations: Emergency Room, Central Accessioning, OPD Lab, Pharmacy, NS-31, NS-43, NS-83 and NS-35. Station numbers are assigned as they are implemented.

A. Sending an Item

1. The message STATION READY indicates your station is ready for sending a carrier. If it does not display this message, see DISPLAY MESSAGES on page 3 of this policy.
2. Place items to be sent in any empty carrier. Ensure that contents are immobilized and/or securely contained. (See packaging instructions).
3. Close carrier and ensure that both latches are engaged.
4. Place carrier in dispatcher.
5. Select the destination station number from the Station Directory and enter this number using the keypad. **Note: Do not use pens or pencils to push the system keypad.**
6. Press SEND
7. The message SELECTION ACCEPTED indicates your carrier has been accepted for processing and will be processed as soon as possible.
8. For messages that may be displayed when a carrier cannot be dispatched, see DISPLAY MESSAGES on page 3 of this report

B. Clearing or Canceling a Transaction

1. If an error is made while keying an entry, press CLEAR and start over.
2. If an improper keyboard entry is made, short “beep” will sound. Press CLEAR and start over.
3. If you wish to stop a transaction after the SEND button has been pressed and SELECTION ACCEPTED is displayed, press CANCEL. Note: The transaction cannot be cancelled if the dispatcher has started to move.

4. If TRANSACTION WAS ABORTED is displayed, press CANCEL and start over.

C. Receiving an Item

1. The messages INCOMING CARRIER and INCOMING SECURE CARRIER indicate carriers will be arriving at your station.
2. Remove carriers promptly to prevent receiver bin from becoming full and shutting off station, observing Universal Precautions when necessary. Note: If a carrier is suspected of being contaminated, follow the System Spill Procedures for Users contained in this policy.
3. If carriers or latches are damaged, remove carrier from system and send to the POC coordinator to be repaired.
4. Promptly return carrier with Zip N' Fold pouch and/or liners to sender.
5. If RETURN SURPLUS CARRIERS is displayed, send extra carriers to correct stations (as labeled on carriers)

D. Carriers

There are normally three carriers assigned to each tube station. Extra carriers with no return designation should be returned to the system by pressing the EMPTY SEND key. The computer will distribute empty carriers to those stations in need. Hoarding carriers will slow down the system. Zip N' Fold or foam liners will be distributed with each carrier.

DISPLAY MESSAGES

The following are other display message possibilities and the appropriate action required.

MESSAGE	ACTION
1. Station Full	Empty your receiver bin
2. Station Scheduled Off	Call Central Accessioning (2815)
3. Station Signed Off	See Special Function # 11
4. Station Not In Service	Call Central Accessioning (2815)
5. Traffic Forwarded to "X"	See Special Function # 17
6. Secure Carrier Arrived/	See Special Function # 15
Secure Authority Code	See Special Function # 15
7. Selection Full/Try Later	Call Destination Station to empty receiver bin
8. Selection Does Not Exist	Check selection & try again
9. Selection Scheduled Off	Call Central Accessioning (2815)
10. Selection Signed Off	Call Destination
11. Selection Not In Service	Try again later
12. Selection Not Permitted	Call Central Accessioning (2815)
13. Transaction Aborted	Press "Cancel"/try again
14. Selection Accepted	No action required

ITEMS NOT APPROVED FOR TRANSPORT IN THE CTS SYSTEM

Pathology

1. 24 hour urines
2. Formalin and/or alcohol preserved specimens

3. Empty blood bags
4. IV sets

Pharmacy
1. Chemotherapeutic drugs
2. Protein based drugs
3. Employee prescriptions
4. Narcotics and controlled substances

Other
1. Drinks or food items
2. Contaminated supplies (blood, body fluids, etc.)
3. Money/checks
4. Sharps (needles, syringes, lancets, scalpel blades, etc.
5. Patient valuables
6. Non-leak tight containers containing liquids

E. Packaging

Potentially infectious items must be contained and transported in a manner that prevents breakage, leakage or contamination of the system. In accordance with Universal Precautions, Standard Precautions and OSHA Blood borne Pathogen regulations, all blood and body fluids must be handled as potentially infectious. Refer to the Exposure Control Plan for handling of biohazard materials.
Leakage is primarily due to:
- Improper packaging and non-immobilization of contents
- Use of non-leak tight containers or failure to tighten container lids

To prevent spillage or breakage, remember:
- Containment prevents leakage
- Immobilization ensures integrity

A combination of specimen bags, Zip N' Fold pouches, and foam liners will be used to immobilize and package items. See the following for specific packaging procedures

F. Urine and Stool Specimens (120 mls or less plastic container)

1. Make sure container cap is secure.
2. Place sealed, labeled specimen and required forms (as needed) in biohazard labeled specimen bag.
3. Completely close specimen bag.
4. Place specimen bag in Zip N' Fold pouch
5. Seal pouch
6. Place pouch in carrier and send to lab
7. Lab will return empty Zip N' Fold pouch to the carrier for distribution. If the carrier you receive does not have a Zip N' Fold pouch, contact the lab to obtain one before sending specimens.

Blood Gas Specimens

1. Remove needle from syringe and replace with Syringe Luer Lock Tip.
2. Place labeled specimen in biohazard labeled specimen bag that contains ice
3. Completely close specimen bag
4. Place specimen bag in Zip N' Fold pouch

5. Seal Zip N' Fold pouch
6. Place pouch in carrier and send to laboratory for testing

Blood/Body Fluids – Vacutainer Tubes

1. Place labeled tubes in slots of vacutainer tube bag. Only one tube per slot. Multiple tubes can be rubber banded together.
2. Fold over vacutainer tube bag and place in biohazard labeled specimen bag.
3. Completely close specimen bag.
4. Place specimen bag in Zip N' Fold pouch along with requisition or leftover labels.
5. Seal pouch.
6. Place pouch in carrier and send to lab.
7. Receiver will return Zip N' Fold pouch to the carrier for distribution.

Culture Specimens (culturettes, sterile containers less than 150 mls)

1. Make sure specimen is securely contained in primary container. Note: do not send needle attached to syringe. Remove needle and replace with Syringe Luer Lock Tip cap.
2. Place sealed, labeled specimen in biohazard labeled specimen bag.
3. Completely close specimen bag.
4. Place specimen bag in Zip N' Fold pouch
5. Seal pouch.

Culture Specimens (culturettes, sterile containers less than 150 mls) (Cont'd)

6. Place pouch in carrier and send to lab.
7. Lab will return Zip N' Fold pouch to the carrier for distribution.

Medications (Non-narcotic, No-chemo)

1. Make sure primary container is properly sealed and labeled.
2. Place container and necessary paperwork in Ziploc bag.
3. Secure Ziploc bag.
4. Place Ziploc bag in Zip N' Fold pouch.
5. Secure pouch and place in carrier with foam liner.
6. Send to Nursing Unit.
7. Nursing Unit will return carrier, Zip N' Fold pouch and foam liner to Pharmacy.

G. Procedures for sending a secure transaction

1. Access SPECIAL FUNCTIONS menu.
2. Select # 15.
3. Enter a one to four digit security code (this is made up by the sender).
4. Press SEND. SECURITY CODE ACCEPTED – ENTER DEST will be displayed.
5. Send carrier. Display will show SELECTION ACCEPTED PLEASE WAIT after transaction has been accepted for processing.

Procedures for receiving a secure transaction

The message INCOMING SECURE CARRIER is displayed until the carrier reaches the station. Once the carrier reaches the station, the messages ENTER SECURITY CODE and SECURED CARRIER PRESENT are displayed.

1. Enter security code
2. Press ENTER

H. Decontamination Procedures

Approved disinfectants:

Carrier liners:
Ethylene oxide; steam autoclave 270 degrees for 5 minutes, dry for 1 minute at 270 degrees; hospital approved germicide (or any other mycobactericidal germicide) or OMNI II solution.

Zip N' Fold pouches:
Ethylene oxide; hospital approved germicide (or any other mycobactericidal germicide); or, OMNI II solution.

Plastic carriers:
Ethylene oxide; hospital approved germicide (or any other mycobactericidal germicide); or, OMNI II solution.

Note: Do not autoclave Zip N' Fold pouches or plastic carriers as high temperatures will damage.

I. System Spill Procedures

Procedure for users

Note: Always use Universal Precautions when handling carriers that may be contaminated.

1. Stop sending carriers from the station where the contamination was first noticed and initiate EMERGENCY SHUTDOWN from your station (if available at your station).
2. Call Central Accessioning (2815), if no answer dial ("0") to page.
3. Notify Central Accessioning and state:
   a) Receiving station's number
   b) Sending station's number (if known)
   c) Type of spill (specimen type and suspected amount)
   d) Time the contaminated carrier arrived (or was first noticed)
   e) Number of contaminated carriers that have arrived
4. Notify Hospital Administration (2104 or 1883) of system spill
5. Follow the Decontamination Procedure in this policy.
6. Remove contents of carrier using protective clothing (utilizing Universal Precautions).
7. Discard the specimen and secondary containment bag or pouch (if unable to be cleaned or salvaged).
8. Call the sending station and request another specimen.
9. Contact Central Accessioning (2815) for further decontamination of the Zip N' Fold pouch and carrier. Place the carrier and Zip N' Fold in a biohazard waste bag and deliver to Sterile Processing.

10. Central Accessioning is responsible for decontamination of the system and will return the system to service when cleaning is completed.
11. Contact FM&D Environmental Safety (1216) for any spills outside of the station. (Example: carpet cleaning).
12. Central Accessioning will report any spill to Infection Control (0000).

Central Accessioning Action

Immediately verify that the system has been shut down. The system can be turned off at the System Control Center (SCC) or at any station.

From the system transaction printout, verify from which station the carrier was dispatched and when. Use the riser diagram to determine the route that the carrier traversed from the source station to the destination station. Use the transaction printout to determine if other transactions used that route or any part of it before the system was shut off.

a. Determine from the "System Traffic Display" if any transactions in process, when the system was shut off, used that route or any part of it.
b. If any of these transactions used the same route or any part of it, determine their source and destination stations and cleanout those routes in addition to the route in which the spill occurred.

Purge the entire system to clear the "Emergency Stop" status of the system. Be careful to assign contaminated stations as the recovery stations in those zones with contaminated routes. This procedure will eliminate the spread of contamination to other routes in contaminated zones.

From the SCC, individually schedule "Off" all stations on any zone with one or more contaminated routes.

Assign "Off Dispatch" to any station on contaminated routes. This will allow cleanout carriers to be sent back to the stations from which they were dispatched.

J. Procedure for Disinfecting Stations and Tubing

The basic procedure consists of sending a carrier containing the cleanout bottle from station until all affected segments of the system have been traversed. This procedure will require one person except when cleaning the interzone lines, which will require two people and telephone communication between them.

As the carrier travels through the tubing, the cleanout bottle dispenses the cleaning solution, while the carrier tubbing bands act as swabs.

1. While wearing protective clothing, mix the appropriate cleaning solution (a 10 to 1 dilution of bleach is effective).
2. Fill the cleanout bottle with cleaning solution to within ¼" of the top holes on bottle.
3. Place the lid on the bottle.
4. While maintaining the upright position of the bottle, place it in a carrier.
5. Close and latch the carrier.
6. Periodically check the level of the cleaning solution. When there is less than an inch of solution left in the bottle, refill it and towel dry the carrier rubbing bands.

Disinfect the carpet in each affected station's receiver bin as you would any other carpet.

After cleaning, a slight amount of cleaning solution may remain in the tubing. This will not affect the system operation.

Use diagnostics to clean out any contaminated interzone lines.

Turn the contaminated zones on.

Send the clean out carrier back to yourself from all stations suspected of being contaminated to clean the contaminated routes.

Reassign all stations on "off" schedules to their original on/off schedules when cleanout is completed.

When the schedules have been entered, the system will be fully operational.

Use good judgment in cleaning up after an accident. Use the same precautions you would apply if the spill were out in the open.

K. CTS System Preventive Maintenance Schedule

Scheduled Maintenance

1. The Point of Care testing coordinator will notify the user departments a minimum of three days prior to any scheduled down times along with approximate length of time the system will be non-functional.

2. STAT items requiring immediate transportation are to be handled by the individual area's personnel.

3. Down time will routinely be scheduled as necessary. Nursing Unit supervisors will schedule appropriate staff to transport specimens and other items during a scheduled downtime, seven days per week.

4. The computer controller will notify all user areas that the system is functioning again.

L. Special Functions

Special Functions are transactions, which can be initiated at the station by the user. The following Special Functions are available at all CTS stations:

The following Special Functions are available only to those stations specified below:

#23 Emergency Shut down
Laboratory

Station Directory

ED	3
Lab	1

OPD	4
Pharmacy	5
NS 31	7
NS 35	8
NS 43	2
NS 83	6

VI. ATTACHMENTS

None

VIII. REFERENCES

- College of American Pathologists, Edition 21-Feb-2000: GEN .4000
- Translogic Corporation Computerized Tube System Guidelines For Protocol
- The JC Standards EC.2.1.1, LD.2.8.1

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