Template for Pneumatic Tube System Protocol

Unsurpassed PTS Innovations

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To be used with Pneumatic Tube System Training Resource CD (PN 86376601)

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Visit Swisslog North America Customer Service Web Page
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Pneumatic Tube System Protocol Development

Your TransLogic Pneumatic Tube System (PTS) manufactured by Swisslog is designed to increase productivity and efficiency so healthcare professionals in your facility will have more time for what is most important - direct patient care. This is achieved primarily by improving turnaround time for delivery and pick-up of materials and eliminating a significant amount of interdepartmental running by professional staff.

Swisslog suggests that your facility form a task force comprised of representatives from Laboratory, Pharmacy, Nursing, Infection Control and Engineering to set policies for the use of your PTS system. This task force will have access to a training educator to act as a resource during the protocol development process.

Protocol development is critical to a smooth transition and establishes criteria which ensure that your facility is complying with appropriate government regulations and gives Swisslog the guidelines necessary to train hospital employees thoroughly. A copy of your completed protocol must be sent to your Swisslog Training Educator for review at least two weeks prior to start-up of your system.

The hospital PTS task force should communicate with the Training Educator who will conduct the training at the facility prior to the actual session to clarify any outstanding protocol issues.

We at Swisslog look forward to a long-lasting partnership with your facility and want to assure you of our commitment to developing and providing quality products and services for the healthcare industry.
How to Use this Manual

This manual is designed as a workbook for the task force to use in writing its PTS protocol. Each issue that must be addressed is outlined and □ indicates that a decision must be made regarding that issue. Space is provided on each page for writing the protocol. In addition, general information and suggestions are provided to aid in the decision-making process.

A sample protocol developed by a facility that used this manual is contained at the end of this manual and an electronic Word format file containing the sample protocol can be obtained from the Swisslog Customer Support group at 1 (800) 396-9666. After completing this workbook, simply open the word processing file and make the changes necessary.

A checklist of the issues that must be addressed is as follows:

□ What items can be transported in the pneumatic tube system?

□ How will materials be packaged?
  o Primary Containment
  o Secondary Containment
  o Immobilization

□ What disinfectant will be used in case of spills?

□ What are the system spill and clean-out procedures?

□ What are the procedures for system preventive maintenance?

□ What special functions will be accessed by users?

□ Setting Up Station and System Controls
  o Station Directory

Additional documents are provided in separate files including:

- Guidelines to Infection Control Procedures for the Transport of Specimens in a Pneumatic Tube System

- Sending/Receiving Carriers & Special Functions for TransLogic IQ and Standard PTS Stations

- A Microsoft Word format Protocol document to be used as a facility template
What Items Cannot Be Transported in the PTS?

Based on comfort and confidence levels, the task force must decide which items will not be transported in the PTS. Most items, if packaged properly, can be transported. It is recommended that food not be sent through the system given the nature of the other items that will be transported.

NOTE: PLEASE REFER TO THE INFECTION CONTROL PROCEDURE ON THIS CD FOR ANY QUESTIONS REGARDING OSHA’S REGULATIONS REGARDING TRANSPORTATION OF SPECIMENS AND OTHER FEDERAL AGENCY REGULATION REFERENCES.

Since most items can be transported via PTS, review each department and list the items that cannot be sent on this sheet. If there are no exceptions, the “No Exceptions” box should be checked. Items which have a “Special Procedure Required” to be sent through the PTS are listed and procedures should be detailed if they are to be transported.

☐ □

PHARMACY

Narcotics

Special Procedure Required: (See “Secure Transaction” option in the “Standard Control Panel Operations Guide” (PN 99111367), the “I.Q. Control Panel Operations Guide” (PN 99111396), or the “Nexus Control Panel Operations Guide” (PN 94208901) furnished with your system.)

Chemotherapeutic Agents

Special Procedure Required: (Define packaging procedures).

☐ No Exceptions: (All items are approved for transport).

☐ Pharmacy Exceptions: (List items not approved for transport).

*Swisslog does not recommend that protein-based drugs be transported
LABORATORY
Specimens
Special Procedure Required: (See “Specimen Transport and Handling” on page 10).

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Transfusion Blood Products
Special Procedure Required: (See “Pneumatic Tube System Blood Bank Procedures” on page 9).

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¿ No Exceptions: (All items approved for transport).

¿ Lab Exceptions: (List items not approved for transport).

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SURGERY

¿ No Exceptions: (All items approved for transport).

¿ Surgery Exceptions: (List items not approved for transport).

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### CENTRAL SUPPLY
- **No Exceptions:** (All items approved for transport).
- **Central Supply Exceptions:** (List items not approved for transport).

### RADIOLOGY
- **No Exceptions:** (All items approved for transport).
- **Radiology Exceptions:** (List items not approved for transport).

### MEDICAL RECORDS
- **No Exceptions:** (All items approved for transport).
- **Medical Records Exceptions:** (List items not approved for transport).

### DIETARY
- **No Exceptions:** (All items approved for transport).
- **Dietary Exceptions:** (List items not approved for transport).

### OTHER DEPARTMENT(S)
- **No Exceptions:** (All items approved for transport).
- **Exceptions:** (List items not approved for transport).
Pneumatic Tube System Blood Bank Procedures

Please refer to the section on this CD entitled “Blood Product Transport Overview”. This section provides information on and links to industry-expert resources summarizing several decades of blood product transport studies.

In addition – Swisslog collects and makes available client reference listings providing hospital facilities who are currently reporting successful blood product transport. To obtain more information contact our Customer Support at 1-800-396-9666.

In developing your procedure for handling these products, two questions need to be addressed:

1. What documentation is necessary to receive blood products?
2. What procedures will be required to return blood products when a transfusion has occurred?
Specimen Transport and Handling

The primary concern in the transportation of clinical specimens in a pneumatic tube system is leakage of the specimen into the carrier and potentially the system tubing, thus exposing workers to hazardous material. Breakage as a cause of leakage has been virtually eliminated due to the use of carrier inserts for and soft delivery of the carrier.

Leakage generally results from improper packaging and/or the use of primary containers that have not been shown to be leak proof. Several methods have been developed to minimize the occurrence of improper packaging and thus, leakage. The following procedures can be implemented to virtually eliminate risk.

*Remember: Leakage is primarily due to:*

- Improper packaging and non-immobilization of contents
- Use of non-leak proof containers or failure to tighten container lids

*To prevent spillage or breakage, remember:*

- CONTAINMENT prevents leakage
- IMMobilization ensures integrity
- Fragile items need to be immobilized
- Loose, small items need to be immobilized
- Paper items can be sent without any packaging

*Note: Multiple breakables such as glass vacutainers and syringes should be bound together using rubber bands to prevent movement within the secondary containment bag or pouch. Contaminated needles or other sharp contaminated objects should not be transported in the PTS system.*
Primary Containment

A sample of your facility's primary specimen containers should be tested to ensure that they are leak tight prior to use in your PTS system. Your hospital should test selected containers, following the example below to determine which one will work with your system. If a container is not leak tight, it should not be used in the system.

All specimen containers that will be used for tube transport should be tested with water to insure that they are leak proof. Laboratory personnel should use the following procedure:

TEST THE CONTAINERS

With the system operational:

1. Fill 3/4 full with water and tighten lid.

2. Place the container in a clear plastic bag (Ziploc, Zip N' Fold™ pouch, or other approved bag), secure it, and insert it between the padded liners (if this is the chosen packaging procedure for your facility).

   NOTE: (The Zip N' Fold™ functions as both the secondary containment system as well as the padding and immobilization device).

3. Select a distant station to send test container and coordinate with the receiving station to return the carrier back to the laboratory.

   NOTE: If the system is not yet operational, manually agitate the container in the baggie and check for leakage.

4. Send the carrier with the water "specimen" through the tube system to the selected station.

5. Upon return of the carrier to the laboratory, check the container/plastic bag for leakage.

6. Repeat steps 1 through 7 several times using a new primary container each time and simulating normal use of the system as closely as possible.

   NOTE: If the container leaks, it is recommended that a tighter sealing container be ordered. The Infection Control Procedure provided in this CD includes a list of manufacturers of various container types. It is recommended that each system owner test their selected containers as each system configuration is different. Other acceptable containers may be available that are not on the list provided.
If your system is not yet operational:

1. Manually agitate baggie or Zip N Fold™ containing specimen container and check for leakage.

2. If container leaks, replace with a better one.

*List containers approved for use in the PTS system*

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Secondary Containment and Immobilization

The purpose of the secondary containment plastic bag or pouch in transporting body fluids is to contain any spillage that may occur. The spill is readily visible and alerts the receiver to use special handling procedures.

The facility’s contract with Swisslog contains a specified number of packaging kits to be used in conjunction with your facility’s primary containment packaging. It is up to the task force to decide on the appropriate mix (Zip N' Fold and/or foam liners) to meet the facility’s needs.

To facilitate a successful training session, the task force should order the allotted number of kits prior to the training session as they will be used for demonstration purposes. If you are unsure of the quantity allotted, please contact your Swisslog training educator.

____ Number of packaging kits allotted in the Swisslog contract

Fill in the required number of each type of kit (total should equal allotted number above). Note: Each kit contains 5 of a unit type. For example, one kit of large Clean Pouches equals 5 Clean Pouches.

____ Biohazard Zip N' Fold Pouches with inserts(Large Size)
____ Biohazard Zip N' Fold Pouches with inserts (Small Size)

____ “Clean Pouch” Zip N' Fold Pouches (Large Size)
____ “Clean Pouch” Zip N' Fold Pouches (Small Size)

____ Foam Liner / Insert / Memory Foam Liner (Thin)
____ Foam Liner / Insert / Memory Foam Liner (Thick)

Specific instructions for packaging each type of item (lab specimens, pharmaceuticals, etc.) should be included in the system protocol documentation. Please refer to the publication entitled INFECTION CONTROL PROCEDURES FOR THE TRANSPORT OF SPECIMENS IN A TRANSLOGIC PNEUMATIC TYPE SYSTEM contained in this CD for further information on packaging.

Liner Distribution: Foam liners can be left in carriers for random distribution by returning surplus carriers to the system (automatic empty carrier distribution) or the liners can be coded and returned to the assigned department. It is important that the task force state its policy regarding liner distribution; otherwise, system usage is reduced because users don’t have the necessary materials to properly package items. Check the chosen methodology:

☐ Use the “Empty Carrier Return” Key

☐ ☐ Return liners to assigned department (Explain coding system)

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System Spill Procedures

Procedures must be outlined in case a leaking carrier is received by a user. A sample entitled, "Sample System Spill Procedure for Users" is contained on page 15. This is a comprehensive set of instructions and the task force may want to simply modify it by adding the appropriate phone numbers, etc. for the key departments to be contacted.

Please refer to the publication entitled INFECTION CONTROL PROCEDURES FOR THE TRANSPORT OF SPECIMENS IN A TRANSLOGIC PNEUMATIC TYPE SYSTEM contained in this CD for further information on spill procedures.

List the procedures to be followed by users in the event of a spill:

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Similar to the procedure developed for users, the task force must develop procedures for the engineering or maintenance department. These procedures will ensure that appropriate sections of the system have been shut down so cleanout can proceed. A sample protocol entitled, “Sample Shut Down Procedures for Maintenance” is contained on page 22.

List the procedures to be followed by maintenance in the event of a spill:

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Sample System Spill Procedure for Users

1. Check the outside of the carrier for spillage. If spillage has occurred immediately stop sending carriers from the station where the contamination was first noticed.

   **NOTE:** Check the outside of the carrier for spillage. If a specimen has leaked out of the carrier, the tube system administrator should be notified so that they can initiate a system cleanup procedure. This will entail shutting down parts or all of the system for a period of time. If you are the owner of a CTS-30 or later generation system, the emergency shut-down feature can be initiated immediately at any enabled station prior to notifying maintenance. This will help isolate the leak to a fewer number of pipes.

2. If a leak has contaminated the inside of the carrier only, the carrier and liner or pouch will require decontamination and should be set aside.

   Check your hospital's decontamination policy to proceed with cleaning of carriers and liners and/or refer to the Decontamination Procedures in the INFECTION CONTROL PROCEDURE included in this CD.

3. Call Laboratory to perform emergency shutdown.

4. Notify the appropriate department (which also could be Engineering) and provide the
   a. The receiving station's number
   b. The sending station's number (if known)
   c. The type of spill (i.e. specimen type and suspected amount)
   d. The time the contaminated carrier arrived (or was first noticed)
   e. The number of contaminated carriers that have arrived

5. Remove contents of carrier using protective clothing under biohazard hood.

6. Discard the specimen and secondary containment bag or pouch (if unable to be cleaned).

7. Remove gloves and wash hands.

8. Contact appropriate department for carrier cleaning if this has not yet been arranged.

9. Contact the sending station and request another specimen be manually delivered to the department where the spill occurred as the tube system will be down.

10. The department responsible for decontamination of the system will return the system to service when cleaning is completed.

11. Any station may be given a "Special Emergency Stop Code" to utilize when a leaking carrier is received. Consult your Engineering department for details.

12. Complete an incident report (see “Sample Incident Report” on page 21).
PTS System Decontamination

The task force must determine which disinfectant will be used to decontaminate the carriers, packaging products, and the system itself (tubing) in the event of a spill.

NOTE: Although Swisslog can assist in various ways to produce hospital protocols that revolve around material transport, Swisslog will default to each individual facility’s expert when it comes to biohazard transport, handling and cleanup.

DISINFECTANTS

NOTE: Swisslog makes no claims as the effectiveness of any particular solution with regard to its ability to disinfect the system. This determination should be made by each facility’s infection control committee based on the nature of a specific spill.

The cleaning agent chosen should be tested to ensure that it does not adversely affect system components. A solution of 5.25% sodium hypochlorite (household bleach) diluted 1:10 with water, when used as described herein, has demonstrated not to be harmful to system components.

The following agents can also be considered within the stated restrictions. (Additional Infection Control resources (internet web links) are provided on this CD.

**Chlorine (halogen)** - Sodium Hydroxide - Room temperature for 15 minutes. Chlorine and Chlorine compounds are the most widely used and are available in liquid (sodium hypochlorite) and solid (calcium hypochlorite). Effective against gram positive and gram negative bacteria and viruses including hepatitis B and HIV.

**Glutaraldehyde** - Effective against gram positive, gram negative bacteria, fungus, spores, and viruses. A good agent in the presence of organic matter, but it can be toxic.

**Phenolics** - Effective against a wide spectrum of microorganisms - gram positive and gram negative bacteria, mycobacteria, virus. This agent does leave a film on surfaces and requires 10 minutes of contact.

**Quaternary Ammonium Compounds** - Effective against gram positive and gram negative bacteria, but the fumes are very strong.

**Lodophors** - Effective against gram positive and gram negative bacteria, TB, sporicidal, and fungus. It has a rapid and powerful detergent action but is corrosive to metal and can be detrimental to rubber and some plastics.

**Alcohol (ethyl or isopropyl)** - Effective against fungus, spore forming bacteria, mycobacteria, virus. The contaminated surface requires wet contact for 5 minutes to achieve a level of disinfectant. Alcohol is corrosive to system carriers.
List the disinfectant to be used to decontaminate the following items:

Carriers: ______________________________________________________________

Packaging Products*: ______________________________________________________

System Stations and Tubing: ________________________________________________
Decontamination Procedure

NOTE: Please use the following document as a guideline only, to coexist with and not supersede those protocols that are dictated by OSHA, CDC, the hospital and other governing agencies. If a conflict should arise between this document and any biohazard regulatory agency, please default to that agency’s information and regulations and/or contact your internal biohazard team for information and recommendations.

Carrier Liners

Clean foam liners using any of the following methods:

1. Gas sterilization (ethylene oxide)
2. Autoclaving at 270 degrees for five (5) minutes, dry at 270 degrees for one (1) minute.
3. Soaking in an appropriate mycobactericidal germicide solution. Rinse and allow to dry.

Zip N' Fold™ Pouches

1. Gas sterilization (ethylene oxide).
2. Soaking in an appropriate mycobactericidal germicide solution. Rinse and allow to dry.

Plastic Carriers

Carriers can be cleaned by any of the following methods:

1. Gas sterilization (ethylene oxide).
2. Soaking in an appropriate mycobactericidal germicide solution. Rinse and allow to dry.

NOTE: Do not autoclave carriers, high temperatures will damage!

Decontamination of System and Tubing

1. Operator Action:

   Immediately notify the tube system administrator of:

   a. Your station number and the number of the sending station.
   b. The nature of the spill: specimen type and suspected amount.
   c. The exact time that the carrier with the spill arrived (if it is known) or the time when you observed the spill.
2. Maintenance Action

**Immediately verify that the system has been shut down.**
The system can be turned off at the System Central Controller (SCC) or on a CTS-30, at any station enabled with the emergency off feature. Review the system transaction printout or log file to determine the extent of contamination. If the affected transaction can be pinpointed on the traffic printout and there have been no subsequent transactions involving the same route, a partial clean-out can be activated.

   a. Restart the unaffected zones for normal traffic.
   b. Disinfect the send station, receive station and connecting tubing path as described below.

3. If the affected transaction can be pinpointed **but there have been** subsequent transactions involving the same route, a partial, though more involved, clean-out may still be possible.

   a. Determine all stations and tubing routes which were initially and subsequently affected.
   b. Disinfect all affected stations and tubing segments as described below.

4. If the transaction cannot be isolated on the printout the entire system must be disinfected. Do not restart any part of the system prior to disinfecting all stations and tubing including Interzone lines, bypass pipes, and storage pipes.

**Disinfection of System Components and Tubing**

**NOTE: Although Swisslog can assist in various ways to produce hospital protocols that revolve around material transport, Swisslog will default to each individual facility’s expert when it comes to biohazard transport, handling and cleanup.**

The basic procedure consists of sending a carrier containing the Swisslog Clean-Out Kit from station to station until all affected segments of the system have been traversed. As the carrier travels through the tubing the clean-out bottle dispenses the cleaning solution while the carrier rubbing bands act as swabs.

1. Fill the clean-out bottle with the appropriate mycobactericidal germicide solution to within 1/4" of the holes in the top of the bottle.

2. Place the lid on the bottle.

3. While maintaining the upright position of the bottle place it in a carrier.

4. Close and latch the carrier.

At the SCC, place the system in “Maintenance On”. Go to each affected station and send the clean-out carrier back to your station (select the station you are sending from). Repeat as necessary to insure cleansing and sterility. Protective gloves, eyewear, and clothing should be worn if the spill is a biologic specimen.
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.

If interzone or bypass, or storage pipes are involved, place the clean-out carrier in the dispatcher of the station nearest the transfer unit which connects to the affected interzone tube. At the SCC use the diagnostics mode to manually dispatch the carrier and route it to the interzone tube. Repeat as necessary.

Disinfect the bin liners and carpet in each affected station’s receiver bin as you would any other surface or carpet.

After cleaning, a slight amount of cleaning solution may remain in the tubing. This will not affect the system operation. A zone may be placed back into service when all stations and interzones connecting to that zone have been cleaned.

Remember, use good judgment in cleaning up after any accident. Use the same universal precautions you would apply to any other spill. For additional cleanout processes associated with MTU, TCUs, and other system devices, refer to the CTS 30/30 VLP/Matrix/Xpress System Cleanout Process manual, PN 99111361.

System Clean-out bottles are available for ordering by calling Swisslog Customer Service at 1-800-396-9666.
Sample Incident Report

Quality Assurance Example for Specimen & Blood Transport

Occurrence:

1. Transport of unapproved specimen type

2. Improper packaging
   a. Container not securely closed (   )
   b. Wrong or insufficient carrier inserts (   )
   c. Carrier overload (   )
   d. Non-compliance with Universal Procedures (   )
   e. Sample not sent on ice (   )

3. Transit damage to specimen / liner / carrier

Date:_________________________________ Time:___________________am / pm

Patient's Name:______________________________________________

Unit / Department Number:________________ Location:________________

Laboratory:________________________________________ Initials:__________
Sample Shut Down Procedures for Maintenance

1. 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.

2. Using the Transaction History Log, verify from which station the carrier was dispatched and when. Use the EQUIPMENT VISITED feature to determine the route that the carrier traversed from the source station to the destination station. Use the Transaction History Log 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.

3. Purge the entire system to clear the “Urgent OFF” 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.

4. From the SCC, place the system into maintenance mode using the “System Maintenance On” feature. This will allow cleanout carriers to be sent through the contaminated portions of the system.
System Preventative Maintenance Schedule

Your hospital will need to assign one department responsible for the general maintenance and emergency clean up procedures.

Scheduled Downtime:

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Contingency Plans for Unscheduled Downtime:

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Station Control Panel Descriptions

Swisslog offers two different control panels at the station — the Standard Control Panel and the I.Q. Control Panel. Your PTS system may have all of one type of station control panel or there may be a mix of panels. For example, the pharmacy and lab may be the only stations with I.Q. Control Panels and all other stations have the Standard Control Panel.

Since operating procedures for the two panels differ slightly, the procedures are detailed in the Swisslog TransLogic technical manuals provided with your system or can be obtained by contacting Swisslog’s Customer Support group:

1-800-396-9666

Or log into the Swisslog North America Customer Support Web Page and access the documentation link for the manuals you need.

Control Panel Operations Guide Part Numbers:

Standard Control Panel Operations Guide (PN 99111367)

I.Q. Control Panel Operations Guide (PN 99111396)

Nexus Control Panel Operations Guide (PN 94208901)
Station Control Panel Illustration – Standard Control Panel

A. Station Directory
   Used to show the address of each station in the system

B. Selection Keypad
   Numerical keypad used to enter station addresses

C. LCD Display
   Provides visual messages for a variety of system functions

D. Operating Instructions
   A series of cards which outline system operation

E. Hex Key Latch
   Provides quick access to control panel for maintenance

F. Send/Enter Key
   Used to initiate a transaction or enter a command

G. Cancel/Clear Key
   Used to void a transaction or entry

H. Special Function Key
   Used to activate one of the system’s special functions
Station Control Panel Illustration – I.Q. Control Panel

IQ CONTROL PANEL

A. Selection Keypad  
   Numerical keypad used to enter station addresses

B. LCD Display  
   Provides visual messages for a variety of system functions

C. Send/Enter Key  
   Initiates a transaction or enter a command

D. Speed Dial Directory  
   Shows the name of stations programmed into speed dial

E. Speed Dial Key  
   Quickly addresses a transaction

F. Personal Indicator Light  
   Illuminates when departments share a station and when a carrier is received

G. N. Menu Key  
   Used to access Special Functions and Indicator Panel Configuration

H. Station Directory  
   Displays a list of valid station addresses

I. Cancel/Clear Key  
   Voids a transaction or entry
Station Control Panel Illustration – Nexus Control Panel

NEXUS CONTROL PANEL

A. Selection Keypad  
   Numerical keypad used to enter station addresses
B. Status Display(s)  
   Provides visual messages for a variety of system functions
C. Send/Enter Key(s)  
   Initiates a transaction or enter a command
D. Speed Dial Directory  
   Shows the name of stations programmed into speed dial
E. Features Menu  
   Used to access Special Functions and Indicator Panel Configuration
F. Station Directory  
   Displays a list of valid station addresses
G. Cancel/Clear Key  
   Voids a transaction or entry
H. Station ID  
   Identifies the station
I. Card reader  
   For badge access
J. Speaker  
   For audio
To ensure that the station directory provided is accurate; please provide a list of the station names as they should appear on the directory.

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<th>Station Location Name</th>
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Things to Remember to Avoid Problems

1. **Do not hoard carriers.** This will cause a shortage at another station. Send surplus carriers back to the system which will automatically distribute carriers throughout the system as required.

2. **Do not place broken carriers in system.** This may cause a major system shutdown. It is the user's responsibility to make sure any carriers in need of repair are returned to the Plant Operations Department.

3. **Do not walk carriers from one station to another.** This will interfere with the count of carriers per station maintained by the computer. It will also defeat the computer's programming for automatically relocating carriers.

4. **Make sure latches are securely fastened and do not over pack a carrier.** Be sure that all packaging materials are completely contained within the carrier. If not, this will cause the carrier to get lodged in the system tubing, resulting in a shutdown.

5. **Inspect carriers periodically for damage or wear.** Check for cracks, worn bands and latches that do not connect securely.

6. **Return carriers in need of repair to the Plant Operations Department** together with a maintenance work requisition so that the repaired carrier can be returned to the proper station.

7. **Do not allow carriers to collect in the receiving bin.** Make a practice of removing carriers as they arrive, empty the contents and place the empty carriers on the racks provided. If carriers collect in the receiving bin, it may cause the system to temporarily prevent further transactions to your station.

8. **If you change your mind about sending an item, press the cancel button** before removing the carrier from the dispatcher.

9. **Recheck destination station selection** after entering on keypad.

10. **If you receive a carrier that was misdirected, send it on to the proper station.** If you see the biohazard label, do not open the secondary containment system. If the carrier is contaminated, call Engineering.

11. **Never send a contaminated carrier or liner through the system.**
Pneumatic Tube System Evaluation

A representative from Engineering should meet with the task force to discuss the committee’s needs for computer-generated reports. These reports can aid the committee in its continued evaluation of the system and facilitate the decision-making process regarding upgrades and changes.

The following is a partial list of reports that are available.

Transaction List - Shows all transactions processed for one day.

Transaction Summary - Provides the number of transactions, transaction travel times, wait times, and total time for transactions within a given day or multiple days.

Purge History - Shows all purges processed for the selected day and details associated with them.

Event Summary - Displays each piece of equipment and its total number of events for the day or for multiple days.

Urgent Off Report - Shows the date, time, and origin of Urgent Off occurrences for the day.

After meeting with a representative from Engineering, list those reports determined to be necessary and the frequency at which the report should be generated (i.e. monthly, bimonthly, etc.).

<table>
<thead>
<tr>
<th>Report</th>
<th>Frequency</th>
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Pneumatic Tube Station Illustrations

A. Standard Control Panel
B. I.Q. Control Panel (Nexus Control Panel swappable)
C. Personal Indicators
D. Dispatcher
E. Carrier Storage Racks
F. Receiver Bin
PTS Carriers

Carriers

Depending on system model, carriers come in various sizes and capacities. We invite you to visit our web site [Pneumatic Tube System Product Page](#) where you can review and obtain detailed product and carrier information.

Carriers and accessories are available for ordering by calling Swisslog Customer Service at 1-800-396-9666.

Carriers come in standard 4” and 6” diameter sizes and Swisslog provides custom sizes. Swisslog provides Quantum system carriers, as well as carriers for non-Swisslog systems. We provide anti-microbial impregnated, colored, and RFID-capable carriers as well, and more.

4-Inch carrier size capacity: 3.0 lbs
6-inch carrier size capacity 7.0 lbs

Liners & Pouches for Carriers

A variety of liners and pouches may be provided to cushion and contain carrier content.
System Components

Blowers:
Create air flow that pressures and vacuums carriers from station to station

System Control Center (SCC):
Generally located in Engineering, tracks carriers via centralized computer and provides system information

Tubing
Network of galvanized steel pipe through which carrier travels

Transport Speed:
Carriers travel at an average speed of 25 feet per second (fps) in a 4” system and 20fps in a 6” system.

Zones:
Zones are configured into single or multiple zones that divide the total number of stations into groups. All zones are interconnected by one or more transfer zones, so you can send to stations in other zones.
Sending Procedure

1. Make sure the station reads “Station Ready”.

   Make sure the station reads “Station Ready” or “Station Off/Send Only”. If it does not display this message, refer to the manual(s) below specific to your station for display messages and what they mean.

   If the station reads “Swipe your card” or “Enter your PIN,” it is a secured access card or PIN station, respectively. A card access station requires a valid card, badge or ID. A PIN station requires an authorization code. Some stations allow up to a 10-digit code.

2. Place items to be sent in an empty carrier.

   Note: Universal Precautions should be followed to package specimens and other biohazard materials in secondary containment.

3. Make sure items are immobilized by padding, liners or Zip N’Fold™ pouches.

4. Close carrier and ensure that it is latched securely.

5. Ensure that the contents of the carrier are within its weight limit and that no part of the contents is outside of carrier.

6. Insert one end of the carrier in dispatcher and rest the other end on the support.

7. If the station is secured and prompts for access authorization, swipe your badge or enter a valid PIN to proceed.

8. Enter the correct destination station address using the keypad.

   Enter the correct destination station address using the keypad or press the pre-programmed Speed Dial key for the desired destination.

9. Verify that the correct destination station number has been entered and press “Send”.

10. Verify the message “Selection Accepted” appears on the display screen.

   Verify the message “Selection Accepted Please Wait” appears on the display screen indicating the carrier has been accepted for processing. It is NORMAL for the carrier to occasionally wait due to other traffic being processed.

Clearing or Cancelling Transactions

1. If an error is made while keying an entry, press the “Cancel / Clear” button and start over.

2. If an improper keypad entry is made, a short “beep” will sound, press the “Cancel / Clear” button and start over.

3. If you wish to stop a transaction after the “Send” button has been pressed and “Selection Accepted” is displayed, press the “Cancel / Clear” button.

   Note: The transaction cannot be cancelled if the dispatcher has started to move.

4. If “Transaction was Aborted” appears, press the “Cancel / Clear” button and start over.
Receiving Procedure

1. The message “Incoming Carrier” or “Incoming Secure Carrier” indicates carrier arrival.

2. Remove carriers promptly, to prevent receiver bin from becoming full and temporarily shutting off station. Observe Universal Precautions when necessary.
   Note: If a carrier is suspected of being contaminated, follow the facility’s protocol regarding what to do in the event a leaking carrier is received.

3. If carriers or latches are damaged, remove from system and call Plant Operations or responsible party in your hospital.

4. If “Return Surplus Carriers” is displayed, send extra carriers to station number “0”.

   IQ

   If “Return Surplus Carriers” is displayed, send extra carriers to the system by pressing the “Empty Send” key and then pressing the “Enter” key.
   The computer will distribute empty carriers to those stations in need.
Transaction Checklist

Sending Station

- “Station Ready” message showing
- Gloves used to package specimen and place into carrier
- Secondary containment used (if necessary)
- Contents immobilized
- Carrier latched securely
- Carrier weighs less than limit
- No part of contents outside of carrier
- Destination station selected and verified
- “Selection Accepted” message appears
- “Selection Accepted Please Wait” message appears
- Carrier dispatched

Receiving Station:

- Receiving bin cleared of carriers
- Gloves used (if specimen)
- If specimen observe Standard Precautions
- Excess carrier(s) returned to Send Empty
- Excess carrier(s) returned to system by pressing the “Empty Send” key and then the “Enter” key
- Carrier sent to appropriate station if misdirected
Station Display Messages

Refer to the manual(s) below specific to your station for display messages and what they mean.

- Standard Control Panel Operations Guide (PN 99111367)
- I.Q. Control Panel Operations Guide (PN 99111396)
- Nexus Control Panel Operations Guide (PN 94208901)

Note: “Station” refers to the station from which you are sending. “Selection” refers to the station to which you are attempting to send.
Pneumatic Tube System User Certification

Adherence to proper policies and procedures with respect to use of the pneumatic tube system is considered by some facilities to be important enough to warrant user certification. Along with the obvious health hazard of a system spill can come a changed user perception that the system is not a reliable means of transport even though spills can be prevented by proper packaging and immobilization of carrier contents.

User certification is a method by which use of the pneumatic tube system for transport of potentially hazardous materials is restricted to those personnel who have shown a basic proficiency with respect to proper packaging and safety precautions related to transporting these items in the system. Whether or not user certification will be required at a facility should be decided by the protocol development committee prior to system start-up.

The form on the next page is provided as a sample of the types of user proficiencies which should be tested if the facility has determined that certification is necessary. A short hands-on exam is given by one of the system Experts and proficiencies are checked off as being “met” or “not met”.

In the event of system misuse by a user (e.g., a spill is caused by the user), the user is decertified and cannot use the system to transport potentially hazardous materials until retrained and tested by a system Expert. Often this experience is enough to discourage further misuse of the system. However, if the problem continues, a user can be permanently decertified and must rely on others to transport materials in the pneumatic tube system.
Sample User Certification Form for Pneumatic Tube System

Name: ____________________________ Position: __________________________

Unit/Department: ____________________ Date: _______________________

1. Locates, reads and understands tube system policy and procedures. Asks for clarification as needed. ( ) met ( ) not met

2. Understands that only certified users can send certain items listed in protocol. ( ) met ( ) not met

3. Defines and identifies “restricted items” that may not be transported in the system. ( ) met ( ) not met

4. Can properly send an item in the system, observing the following key points
   a. Uses only approved primary containers ( ) met ( ) not met
   b. Closes primary container properly ( ) met ( ) not met
   c. Labels specimen or includes appropriate documentation as required ( ) met ( ) not met
   d. Uses secondary containment when necessary ( ) met ( ) not met
   e. Separates multiple glass items within the carrier ( ) met ( ) not met
   f. Immobilizes contents as needed ( ) met ( ) not met
   g. Closes carrier properly (both latches engaged, nothing protruding from edges) ( ) met ( ) not met

5. Follows universal precautions and infection control policies throughout the entire tube system procedures. ( ) met ( ) not met

6. Understands that failure to follow protocol can result in:
   a. System contamination ( ) met ( ) not met
   b. System shutdown for cleaning of eight hours or longer ( ) met ( ) not met
   c. Temporary decertification with retraining required ( ) met ( ) not met
   d. Permanent decertification if incident reoccurs ( ) met ( ) not met

SIGNATURE OF EMPLOYEE: ____________________________________________

SIGNATURE OF CERTIFIED TRAINER: ________________________________
Sample PTS Protocol – for IQ Control Panel

SAMPLE
COMPUTERIZED TUBE SYSTEM PROTOCOL
FOR STATION WITH IQ CONTROL PANEL

ADMINISTRATIVE
POLICY NO: 10-135-1

POLICY TITLE: COMPUTERIZED TUBE SYSTEM (CTS)

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

I. USERS
This system consists of approximately 30 computerized tube stations. Station numbers are assigned as they are implemented.

II. BASIC SYSTEMS/OPERATING INSTRUCTIONS
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 an 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. Enter the correct destination station address using the keypad or press the pre-programmed Speed Dial key for the desired destination.

6. Press SEND.

7. The message SELECTION ACCEPTED PLEASE WAIT 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, a 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 from system and send to Plant Operations 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 four 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.

<table>
<thead>
<tr>
<th>MESSAGE</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Station Full</td>
<td>Empty your receiver bin</td>
</tr>
<tr>
<td>2. Station Scheduled Off</td>
<td>Call Plant Operations (6285)</td>
</tr>
<tr>
<td>3. Station Signed Off</td>
<td>See Special Function #11</td>
</tr>
<tr>
<td>4. Station Not In Service</td>
<td>Call Plant Operations (6285)</td>
</tr>
<tr>
<td>5. Traffic Forwarded to &quot;X&quot;</td>
<td>See Special Function #17</td>
</tr>
<tr>
<td>6. Secure Carrier Arrived/Secure Authority Code</td>
<td>See Special Function #15</td>
</tr>
<tr>
<td>7. Selection Full/Try Later</td>
<td>Call Destination Station to empty receiver bin</td>
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<tr>
<td>8. Selection Does Not Exist</td>
<td>Check selection &amp; try again</td>
</tr>
<tr>
<td>9. Selection Scheduled Off</td>
<td>Call Plant Operations (6285)</td>
</tr>
<tr>
<td>10. Selection Signed Off</td>
<td>Call Destination</td>
</tr>
<tr>
<td>11. Selection Not In Service</td>
<td>Try again later</td>
</tr>
<tr>
<td>12. Selection Not Permitted</td>
<td>Call Plant Operations (6285)</td>
</tr>
<tr>
<td>13. Transaction Aborted</td>
<td>Press &quot;Cancel&quot;/try again</td>
</tr>
<tr>
<td>14. Selection Accepted</td>
<td>No action required</td>
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III. ITEMS NOT APPROVED FOR TRANSPORT IN THE CTS SYSTEM

To be determined by facility Infection Control Personnel.
IV. 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 and OSHA Blood borne Pathogen regulations, all blood and body fluids must be handled as potentially infectious. Refer to the Exposure Control Plan in the Safety Manual for handling of biohazard materials.

Gloves must be worn when inserting and removing specimens of blood and body fluids from carriers.

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 Ziploc baggies, Zip N' Fold pouches, and foam liners will be used to immobilize and package items. See the following for specific packaging procedures:

A. Urine and Stool Specimens (120 mls or less plastic container)
   1. Make sure container cap is secure.
   2. Place sealed, labeled specimen and labeled orange card in clean Ziploc bag.
      (Bags are available on Central Supply Cart).
   3. Completely close Ziploc bag.
   4. Place Ziploc 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.
B. Blood Components (Requesting components from Blood Bank)

1. Call the Blood Bank (6315) to make sure blood is available.

2. Complete the first section of "Pick-Up Request" slip and send to Lab in carrier with foam liner.

3. Carrier and slip will be delivered to the Blood Bank by Accessioning Tech.

4. Blood Bank Tech will complete second section of "Pick-Up" slip.

5. Component will be placed in large clear Ziploc bag with "Pick-Up" slip.


7. Place Ziploc in a Blood Bank designated Zip N' Fold pouch and secure.

8. Accessioning Tech will send carrier to the requesting care area.

9. Upon receipt of the component, Nursing Service personnel will remove component and "Pick-Up" slip.

10. Complete last section of "Pick-Up" slip and return slip and Zip N' Fold pouch to Lab.

11. The Accessioning Tech will remove "Pick-Up" slip and Zip N' Fold pouch and return to Blood Bank; the carrier is returned to the sender.

C. Blood Gas Specimens

1. Remove needle from syringe and replace with Syringe Luer Lock Tip (caps are available on Central Supply Cart).

2. Place labeled specimen in clear Ziploc bag that contains ice. (Bags are available on Central Supply Cart).

3. Completely close Ziploc bag.

4. Place Ziploc bag in Zip N' Fold pouch.

5. Seal Zip N' Fold pouch.

6. Place pouch in carrier and send to laboratory for testing.

D. 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.
Administrative Policy #10-135-1

2. Fold over vacutainer tube bag and place in clear Ziploc bag.
3. Completely close Ziploc bag.
4. Place Ziploc 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.

E. 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. (Caps are available on Central Supply Cart).
2. Place sealed, labeled specimen and labeled orange card in clear Ziploc bag.
3. Completely close Ziploc bag.
4. Place Ziploc bag in Zip N’ Fold pouch.
5. Seal pouch.
6. Place pouch in carrier and send to Lab.
7. Lab will return Zip N’ Fold pouch to the carrier for distribution.

F. Body Fluid Specimens - Large Volume - Drainage Bag (No large glass vacutainers)
1. Make sure large plastic drainage bag is not leaking. If it is, it must be put in clear Ziploc bag and delivered by Central Supply Courier.
2. Place sealed, labeled specimen and labeled orange card in clear Ziploc bag.
3. Completely close Ziploc bag.
4. Place Ziploc bag in Zip N’ Fold pouch.
5. Seal pouch.
6. Place pouch in carrier and send to Lab.
7. Lab will return Zip N’ Fold pouch to the carrier for distribution.

G. Medications (Non-narcotic, Non-chemo)
1. Make sure primary container is properly sealed and labeled.
2. Place container and necessary paperwork in 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.

H. Controlled Drugs (Class III, IV, & V only)

Controlled Drugs - Class III, IV, and V will be sent via the CTS system using the SECURE TRANSACTION feature. See procedures below for sending a Secure Transaction. Pharmacy personnel will enter all relevant data on the Pharmacy Record of Transfer form for Controlled Substances (see sample). This will include patient's name, room number, history number, number sent, drug and strength, CTS Authority Code, time sent, pharmacist's name, and name of control drug nurse or his/her designee to whom the medication has been sent.

The nurse must enter all appropriate data on the Nursing Record of Transfer form for Controlled Substances (see sample), after receiving the carrier. See procedures below for receiving a Secure Transaction. The CTS system is not operable for the receiving station until the carrier is released.

The nurse may return controlled drugs to the pharmacy by using the SECURE TRANSACTION feature. He/she must call the pharmacy and give the CTS Authority Code needed to release the carrier and record appropriate data on the Nursing Record of Transfer form.

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.
Administrative Policy #10-135-1

PHARMACY RECORD OF TRANSFER OF CONTROLLED DRUGS IN SCHEDULES III, IV, AND V

<table>
<thead>
<tr>
<th>History #, Room #, Patient Names, Drug, Strength, Quantity</th>
<th>Authority Code</th>
<th>Time/ Date</th>
<th>Received/ Sent</th>
<th>Tech/ RPH</th>
<th>RN</th>
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UNIT ____________

Form Reviewed By ______________________________ Date ________
NURSING RECORD OF TRANSFER OF CONTROLLED DRUGS IN SCHEDULES III, IV, AND V

UNIT ________________

<table>
<thead>
<tr>
<th>Patient’s Name</th>
<th>Room Number</th>
<th>EDP Number</th>
<th>Quantity Sent</th>
<th>Quantity Received</th>
<th>Drug &amp; Strength</th>
<th>Time/Date</th>
<th>Tech/RPH</th>
<th>RN</th>
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Completed form must be returned by hand or by CTS using the “Secure Transaction” function.

Form Returned BY ___________________________ RN  Date ________________________
Form Returned BY ___________________________ RPH  Date ________________________
V. 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.

VI. SYSTEM SPILL PROCEDURES
A. 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 Plant Operations (6285), if no answer dial ("0") to page.
3. Notify Plant Operations 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 Nursing Administration (7685) 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 Sterile Processing (6764) 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. Plant Operations is responsible for decontamination of the system and will return the system to service when cleaning is completed.

11. Contact Environmental Services (7620) for any spills outside of the station. (Example: carpet cleaning).

12. Plant Operations will report any spills to Infection Control (6064).

B. Plant Operations Action

1. 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.

2. 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.

3. 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.

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

5. 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.

C. Procedure for Disinfecting Stations and Tubing

The basic procedure consists of sending a carrier containing the cleanout bottle from station to 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 rubbing bands act as swabs.

1. While wearing protective clothing, mix the appropriate cleaning solution (a 10 to 1 dilution of bleach is effective).
Administrative Policy #10-135-1

2. Fill the cleanout bottle with cleaning solution to within 1/4" 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 cleanout any contaminated interzone lines.

Turn the contaminated zones on.

Send the cleanout 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.

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

VII. CTS SYSTEM PREVENTIVE MAINTENANCE SCHEDULE

A. Scheduled Maintenance

1. There is a scheduled down time every Wednesday from 5:30am to 6:30am. The Plant Operations Manager will notify the user departments a minimum of three days prior to any additional 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 between 10:00pm and 7:00am. Distribution will schedule a Messenger to transport specimens and other items when the scheduled downtime is between the hours of 7:00am and 10:00pm, seven days per week. The messenger will cover all clinical and clinical support areas on a one time per hour basis.
Administrative Policy #10-135-1

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

B. Contingency Plan for Unscheduled Down time

1. Problems should be reported to Plant Operations at (6285).

2. Within 15 minutes, user areas will be notified and given an assessment as to how long a station or the system will be down.

3. Between the hours of 7:00am and 10:00pm Distribution will dispatch a temporary Messenger to transport specimens and other items. The Messenger will cover clinical and clinical support areas with down zone(s) on a one time per hour basis. The first Messenger run, in the case of an unscheduled pneumatic tube system down time, will be dispatched within a minimum of one and a maximum of two hours of the first notification of the shut down.

4. Stat items requiring immediate transport are to be handled by the individual area's personnel.

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

VIII. 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:

#26 Discontinue Tracking
#15 Secure Transaction
#16 Traffic Forwarding
#17 Stop Traffic Forwarding
#13 Carriers Present
#12 Incoming Carrier Query
#10 Sign-Off Request
#11 Sign-On Request
#19 Audible Full Station
#20 Audible Carrier Arrival
#18 Key Click
#28 Audio Level
#27 Contrast Adjustment

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

#14 Stat Transaction
   Emergency
   Operating Room
   All ICUs
   Pharmacy

#23 Emergency Shutdown
   Laboratory
Administrative Policy #10-135-1

IX. STATION DIRECTORY

<table>
<thead>
<tr>
<th>Station</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitting</td>
<td>71</td>
</tr>
<tr>
<td>Burn</td>
<td>39</td>
</tr>
<tr>
<td>Cardiac Cath Lab</td>
<td>24</td>
</tr>
<tr>
<td>Cardiology Clinic</td>
<td>95</td>
</tr>
<tr>
<td>Central Supply</td>
<td>34</td>
</tr>
<tr>
<td>CICU</td>
<td>85</td>
</tr>
<tr>
<td>Emergency Rm</td>
<td>32</td>
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<tr>
<td>Emerg. Rm X-ray</td>
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<tr>
<td>Health Info. Mgt</td>
<td>23</td>
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<tr>
<td>Laboratory</td>
<td>31</td>
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<tr>
<td>MICU</td>
<td>37</td>
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<tr>
<td>Operating Rm</td>
<td>22</td>
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<tr>
<td>PACU</td>
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<tr>
<td>Pediatrics</td>
<td>39</td>
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<tr>
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</tr>
</tbody>
</table>
Healthcare Industry Resources

Swisslog Healthcare Solutions Resource Links

Swisslog Home Page: www.swisslog.com
Swisslog Healthcare Solutions Home Page
HCS Patient Protection Resources Page
Swisslog Infection Control Procedure
Swisslog's Material Transport Guidelines for Hospital Departments
Swisslog’s Protocol Development Manual (on CD)
Swisslog’s PTS Sample Protocol Document – PDF Format (on CD)
Swisslog’s PTS Protocol Form – Word Format (on CD)
Swisslog’s PTS System Complete Special Functions Description (on CD)

HCS Agency & Resource Links

Clinical and Laboratory Standards Institute (CLSI formerly NCCLS)
Centers for Disease Control (CDC)
ECRI (formerly Emergency Care Research Institute)
Occupational Safety and Health Administration (OSHA)
Institute for Safe Medication Practices (ISMP)

Publications


“Guidelines for Pneumatic Tube Delivery Systems: Validation and Use to Transport Blood Components”. This Publication can be obtained at the American Association of Blood Banks web site: www.aabb.org/ in the “Bookstore” section.

Infection Control Today Journal On Line
Massachusetts General Hospital Laboratory Handbook
(Contains Pneumatic Tube Guidelines with comprehensive Laboratory procedures)