By E-J Chane, PharmD

Pneumatic Tube Systems

Selecting a System and Ensuring a Successful Installation

Pneumatic tube systems can serve as useful tools for transporting a variety of items throughout the hospital, from physician orders and medications to lab specimens and nursing supplies. In comparison to traditional courier services, pneumatic tube systems can be a more dependable and speedier method for delivering these items.

Selecting a System

In selecting a pneumatic tube system for your facility, there are several considerations to keep in mind. For instance, certain systems are equipped with "intelligent" technology that allows facilities to prioritize deliveries to and from certain departments over others and will send carriers to their destination via the shortest, fastest routes. This feature can help your facility manage use of the system amongst multiple departments. Furthermore, systems are available that can move a number of tubes concurrently, leading to greater efficiency. Other desirable features include:

- An easy-to-read display that indicates the system status and an easy-to-use keypad
- Easily cleaned and/or sterilized carriers
- A sealed system that can be easily decontaminated
- A computerized control system, with a redundant hard drive, that collects and stores usage data and audit trails
- The ability to securely transport narcotics with the use of security access codes
- Adjustable carrier speeds to ensure the safe transport of laboratory specimens

It is also important to select a system from a vendor with a track record of reliability and prompt customer service.

Photo courtesy of Swisslog

Pharmacy can send urgent medications or first doses, as well as orders for therapeutic substitutions, to the nursing units using pneumatic tube systems.

Common Practices: Dos and Don'ts

Pneumatic tube systems are effective in delivering written physician orders to the pharmacy and, later, sending urgent medications or first doses to the nursing units for administration. Pharmacy can also send orders for therapeutic substitutions to nursing units using these systems. Nurses may use the pneumatic tube to transfer documents, such as copies of patient documents, to and from other units upon patient transfer. In addition, your supply chain department can use the system to quickly send supplies to a variety of departments, and the laboratory will likely receive specimens with the system.

A multi-disciplinary committee, comprised of representatives from the plant operations, central supply, lab, nursing, and pharmacy departments, should develop your policies and procedures for the use of your pneumatic tube system. Once the policy has been developed, it is up to each department's supervisor to inform their staff and ensure the policy is adhered to and readily available for future reference.

Generally speaking, these policies and procedures should include the following:

- Size and weight limitations for items transported via the system
- A list of restricted and prohibited items
- Special procedures for loads with restricted access
- A plan for scheduled and unscheduled system downtime, including a system failure reporting and call list
- Infection control guidelines
- Procedures for cleaning and decontaminating carriers and the overall system
- Quality assurance/preventive maintenance procedures
- User training

The list of restricted items will vary from hospital to hospital, but you should carefully consider whether or not to allow the following in your system:

- EpiPens
- Chemotherapy drugs
- Blood products, including albumin, IVIG, Rh immune globulin
- Microbiology specimens
- Specimens for viral testing, including hepatitis or HIV
- Investigational drugs
- TPN

Medications that fall under the restricted items list should be delivered to the nursing units by a pharmacy technician. Furthermore, if you are sending expensive drugs through the pneumatic tube system, pharmacy may want to establish a policy that requires a follow-up call to nursing to confirm receipt.

Like any other hospital equipment, a pneumatic tube system needs to be regularly maintained for optimal performance. Recent operational issues, system faults,

Photo courtesy of Pevco Systems International

The potential for labor cost savings can make it fairly easy to justify a pneumatic tube system installation to hospital administration.

and error logs should be reviewed regularly, and issues that could cause problems down the road, such as worn parts, should be addressed in a timely manner. Routine preventive maintenance will likely lead to better system performance, as well as less user inconvenience and fewer service calls later on. In most cases, you should follow the manufacturer's recommendations for maintenance. In the event of system downtime, a technician can deliver items to and from the pharmacy.

Return on Investment

The biggest roadblock to a pneumatic tube system installation is the capital expense associated with it. However, it is fairly easy to justify the purchase to hospital administration, once you present them with the labor cost savings the system presents. Generally speaking, pharmacy, central supply, the lab, and nursing each employ a "runner." Include the labor costs associated with the time those individuals spend transporting items in your proposal to administration; this will make a stronger case for the capital expenditure associated with the installation of a pneumatic tube system. Furthermore, because pharmacies are typically short on technician support, your runner can then support other areas of pharmacy operations, such as compounding and dispensing medications. This reassignment of duties can be further justification for the initial expense of installing a pneumatic tube system.

Conclusion

In today's health care environment, any automation the pharmacy can implement to positively impact patient care is helpful, and using technology to reduce medication order turnaround should always be among a pharmacy director's goals. In this vein, pneumatic tube systems can be a useful tool in addressing the big picture of patient care. ■

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