If your Pyxis MedStation™ system is set up in profile mode, it uses an interface to maintain a link with the pharmacy-software system, which maintains patient-related medication orders, along with other information. With profile mode, you can also use the Order Lead Time and Order Lag Time features. Order Lead Time indicates the number of hours (0 to 99) before the start time that a new order is activated at a station. Order Lag Time indicates the number of hours (0 to 99) after the stop time that a discontinued order remains activated at a station. The window (order-life-span) created by lead time, plus the order life, plus the lag time, determines whether the medication is available for removal or dispensing against the patient profile.

Understanding lead and lag time functionality can help you make decisions that accommodate your facility’s practices and maintain safe patient care. To use these features, you must consider the facility’s medication-administration policies and procedures as well as the computer system used by the pharmacy.

Objectives

This document will help you:

- Understand start and stop times for medication orders and how the software on the Pyxis MedStation system is affected.
- Understand the definitions of lead and lag time, and the impact of these settings on the availability of medications at the Pyxis MedStation systems.
- Identify how the combination of lead and lag time affects the situation.

Review how start and stop times affect the system

The start and stop times for a medication order create a window of time in which a profiled medication is accessible from a Pyxis MedStation system. In a manual-distribution model, this window might not be clearly defined. For example, if a nurse has the medication in the patient’s cassette, he or she can administer it at any time. Profile mode limits access to medications based on profiles of medication orders by designating a start and stop time (window of accessibility) for each order.

When an order is entered into the pharmacy system, a start and stop time is sent to the Pyxis MedStation system. These start and stop times are automatically set by the pharmacy system. If a stop time is not entered, you can set a default time via the interface. If a stop time is not defined by the pharmacy system or the interface, the console automatically sets the stop time for the order at one year. Each order type can have different rules for start and stop times. By following the profile test plan for the Pyxis MedStation system, you should uncover each variation of orders.

After an order has been given a start and stop time, the medication is available to the nurse throughout the life of the order. Within this window, the nurse can remove the medication when it is needed. It is important to instruct nursing staff to use their Medication Administration Records (MARs) or similar documents every time they access medications from the Pyxis MedStation system.
Review the intent of lead time

All orders entered by the pharmacy have a defined start time, which might be immediate or in the future. Because you might need access to a medication prior to the start time designated by the pharmacy system, you can use the Order Lead Time feature to provide earlier access. For example, if you enter an order for a preoperative antibiotic to start at 12:00 and the surgery is moved up from 13:00 to 09:00, you cannot access the medication prior to 12:00. If you set the Order Lead Time to four hours, the medication is available at 08:00.

Be aware of the following:

• Common lead times are two and four hours.
• CareFusion discourages the use of zero for a lead time. If the lead time is zero, you cannot retrieve a medication until the exact time that is specified. Even at one minute before the start time, the medication will not be listed at the station.
• Creating a set start time for preoperative orders, on-call from operating room (OR) orders, decreasing prednisone orders and one-time orders can be difficult, because the actual administration time might be unknown.
• When a daily medication is ordered, you might want to give a dose to a newly admitted patient if he or she has not taken one yet. If you set the start time to the next morning, the medication will not be available until then.

Review the intent of lag time

All orders, except true one-time orders, have a stop time. It might be set via the pharmacist at order entry or it might default to one year. Because you may need access to a medication after the expected stop time, you can use the Order Lag Time feature to extend access. For example, if a patient is supposed to receive a medication before a stop time of 14:00, but he or she is off the nursing unit for tests until 15:00, the medication will no longer be available. You can use the Order Lag Time feature to extend access (increase the window) to these medications.

NOTE: As patients are discharged, all their orders are discontinued (D/C). As orders are changed by the pharmacist, they might be D/Ced. With a D/C, the order disappears from the Pyxis MedStation system immediately, regardless of the set lead and lag time. This is different than when a designated stop time is set by the pharmacist or the pharmacy system.

True one-time orders (not all pharmacy order-entry systems can create true one-time orders) are available to nursing for one medication removal only, and are automatically removed from the patient profile in the Pyxis MedStation system after the medication is removed (stop time is not applicable). Your facility’s policies and procedures should address one-time orders that need to be accessed again. For example, if a nurse drops the medication, he or she needs to have the order reentered by pharmacy or the dose will need to be sent manually to the nurse. The pharmacist or pharmacy system determines the start time of the one-time order.

For pharmacy systems that do not create true one-time orders, stop times are used. In this case, one-time orders can be set to have a default stop time (usually between 8 and 24 hours). The system automatically removes the medication order from the patient profile in the Pyxis MedStation system at the end of that period, plus the lag time, regardless of how many times the nurse removes the medication. CareFusion recommends that you investigate your pharmacy system to see if you can enable a flag that supports the creation of true one-time orders rather than using the stop and lag time features in the Pyxis MedStation system.

Be aware of the following:

• Common lag times are two and four hours.
• Lag time applies only to orders with a defined stop time (e.g., four doses for four days or reorder of narcotics in seven days).
• CareFusion discourages the use of zero for a lag time. If the lag time is zero, you cannot retrieve a medication after the stop time entered by the pharmacy (e.g., if an order’s stop time is 15:00, you cannot remove it at 15:01).
• Order Lag Time settings need to encompass circumstances in the patient-care environment (e.g., the last dose was not given as scheduled or the patient was off the floor for tests).

Consider lead and lag time together

Lead and lag time, when added together, should not be greater than 24 hours. Aggregate lead and lag times greater than 24 hours can create overlapping orders for nursing during
some part of the day. For example, there is an order that specifies that a patient should receive 10 milligrams (mg) of Coumadin today and then 5 mg daily. The order is entered by the pharmacy at 16:00 (the lag time is 24 hours); the 10 mg order is available to nursing until 16:00 the next day as is the 5 mg order. **There is significant potential for a medication error in this situation.**