Mastering Kanban to Reap Multiple Benefits in Inventory Management and Lab Productivity

Objectives

- Know the definition of kanban
- Identify differences between kanban and the current systems used in the laboratory
- Understand how a kanban system can be applied to the laboratory
Kanban in 50 Minutes?

Kanban

- Signal for replenishment or movement
- Japanese term for signboard or billboard
- Minimization of non-value added replenishment activity
- Incorporates first-in first-out (FIFO)
- Results in an efficient process with the appearance of no excess supply
- Goal is to keep work flowing to consistently meet customer demand

"Let's take this one step at a time. First, somebody is going to have to catch the fish."
What Does Kanban Look Like?

- Kanban signals
  - Cards
  - Empty spaces on a shelf or bench
  - Empty bins
  - Electronic signals

Kanban and Lean

- Kanban is an important tool in the lean package
  - Kanban does not make you “lean”
- Lean goal is to keep material flowing to serve customers on time every time
  - Effective kanban means no workflow interruptions
- Lean goal is delivering to the customer while still creating a profit for the organization
  - Effective kanban controls supply costs
Current State

- Standing orders
- High levels of safety stock
- Unknown inventory levels
- All departments ordering general supplies
- Stock outs
- Disorganized stock rooms
- Disorganized bench stock
- Confusion and fear

Sound familiar?

How Does This Affect the Lab?

- Excess inventory means higher organizational cost
  - Storage space
  - Labor for storage and retrieval
  - Excess inventory on hand / $$ sitting on a shelf
  - Expired supply
- Stock outs mean disappointed customers
  - Turn around times not met
  - Cost for emergency shipping
  - Cost for outsourced testing
Applications

• Phlebotomist in patient room runs short on tubes and cannot complete collection.
• An expired box of phlebotomy tubes is found in the back of a cupboard.
• Expired reagent is found in the back of a refrigerator.
• Technologist goes to stock room to get a box of pipettes in the middle of a run.
• Staff can’t find an item in the stockroom so the supervisor submits an order directly to materials management.

Have You Seen This?
Implementing a Kanban System

- Choose pilot area
- Identify supplies required for each area/bench
  - Consumables
  - Reagents
  - Quality control and calibrator materials
- Which of those items would work well with a kanban system?
  - Shelf life and storage requirements
  - Consistent usage
  - Consistent vendor lead times
Collect Data

- Volume/usage of each item
- Primary storage location(s)
  - Where will the material handler go to replenish the item?
    - Hospital warehouse
    - Laboratory stock room
    - Department storage area
- Vendor lead time
- Critical inventory level

Determining Inventory Levels

- Based on usage + safety stock
  - Be careful of seasonality
- Vendor lead times
  - Are they consistent?
- Balance ordering costs against inventory carrying costs
  - Ordering costs
    - Labor: Place order, receive and store supplies
    - Shipping fees
Inventory Cost

- Costs associated with holding inventory
  - Space
    - Multiple storage locations?
  - Cash on hand decreased
  - Lost interest
  - Labor: Storing, counting, moving, etc.
  - Risk of product damage
  - Potential product expiration
  - Potential product obsolescence

Kanban Replenishment

- Constant time replenishment
  - Item(s) replenished at the same time interval
  - One time or several times per day
- Constant quantity
  - Replenished when bin empties or replenish line is visible.
  - Container is filled with same quantity or to same point every time.
Common Lab Kanban Systems

• Two-bin / container
  ▫ Operator uses supplies from top bin
  ▫ Empty top bin is moved to designated area
  ▫ Empty bin triggers replenishment
  ▫ Full bin moved into bottom position before remaining bin is empty

Common Lab Kanban Systems

• Re-order point
  ▫ Supply level reaches visual mark or kanban card
    • Designated quantity is replenished or ordered
Identify and Plan

- Two bin / container
  - Replenishment quantities
  - Containers for bench and storage areas
    - Original packaging
    - Bins
    - Other
- Re-order point
  - Replenishment quantity
  - Color coding and labeling
- Kanban cards
  - Where will they be used
  - Design
- Replenishment area and timing
- Reorder area

Is the Quantity Right?

- Calculate based on usage
- Add safety stock
- Put it into use and monitor
- Expect to make adjustments

Continuous Improvement
Kanban Cards

• Minimum information
  ▫ Product name and order/item #
  ▫ Supplier name and number
  ▫ Reorder quantity
  ▫ Photo of item
  ▫ Location in store room
  ▫ Location at bench

Kanban Cards

• Visual re-order point in stock room or warehouse
Kanban Cards Caution

- Communicate
  - Before, during, on-going
- Train
  - What, why, how, why (yes, again)
    - WIIFM?
- Audit
- Assign individuals to oversee

Re-Order Process

- Cards placed in designated re-order trigger area
- Supervisor/ordering personnel check “regularly” for re-order requirements

Disciplined? Yes
Expensive or Fancy? No
Kanban Results

- True inventory control at all levels
- Decreased or controlled inventory cost
- Increased staff comfort with supply levels
- Customer demands met
- Implementation of one key lean tool

Questions

Thank you!