Inventory Management as a Catalyst to Cutting Lab Costs, Freeing Technical Staff to Work at the Top of Their License… and More!

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Background
How Did We Get Here?

• Healthcare has been charged with cutting costs
• The Laboratory as an industry has been targeted by Congress and Government payers to reduce costs (to them)
• The Labs/Hospitals have to figure out how to make that happen or give up the business
• Avenues for improvements are:
  - Decrease supply costs
  - Reduce costs of doing business as it relates to waste
  - Improve Communications and assistance with suppliers and supply chain within the Laboratory organization
How to Make All of this Happen…

• Change the way you do business
• Solicit help from both suppliers and your supply chain
• Reduce waste in your licensed labor pools
• Utilize known tools from the Lab industry that work
Utilize Kanban Signal System?
What is a Visual Ordering System

- A system that manages the inventory of one or more products critical to the operations of Lab
- A means to prevent shutting down a system due to unavailability of reagents or goods needed to operate
- A means to prevent *unnecessary work* associated with too frequently changing *lot numbers* or receiving *too many shipments* that need verification or some form of QC
- Suggested Uses:
  - Chemistry
  - Hematology
  - Flow Cytometry
  - Histology
  - Immunology
  - Transfusion Medicine
  - Toxicology
  - Any critical operation
- Become focused on good patient care
  They focus on “the right product in the right place at the right time in the right quantity”
Multi-Bin System

- The two bin system is a Kanban Visual system to ensure proper ordering and inventory control of items
- BUT… you are not limited to just two bins
- Use the number or types of containers that work for the inventoried item(s)
- Determine constraints of the product
  - Lot number dependant (meaning calibration, verification etc.) must be done on every new lot number
  - Shipment validation (make sure the product was not damaged in shipment and performs as expected)
- You will most likely need more bins than just two to minimize the cost of initializing a new lot number
The Multi-Bin Process:

1. When the front bin becomes empty, the back bin is pulled forward.
2. Empty bin is collected and brought to the main storeroom.
3. Empty bin is scanned.
4. Scanned bins downloaded from handheld device to Medline Two-Bin website to create MMS interface file with bin counts.
5. Interface file sent from Medline Two-Bin website to MMIS system for item fulfillment.
6. MMIS system creates a pick list.
7. Empty bins are filled in the main storeroom, brought back to unit storage areas, and placed behind existing bins.
By Containerizing Materials, You Ensure Rotation of Stock and Create Visual Control
Select appropriate size bin to hold the material
- Should be sufficient to last 2 ordering cycles
- If it is 1 week from order to arrival, you must have 2 weeks supply in 1 bin

Select the appropriate number of bins based on:
- Expiration date of the product
- Dependency on lot number or delivery verification, calibration etc.

2 bin processes, create a green font label & attach to the plastic bin
3 bin processes, create a blue font & attach to the plastic bin
4 bin processes create a purple font label & attach to the plastic bin
5 bin process create a black font label & attach to the plastic bin
6 bin process create an orange font & attach to the plastic bin
How it Works… (cont.)

- Create a label capable of scanning to order materials
  - Label must be easy to update; vendor and quantity can be changed
  - Attach label securely to bin
  - Par amount for the item MUST be displayed on the label, and MUST be the sum of all bins
  - The reorder point MUST be displayed on the label and MUST be the quantity held in 1 bin

- Establish a dedicated location for EMPTY bins awaiting reordering
  - Reorder material when the empty bins equals the proper number
  - Scan label on empty bin(s) and order material
    - Don’t worry if some material has already been removed from the remaining bin
    - Reorder point & par in 1 bin suffices 2 ordering cycles
  - Order sufficient material to fill the par (all empty bins)
Who Should be Doing The Work?
First Things First…

- You have to set up a clear and clean line of communication with Supply Chain and Clinical Operations
- There has to be an understanding of what, when and how, and how much
- You have to trust the best person to do the job to “do the job”
- Might have to give up control.. Which can be very hard for some Clinical Personnel to do!
Let Supply Chain Build to Order
Examples
Examples
Receiving in the Goods.. Not by Clinicians but Supply Chain!

• Material is placed in the empty bins to the amount listed for each bin
  - If you are ordering for more than one location use a different color of bin for each of the locations
• If paperwork must accompany new material insert it in the bin
  - Seal bin with red lid secured with closures to prevent accidental use of the material before QC etc.
• Replenished bins are placed under or behind the in-use bin
• After material is QC’d etc. flip the red lid to the green side indicating material is OK to use
• If instrument adjustments must be made include that information in the bin with the green lid
• Bin with green lid is placed on top of or in front of bins with same lot # or received date
Outside the Box.. Alternatives to Bins

- Use of carts
- Select the appropriate size cart to hold the amount of material that will suffice to last 2 ordering cycles on that cart
  - Select number of carts based on the expiration date of the product, dependency on lot #, delivery verification etc.
  - Use the same font color as described above creating labels for the carts as you would a bin
  - You cannot mix materials on a cart since usage may not be identical for mixed items
- A red sign (Material Not Ready for Use) is hung from the top shelf of any cart if material requires QC, validation, etc.
- Flip the sign to the green side once material ready for use
- Use of mats
- Label mat with the amount of material that will suffice to last 2 ordering cycles
- Indicate the ordering Unit of Measure
  - Case, Box, etc.
Where Do the Clinical Personnel Fit?

- Techs **MUST** communicate, teach assist with the setup, logistics, and goals
- They must establish the appropriate number of cases/UOM based on the expiration date, lot number, etc.
  - Teach the Supply Chain what is needed
  - How it must be handled/stored (temperature, etc.)
- When the material arrives and is placed in inventory a red “Material Not Ready for Use” sign is attached to the top container
  - The sign is turned over by the clinical staff to the green side once material is ready for use (as with the bins & carts)
Organization Is A Plus!

Most Techs are not as organized as Supply Chain...

With some guidance you achieve best in class!
How Do the Techs Feel…

- The concept was socialized with the Techs at their huddle meetings
- They were excited to error proof the process
- They found it much easier to check inventory and monitor items that frequently expire such as calibrators and controls
- Inventory Coordinators and Techs feel this is a real moral booster
Note the Label, Bin # and Bar Code
Restocking the Lab
What’s in it for the Lab.. Financial Expectations

• Reduced rush/emergency orders
  - Previously there were at least one a day
  - Now there is less than one a week
  - Expectation is near zero
• Cost over the course a year is $100K in savings (excluding labor)
• Labor savings is expected to be around $5K
• Reduced labor in inventory and replenishment $8K
• Total annual savings $113K
• ROI less than 1 month
Keys to Success

- Focus on best practice for the patient; the rest will follow
- **Involve other areas** not just Supply Chain and Clinical Labs
  - The Sign Shop suggested making the red and green reversible lids
    - The idea of a reversible lid came from their director
    - Adding a finger hole to easily remove the lid also is his idea
  - The Prototype shop is modifying existing Roche cartridge holders to accommodate smaller volumes where a bin is too big
    - If they can’t modify it they will develop something that will work!
- The Sign Shop is developing supply cart signage in both Supply Chain jargon and Lab jargon
- Staff has had input into the process to ensure that it works for them and that they understand it
- **DAILY** huddle meetings are used for education/input and **MUST** include Lab and Supply Chain **TOGETHER**!
Next Steps

• Monitor Rush Orders and shipping costs to quantify the effects
  - Set expectations.. e.g. a minimum of a $50k savings on overnight delivery cost reduction
  - Rush Order reduction by “X”%
• Roll out the plan to other areas of the organization
• Copy the plan and roll it out for all entities if it is a system
• Set up quarterly or at least semi-annual review of the inventory turns, stock outs, and costs to further refine the system
• Look for applications of the system beyond Lab such as Pharmacy, Radiology, Respiratory Therapy etc.
• Proceed in small easy to manage projects; don’t bite off more than you can chew!