

# Using Material Pull to Improve a Pharmacy Process

*By the OhioHealth Process Excellence Department*

Would you like to reduce your medication inventory by \$60,000 in 4 days?

This article outlines how The Process Excellence department<sup>1</sup> (PEX) at OhioHealth successfully implemented a material pull system in the IV Mixture room of the Pharmacy at Grant Medical Center<sup>2</sup>.

## **The Background**

Medications and IV Fluids were being replenished using visual inspections, daily inventory counts and verbal warnings of outages. The area was disorganized, cluttered and was not arranged in an efficient manner. Inventory levels were too high on some medications and too low on others. As a result the department experienced stock outs, expiration and obsolescence of medications, IV fluids and supplies.

## **The Process**

A 12 member team was formed consisting of 5 pharmacists, 3 pharmacy techs, and 4 Process Improvement Specialists. Medications, IV's and supplies were removed from the IV room and taken to an adjacent conference room where item numbers, quantity on hand, historic usage, and other critical information was reviewed by the pharmacists. This information was entered into an excel spreadsheet which was set-up to calculate the kanban quantity. Once the quantity was calculated, the lead pharmacist reviewed the quantity and made adjustments as deemed necessary. Knowledge of the supplier, minimum order quantity, usage trends, etc. were all taken into consideration when making any adjustments to the Kanban quantity.

Simultaneously another group was reorganizing the IV room to improve efficiency by reducing waste from excessive walking and searching for medications and supplies.

### **Two Bin Kanban Formula**

*Quantity per Container = Average Daily Usage x Lead Time (days) + Safety Stock (days)*

After approval from the lead pharmacists, an appropriately sized bin was selected, the medication, IV or supply was placed in the bins and a label identifying the item and reorder quantity was printed and attached. When processing was complete the medication, IV or supply was returned to the IV room and placed in its new location.

<sup>1</sup> Process Excellence (PEX) is an OhioHealth Corporate Department. Its mission is to drive improvement throughout OhioHealth by focusing on process improvement and waste elimination using Lean / Six Sigma methodology.

<sup>2</sup> Grant Medical Center is a Non-Profit 377 bed, Level I Trauma & Surgical Hospital located in Downtown Columbus Ohio.

## IV Solutions



No Organized method to store IV Solutions.  
Quantity on hand doesn't match usage

## BEFORE

### Medications



Medications in one bin with NO method of organization

## IV Solutions



Organized storage method.  
Inventory based on usage

## AFTER

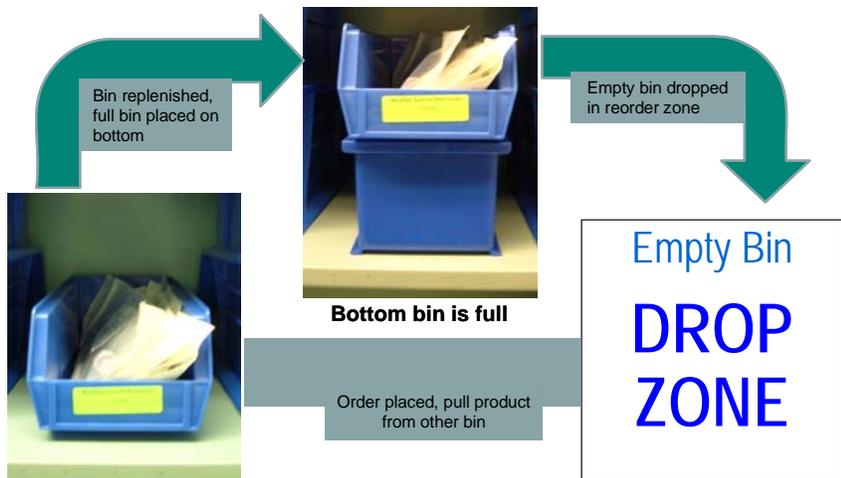
### Medications



Medications in two bin with FIFO organization

## Replenishment

1. Tech Pulls from front/top bin
2. Place empty in designated drop zone
3. Materials person collects empty bins daily and places order for items/quantities identified on bins.
4. Materials arrive, bin is filled with identified quantity
5. Bin is returned to IV room and placed behind or underneath sister bin



## Results

Converted 346 medications, IV solutions and supplies to a two bin kanban material pull system in 4 days.

\$59,571 Reduction in Inventory.

\$35,899 reduction in perpetual inventory

\$17,175 in overstock

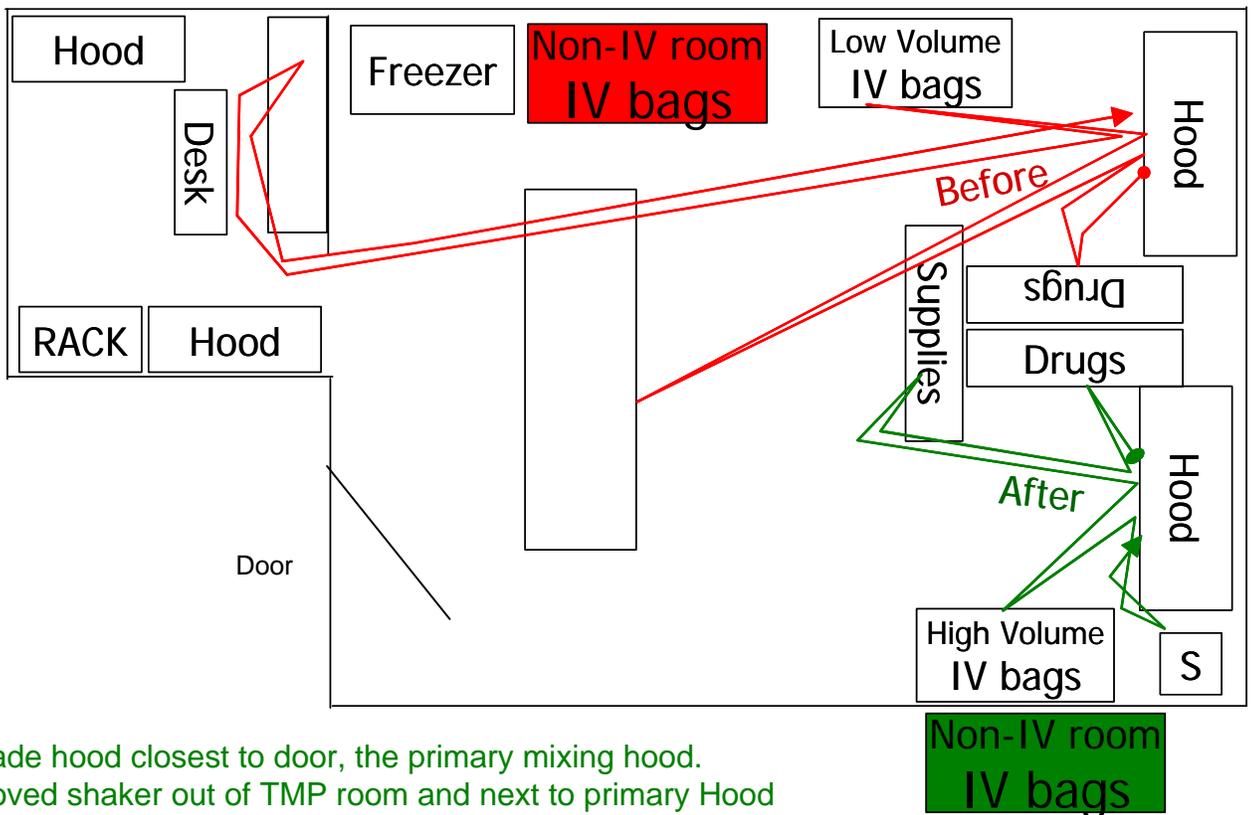
\$6,497 in expired/obsolete inventory

Eliminated 36 secondary inventory locations.

50% reduction in distance the pharmacy tech walks when mixing IV's.

85% reduction in stock-outs.

### Results of IV Room Reorganization



- Made hood closest to door, the primary mixing hood.
- Moved shaker out of TMP room and next to primary Hood
- Removed IV solutions not used in IV room outside room
- Moved high usage meds, IV's, supplies next to primary hood

## Lessons Learned

- For every hour you spend populating your kanban calculation spreadsheet in advance of the event you will save 2 hours of time during the event.
- You can never have too many bins/containers on hand. The most time consuming part of the event is finding a bin/container the correct size for the desired kanban quantity.
- Enlist the content experts. In this event, the pharmacists were invaluable.

For more information on this topic, please contact Paul Remonko ([premonk2@ohiohealth.com](mailto:premonk2@ohiohealth.com))