

Using RFID Two Bin Kanban at the University of Chicago Medical Center: Healthcare Analytics Innovation!

July 10, 2013

by: handfield

categories: [Forecasting](#), [Global Distribution](#), [Healthcare Supply Management](#), [Logistics](#), [Retail Logistics](#), [Supply chain analytics](#), [Supply Chain Innovation](#), [Supply Chain Management](#)

When Jon Stegner walked in to his first week at the University of Chicago Medical Center, one of the first places he visited was the Emergency Room, and the nearby supply room. What he saw there, was in his words, “chaos”. Medical supplies were in boxes strewn in random piles. Many of the boxes contained medical supplies that were out of date or expired. The bins had dust bunnies and “guck” in the bottom of them. Visits to other supply rooms in other parts of the hospital were equally as bad. Jon came from a background in distribution, procurement, and logistics at Delphi and Honda, and knew that this was a perfect approach for building a lean supply system. He also wondered if it were possible to apply the principles of lean production and just-in-time to the healthcare environment. No one had ever tried this before.

Jon and his team started by putting together a plan for every part, and worked to create standard categories. For each category of part, the team mapped out what items were in the supply room, and which items were most frequently accessed. Like items were also grouped together in a standard layout facility. Each stockroom then applied the same functional layout, with the admitting supplies in the first column of bins, followed by ortho supplies, etc. That way, a clinician walking into any supply room would know exactly where to find the supplies – much like walking into a Lowes store!

Next, the team examined the average usage of parts, and established the reorder quantity for each part, as well as the average inventory that should be in each bin, with the objective of keeping no more than four days’ worth of supply in each bin, and a one day resupply level. This seemed reasonable, and might mean different quantities based on usage.

Finally, his team sought to pull together a KanBan system that would use a two-bin system. The two-bin system was quite simple. Each bin had two sections, with a separator in the middle. When one side of the bin was empty, the clinician would pull the “Low Stock” card, and place it in a card holder by the door. The card was actually an RFID card that contained the part number, the resupply level, the bin location, etc., and the card holder had an RFID reader on it which would automatically pick up the signal for a resupply. When the last item in the bin was used, the “Stock out” card was placed in the card holder. All cards placed in the holder by 11 AM would be electronically updated into the inventory resupply system, sending a signal to the wholesaler Cardinal Health (in Waukegan, 45 minutes away). Cardinal employees pick and ship the required inventory for all supply rooms in the hospital, grouped in a bag together in a tote designated for each supply

room. That afternoon, when the totes arrived, an inventory planner would take the tote up to the room, resupply the bins, and replace the Low Stock RFID card back into the bin. Each card holder also has an electronic panel that shows the number of stockouts, number of cards pulled etc. This allows regular monitoring of cards.

The stockout indicator also provides an idea of what parts are stocking out. In most cases, this is happening because clinicians (often nurses) were not pulling the cards for a bin when they took material out. Jon keeps track of stockouts by nurse, and can also determine if there is a deviation in material pulled vs. cards pulled. He takes this list and goes to each nurse with the same message: "If you pull the material, pull the card. We will make sure it is there, I guarantee it. But if you don't pull the card, you will always stock out. So pull the card!" Now 35,000 items are all on the RFID two-bin system.

Don't try to use the phrase "this won't work in healthcare" on Jon Stegner!