Pharmacy Materials Management
Lean and Accountable

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Outline

- Objectives
- Facility Introduction
- Project Background
- Computing System Characteristics
- Role Redesign
- Lean Tools
- Current Status
- Lessons Learned
Objectives

- Discuss strategies for facilitating change between conflicting departments.
- Share methods for designing flexible roles and responsibilities.
- Discuss the application of “lean” tools to analyze processes and remove waste.
- Comment on the lessons learned throughout the redesign.
Henry Ford Health System

- Henry Ford Hospital (Detroit)
  - 700 beds in operation, 40,000 annual admissions

- Community hospitals
  - Bi-County
  - Wyandotte
  - Kingswood

- Henry Ford Medical Group
  - ~700 physicians in 40 specialties
  - Over 20 outpatient facilities

- Community Care Services

- Health Alliance Plan

- Corporate Offices (Accounting, AP, Audit)
Henry Ford Hospital Pharmacy

- 6,000 medication orders processed per day.
- 14,000 unit doses and 3,000 IV medications prepared and dispensed per day.
- $60 Million in annual drug purchases
  - 40% inpatient
  - 60% satellite clinics
- Strong clinical pharmacy program.
- Proven adverse drug reaction reduction through pharmacist participation in unit rounding.
10 employees.

Responsible for drug procurement from order to invoice matching.

Provide clinics and other areas with medications.
- Supplied from stock room.
- Ordered through direct buy.

Purchase 85% of stock from one vendor through EDI transactions.

Maintain remote stockroom inventories.
Project Background

- Originally innovative, now antiquated system used by pharmacy to purchase drugs.
- Large vendor system used for purchasing and financials.
- Need to facilitate decisions between corporate departments and Pharmacy.
- Aligning system requirements
  - Audit and control capabilities.
  - Data needed in payables and general ledger.
  - Specific pharmacy requirements (340b, detailed inventory capture).
- Automation of some manual processes
  - More EDI
  - More price checking
  - Tracking of credits/rebates, price changes
New Computing System Characteristics

- Purchasing
- Requisitioning
- Inventory Management
- Automated Replenishment
- Invoice Matching
- Contract Management
- 340b Tracking
Facilitating Change

- One change at a time.
- Ask questions from different perspectives.
- Constant communication.
- Setting priorities together.
- Setting goals together.
- Involving senior leadership.
Role Redesign - Initial Staffing

- 1 Manager
- 7.3 Materials Coordinators
  - 1 for receiving, troubleshooting, ordering for stock room, phone calls
  - 1 for filling ambulatory orders, IV order, phone calls, coverage
  - 3 for inpatient unit/ER/OR/Clinic stockings
  - 1.3 for central pharmacy stocking (ordering, ALS boxes)
  - 1 for coverage
- 0.5 Pharmacy Tech (ALS boxes)
- 2 Office Staff
Role Redesign- Initial Staffing

Observations

- Multiple employees mentally tracked inventory levels and expected shipments.
- There was informal discussion to determine product status as opposed to relying on the current computer system.
- There was a cursory review process prior to recommending that invoices and/or statements be paid.
- Employees seemed to experience peaks and valleys in workload.
- One employee had too much responsibility.
Role Redesign - Initial Staffing Observations

- There was a lack of separation of duties from an audit and compliance perspective.
  - One employee was ordering and receiving.
  - Another employee generated the purchase orders and paid the invoices.
- When staff was off, it was not always clear who had what responsibility.
- Less direction was provided to employees during the afternoon hours.
- New duties due to new computer system included invoice matching and regular cycle counts.
- Office staff rotated regularly resulting in inconsistent knowledge and vendor relationships.
Role Redesign
Recommendations

- The staffing levels were adequate to complete the necessary duties.
- Each employees’ duties needed to be revised in order to stabilize the workload, assign new tasks and separate duties.
- A leadership role was needed in the afternoon to check staff progress on assigned duties, reprioritize duties and possibly shift duties between staff.
Role Redesign
Modified Staffing

- 1 Manager
- 1 Receiver (problem solving, computer)
- 1 Inventory Control (problem solving, afternoon lead)
- 5.3 Materials Coordinators
- 1 Buyer (problem solving)
- 1 Buyer’s Assistant (task oriented)
Lean Tools
Work Standardization

- Standardization before innovation.
- Every employee had a different procedures for doing the same work, but procedures should be done same way every time.
- Standard process development was completed.
  - Reviewed computer system capabilities and current processes.
  - Developed modified processes based on capabilities and critical review of current flow.
  - Developed computer system procedure manual.
  - Tested processes and procedures on computer system.
Lean Tools
Value Stream Mapping

- Making invisible work visible.
  - Clock: waiting due to time between steps
  - In Box: waiting due to batching

Ordering from Vendor Example
Lean Tools
Process Analysis Questions

1. Where and how will you trigger or sequence work?
2. How will you make work flow smoothly?
3. How will you make work progress, delays, and problems visible?
4. Does a step in the process add complexity/ambiguity or add value?
5. Can process steps be combined in order to decrease handoffs, batching, and additional wait times in queue?
6. Where are queues of information or material forming?
7. How can workload be assigned to make sure that the day flows smoothly, work is prioritized appropriately and that work is evenly shared among employees?
8. Since orders vary from day to day, how is the schedule leveled each day to accommodate?
Lean Tools
Identified Wastes

- Overprocessing
  - Modifying orders
  - Calling order to vendor
  - Entering paper requisition

- Motion
  - Confirming quantity on shelf

- Inventory
  - Batch processing of invoices/orders

- Correction of Defects
  - Modifying quantity on hand to reflect reality
  - Changing orders

- Waiting
  - To execute computer processes
Lean Tools

One Piece Flow Concept

- One-piece flow of products, information, and patients allows discovery of errors immediately and avoids the wait time inherent in batching.
- “Andon” is the ability to “stop the line” and alert the operator and others to an error before the process continues in order to find the root cause immediately and stop it from occurring again.
- Continuous one piece flow
  - Minimizes work-in-process inventory.
  - Eliminates build-up of defects.
  - Problem location identified easily.
Historically, 340b products were ordered once per month, and now they are ordered as used.

Processing purchase orders as ready (approval and sending) as opposed to batching.

Checking stock and filling as required as opposed to by set inventory schedule.

Sequentially receiving and putting away product results in counts not getting off.

The process must be stopped if an item’s quantity on hand goes below zero (Andon).
Lean Tools
Visual Control Concept

- Everyone should be aware of the state of the system at a glance.
- Put tools in place that give real time metrics about how the process is working
  - Display visually the number of items waiting to be processed.
  - Show the status of an order.
- Kanban
  - Provides pick-up and transport information.
  - A signal to notify that the order is ready for next process step.
The new computer system notifies the buyer when the PO is ready to be approved and sent.

A credit memo folder has been created to visually monitor invoices that are waiting for rebates.

The computer system tracks
- Number of orders ready to be processed.
- Last time inventoried/cycle count status.
- Match exception status.
Lean Tools
Load Leveling Concept

- Match resources and demand on a real time basis.
- Assign workload to prioritize and share among staff.
- Pull work in order of priority as staff are available.
- Review of cards completed by staff by leadership.
Lean Tools
Load Leveling Opportunities

- Currently staff does not easily share responsibilities.
- Use of a Heijunka box will help smooth responsibilities, set priorities and monitor staff productivity.
- Each “production” card will contain necessary information to complete the task.
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Lean Tools
5S Concept

- **Sort** - Keep only what is needed and dispose of everything else.
- **Straighten** - A place for everything and everything in its place.
- **Shine** (Cleanliness) - This step acts as a form of inspection that exposes conditions that could hurt quality.
- **Standardize** - Develop systems and procedures to maintain and monitor the first three S's.
- **Sustain** - Maintaining a stabilized work environment is an ongoing process of continual improvement.
The stock room is somewhat chaotic due to the large amount of product that is moved in and out on a daily basis.

Ability to find items is often specific to staff members.

Organization of information needed to complete daily tasks will improve ability to share duties.
Current Status

- Implementation of a new computer system which was planned for Summer 2005 has been delayed to February 2006 due to other IT upgrade issues.
- Role redesign, work standardization, one piece flow, and visual control concepts are being applied now and will be applied further with the new system. There has not been any measurement of time or other savings.
- Load leveling and 5S are delayed to focus on the implementation of the computer system.
Lessons Learned

- Changing the culture of the employees is as important as changing processes and roles.
- Continuous improvement should be the focus. If you try to change too much, too fast; nothing may get done.
- Automation changes do not ensure process changes. It is difficult to complete both simultaneously.
- Current computer system analysis revealed procedural weaknesses (manual payment procedures - no matching, no credit/rebate follow-through, supervision holes).