Managing Supplies in an Operating Room Environment
Meeting Key Objectives

• Understand the benefits of proper databases and how to build and maintain them
• Evaluate current state of the supplies and create a plan to improve
• Techniques to use to manage supplies – physician preference, consignment, general supplies, and wound closure
• How technology can help with maintaining implemented solutions
Agenda

- Database sources and key data points – Joe – 10 Minutes
- Assessing current state and developing game plan – Joe – 20 Minutes
- OR Inventory - Where should you focus – Pat – 20 Minutes
- The relationship between Supply Consolidation and Preference Cards - Sue - 20 Minutes
- “Outside” Inventory Management - Granger - 20 Minutes
- Technology to optimize supply chain and improve patient care - Kishore - 20 Minutes
Database sources

- Physical Inventory
  - Location of the product within OR complex
  - Manufacturer Number
  - Quantity, unit of measure, and price

- Stock Issues
  - Item and manufacturer number
  - Date, quantity, unit of measure, and unit price

- Direct purchases
  - Manufacturer number and description
  - Date, quantity, unit of measure, and unit price
How to maintain and audit

• Consistent terminology among data sources
  Bx versus box
  Hospital versus hosp
  Text versus general format
  Description

• Establish standard requirements for requesting product

• Periodically perform audits to check on compliance

• Give feedback
A Plan to Improve

- Produce an inventory roadmap
- Compare on hand with transaction history – stock and non stock
- Identify excess and non move inventory
- Reconfigure space recommendations
- Reduce and remove inactive or expired product
- Improve inventory control
- Reduce stock outs
Produce an inventory roadmap

- Created a name for each stocking location
- Created a stock locator – identifying aisle, bay, shelf, and position on shelf
- Identified manufacturer number and manufacturer
- Created a database of 5,116 items in 49 locations
- Identified 700 unique items in more than one location excluding active OR locations
- Created a catalog of all storage locations, sorted four different ways and made available to staff
<table>
<thead>
<tr>
<th>Area</th>
<th>Manf #</th>
<th>Description</th>
<th>Source</th>
<th>Stock Locator</th>
</tr>
</thead>
<tbody>
<tr>
<td>STORAGE 5131</td>
<td>65651-220</td>
<td>CANISTER, SUCTION, GUARDIAN, 2000ML, DISPOSABLE, 40/CASE</td>
<td>CARDINAL HEALTH, INC</td>
<td>A01-01-01</td>
</tr>
<tr>
<td>STORAGE 5131</td>
<td>8034</td>
<td>UNNA BOOT BANDAGE 4&quot;X10YD</td>
<td>KENDALL HEALTHCARE</td>
<td>A01-01-10</td>
</tr>
<tr>
<td>STORAGE 5131</td>
<td>8036</td>
<td>UNNA BOOT BANDAGE 4&quot;X10YD</td>
<td>KENDALL HEALTHCARE</td>
<td>A01-01-11</td>
</tr>
<tr>
<td>STORAGE 5131</td>
<td>904</td>
<td>POST MORTEM KIT</td>
<td>BUSSE HOSPITAL</td>
<td>A01-01-12</td>
</tr>
</tbody>
</table>
Before and After
Activity Review

- Stock activity – 216 of 2,946 SKUs (7%) 12 months
  107 Issued once a month or greater (81% of transactions)

- PO activity – 965 of 2,946 SKUs (33%) – 39 months review – 10 items purchased once a month or greater – 20% of dollars

- 1,731 of 2,946 SKUs (59%) reflect no transaction activity of any kind
Create plan to move forward

- Consolidate duplicate location items
- Verify and take appropriate action on no activity items
- Implement kits and assess impact on inventory
- Create order forms for all appropriate areas
- Create core list for OR suites
- Assess new location storage space
- Develop move plan to include existing location and new location of product including allocation of space
Initial SKU Analysis – 3 years

- 52,342 different items purchased

- 35,011 (67%) purchased once - (15.5% of dollars)

- 1,223 (2.3%) items purchased more than once a month on average – 44% of dollars and 40% of transactions
Inventory Turns

- Physical Inventory matched against purchases and stock issues produces turns

- Example – 8.9 turns
  - Fair – 3 to 5 turns (121 to 73 days)
  - Average – 6 turns (60 days)
  - Good – 9 turns (41 days)

- Back out transactions for product not inventoried – turns become 1.88 (194 days)
Manufacturer Analysis – 3 years

- 883 different manufacturers
- 240,335 transactions
- Over $200,000,000 in purchases
- 44 manufacturers account for 80% of dollars purchased
- 44 manufacturers account for 45% of counted inventory
- 44 manufacturers – 2.6 turns – 142 DIOH
Action plan

• Identify no move
  Return to supplier
  See if another facility can use
  Consolidate locations if appropriate
  Relocate to lesser used area
  Donate
  Discard

• Target major suppliers to improve turns

• Reprofile by product group and velocity
# Product Group and Space Analysis

<table>
<thead>
<tr>
<th>Product Group</th>
<th>SKUs</th>
<th>Transactions</th>
<th>Size Code in Inches</th>
<th>Carts</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gowns</td>
<td>140</td>
<td>2,628</td>
<td>2,989</td>
<td>12.5</td>
<td>1</td>
</tr>
<tr>
<td>Dressings</td>
<td>114</td>
<td>2,493</td>
<td>1,566</td>
<td>6.5</td>
<td>2</td>
</tr>
<tr>
<td>Drains</td>
<td>170</td>
<td>1,608</td>
<td>1,600</td>
<td>6.7</td>
<td>3</td>
</tr>
<tr>
<td>Suction</td>
<td>65</td>
<td>1,183</td>
<td>929</td>
<td>3.9</td>
<td>4</td>
</tr>
<tr>
<td>Prep</td>
<td>49</td>
<td>917</td>
<td>869</td>
<td>3.6</td>
<td>5</td>
</tr>
</tbody>
</table>
Develop a Move Plan

- Create database of all items to be stored in target area
- Complete size code analysis
- Identify item by product grouping
- Establish new stock locator system on scaled drawing
- Assign each product group new locations
- Create database with all new stock locations
- Assign each stock item new location
- Create move plan identifying sequence of events and timing
- Complete move and update information system as appropriate
OR benchmarks – a roadmap to optimization

• Deciding what benchmarks to track
  – Average Inventory Value per OR suite
    • $100,000 to $150,000
  – Average cost per case

<table>
<thead>
<tr>
<th>Beds in Service</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 - 199</td>
<td>$570</td>
</tr>
<tr>
<td>200 - 349</td>
<td>$976</td>
</tr>
<tr>
<td>350 - 499</td>
<td>$1,080</td>
</tr>
<tr>
<td>500+</td>
<td>$1,132</td>
</tr>
<tr>
<td>Overall</td>
<td>$850</td>
</tr>
</tbody>
</table>

Source: Hospital & Healthcare Network 2006

– Number of supplier per product line
OR benchmarks – a roadmap to optimization

– Inventory Turns

<table>
<thead>
<tr>
<th>Department</th>
<th>Industry Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>3.4 to 7.6 Turns</td>
</tr>
<tr>
<td>Open Heart</td>
<td>3.4 to 7.6 Turns</td>
</tr>
<tr>
<td>Cath Lab</td>
<td>9.6 to 14.0 Turns</td>
</tr>
<tr>
<td>EP Lab</td>
<td>9.6 to 14.0 Turns</td>
</tr>
</tbody>
</table>

– Spend by service line, comparing the percent of spend to percent of procedures

<table>
<thead>
<tr>
<th>Service Line</th>
<th>Procedure Count</th>
<th>Spend by Sx Line</th>
<th>%Spend</th>
<th>% Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVT</td>
<td>335</td>
<td>$1,792,016</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>ENDO</td>
<td>1317</td>
<td>$3,967,719</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>NEU</td>
<td>639</td>
<td>$2,095,932</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>ORT</td>
<td>3408</td>
<td>$9,149,550</td>
<td>16%</td>
<td>20%</td>
</tr>
<tr>
<td>SPINE</td>
<td>982</td>
<td>$16,171,125</td>
<td>27%</td>
<td>6%</td>
</tr>
<tr>
<td>TJR</td>
<td>625</td>
<td>$8,374,102</td>
<td>14%</td>
<td>4%</td>
</tr>
<tr>
<td>Remaining SX Lines</td>
<td>9358</td>
<td>$17,293,876</td>
<td>29%</td>
<td>56%</td>
</tr>
<tr>
<td>TOTALS</td>
<td>16664</td>
<td>$58,844,320</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Purchases</th>
<th>$2,208,208.12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total OR PO Spend</td>
<td>$61,052,528</td>
</tr>
</tbody>
</table>
Managing the OR Inventory

• General supplies
  – Know what you have, where it is and who is managing it
    • Physical Inventory
    • Inventory optimization including review of supply locations (clinician input is essential in the OR)
    • Taking the clinician out of the day to day management; the case for dedicated materials management staff

• Consignment
  – Formal consignment agreements with written protocol / policy on how it is brought in and managed
    • Just because it is consignment doesn’t mean products should not be limited
    • Suppliers using the hospital as their storage space
Managing the OR Inventory

- Physician preference items
  - Aligning clinicians
  - Level of physician involvement
  - Culture, know what you are up against
    - Product denial rate
    - Physician defection
    - Supplier alignment/incentives
  - Physician incentives
  - Limiting number of vendors vs same price all vendors
  - Value Analysis
Supply Chain Solutions

- Supply Chain Management Addresses

  - Productivity
  - Cost containment
  - Standardization
  - Safety
Supply Chain Solutions Benefits

Clinical
– Improved patient and staff satisfaction and safety
– Shorter wait times and faster turnaround
– Increased efficiencies creating more time for patient care
– Increased compliance with recommended safety standards

Financial
– Improved charge capture and procedure cost management
– Increased product standardization and supply consolidation
– Improved inventory management
– Decreased waste
– Labor savings

Operational
– Streamlined supply chain process
– Increased productivity in ordering, receiving, stocking, and case pick
– Faster OR set-up and turnaround time
– Fewer product returns
Supply Consolidation Benefits

Inventory Benefits

• Manages high volume commodity supplies
• Becomes platform for standardization
• Helps reduce inventory levels of commodity supplies
• Reduces touch points for ordering, stocking, dispensing, opening, and charging for supplies
• Less time to pick cases
• Improves staff morale
Supply Consolidation Benefits

Clinical

- Reduced time to open supplies for procedure
- Helps maintain sterile field integrity
- Improves case pick accuracy
- Enhances charge capture; less documentation
- Improves staff morale
- Streamlines preference cards
Supply Chain Solution Process

Proven, 4-step process to help you develop, implement and manage your procedure pack program

<table>
<thead>
<tr>
<th>Assess</th>
<th>Design</th>
<th>Deliver</th>
<th>Measure &amp; Adapt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluate your procedural supply chain</td>
<td>Design kit solution to your requirements and organizational goals</td>
<td>Provide onsite support for a smooth implementation and then provide ongoing assistance</td>
<td>Monitor your program and modify it as necessary to achieve continuous improvement</td>
</tr>
</tbody>
</table>
Supply Chain / Preference Cards Relationship

- Preference Cards...
  - Provide the foundation for managing daily activities
  - Provide Data for identifying cost per procedure
  - Are the basis for business, financial, and operational decisions

Procedure selection and Patient Record
Case Cart assembly instructions
Patient Bill / Revenue Capture
Statistical Gathering
Benefits of Maintaining Accurate Preference Cards

- **Enhanced Patient Care**
  - Improved accuracy
    - Case pick
    - Cost/charge identification
    - Statistical data

- Improved staff satisfaction

- Reduction in case pick labor for picking & returns

- Reduction in product waste

- Identification of disposable supply costs

- Improvement in reporting capabilities

- Improved data management

- Platform for standardization
  - Product
  - Physician
  - System
How It Comes Together

Components of the OR case cart

- Procedure
- Preference Card
- Pick List
- Implants
- Instruments
- Custom packs
- Hold items
- Loose supplies
- Physician preference items

= total surgical supply needs
“Outside” Inventory Management

Improve service to areas
- Improve your clinical satisfaction
- Accommodate clinical fluctuation with flexible, demand-driven replenishment

Lower your cost of (internal) distribution
- Align supply chain expenses with clinical demand activity
- Reduce time and labor associated with inventory, ordering and stock outs
- Reduce processing costs

Improve efficiency and sustainability
- Improve product availability at the point-of-use
- Improve space utilization and capacity
- Eliminate excessive inventory and expired product

Ultimately, allow clinicians to focus on what they do best – serve the patients instead of the supply chain.
Stabilizing the inventory environment

• Optimize Inventory
  • Provide Par level recommendations based on electronic ordering history and current demand usage patterns – allowing you to proactively manage stockouts, obsolete inventory and weekly delivery cycles

• Create the control infrastructure
  • Establish demand signals (ROPs) to trigger procurement and refill labor activities

• Maintain the control structure
  • Provide inventory management specialists to maintain the inventory
  • Optimize storage locations
Levels of Engagement

**Level 1**
- Physical inventory count and validation of products
- Review of purchasing and internal distribution logistics
- Inventory “right-sizing” opportunity report
- Clinical PAR level validation
- Product return and excess product removal

**Level 2**
- All of the benefits of Level 1, plus:
  - On-site Logistics Specialist
    - Management of PAR locations
    - Assist with non-PAR location
    - Backorder resolution
    - Monitor changes and trends

**Level 3**
- Implementation of process changes (bin locations, product reorganization and shelf labels)
- Monthly and quarterly reports and analytics
## Inventory control impacts your bottom line

<table>
<thead>
<tr>
<th>Cost Containment</th>
<th>Supply Chain Efficiencies</th>
<th>Customer Satisfaction</th>
<th>Data Capture and Management</th>
</tr>
</thead>
</table>
| • Improve cash flow timeline inventory reduction average 17 - 24 percent)  
• Improve inventory turns  
• Eliminate expired product | • Improve product availability  
• Control par delivery costs  
• Optimize department storage space and ergonomics | • Reduce clinical handling of supplies  
• Eliminate expired product  
• Improve clinical satisfaction | |
Overview of deliverables and outcomes

Management of inventory
- Initial count
- Logistics plan
- A,B,C,D analysis
- Par assessment
- Unique ongoing / perpetual inventory process

Savings commitment
- Short term
  - Inventory buyback
  - Inventory bleed-down
- Long term
  - Increased inventory turns
  - Managed purchases

Accountability and program assessment
- On-site personnel (Level 2 and 3)
- Monthly reporting, tracking and trending
- Qualitative, quantitative and subjective results
Success story

Level 1

Inventory reduction:
Credits/Returns: 3.6% of spend
Bleed down 4.1%
Total reduction: 7.7% of spend

Level 2

Inventory reduction:
Credits/Returns: 4.7% of spend
Bleed down 19.1%
Total reduction: 23.8% of spend

Level 3
Challenges…

- Case Cancellations
- Effective management of expirations
- Utilization data on Physician Pref Card
- Clinicians time on Supply Chain activities
- Lack of integration with disparate systems
- Challenges managing Consigned and Bill Only Items
- Manual Case Pick and Case Returns
- Managing Recalls and mitigating risks due to recalls
- Room Turnover
From This....

- Many sub-processes; not always sequential; many alternative pathways for supply flows

**Materials Management Information System**

- No or Limited Functionality; on Desktops only

- No or limited interfaces between MMIS and other key systems

- Item Master
- ADT System
- OR System
- Billing System

.........To:
A Technology that fills the gaps to fully automate the supply chain

Value Analysis & Product Selection

Value Analysis & Product Selection

Contract

Order

Receive

Put Away

Pick

Deliver

Use

Charge Capture

Pay

Information to Drive Results

Materials Management Information System

Supply Chain Automation Technology

Interfaces with MMIS and other key systems

Item Master

ADT System

OR System

Billing System

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CASE CART PICKING PROCESS AUTOMATION

Pref Cards defined in ORIS

Case Scheduled in ORIS

Daily refresh of Pref Card information

Pref Card Information Stored in a DB

Download Case Pick List to a HHT

Pick Supplies

Case Cart Sent to OR

Download the Scheduler

Case Schedule stored in a DB
CASE CART RETURN PROCESS AUTOMATION

1. Begin Case
2. Place return items/instruments on the cart
3. Case Cart Staged for Return
4. Record Consumption
5. Develop Utilization Reports to optimize Physician Preference Cards
6. Capture utilization in OR
7. Close Case
8. Download the Case to return on a device
9. Scan the items to return
Technology – Only a means to an end

When Technology helps optimize supply chain

- Doctors, Nurses and Techs have what they need, when and where they need it, every time, to deliver patient care.

**AVOID:**

- Stock outs
- Delays
- Cancellations
- Time wasted tracking down needed items
- Substitution of the preferred supply
- Expired or recalled items used

- Clinical and Administrative Leaders have timely and actionable information needed to manage the quality and cost of care

- Hospital realizes significant financial benefits
  - Reduce spend
  - Avoid costs of obsolete and expired supplies
  - Reduce inventory
  - Incremental revenue from improved charge capture
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Thank you!