A Journey

Making The Hospital A Safer Place

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Frank Kilzer

Vice President of Material and Facility Resources St. Alexius Medical Center Bismarck, North Dakota

GS1 global Healthcare User Group – GS1 HUG June 8, 2007 Orlando, Florida

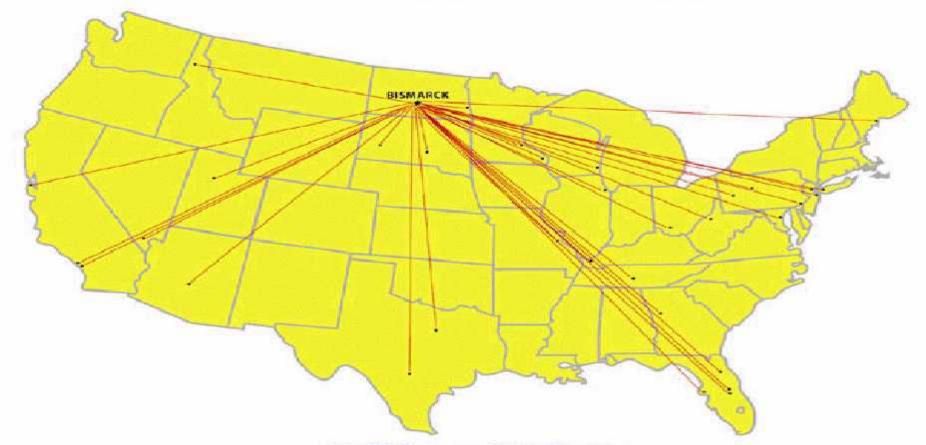
St. Alexius Medical Center Campus



Consolidated Distribution Center



UNITED STATES



36 Cities and 24 States

Phoenix, Arizona Los Angeles, California Orange, California San Francisco, California De Land, Florida Orlando, Florida Tampa, Florida Winter Park, Florida Atlanta, Georgia Coeur d' Alene, Idaho Chicago, Illinois Paducah, Kentucky Belfast, Maine Baltimore, Maryland Minneapolis, Minnesota Winoma, Minnesota St. Louis, Missouri Las Vegas, Nevada Newark, New Jersey New Brunswick, New Jersey New York City, New York Bismarck, North Dakota Fargo, North Dakota Dayton, Ohio

Philadelphia, Pennsylvania Pittsburgh, Pennsylvania State College, Pennsylvania Chamberlain, South Dakota

Cincinnati, Ohio

Chamberlain, South Dakota Rapid City, South Dakota Nashville, Tennessee Dallas, Texas San Antonio, Texas Salt Lake City, Utah Morgantown, West Virginia Milwaukee, Wisconsin



9 Foreign Countries and 11 Cities

Toronto, Canada Santo Domingo, Dominican Republic Bogota, Columbia South America Lima, Peru Bangkok, Thailand Dubia, United Arab Emirates

Halifax, Nova Scotia Medellin, Columbia South America Cali, Columbia South America Singapore, Southeast Asia Sydney, Australia

Presentation Overview

- Share the St. Alexius Story - our journey
- Talk about the current status of the health industry supply chain.
- Identify its deficiencies and the changes that are needed
- Provide examples for Auto ID technology and how it can be used to improve patient safety
- Present a vision for what the health care supply chain model of the future should look like

Outcome For Today

- Gain a better understanding of how industry standards and Auto ID technology can be help make hospitals safer
- From the St. Alexius journey over the past three decades I want to share what I believe is the health care supply chain model of the future and how this model will increase operational efficiencies, reduce the cost of healthcare and improve patient safety.

Expanded Role of the Health Industry's Supply Chain

- Meeting the JCAHO Patient Safety Goals
- Improving quality of patient care
- Traceability Critical to the industry especially with FDA
- Controlling utilization
- Reducing cost

- 1968 Centralized Purchasing Operation
- 1969 First Electronic Order to Vender
- 1972 Off-Site Distribution Warehouse
- 1975 Bar Code Strategy
- 1976 MMIS Main Frame Developed Proprietary UPN
- 1984 First EDI Order Computer to Computer
- 1985 Implement Proprietary Bar Code System Med/Surg
- 1987 Implement Pharmacy Bar Code System
- 1993 Successfully Implemented a Bedside Scanning Demonstration Project with HIBCC

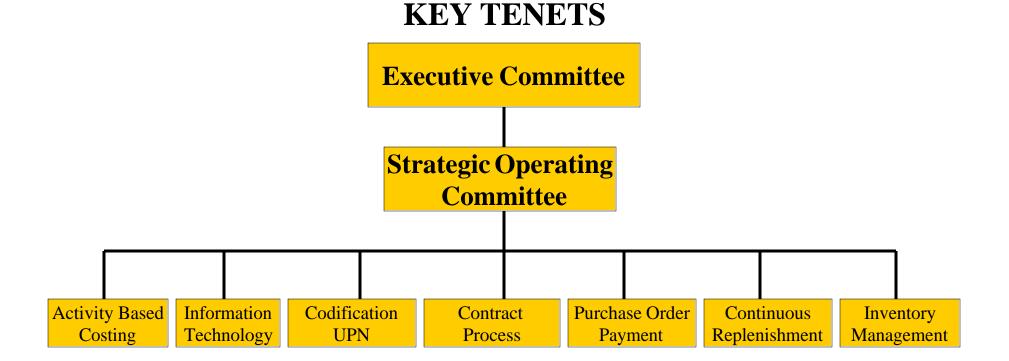
- May 1994 Implemented Scanning Bar Codes at Receiving Dock
- July 1995 Integrated Universal Product Number (UPN) into MMIS
- Nov 1995 Expanded 18-Bed Demonstration Project
- Dec 1996 Served as Pilot Site for Developing UPN Repository
- Mar 1997 Implemented RF Scanning at the Receiving
 Dock
- 1997– Present Educating all Health Industry Stakeholders Through Organizations like U Connect and other Associations

- 2001 2002 Pilot Site with GS1 USA to Field Test the RSS (Alcon, Abbott, Baxter and Pfizer Labs)
- Jun 2004 Implemented scanning of the Bar Coded Patient Wrist Bands (using linear bar codes)
- Aug 2004 Requested our IT staff to Create Tracking Capabilities to Monitor Scanning Process at the Patient Bedside
- Dec 2005 Installed Bar Code Printers at Nursing Stations to Print Replacement Wrist Bands When Necessary (No excuses)
- Feb 2005 Developed Corporate Goal to Achieve 95% Compliance with Scanning Wrist Bands When Medications are Administered

- July 2005 Budgeted to transition from main frame based to windows based (Caduceus Systems) MMIS
- Aug 2005 Completed a feasibility study for an MMIS to link the supply chains of 27 rural hospitals and nursing homes using a state-of-the-art MMIS with wireless technology and real time data capture technology
- Feb 2006 Met with congressional leadership to explore grant funding opportunities
- Mar 2006 Continue to pursue \$3 million in grant funds
- Apr 2007 Began implementation of the Caduceus Systems Materials Management Information System

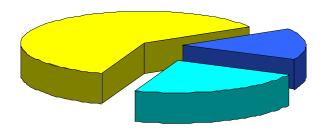
EHCR--An industry-wide initiative of manufacturers, distributors and providers focused on streamlining the healthcare products supply chain

Efficient Healthcare Consumer Response Initiative



EHCR Strategies \$11 Billion Savings Opportunity

- Efficient Product Movement \$6.7 Billion
- Efficient Order Management \$1.7 Billion
- Efficient Information Sharing \$2.6 Billion



- **Efficient Product Movement**
- Efficient Order Management
- Efficient Information Sharing

EHCR Vision Goals

- Increase Electronic Transactions by 95%
- Improve Invoice Accuracy to 100%
- Become Paperless with 90% of Trading Partners
- Reduce Inventory in the Supply Chain by 80%
- Eliminate 50% of Product Stop Points
- Improve Service Levels/Fill Rates to 99%
- Reduce Materials Handling Staff by 50%
- Optimize the Receiving Function

What EHCR Missed

- Industry was focused on increasing the efficiency of the supply chain
- Reducing the cost of healthcare
- No reference to improving the safety of patients

How The Industry Is Changing

- Throughout the1960s, 1970s, 1980s and 1990s the use of technology in patient care was increasing
 - Implantable devices became a routine part of the supply chain
 - These devices had a life cycle of 5 to 6 years
 - Tracking implanted devices was a manual process
- With the 21st came a rapid increase the use of technology for patient care, the devices became more complex and there has been a significant increase in the cost
 - Pacemakers expanded to AICDs
 - Lithium battery technology extended the life cycle
 - Not uncommon for patients to receive an implant device with a 15 year life cycle

Joint Commission on Accreditation of Healthcare Organizations

2005 Patient Safety Goals



- Improve the accuracy of patient identification.
- Improve the effectiveness among care givers.
- Improve the safety of using high-alert medications.
- Eliminate wrong site, wrong patient, wrong procedure surgery.
- Improve the safety of using infusion pumps.
- Improve the effectiveness of clinical alarm systems.
- Reduce the risk of healthcare acquired infections.

U.S. Food and Drug Administration Launches New Program

The Center for Devices and Radiological Health's Postmarket Transformation Initiative will better protect the public health by allowing the FDA to identify, analyze and act on problems more quickly, including alerting the public sooner of potential medical device issues.

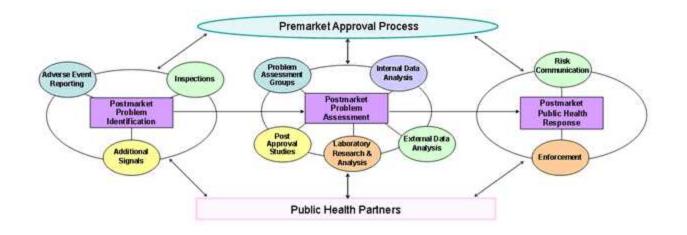
"Over the next decade, medical technology innovations will fundamentally transform the health care and delivery system, providing new solutions with medical devices that will challenge existing paradigms and revolutionize the way treatments are delivered," said Scott Gottlieb, FDA's Deputy Commissioner for Medical and Scientific Affairs.

www.fda.gov/cdrh/postmarket/mdpi.html

Source: HPN Daily Update – January 24, 2006

Center For Devices and Radiological Health Food and Drug Administration

Post Market Tracking of Medical Devices



College of American Pathologists CAP Today; May 2005

Question: Do checklist items TRM.3241 and TRM.31375 apply to blood filters and administration sets even if a department other than the laboratory is responsible for distributing and using these materials? For documenting the inspection and testing of materials like this, would it be sufficient to indicate that the correct stock number was received? For ongoing tracking, would it be sufficient to document the receipt of a shipment of a certain lot number and then document the use of that lot number per patient? Furthermore, how long would these records need to be retained?

Answer: A critical material is considered a good or supply used in the collection, preservation, storage, testing, or transfusion of blood components that directly affect quality or patient safety. Some examples of critical materials include reagents used for pre-transfusion testing or filters and administration sets issued by the laboratory for blood transfusion. For situations where inventory and use of critical materials bypasses the lab, the lab should have an agreement with those areas outlining the responsibility for inventory control. In addition to indicating that a correct stock number was received, a physical inspection of materials should be performed, as well as testing, if applicable, to document acceptance of receipt of new lots. The College requires that records relating to quality control be retained for five years.

Top 6 Failures in Supply Chain Management

- Failure to understand the health industry supply chain from manufacturing to the patient bedside
- Failure to understand how the health industry supply chain can improve patient safety and streamline business processes
- Failure to develop and articulate an enterprise- wide vision for supply chain management activities
- Failure to maximize the use of technology to develop a decision support system, resulting in a data rich, but information poor environment
- Failure to position the Materials Management Department as a strategic asset, acting as pro-active facilitators rather than mere functionaries
- Failure to become a clinical influencer to understand and help modify clinical supply consumption patterns

Materials Management Information System MMIS

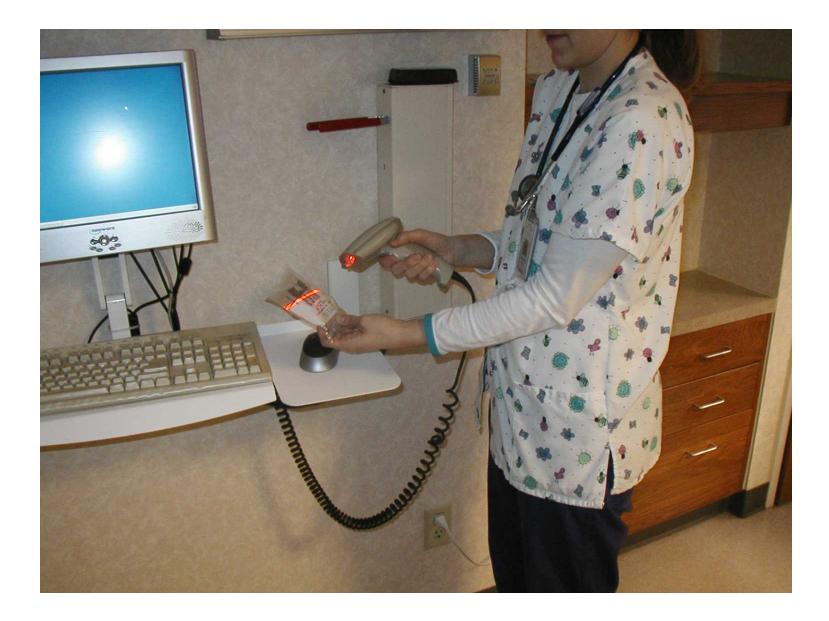
- Internally developed
- Caduceus Systems
- Cerner
- Dairyland
- ESI
- Infinium
- Keene

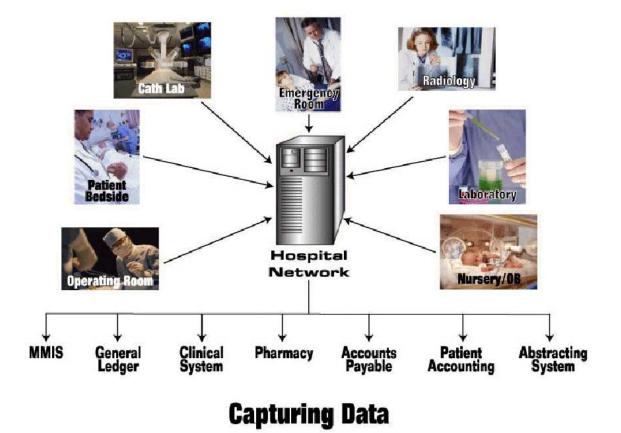
- Lawson
- McKesson
- Meditech
- Oracle
- PeopleSoft
- Other





Scanning Medications in Patient Room





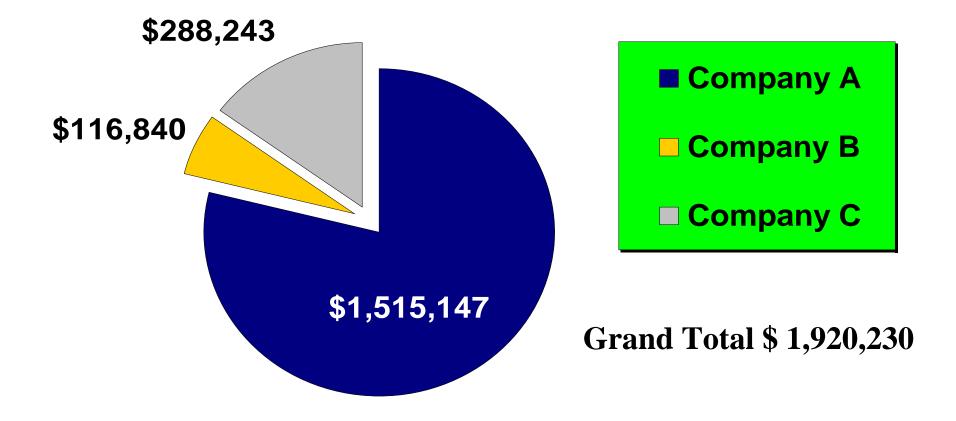
Capture Data and Generate Reports (ACM & FBI) to Manage Supply and Implant Costs

- Identify total spend by vendor
- Track consumption by department
- Sort cost by surgeon
- Determine total cost & charge by DRG/Procedure
- Consider direct and indirect costs
- Analyze reimbursement Net revenue
- Involve GPO
- Test supply costs against industry benchmarks

Reimbursement History

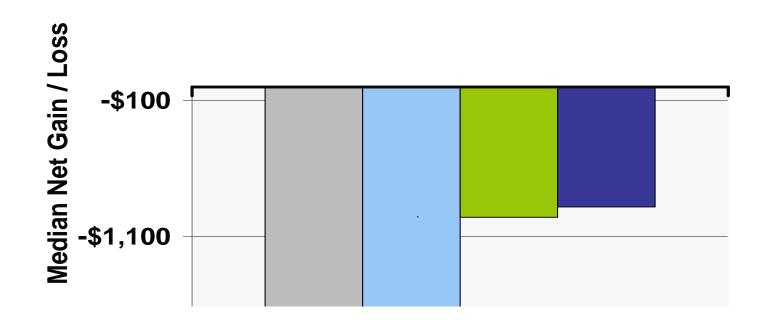
- Analyze payer mix
- Assess profitability by product line
 - Orthopedics
 - Neurosurgery Spine
 - Cardiology
- Determine profitability of each physician
- Identify reimbursement for every patient
- Pursue opportunities to reduce costs

St. Alexius Ortho Primary TK and TH Annual Dollar Spend by Company



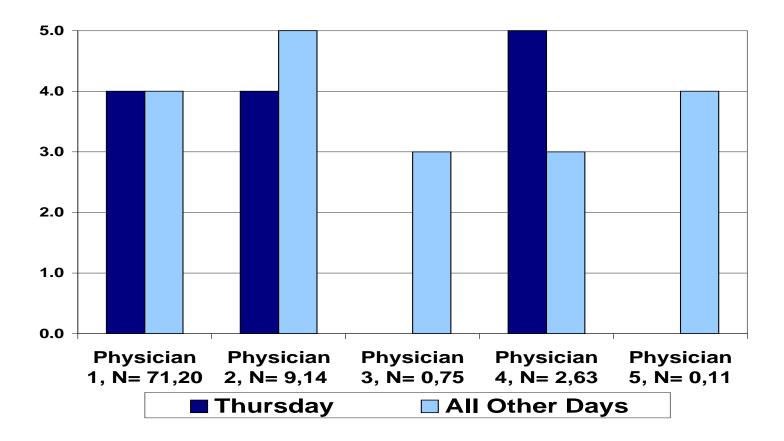
Total Knee DRG 209 Median Net Gain/Loss Annual Volume – Prospective Payment System

Surgeon

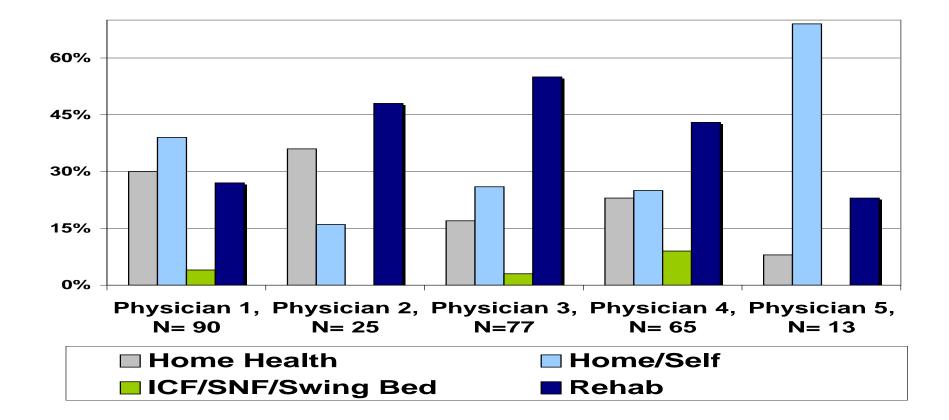


Total Knee DRG 209 Thursday vs. All Other Days by Physician

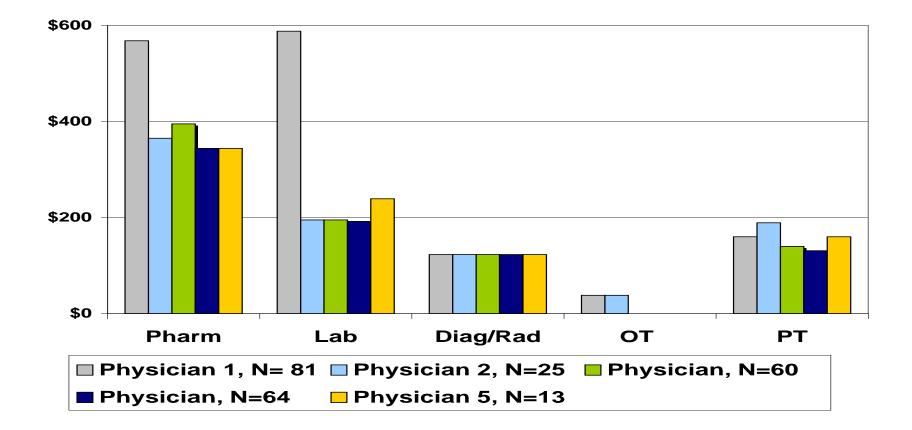
Annual Volume



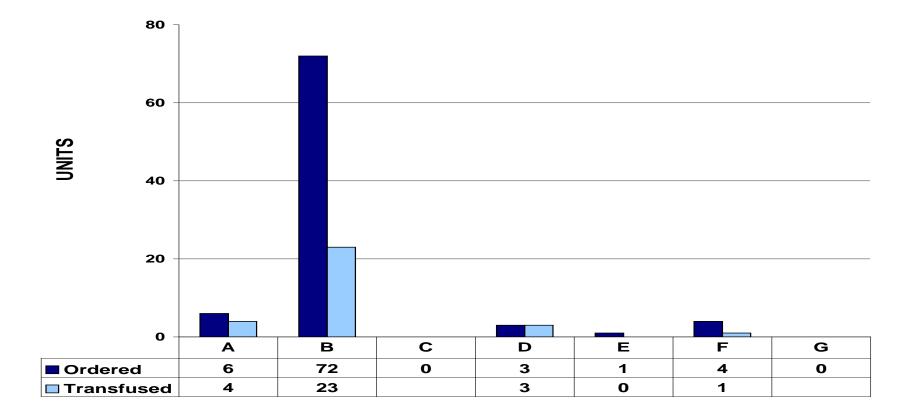
Total Knee DRG 209 Discharge by Physician Annual Volume



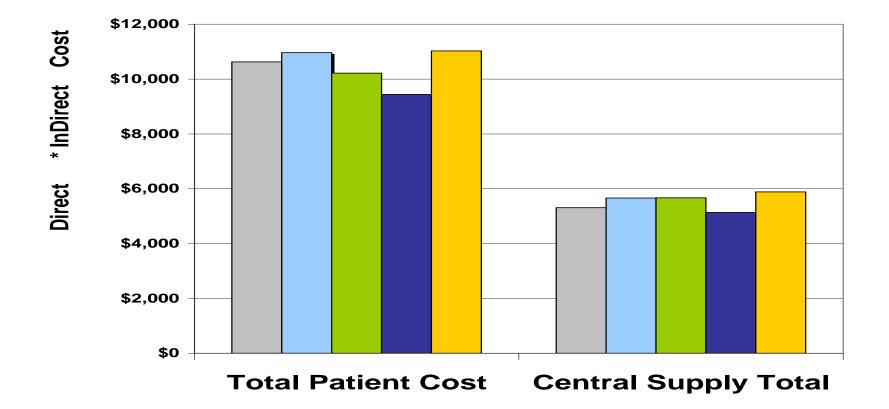
Total Knee DRG 209 Median Costs by Physician Annual Volume



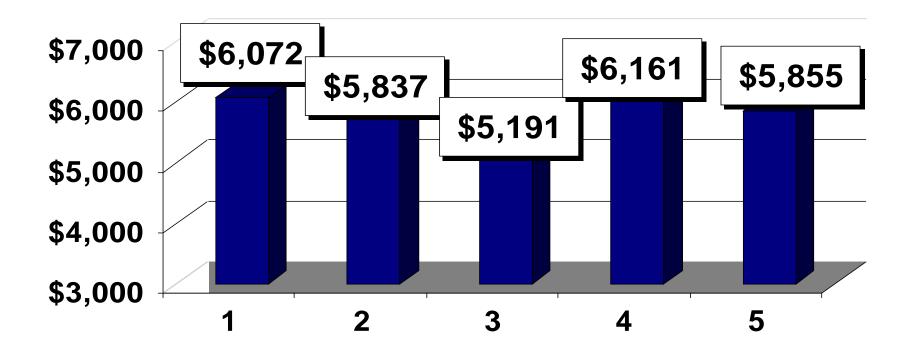
Autologous Blood Use by Orthopedic Surgeon Annual Volume



Total Knee DRG 209 Median Costs by Physician Annual Volume

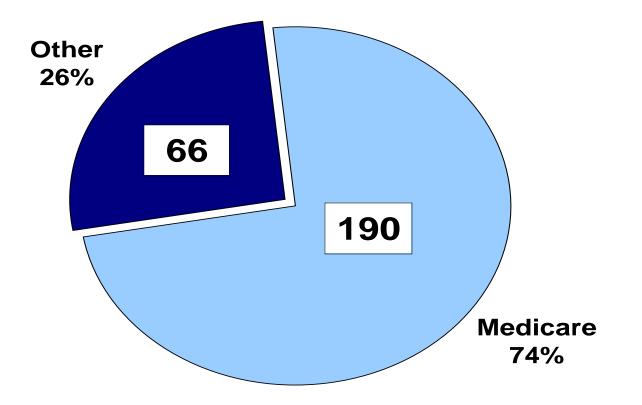


Average Implant Cost Total Knee by Physician Baseline \$5,419 for 243 patients

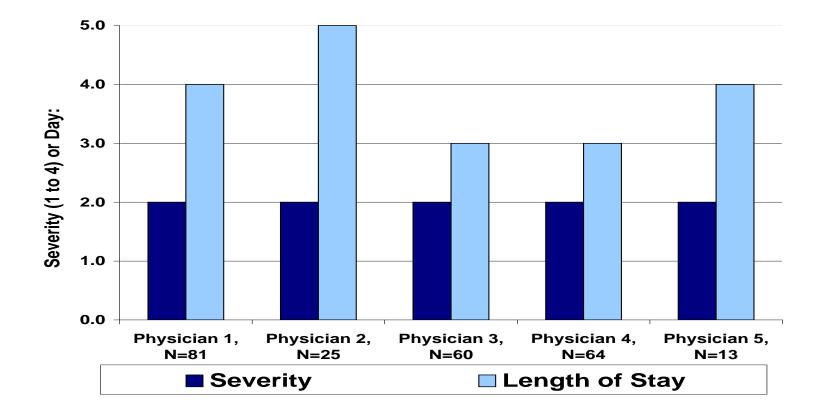


Physicians

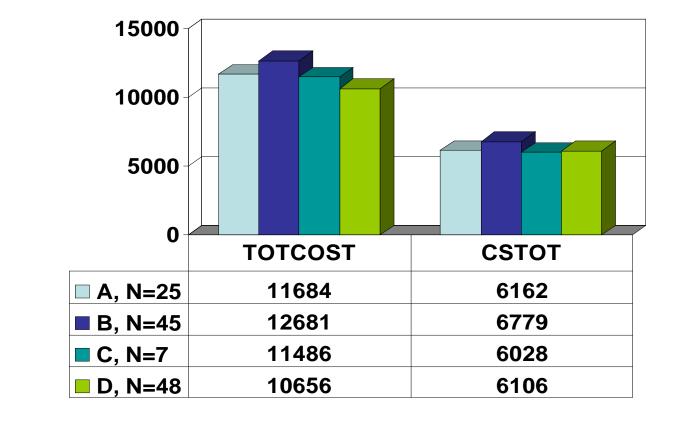
Total Knee DRG 209 Payer Mix Annual Volume



Total Knee DRG 209 Median Severity and Length of Stay by Physician Annual Volume

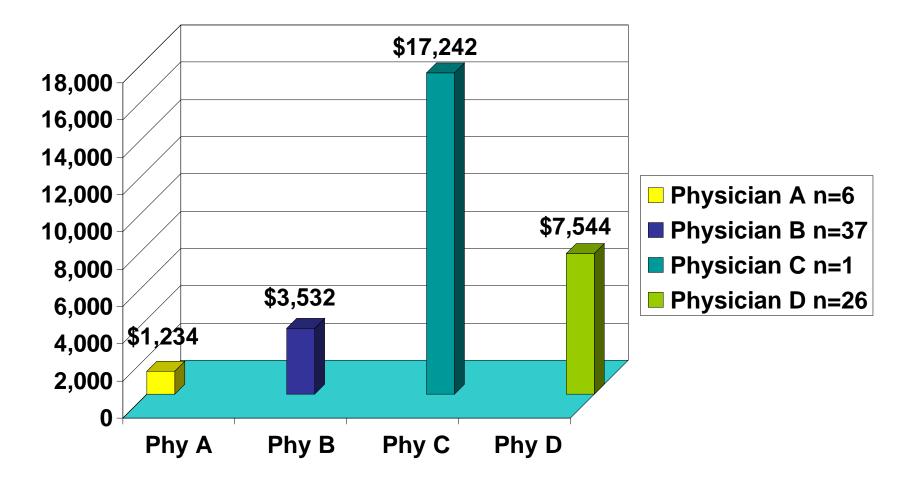


Total Hip DRG 209 Proc 8151 Median Costs by MD Annual Volume

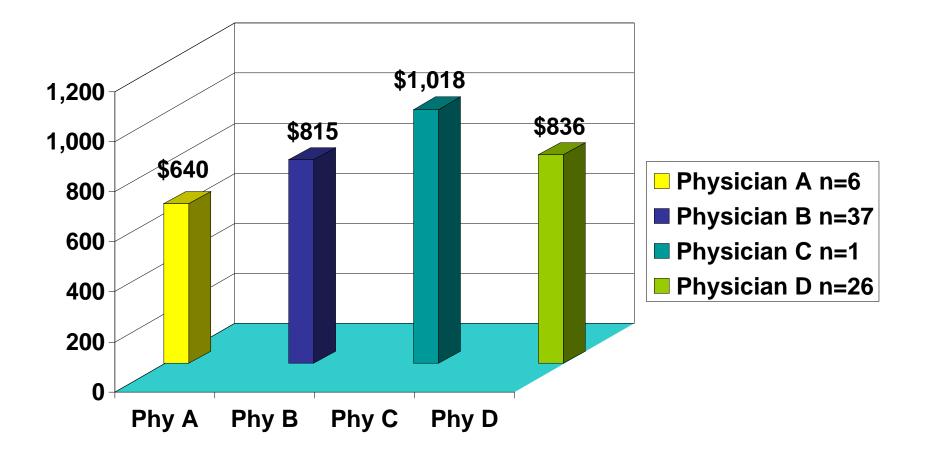


Direct + Indirect Cost

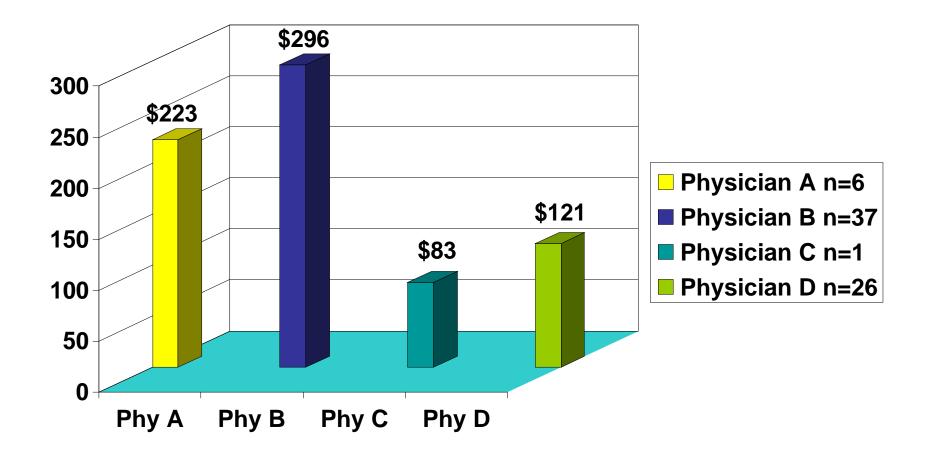
DRG 497 Spinal fusion with complications Supply/Implant Costs January 1, 2006 thru November 17, 2006



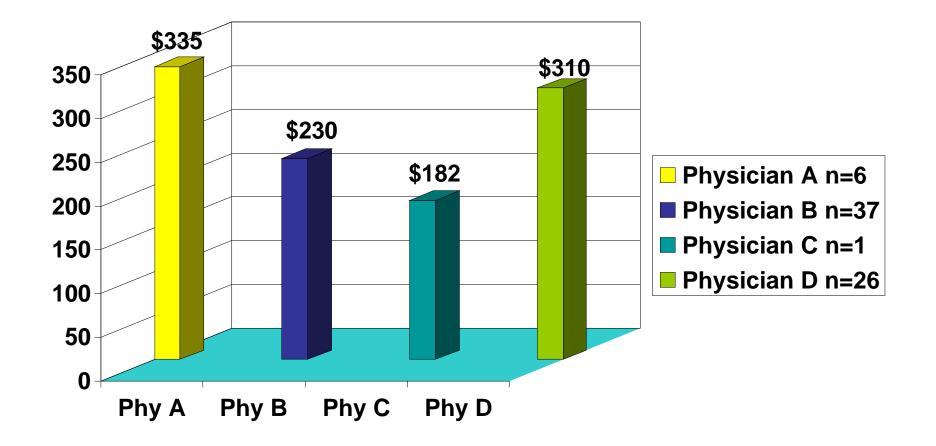
DRG 497 Spinal fusion with complications Pharmacy Costs January 1, 2006 thru November 17, 2006



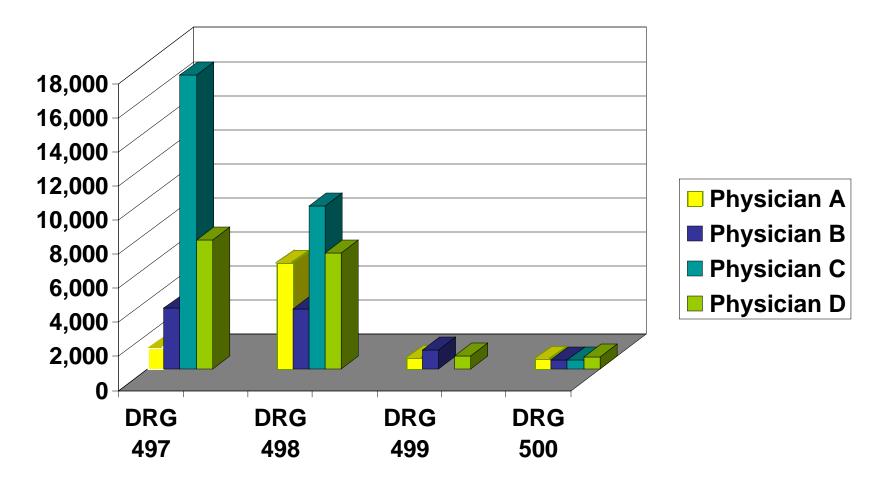
DRG 497 Spinal fusion with complications Laboratory Costs January 1, 2006 thru November 17, 2006



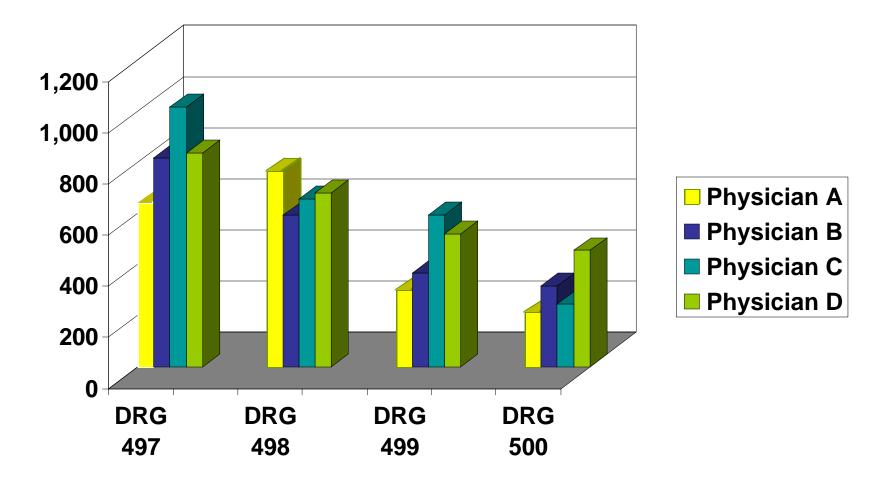
DRG 497 Spinal fusion with complications Radiology Costs January 1, 2006 thru November 17, 2006



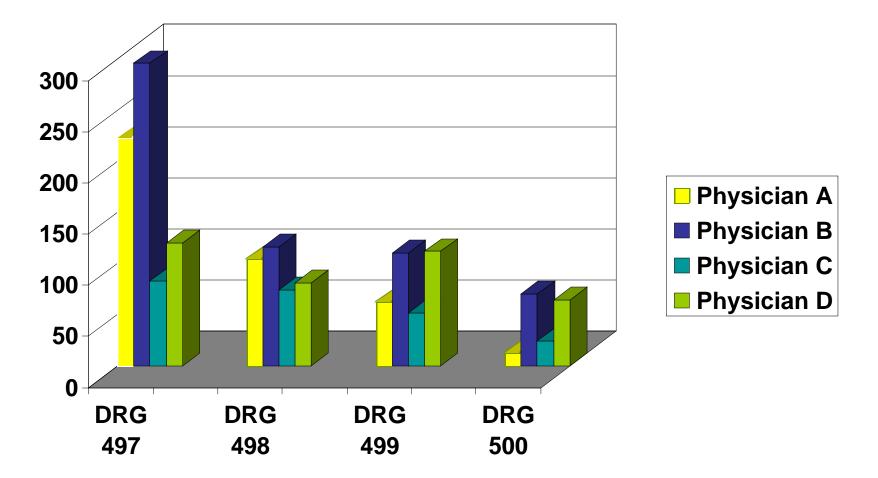
Spine Procedures – DRG 497, 498, 499, 500 Average Supply Cost Per Case January 1, 2006 thru November 17, 2006



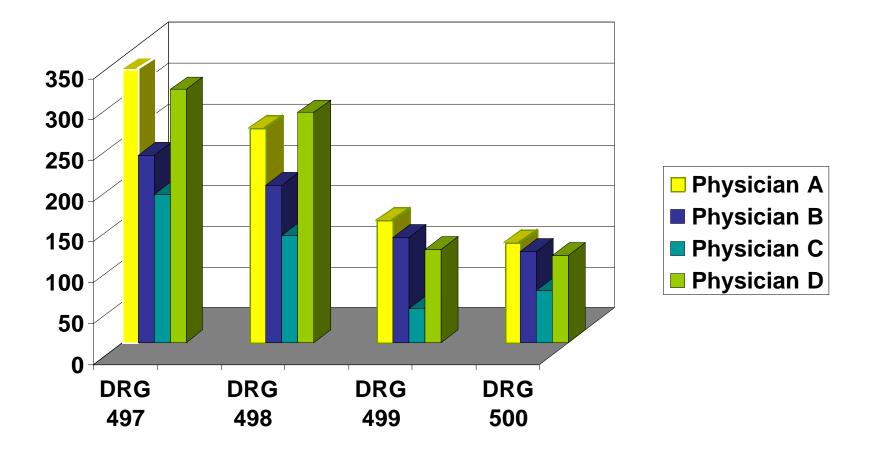
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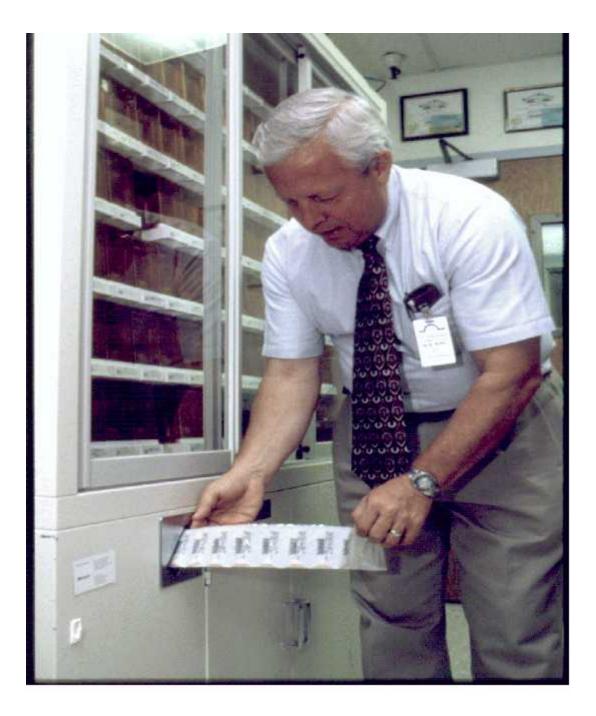


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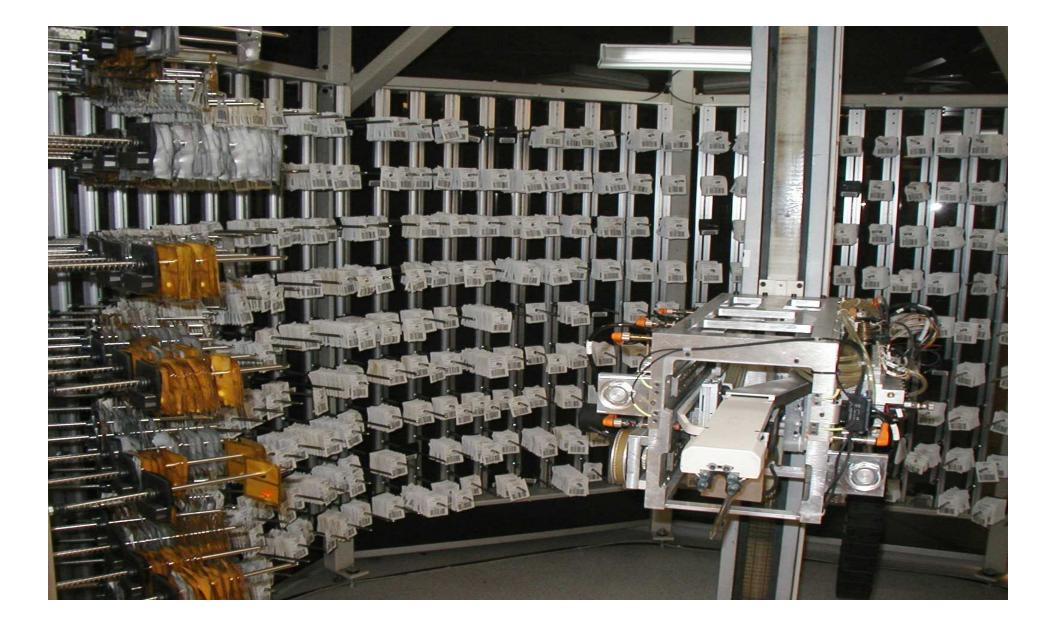
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State-Of-The-Art Robotics Dispensing System

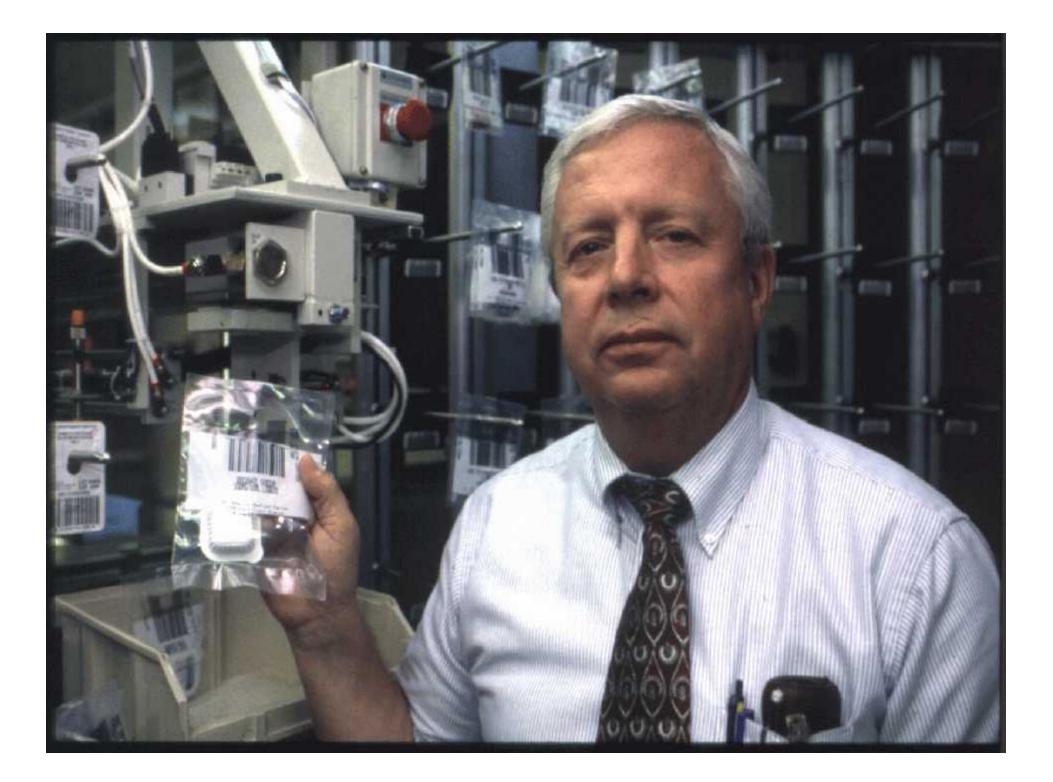


Automated Robotics Loading Rack

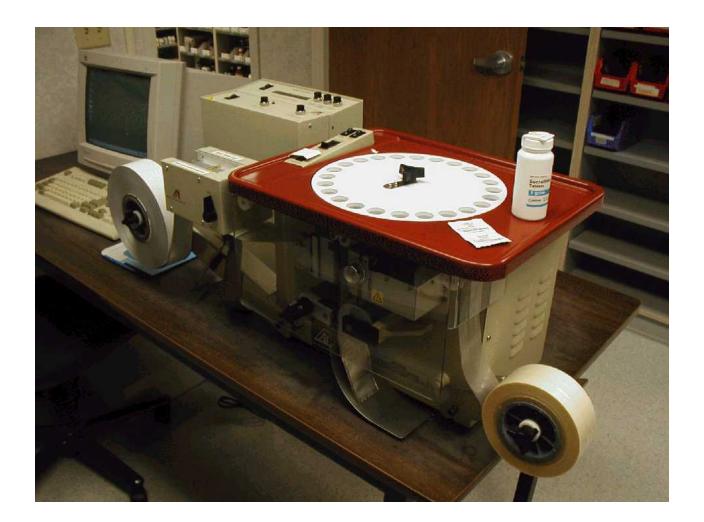


State-Of-The-Art Robotics Dispensing System





Automated Bar Code Packaging System













Parata Robot

- 235 highest volume tablets and capsules
- Bar code on vial to prevent filling incorrectly
- Scan bin / Scan vial Robot accurately dispenses medication

Product Labeling Variations





Bar Coded at Box Level / Not at Unit Dose Level

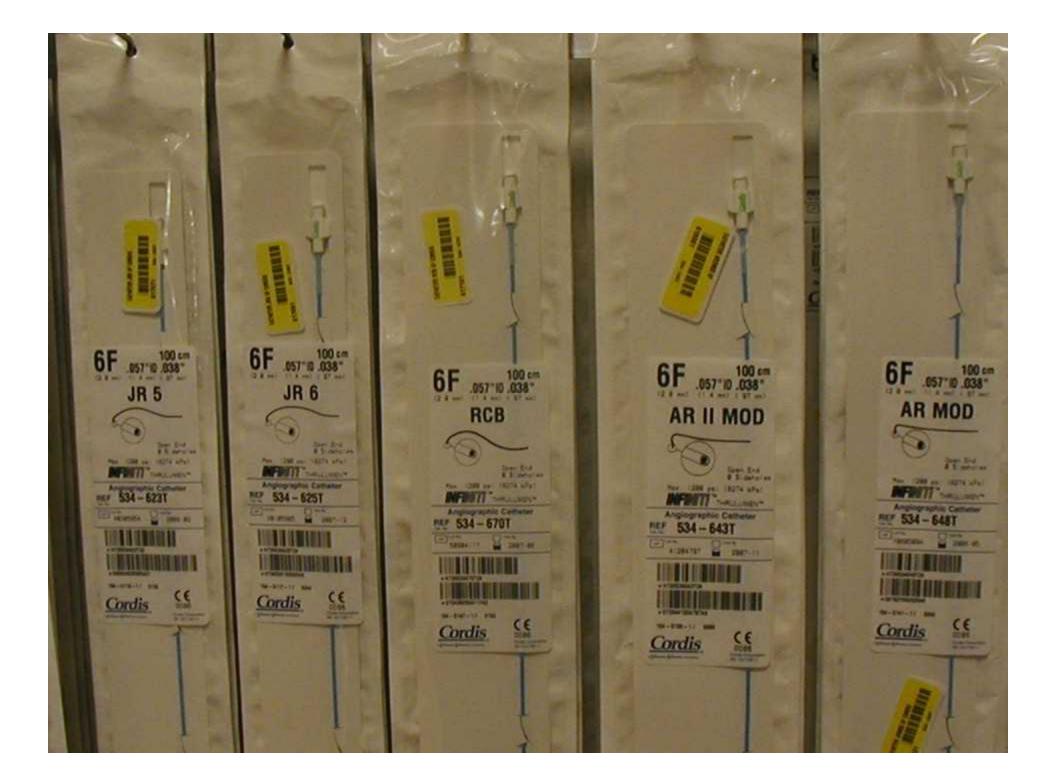


Proprietary Labels



Proprietary Labels / Packaging Issue







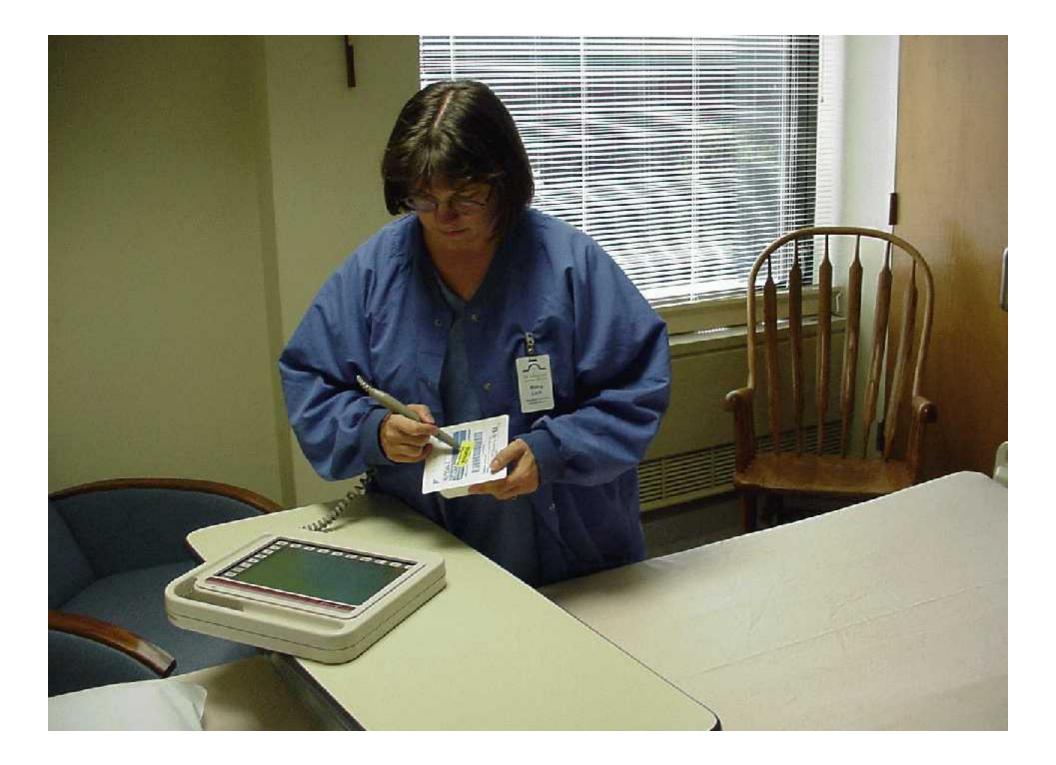








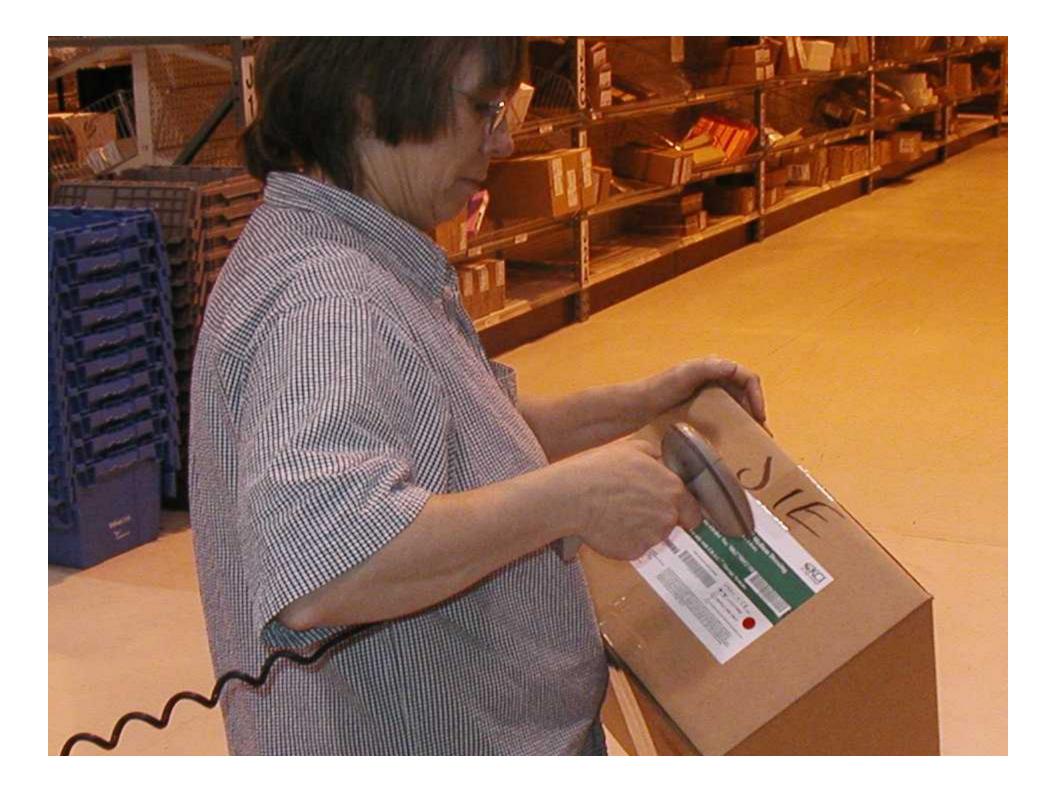














Capture Data and Generate Reports (ACM & FBI) to Manage Supply and Implant Costs

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- Consider direct and indirect costs
- Analyze reimbursement Net revenue
- Involve GPO
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Focus on Cost and Reimbursement History

- Analyze payer mix
- Assess profitability by product line
 - Orthopedics
 - Neurosurgery Spine
 - Cardiology
- Determine profitability of each physician
- Identify reimbursement for every patient
- Pursue opportunities to reduce costs

Today's reasons for why standards and technology are needed

- Improve the safety and quality of patient care
- Eliminate Risk and Save lives
- Monitor the Quality of Care patients receive
- Control Medication and Supply Utilization
- Identify Cost to Every Episode of Care
- Compare Cost to Outcome
- Reduce the Cost of Health Care
- Manage Inventories (device costs are increasin
- Access to More Data
- Strive to Achieve the EHCR Vision Goals



What's Wrong With The Health Industry's Supply Chain?





- Automatic Identification Technologies (bar coding and RFID) are not used to their full potential.
- Capturing data at point-ofuse offers great potential to improve business processes.
- Providers have "dirty" data in their master files.
- Data is not synchronized between trading partners.

What's Wrong With The Health Industry's Supply Chain?





- Item master file and charge master file are not integrated.
- Manual systems and processes are unable to efficiently handle the constant change that occurs with supplies and pharmaceuticals.
- Implantable devices and medical equipment are not bar coded.

ENABLING TECHNOLOGY BENEFITS

- Quality of Patient Care
- Resource Utilization
- -Staffing
 -Medications & Supplies
 -Facilities
- Financial Performance
- Supply Chain and Benchmarking

 Staff Productivity
 Medication and Supply Utilization and Costs

QUALITY OF PATIENT CARE BENEFITS

- Nurses have more time to spend with patients
- Nurses are no longer involved in supply logistics
- They play a vital role in managing supply costs and there are no cumbersome processes
- Patient services aren't delayed
- Risk Management is improved Medication errors reduced
- Length of stay reduced
- Patient outcomes linked to cost
- Staff morale is improved

RESOURCE UTILIZATION BENEFITS

- Professional staff not involved in supply logistics
- Supply distribution tasks assigned to appropriate job classification
- Redundant manual tasks eliminated
- - 7 FTEs transitioned to other responsibilities
- Benchmarks established to measure performance
- Work activity tied to staff productivity
- Improved employee morale

RESOURCE UTILIZATION BENEFITS

- Track medication and supply expense and consumption data for patient, department and par location
- Reduce inventories
- Reduce labor costs
- Eliminate product outdates
- Fewer supplies require less space

SUPPLY CHAIN EFFICIENCY BENEFITS

- Increased productivity of receiving staff
 - -Performed more work with less staff
 - -Improved service levels from off-site warehouse
 - -Decreased receiving errors
 - -Provided greater flexibility in receiving process with RF technology
- Increased access to more data without additional staff
- Improved management reports
- Eliminated manual keyboarding and manual charting of medical record
- Access to inventory values at every nurses station

SUPPLY CHAIN EFFICIENCY BENEFITS

- Automated supply utilization/cost data capture process
- Streamlined supply distribution
 - -Decreased par stock locations
 - -Reduced number of restock times to par locations
 - -Reduced number of items in each par location
 - -Reduced stat calls by 75%
 - -Improved fill rates to over 98%
- Eliminated staff time spent justifying bundled supply charges to third party payors (Workers Comp)

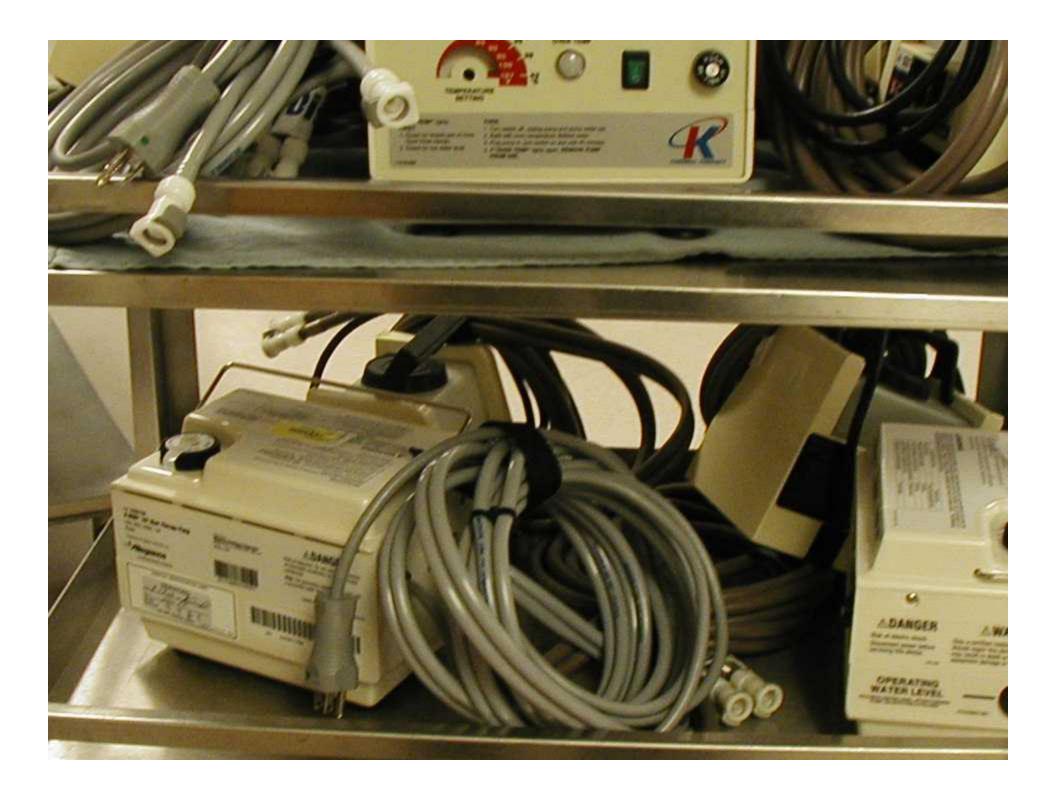
FINANCIAL PERFORMANCE BENEFITS

- Improved cash flow
- -Reduced accounts receivable 3 4 days
 -Decreased accounts payable cycle time
 -Managed invoice terms discounts
- Reduced inventory by \$2.4 million
- Converted inventory to cash
- Increased perpetual inventory turn ration to 14.5 turns
- Reduced medication and supply costs
 - -Track medication and supply utilization/cost to every patient
 - -Track medication and supply utilization/cost to every physician





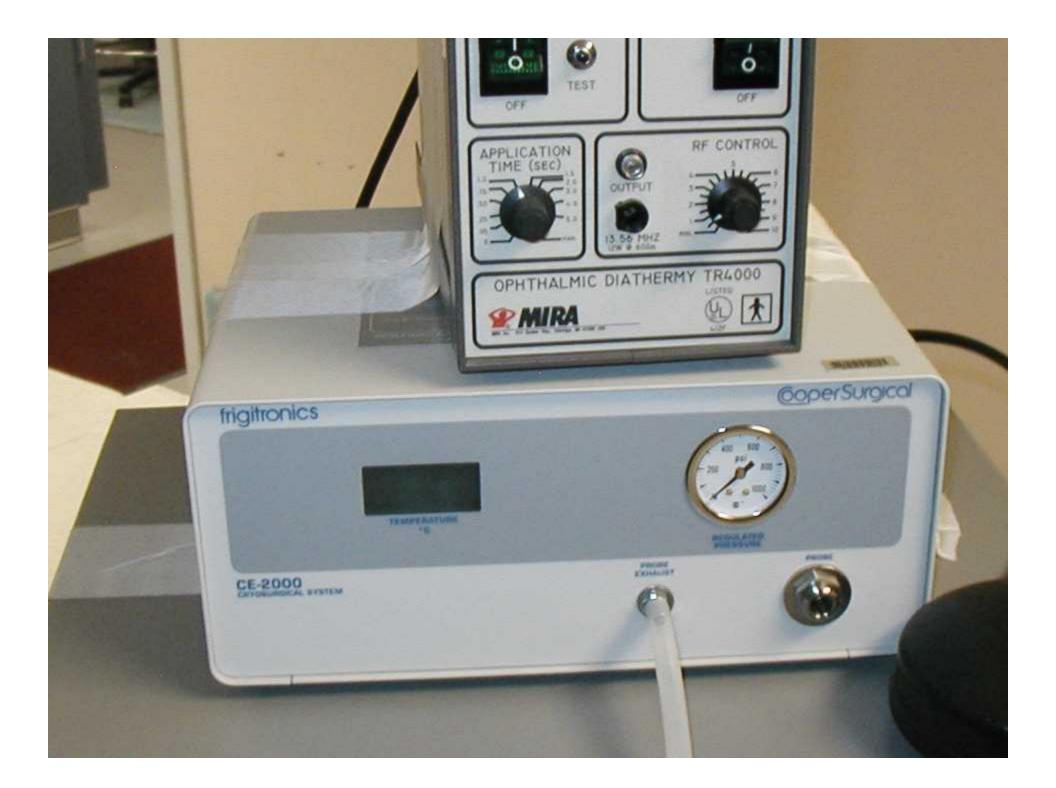




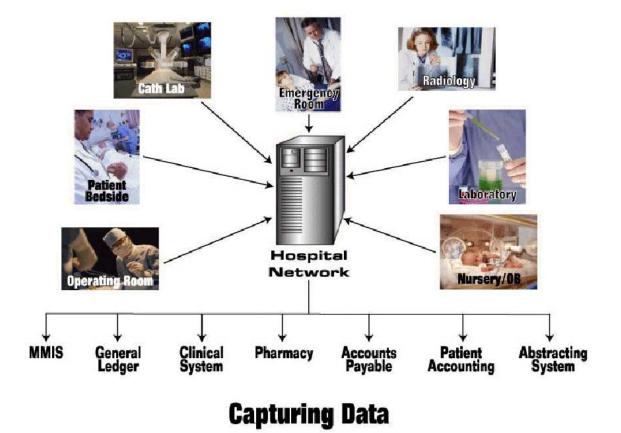




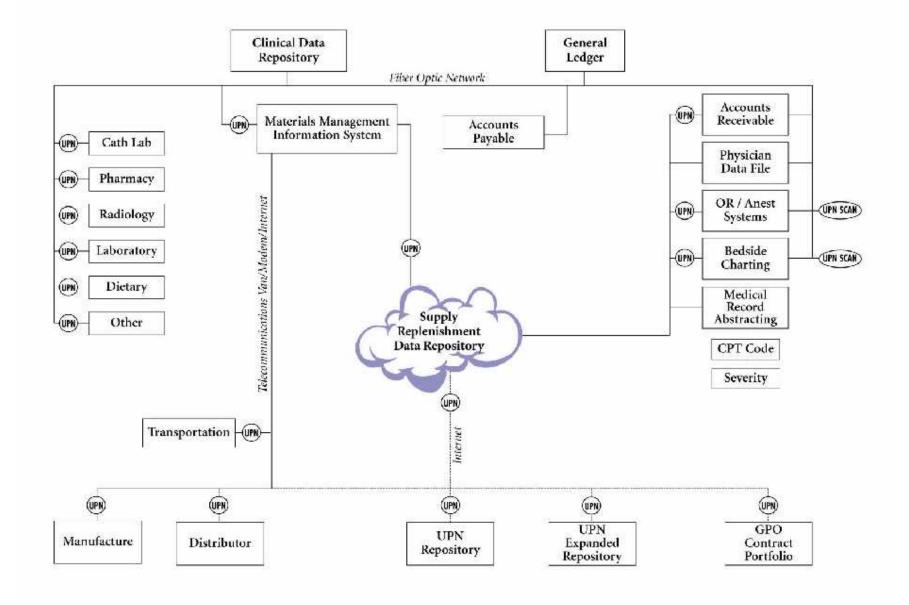








ST. ALEXIUS MEDICAL CENTER - BISMARCK, ND CONTINUOUS REPLENISHMENT SUPPLY CHAIN MODEL



"Most of what we call management consists of making it difficult for people to get their work done"

> Tom Peters, Author In Search of Excellence

When you discover you are riding a dead horse, the best strategy is to dismount. That's a no brainer...

However, in business, we often try other strategies with dead horses...

- Buying a stronger whip
- Changing riders
- Declaring that "This is the way we have always ridden this horse."

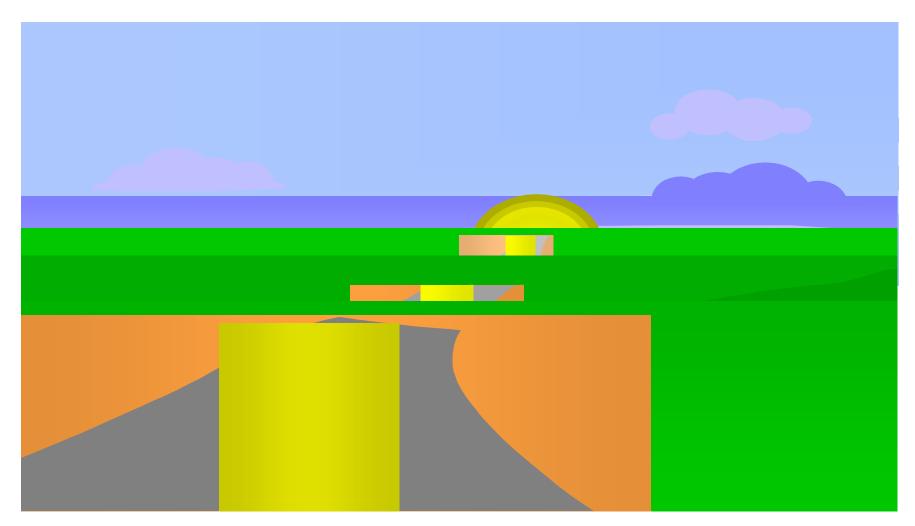
- Appointing a committee to study the horse.
- Arranging to visit other sites to see how they ride dead horses.
- Appointing a team to revive the dead horse.

- Creating a training session to improve employees' riding skills
- Changing the requirements, declaring "This horse is not dead."
- Outsourcing contractors to ride the dead horse.

- Harnessing several dead horses together for increased speed.
- Providing additional funding to increase the horse's performance.

Mackay's Moral:

• Don't horse around when you're dealing with mistakes. Get back in the saddle and grab the reins.



We are on a journey to improve the safety and efficiency of the health industry supply chain. Let's work together and make it happen. General Wrap Up Discussion Questions & Answers

Thank You