

# Materials Management and Production Processes

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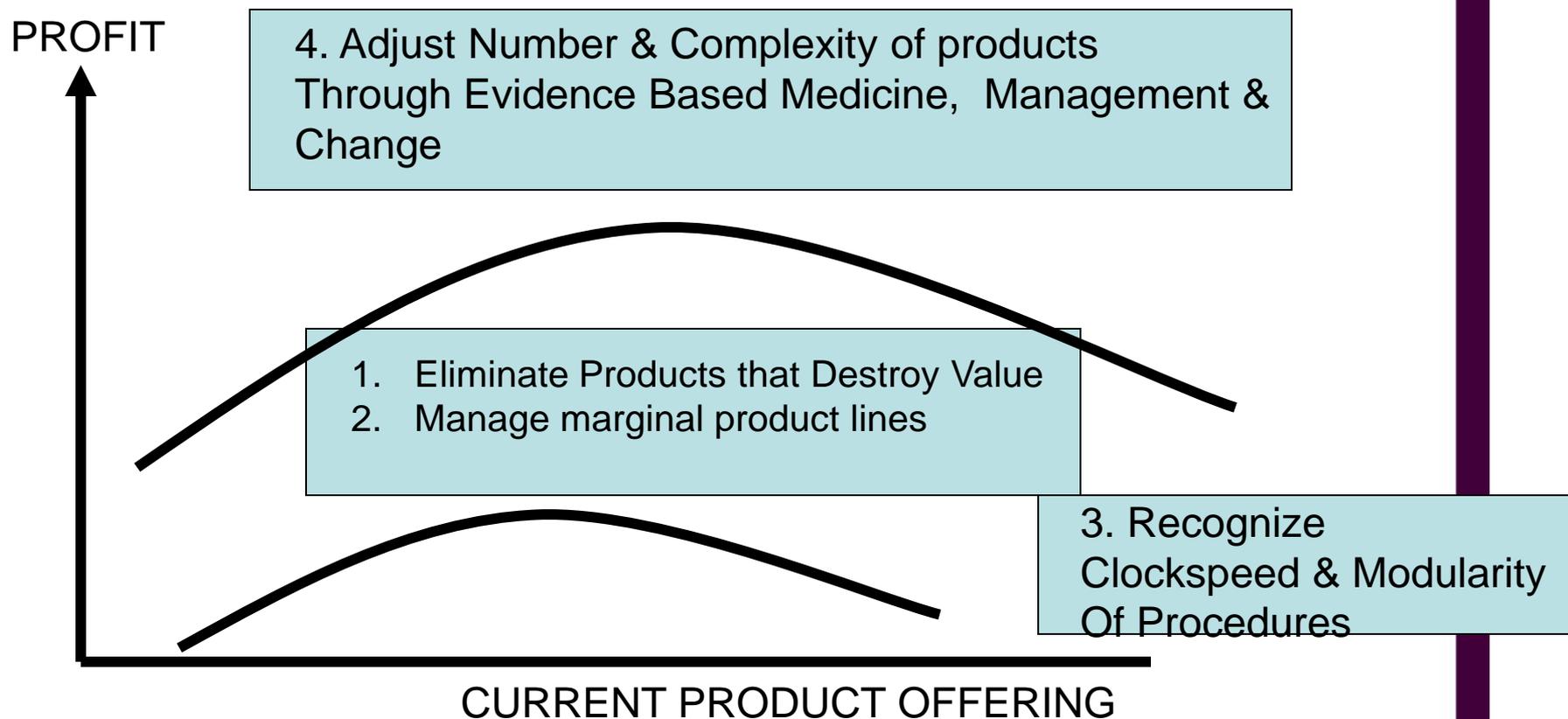
## Major Questions and Challenges

- ➔ What processes and systems are we considering?
- ➔ What kinds of materials?
- ➔ What is the frame?
  - ✓ Process and quality improvement?
  - ✓ Improvement across the value chain?
- ➔ What organizations?
  - ✓ Delivery (physician offices, hospitals, nursing homes...)
  - ✓ Suppliers, Distributors, Group Purchasing
- ➔ What can we transfer from other industries?

# Need For A Definition of the Supply Chain

- ⇒ Products
- ⇒ Information
- ⇒ Money
- ⇒ Risk

# Evidence Based Supply Management



## What is our Vision?

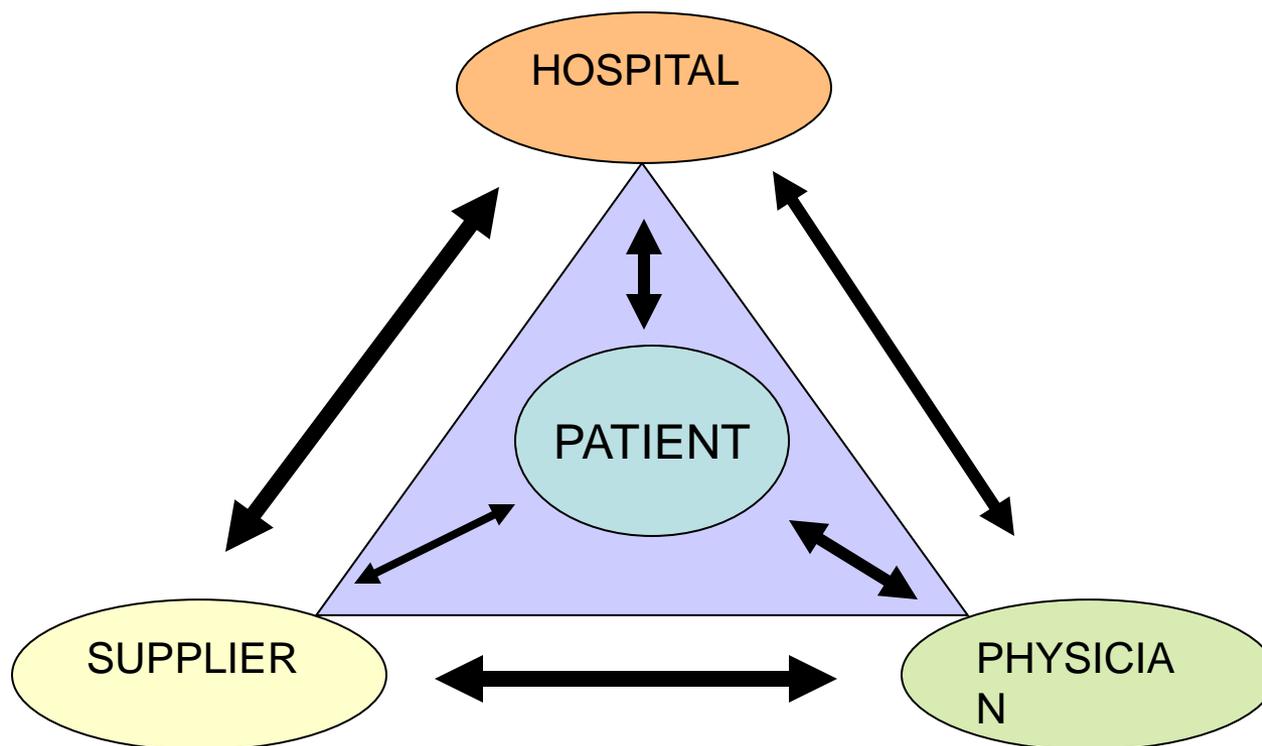
- ➔ Efficient and effective supply chain
- ➔ Understands the value of materials as:
  - ✓ Assets – providing value to patients
    - ☑ Comparative effectiveness link
    - ☑ Great outcomes
  - ✓ Assents – providing value to providers
  - ✓ Transparent
  - ✓ Contributing to value based purchasing

# Focused Factories vs Integration

## Mayo or Hospital For Special Surgery?

- ➔ Silos constitute communities
- ➔ Silos are difficult to topple
- ➔ Silos are difficult to integrate
- ➔ Silos have strong cultures
- ➔ Service line silos can gain efficiency
- ➔ Treat them like focused factories
- ➔ Use them as internal models
- ➔ Structure incentives within silos
- ➔ Understand the incentives

# The 6 Roads to Supply Choice: The Shifting Customer



## Use if Web 2.0 and Beyond

- ➔ Restructure relationships between people, products and processes.
- ➔ Respect for Tacit Knowledge
- ➔ Respect for Autonomy

# Evidence is Problematic to the Implant Surgeon

- (i) they believe that EBM marginalizes patient involvement in decision-making
- (ii) they believe that EBM-generated knowledge is useful and is commonly used in daily clinical decision-making – however, not using EBM does not adversely affect their daily clinical decision-making;
- (iii) they have high confidence in their own judgment compared with low confidence in clinical practice guidelines and other sources of evidence; and (iv) journal summaries of the latest research related to a subject are the most useful resources in clinical practice .."

Simon kitto et. el. Surgeons' Attitudes towards and usage of evidence-based medicine in surgical practice: A Pilot study ANZ journal of surgery, volume 77, issue 4, pages 231 - 236 published online: 27 mar 2007

# Internal Barriers

- ➔ over-specification of the product and service by both the supplier and the physician
- ➔ premature establishment of the product specification
- ➔ frequent changes in the design and specification of the product
- ➔ poor demand management and information
- ➔ fragmentation of spend and maverick purchasing
- ➔ inter-departmental power and politics
- ➔ the risk adverse nature and culture of the hospital and clinician.

Cox, Andrew, Chicksand, Dan and Ireland, Paul, Overcoming Demand Management Problems: The Scope for Improving Reactive and Proactive Management in the UK Health Service, *Journal of Public Procurement*, 2005, 5,1 pp. 1-22. p. 19

# Incentives & Evidence Interact with Ability to Re-Engineer

- ➔ Gainsharing
- ➔ Value-based purchasing
- ➔ Resource Dependencies

# The Idea of Supply Intensive Admissions

## ⇒ Over 50 DRGs

- ✓ Supply cost + OR = > 50% cost
- ✓ Rarely well managed
- ✓ Strong resource dependency on suppliers, distributors, etc.

# What Are the Supply Intensive DRGs

## 62DRG's >50% Supply & OR

DRG	Definition	% Supplies and OR
515	Cardiac Defibrillator Implant w/o Cardiac Cath	80.32
498	Spinal Fusion Except Cervical	79.44
491	Major Joint & Limb Reattachment	72.2
577	Carotid Artery Stent Procedure	60.1
175	GI Hemorrhage	8.3
300	Endocrine Disorders	3.94
139	Cardiac Arrhythmia & Conduction Disorder	3.26

## Advanced Technology Intra-operative CT and Computer Aided Surgery



# Evidence Based Supply Chain

- ➔ Willingness to manage supply cost and risk
- ➔ Use of DRG and procedure level data to drive decisions.
- ➔ Establishment of “managerial epidemiology”
- ➔ Respect for bounded clinical autonomy
- ➔ Build commitment
- ➔ Manage conflict of interest
  - involve physicians who request new products in the analysis
  - exclude them from the decision

## Why Are These Relationships So Difficult?

- ➔ Strong physician preferences for products, particularly in high technology fields such as orthopedics and interventional cardiology.
- ➔ Physician preference for products but payment for products by the hospital.
- ➔ Third-party reimbursement.
- ➔ Rapidly changing technology.
- ➔ Inherent market differences based on physician availability, patient mix, managed care penetration, systems of reimbursement, and level of competition between hospitals.
- ➔ Tendency for purchasing to be transactional rather than strategic.
- ➔ Lack of price transparency. (ref-LS &GS book and more

# 1. Structural Changes

- ✓ Demographic
- ✓ Economic
- ✓ Personalized Medicine
- ✓ Economics
- ✓ Rebalancing shifts in demand

## 2. Structure Of The Existing Supply Chain

- ✓ How to make it better
- ✓ Understanding of risk and reward
- ✓ Supply chain risk management
- ✓ Driving incentives

### 3. Theoretical & Applied Research Technology Transfer

- ✓ Social/Technical Systems
- ✓ Technology Transfer
- ✓ Bring clinical and data standards for SC together
- ✓ Map availability of common data

## 4. Connecting Supply Chain and Patient Care

- ➔ Use of information for management
- ➔ Help providers to do a better job
  - ✓ Efficiency & Productivity
  - ✓ Behavioral dynamics with MD

# Tools/Techniques

- ➔ Systems dynamics
- ➔ Design Science
- ➔ Contracting/Agency Theory
- ➔ Resource Dependency

# Considerations

- ➔ Role and Impact of Policy
- ➔ Supply chain resilience
- ➔ Existing talent/competencies/capabilities
- ➔ Unintended consequences
  - ✓ Low inventory/distribution efficiency/disaster preparedness

# Barriers

- ➔ Data
- ➔ Transparency
- ➔ Registry
- ➔ Uniform product identification
- ➔ Differences in Clockspeed

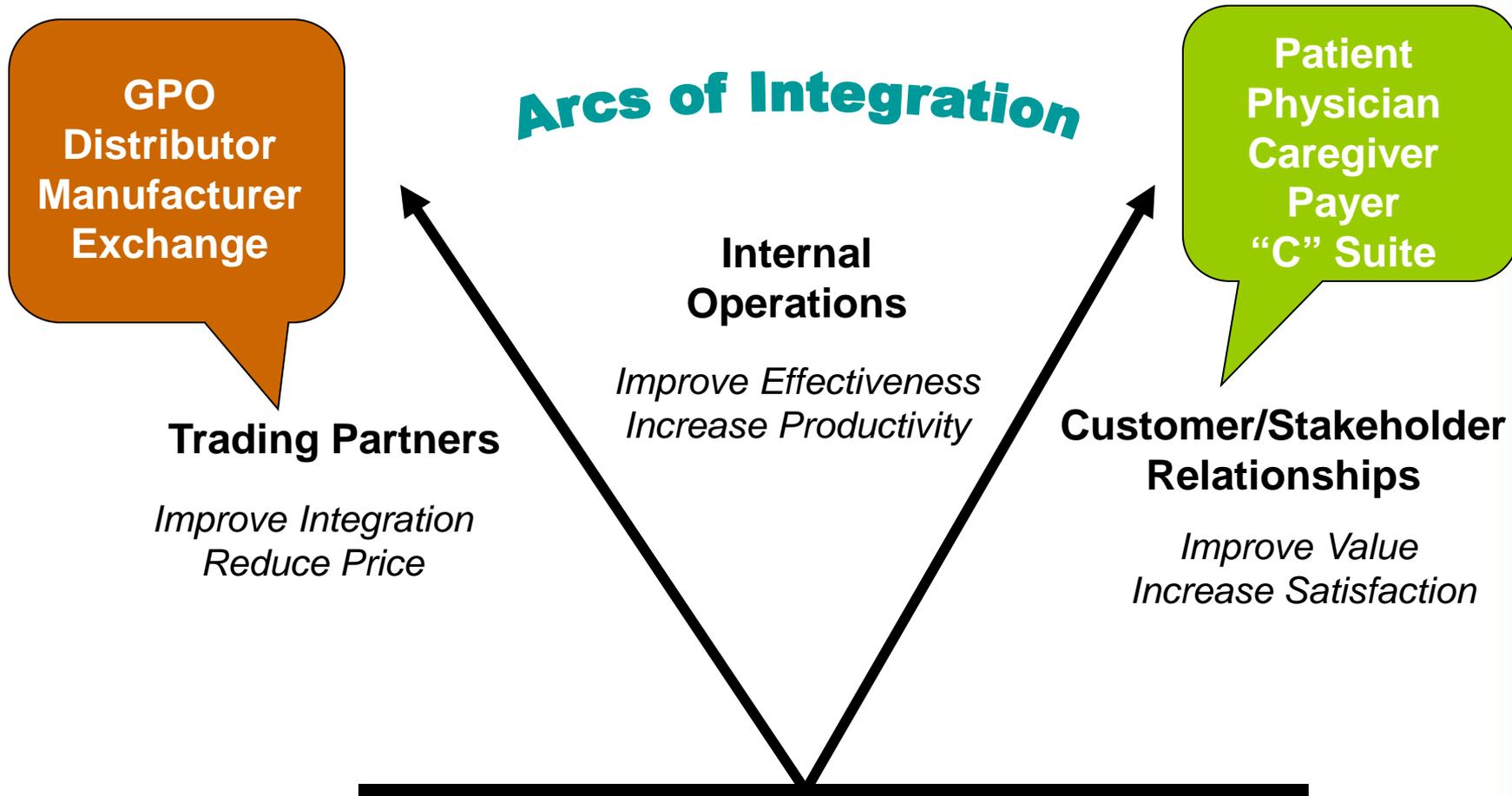
## Leveraging Data

- Cost Accounting
- Materials Management (item master)
- Chargemaster and pricing
- Consistent and regular physician meetings
- Value analysis for new technology
- 100% prospective bill audits

Source – NOH at ASU Dissemination Conference

# Tensions in Practice

- ➔ Hospital protocols
- ➔ Formularies
- ➔ Product standardization
- ➔ Payor formularies
- ➔ Substitution of pharmaceuticals
- ➔ Physician report cards that may be tied to reimbursement
- ➔ Preauthorization
- ➔ Denial of certain services
- ➔ Information on the net
- ➔ Direct-to-consumer advertising
- ➔ Declining reimbursements
- ➔ Rising overhead
- ➔ Malpractice climate
- ➔ Decision-making by non-physicians
- ➔ Posting of hospital costs by procedure



# Enterprise Perspective on Supply Chain Performance