

Supply Chains for Healthcare Products: Are They 'Wacky' or Not?

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Goals of Research

- Understand *how* the supply chains for healthcare products work
 - Medical/Surgical Supplies
 - Pharmaceuticals
 - Devices (i.e., orthotic and cardiovascular)
 - (Not including radiology and laboratory supplies,, capital equipment, food and dietary supplies and services, office forms and supplies, and cleaning supplies and services.)
- Understand *why* they work as they do
- Seek “leverage points” for improvement

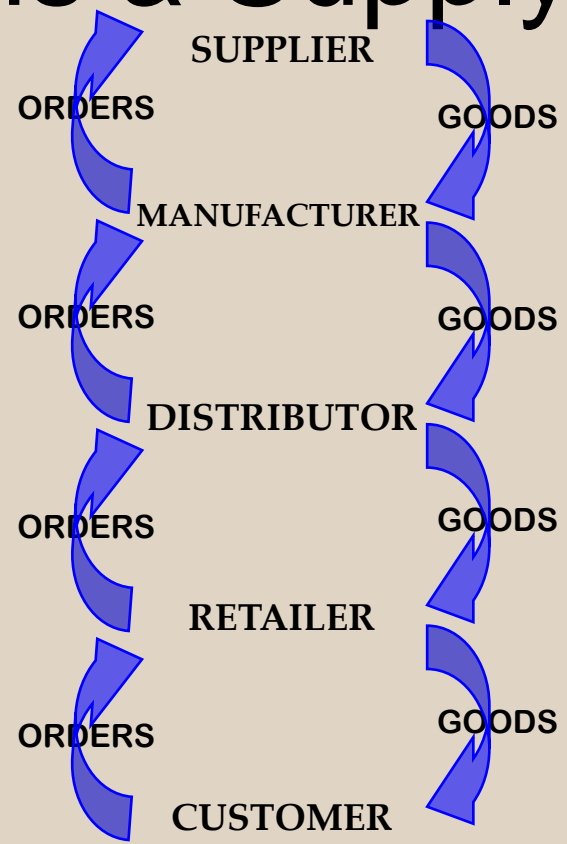
Long-Term Goals

- Improve Efficiency (i.e., lower \$/unit in delivered cost)
 - Supply-Chain Management (Overhead) Cost estimated to be 38% of COS for Healthcare Products vs. 6-8% for Retail and 3-6% for Grocery (Efficient Healthcare Consumer Response Study, 1996)
 - Supply Cost is the 2nd-Largest Variable Cost in Acute-Care Hospitals
- Improve Quality and Safety of Healthcare Delivery

Short-Term Goal

- Develop Mathematical Models to Assess the Impact of Alternative Modes of Operation
 - Alternative Supply-Chain Structures
 - Alternative Information-Flows
 - Alternative Decision-Rules

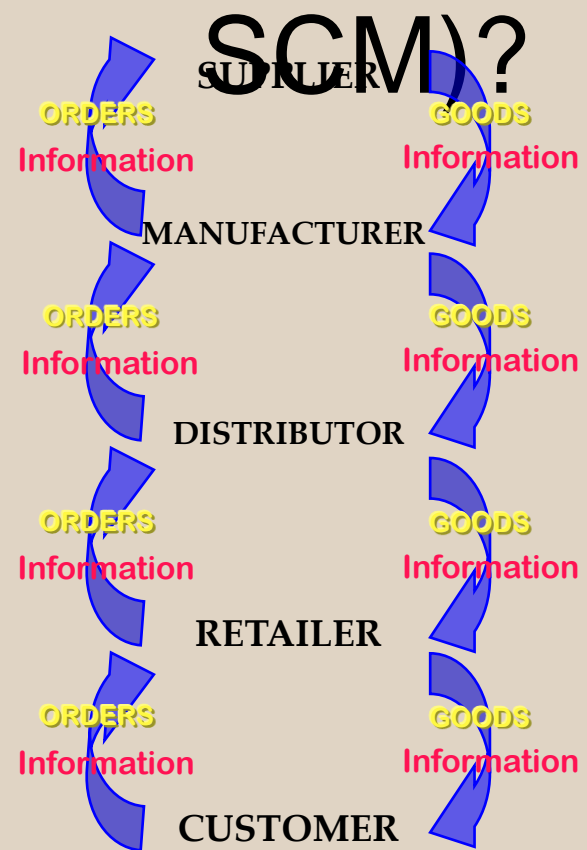
What is a Supply Chain?



Historically (and typically), these chains have been managed independently

Applying the principles of
Engineering, Management & Science
to improving Healthcare delivery.

What is Supply-Chain Management



Supply-Chain Management means managing the chain as a chain

Why Supply-Chain Management (SCM)?

- The Benefits of Supply-Chain Management
 - Smaller Inventories
 - Less Capacity Required
 - Shorter Leadtimes
 - Typically: More Influence/Collaboration
 - Buyer Influence Over Supplier
 - Supplier Influence Over Buyer

Why Supply-Chain Management (SCM)?

- The “Gold Standard” is:



But “Also-Ran” Supply Chains

Involve:

- “Customers” that Decide what products to buy and where to buy them
- “Retailers” that
 - Decide what Products to “Sell”
 - Negotiate Directly with Manufacturers or Distributors on Prices
 - Engage in Moderate Levels of Information-Sharing
 - Use Information Technology in Procurement and Logistics

Economics of Healthcare Supply Chains

- Total US Expenditure on Healthcare:
\$2.1 T
 - 16% of Gross Domestic Product (growing at 6.8%)
- US Expenditures on Devices, and Medical/Surgical and Pharmaceutical Products: \$275 Billion (13% of Healthcare Expenditure)
 - 78% on Pharmaceuticals
 - 22% on Medical/Surgical Supplies & Devices

Different “Players” in HC Healthcare Supply Chains

- Group Purchasing Organizations (GPOs)
 - Negotiate with Manufacturers on Behalf of “Provider-Members” for “contract” items
 - Do NOT take Possession of Products
 - Burns (2002, p 70): “The majority or near majority of healthcare products purchased by hospitals and healthcare systems are on national GPO contracts”

More on GPOs

- **Est. 600-700 GPOs in US** (Source HIGPA and SMG Marketing Group)
- **Burns (2002, p.63):** Membership in top-4 GPOs accounts for approx. 4,300 of 6,000 hospitals in US
- **Variety of Ownership Structures/Some Profit, Some Not-for-Profit**

More on GPOs

- Major “Players”
 - Novation (2006)
 - » Approx. 2,500 members (Approx. 44% of staffed beds)
 - » \$31.6 Billion in Annual Contracted Purchases
 - » For Profit: Owned by VHA (for profit) and UHC (not-for-profit)
 - Premier (2006)
 - Approx. 1,500 members;
 - \$27 Billion in Annual Contracted Purchases
 - Not-For Profit: Owned by approx. 200 not-for-profit hospitals and healthcare systems

More on GPOs

- Earn Revenue by:
 - Charging “Contract Administration Fees” (CAFs) to *Manufacturers* (est. 1-3%)
 - Charging Fees to (ADA) Distributors “Authorized” to Distribute Products “on contract” (est. 0.25 -0.5%)
 - Earning “Volume” Rebates from Manufacturers
 - Charging Members Fees for Non-Contracting Services
 - Ex.: materials management, contract management, programs to improve product standardization and reduce product utilization, comparative data on supply-chain expenditures

More on GPOs

- Caveats:
 - “Contracts” and Buying “Off-Contract”
====>“Compliance”
 - Different Provider-Member of Same GPO
Pay Different Prices for Same Product;
i.e., “Tier-Based” Prices
 - Compliance and/or Volume Based
 - The Manufacturer is the Final Arbiter of
What SKUs are on Contract and what the
Contract price to a Provider-Member will
be

Different “Players” in HC Healthcare Supply Chains

- Distributors
 - Buy Products — at “List Prices” — from Manufacturers, Inventory, (Repackage), and Deliver Them to Hospitals, Clinics, etc.
 - Routinely Sell Products at Cost-Plus or Cost-Minus Basis; i.e., where “Plus/Minus” (i.e., Margin) Depends
 - Nature of the Product & Competition in Marketplace
 - Services Provided by the Distributor to the Provider
 - Act as “Authorized Distribution Agents (ADAs) for GPOs, selling to the GPO’s Provider-Members “on contract” ==> “Charge-Backs”

More on Distributors

- Example Buy/Sell Scenarios: In all, the Distributor's Cost for some product is \$100 , the GPO-negotiated contract price is \$25
 - Non-Contract Sale with 2% Margin: Provider-member pays Distributor \$102 ($=100 \times 1.02$). Distributor "earns" \$2.
 - Contract Sale with 2% Margin: Provider-member pays Distributor \$25.50 ($= 25 \times 1.02$); the distributor charges back \$75 ($\$100 - 25$) to Manufacturer. Distributor "earns" \$0.50
 - Contract Sale with -2% Margin: Provider-member pays Distributor \$24.50 ($= 25 \times .98$); the distributor charges back \$75 ($\$100 - 25$) to Manufacturer. Distributor "earns" $\langle \$0.50 \rangle$

More on Distributors

- Major “Players”:
 - Owens & Minor
 - » \$5.5 Billion (2006)
 - » 180,000 Medical-Surgical Products
 - » “Pure-Play” Distributor
 - Cardinal Health
 - » \$81 Billion (2005)
 - » Distributor & Manufacturer of Med-Surg, Devices, and Pharmaceuticals

More on Distributors

- Earn Revenue by:
 - Positive Margins on Products Sold
 - Charging “Tracing Fees” to Manufacturers
 - Charging “Marketing Fees” to Manufacturers
 - Charging “Shelf Fees” to Manufacturers
 - Asset Management; e.g.,
 - Earning Quantity Discounts
 - Earning Prompt-Pay Discounts
 - Speculative Buying

(According to Burns (2002, pp. 151: “The bulk of the distributors’ gross margins ... from manufacturers....”)

So..
Not One Supply Chain
Four Supply Chains

GPO-Contracted vs. Distributor-Mediated Products (based on Burns, 2002)

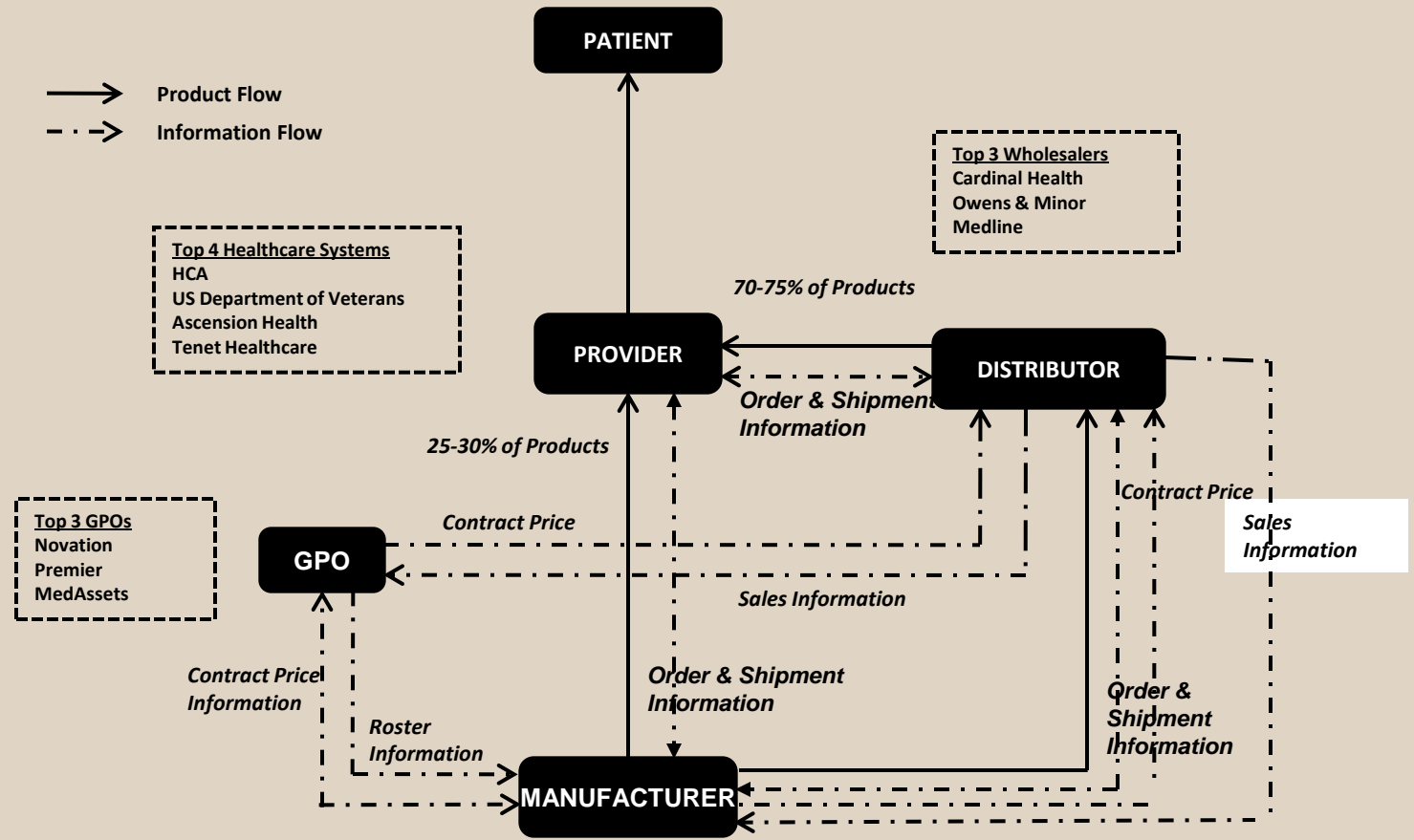
	Manufacturers Contract with GPO	Manufacturers Do Not Contract with GPO
Manufacturers Use Distributor	<ul style="list-style-type: none">• Low-Value, High-Volume Med-Surg Products• Generic Drugs	<ul style="list-style-type: none">• Some Branded Drugs (e.g., oncology)• Generic Drugs
Manufacturers Use Direct Delivery	<ul style="list-style-type: none">• Low-Value, High-Volume Devices• Branded Drugs	<ul style="list-style-type: none">• High-Value, Low Volume Devices and Speciality Items

What Am I Doing?

Developing Product-, Information-,
and Dollar-Flow Charts

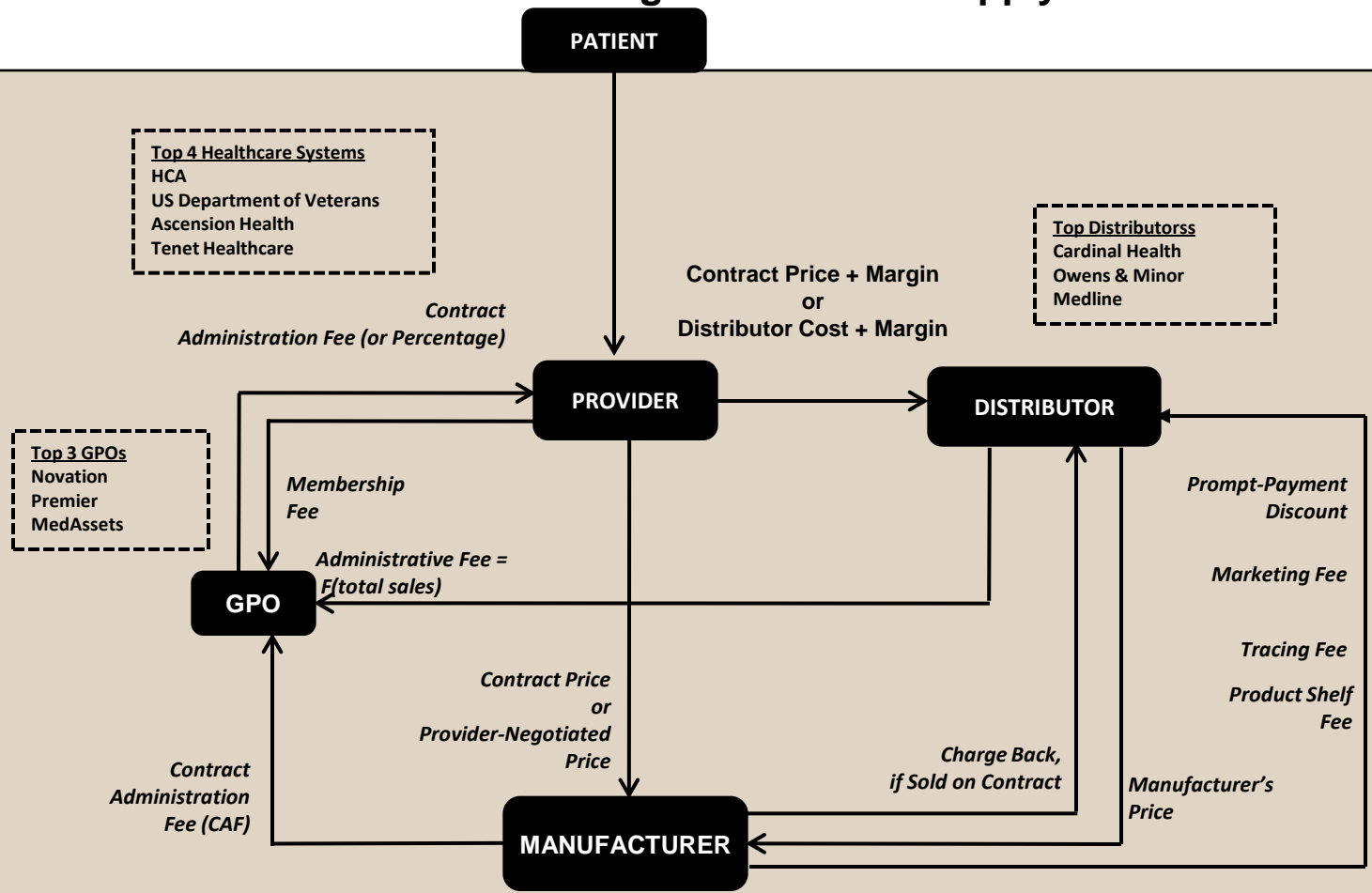
Figure 1:

Product- and Information-Flows for Medical-Surgical Products Supply Chain



Applying the principles of

**Figure 2:
Dollar-Flow in Medical-Surgical Products Supply Chain**



Applying the principles of

Figure 3: Product- and Information-Flows in Provider Pharmaceutical Supply Chain

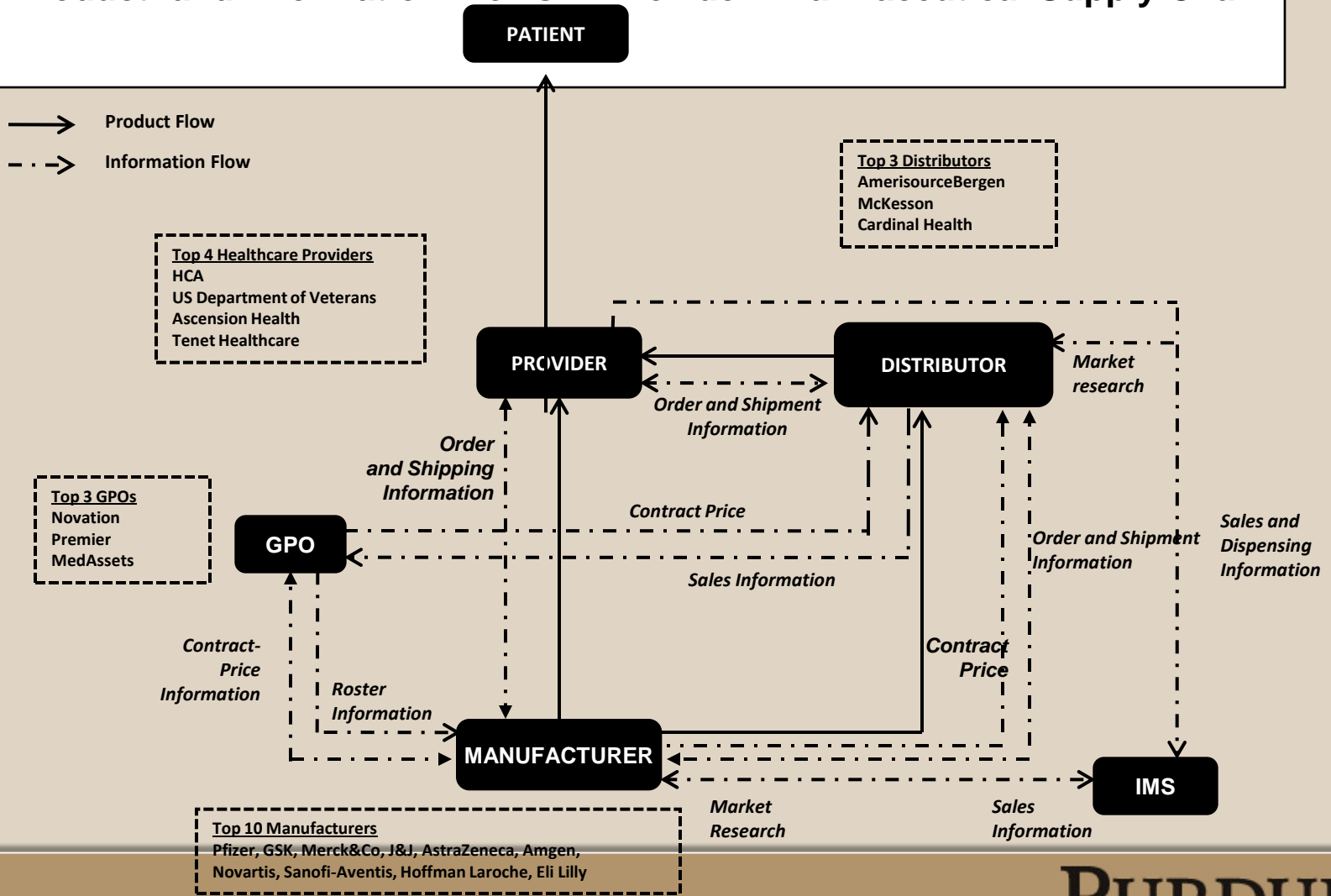
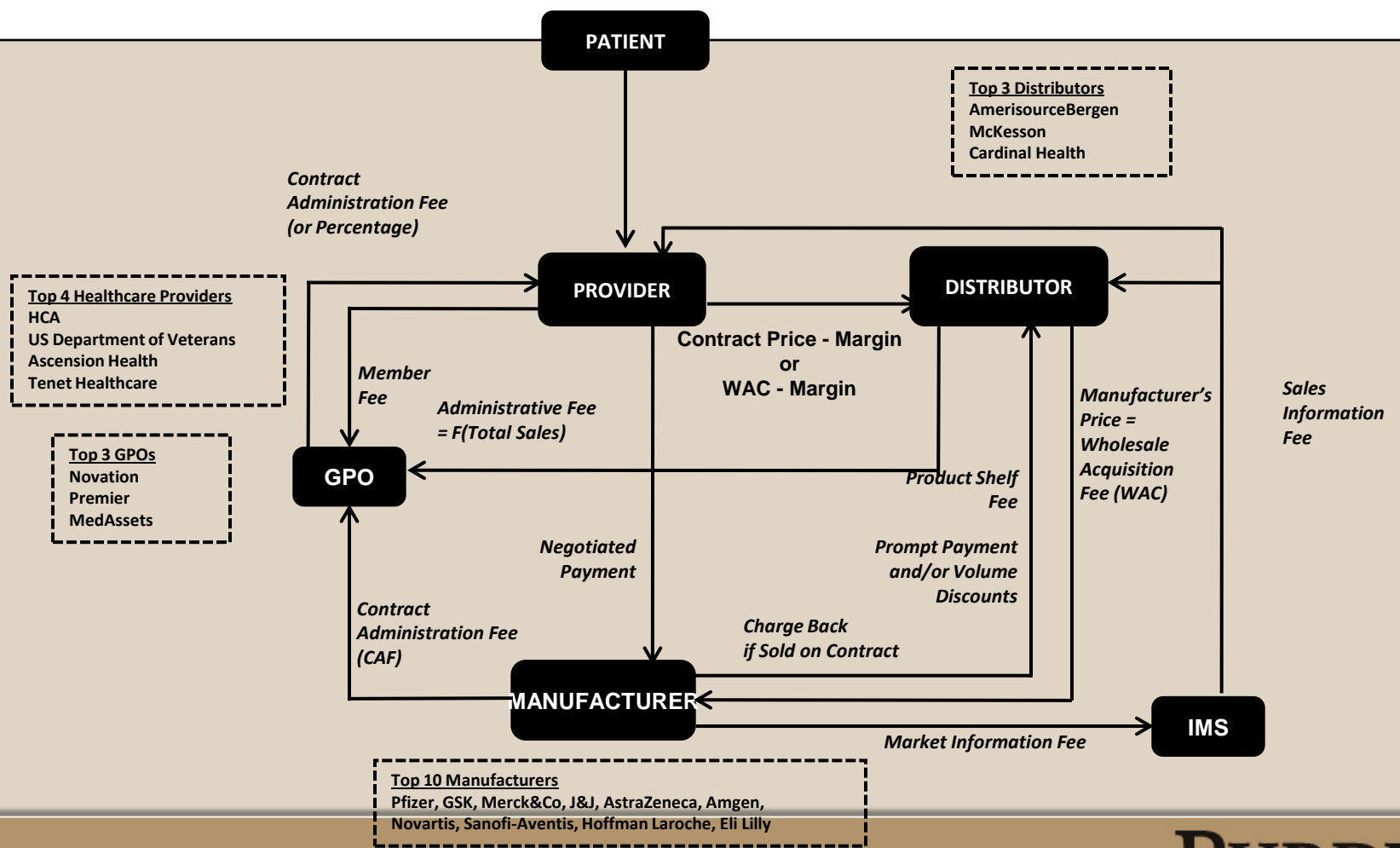
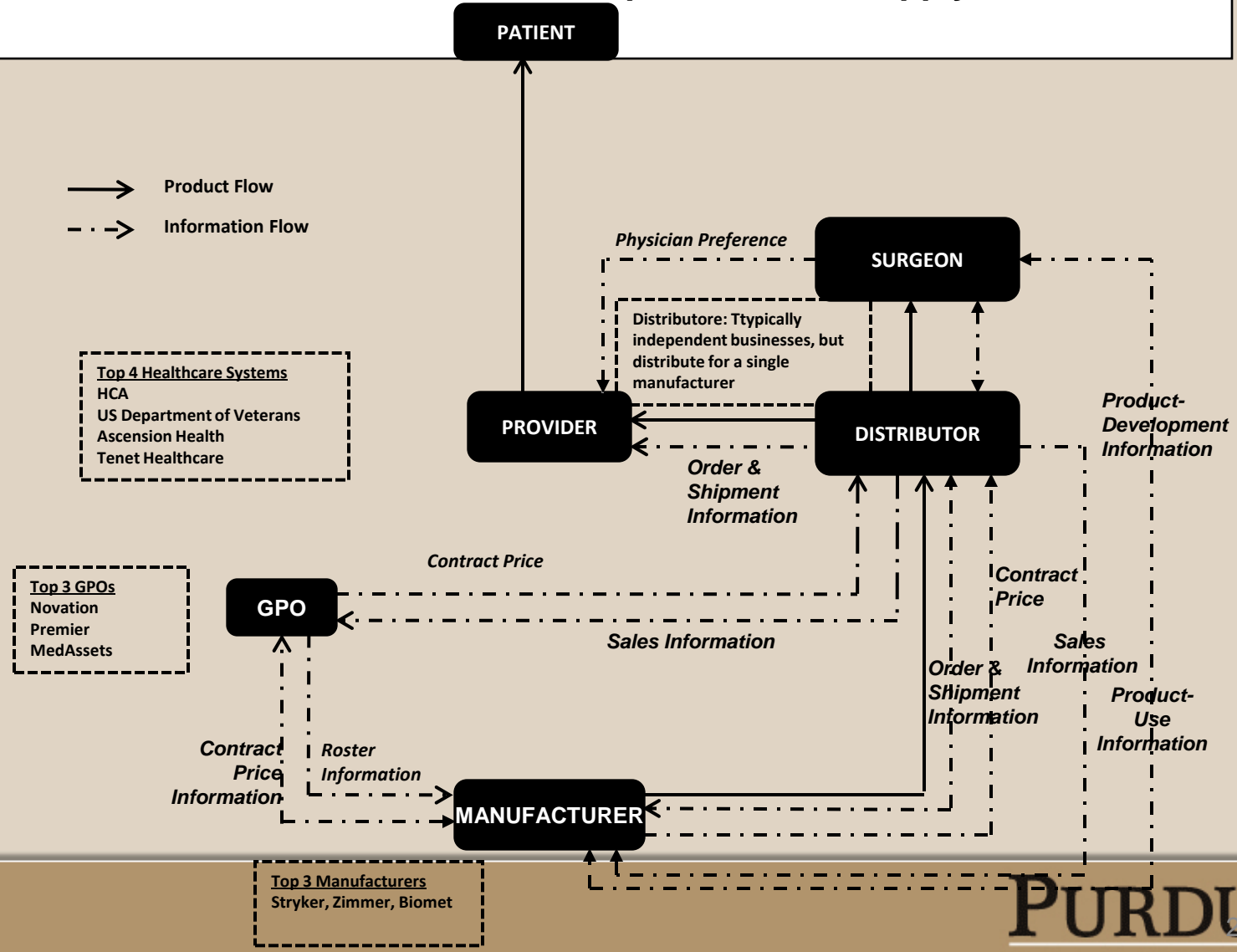


Figure 4: Dollar-Flow in the Provider Pharmaceutical Supply Chain:

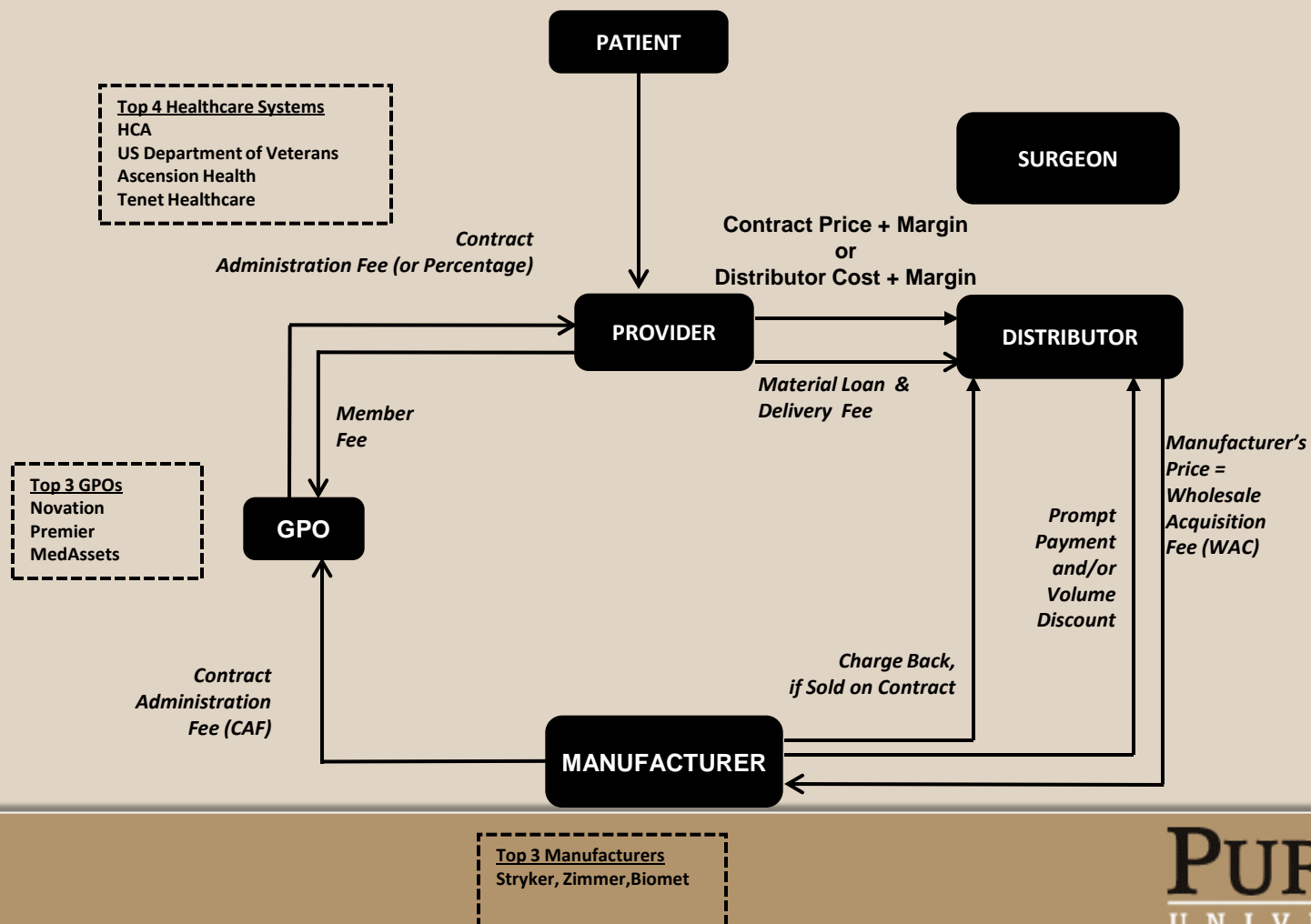


**Figure 7:
Product- and Information-Flows in Orthopedic Device Supply Chain**



Applying the principles of

**Figure 8:
Dollar-Flow in Orthopedic Device Supply Chain**



**Figure 9:
Product- and Information-Flows in Cardiovascular Device Supply Chains**

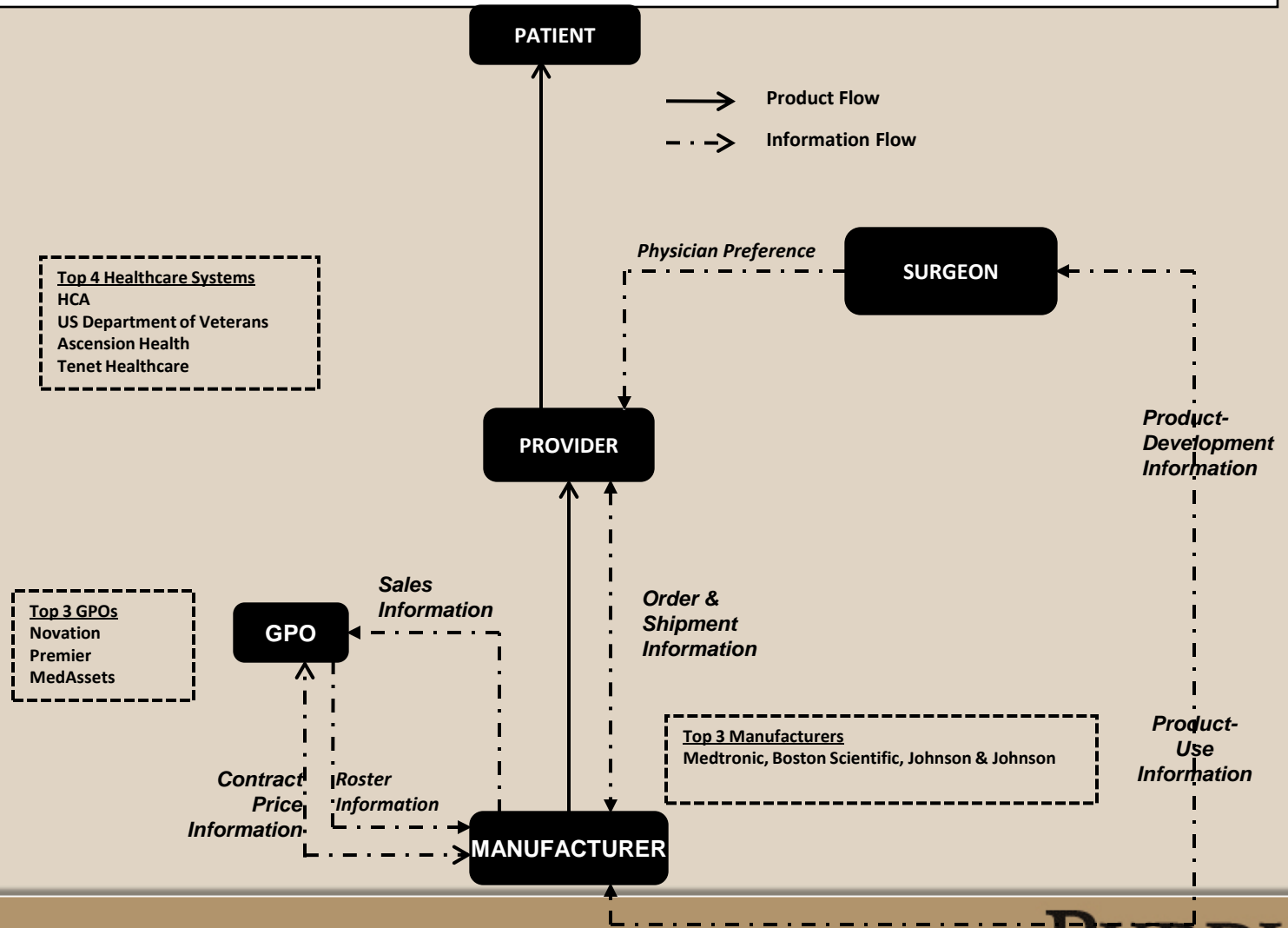
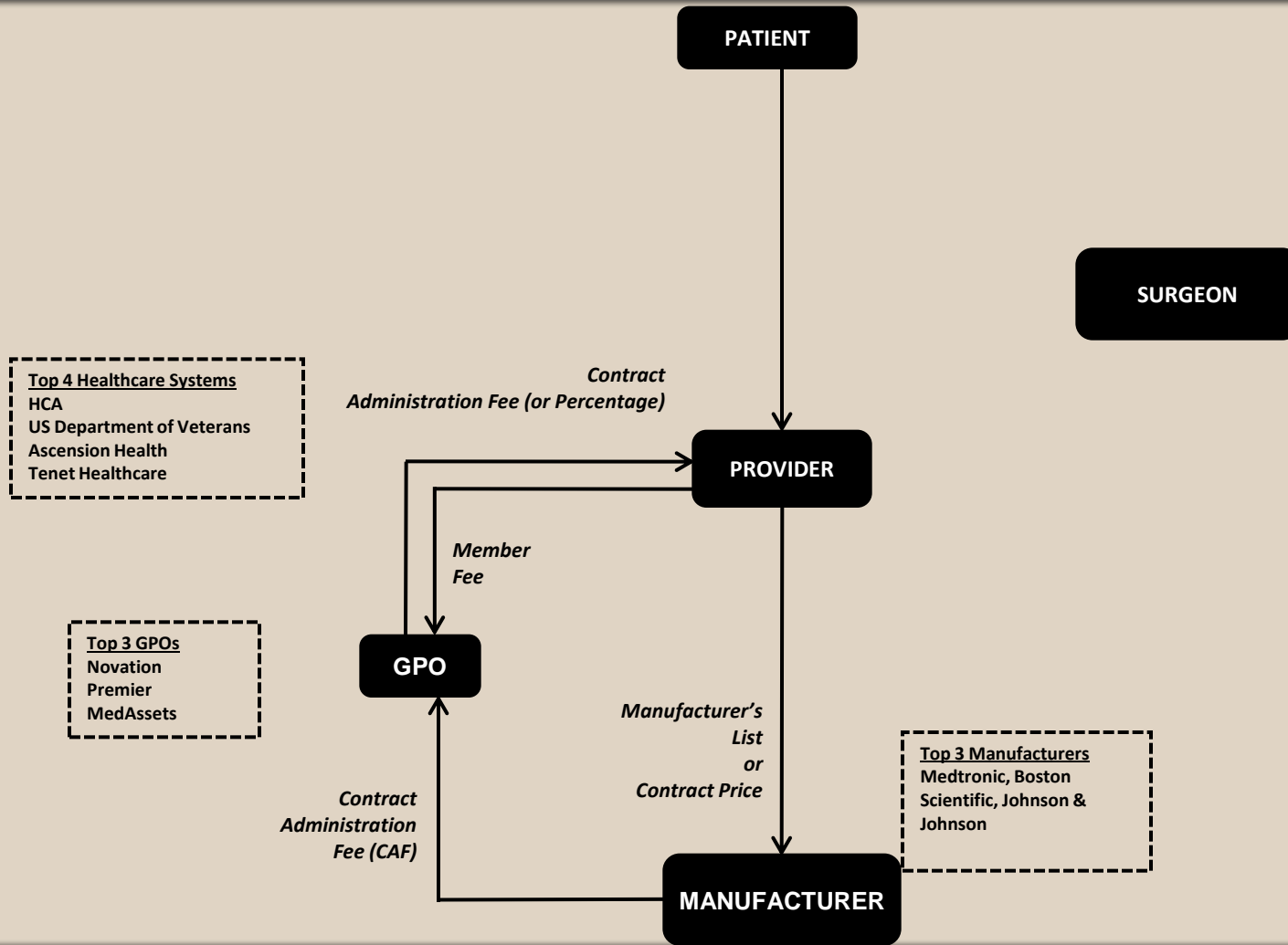


Figure 10: Dollar-Flow in Cardiovascular Device Supply Chain



Why Are These Chains

- The Markets “for Healthcare Products are Highly Fractionalized”
 - 1000s Hospitals: Acute, LTC,
 - 10,000s Clinics, Drs. Offices, etc.
- The “Customer” Often Doesn’t Pay the Bill
 - Role of 3rd-Party Payers
 - Role of DRGs
 - “Physician Preference”

Why Are These Chains

- Supply Chain Management is NOT important to “Retailers” (e.g., Hospital CEOs)
 - Strategic Sourcing Not on “Radar Screen”
 - Sourcing/Procurement Decisions Delegated
 - To GPOs
 - To Distributors

Why Are These Chains

- Lack of Data “Standards”?
– Product Identification
– GLN’s only recently in Pilot Tests
- Lots of Non-Value-Added Steps
– Ex: GPO, Manufacturer, and Member all Reconcile Invoices

Why Are These Chains

- Apparent Conflicts of Interest
 - Physician Preference
 - Role of Ortho Manufacturers Representatives in Operating Room
 - Privately-Branded Med/Surg. and Generic Pharmaceutical Products
 - By GPO
 - By Distributor
 - (By Manufacturers Themselves)

Alternative Supply Chains

- Consolidated Service Centers
- Self-Distribution/Out-Sourced Distribution
- Self-Contracting

Am I Having Fun?

Is This Research?

Questions?

To Learn More:

*The Health Care Value Chain:
Producers, Purchasers, and
Providers*

Lawton R. Burns

Jossey-Bass, 2002