

Global Trends in the Medical Device Industry and Supply Chain



MPO Summit
Interlocken, Colorado
October 11, 2018

About A.S. Freeman Advisors



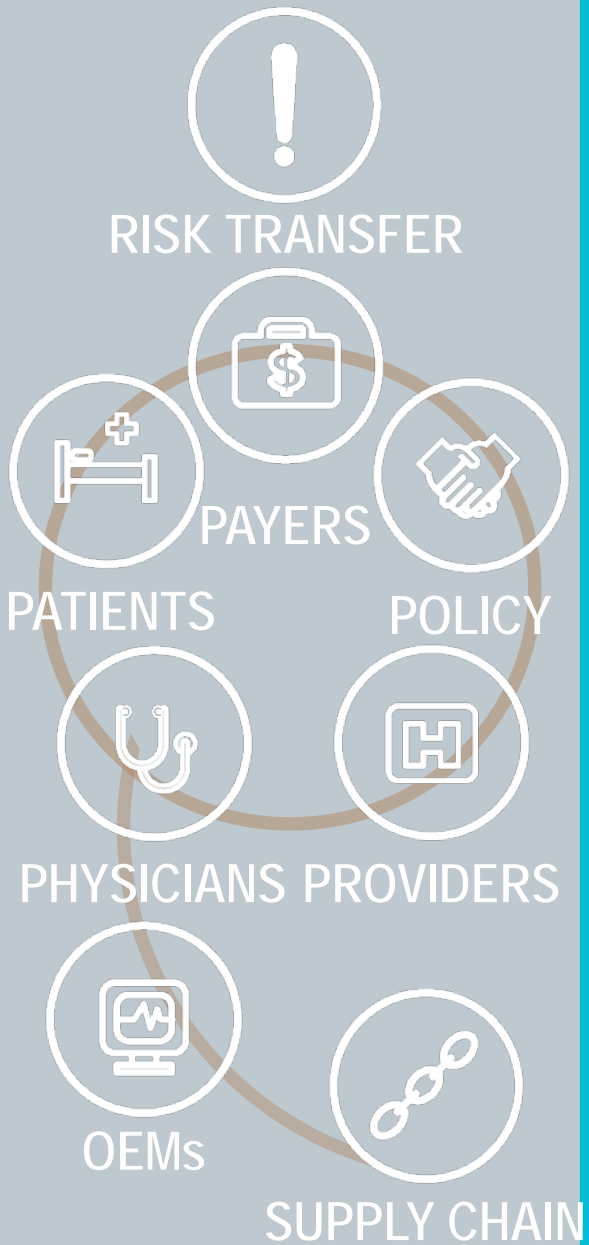
Tony Freeman



- Merger and acquisition advisory services
- Corporate strategy in support of transactions
- Focus on precision manufacturing and specialty materials markets
- Publishes *Global Trends: Medical Device and Diagnostic OEM Strategy and Implications for the Supply Chain*

Perspective

- A focus on the large scale trends, the “tectonic forces” driving the device industry
 - Device manufacturers (OEMs)
 - Supply chain companies
- Looking out three to ten years
- One lens reveals most of what is going on in the device market – *risk transfer*



Economic Risk Defined

- Not everyday risk = danger
- Economic risk = Uncertainty with opportunities for loss or gain
- In the medical device world, roles are shifting in response to new incentives and penalties
- The ability to manage through risk transfers will make or break companies in the device industry

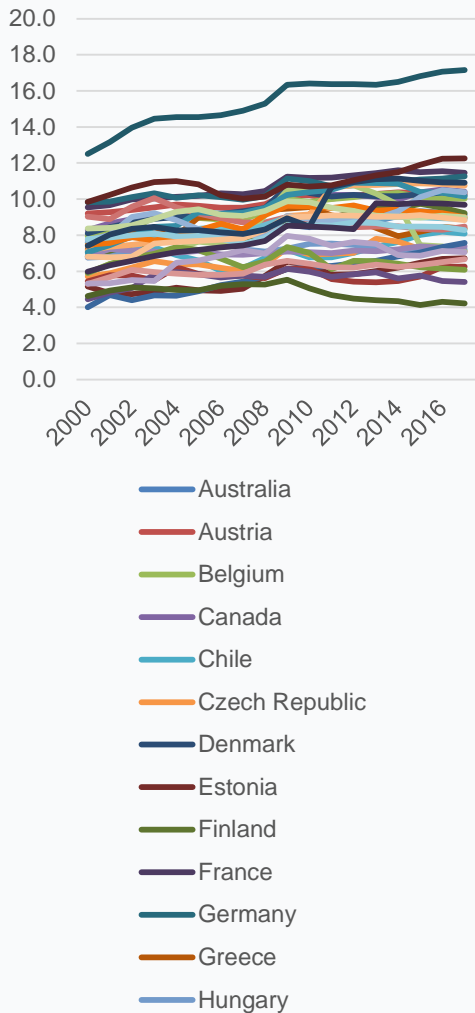


OEMs

What keeps Device OEM CEOs up at 3AM?

- Two obvious issues
 - Favorable demographics
 - Growth of healthcare in developing countries
- We'll focus on significant but less discussed risks
 - Changing reimbursement strategies in their most lucrative market
 - Fewer, more powerful customers
- Three responses to risk from device manufacturing specifics
 - Consolidation via M&A
 - Move from individual devices to complete care systems
 - Digitization

Healthcare Spending as a Percentage of GDP in 2017



America First

- The United States the largest and richest markets for devices in the world
- US spends 18% of GDP on healthcare ¹
- May rise to over 20% by 2022
- The United States represents 40% of the global device market ²
- Through rich reimbursements the US subsidizes device development for the rest of the world
- *Devices must be designed to succeed in the US market, under US market conditions*



PAYERS



PROVIDERS PHYSICIANS

What is
Value-Based
Reimbursement?

Risk #1: Value Based Reimbursement (VBR)

Let's start with what it isn't

- We all grew up with fee-for-service
- Economically, this fee-for-service rewards activity ... not outcomes
- As the US healthcare spending crossed 15% of GDP, major payers looked for new approaches

VBR rewards physicians and hospitals for superior outcomes

- Several forms of VBR but most common is “bundled payment”
- Healthcare provider receives a single payment for all services and products
- Complications, readmittances, extra follow-ups, longer therapies all on the provider
- Creates incentives for effective medicine



PAYERS



RISK TRANSFER



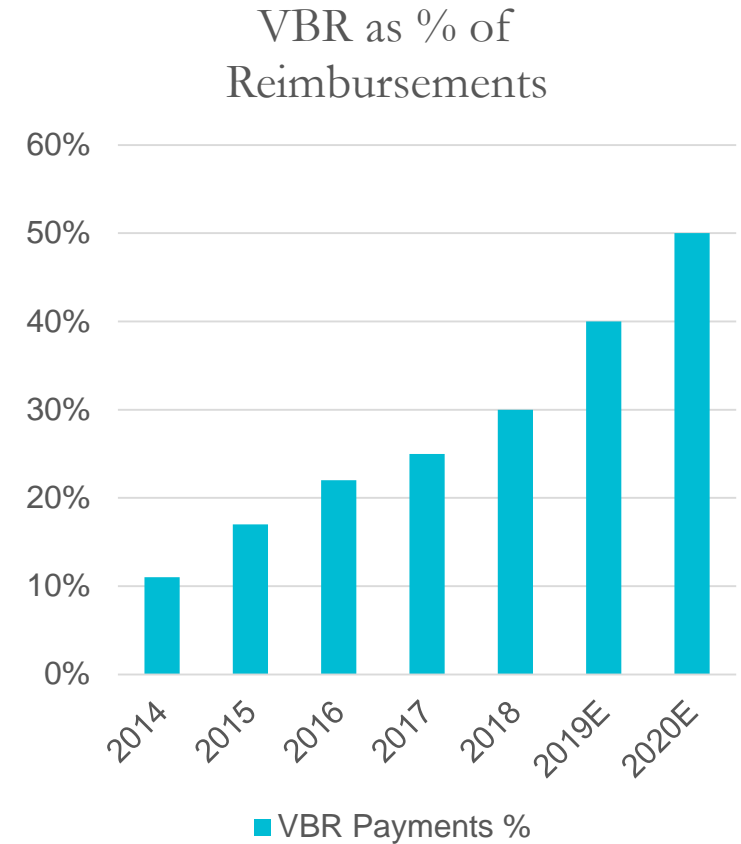
PROVIDERS



PHYSICIANS

Rise of Value Based Reimbursement (VBR)

- VBR were 23% of reimbursements in 2016, projected to rise to 50% by 2020 ³
- *Risk is transferring rapidly from payers to providers and physicians*





PROVIDERS PHYSICIANS



RISK TRANSFER



OEMs

VBR Impact on Device World

- In a VBR world, if one device outperforms another, physicians and providers have economic incentives for using the superior device
- OEMs are increasingly going to market stressing outcome and economic benefits of their products
- Less capable devices are dropped from order lists
- *Risk is shifting from providers/physicians to OEMs*
- *That risk shift is showing up in OEM strategies*
- OEMs are accepting the risk, reinforcing where in markets where they can win and retreating in those they where they will lose



PROVIDERS



RISK TRANSFER



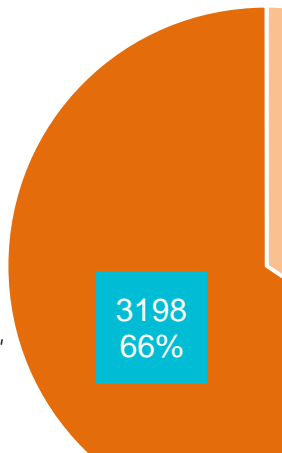
OEMs

Risk #2: Fewer, More Powerful Customers

The days of independent hospitals in the US are over

- 68% of American hospitals are system-affiliated, up from 51% in 1999 ⁴
- No more purchasing departments, sophisticated buying groups
- Other nations have relied on centralized purchasing to some degree

Community
System-Affiliated vs. I



Based on AHA Hospital Statistics, 2017 ed., Health Forum, an American Hospital Association affiliate, 2017.



PHYSICIANS



RISK TRANSFER



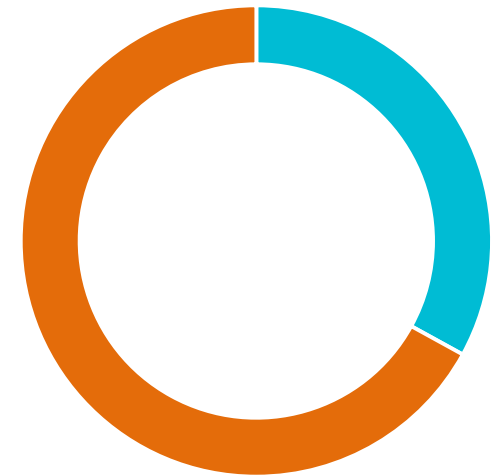
OEMs

Fewer, More Powerful Customers

The days of the independent physician are numbered

- Over 67% work for hospitals or corporate practices ⁵
- Fewer points of sale in corporate or hospital-affiliated practices
- *Buying power is concentrated, shifting risk from provider and physician to the OEM*

Physicians in US



■ Independent
■ Employed or Corporate Practice



OEMs



RISK
TRANSFER



OEMs

Medtronic – Covidien

BD – Carefusion

J&J discarding and
drawing

Response #1: Consolidation of Large OEMs via M&A

- Large OEMs have turned to M&A to acquire strong positions in specific areas of care
- Similarly, non-strategic units are shed
- *Adjusting risk in a changing world*

Selected list of major M&A transactions of last 4 years

Acquirer	Target	Deal Size (\$B)	Year
Company	Target		
Abbott	St. Jude	\$25	2017
Becton Dickinson	CR Bard	\$24	2017
Canon	Toshiba Medical	\$6	2016
Medtronic	Covidien	\$43	2015
Becton Dickinson	Carefusion	\$12	2015
Danaher	Pall	\$12	2015
Zimmer	Biomet	\$13	2015
Fortive	J&J Sterilization	\$2	2018
Company	Company		
J&J	Abbott Medical Optics	\$4.3	2017
Cardinal Health	Medtronic patient recovery and monitoring	\$6.1	2017
Integra Lifesciences	J&J Codman Neuro	\$1	2017
Platinum Equity	J&J LifeScan	\$2.4	2017
Medtronic	S&N gynecology	\$0.35	2016
Cardinal Health	J&J Cordis	\$2	2015



Response #2: From Devices to Care Systems

- Rarely can a single device redefine a level of care. A move from standalone products to product families
- Product families to product/service packages
- Taking over hospital departments and sometimes, hospitals
 - Fresenius
 - Medtronic ORMS
 - Strkyer Endo “Operating Room of the Future”
- At its most extreme example, a hospital becomes a healthcare mall, a real estate and marketing business with care outsourced.
- *OEMs taking over care to accept outcome risk*





OEMs

Response #3: New Classes of Digital Devices & Ecosystems

- For all the magnificent technology in medical devices they are among the last devices to become digitally aware
- Devices are increasingly becoming single points in a digital ecosystem
- Better results through shared information and analytics

Two quick examples →

3M Intelligent Control Inhaler



- **1956**
First mechanical inhaler
- **1993**
First breath controlled inhaler
- **2016**
“Smart Inhaler”

- Reminds patient to take medicine
- Always delivers correct dosage, regardless of breath
- Records results, shares with patient and providers via phone or tablet
- Primary application: asthma medication

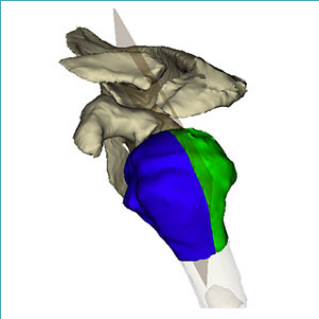
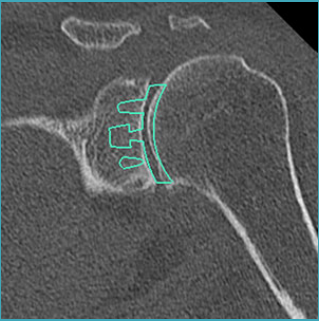
Better Outcomes Through Digitization

Scope of asthma problem in US ⁶:

- Average hospital stay of 3.6 days for 439,000 hospitalizations/year
- 1.8 million ER visits per year
- 14.2 million physician visits
- Estimated cost of over \$50 billion per year in direct and indirect costs for asthma care

The most common cause of asthma ER visits

is failure to take medication regularly and properly



Wright Medical Tornier Aequalis Digital Ecosystem

Wright Medical's packaging of BLUEPRINT™ Planning Software and Aequalis Perform+™ Shoulder System

Not just products – a treatment system:

- BLUEPRINT surgical planning software
- Communications software to the OR
- Positioning and navigation functions for shoulder surgeries
- Wright Tornier Aequalis shoulders and instruments

A digital infrastructure in support of a surgical procedure

TAKEAWAY:
Competitive
advantage over
traditional shoulder
surgery products --
offering products in
a connected system
yields superior
results

Wright Tornier Results

A surgeon can:

- Pre-plan and do a dry run of the surgery on a computer screen in their office, complete with 3D visualization
- Transmit the procedure plan to the OR and other members of the surgical team
- Use the plan to properly align instruments and implants during the surgery

Results:

- Superior alignment
- Better placement in bone
- Fewer complications and readmissions



OEMs



RISK TRANSFER



SUPPLY CHAIN

How About the Supply Chain?

- *OEMs transferring manufacturing risk to supply chain*
- Everything can be outsourced but to whom?
- From the OEMs perspective better to have larger, more stable suppliers – risk is more effectively mitigated
- “One neck to choke”
- Rise of the global CMs in the device space
- Strategies for managing manufacturing transference risk



OEMs



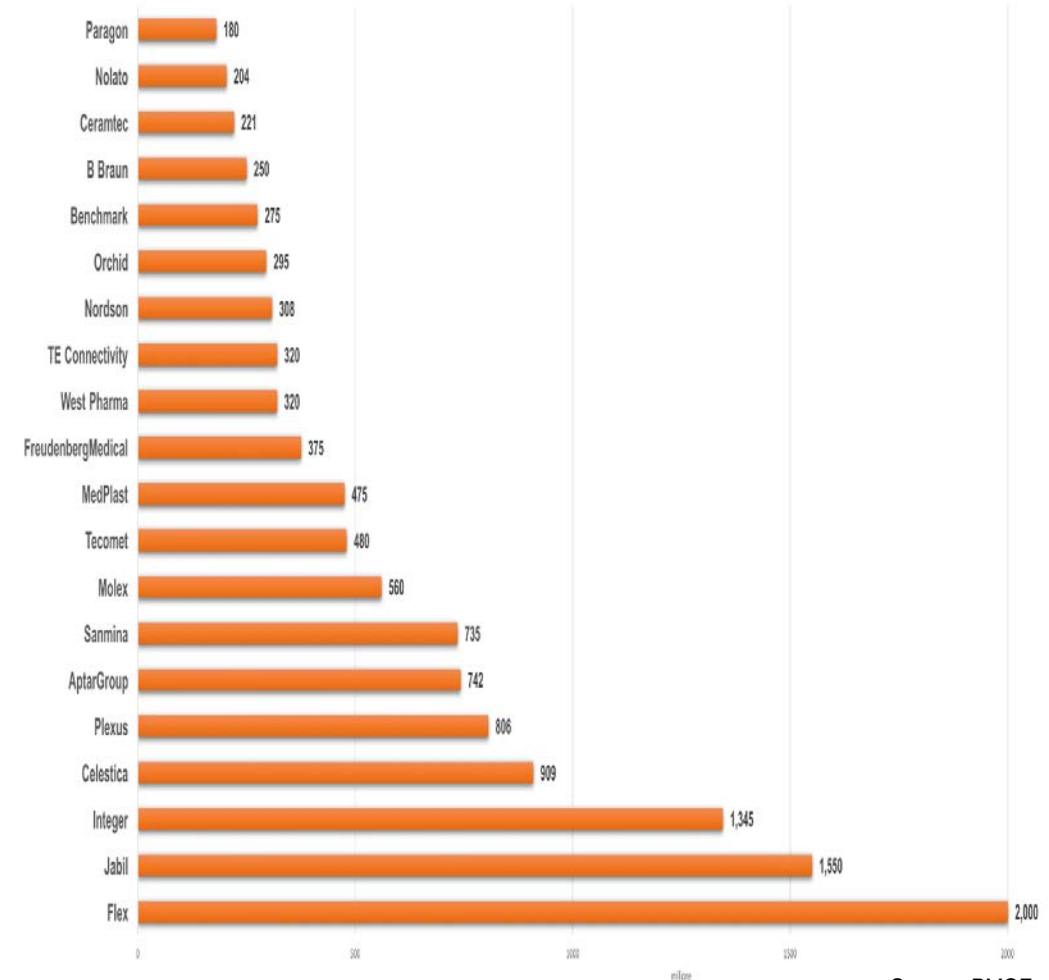
RISK TRANSFER



SUPPLY CHAIN

Rise of the Global CMs

- 8 of 10 largest medical contract manufacturers are global CMs with roots in electronics manufacturing
- Willing to take on the risks of greater LCC sourcing
- Used to gross margins in high single/low double digits



Source: PMCF



OEMs



RISK TRANSFER



SUPPLY CHAIN

Rise of the Global CMs – J&J and Jabil

- On August 2 Johnson & Johnson announced progress on its restructuring of the Medical Devices business unit ⁷:
 - RIF 5% of workforce (2,600 jobs)
 - It had formed a strategic collaboration with Jabil to produce a range of products for DePuy/Synthes and Ethicon Endo
- J&J projects savings between \$600 and \$800 million annually by 2022
- On September 25 Jabil announced it would take over 14 J&J sites as part of the strategic collaboration ⁸
- *J&J transferring manufacturing and facility risk to Jabil*
- Jabil's 2017 gross margin was 8.1% ⁹



SUPPLY CHAIN

Four Rules for Prospering

- Unique knowledge
- Speed to market
- Right the first time is a requirement
- Ability to support digital devices
 - Electronics
 - Software
 - Systems

For More Information



Tony
Freeman



Tony Freeman
President
A. S. Freeman Advisors

tfreeman@asfreeman.com
(917) 868-0772

References

1. https://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT Organization for Economic Co-operation and Development, OECD 2018 Healthcare Database. Downloadable dataset.
2. <https://www.selectusa.gov/medical-technology-industry-united-states>. In 2017 approximately 40% of global device sales are in the United States, the world's largest market. Source is International Trade Administration of the Department of Commerce.
3. <https://www.healthaffairs.org/doi/10.1377/hblog20160708.055764/full/> Health Affairs, *Value Based Reimbursement: The Rock Thrown Into The Health Care Pond*, Bruce Merlin Fried, Jeremy David Sherer, July 8, 2016
4. <https://aharesourcecenter.wordpress.com/2017/01/25/number-of-system-affiliated-vs-independent-community-hospitals-1999-2015/> American Hospital Association 2016 statistics.
5. https://www.accenture.com/t20150608T044420_w_/us-en/_acnmedia/Accenture/ConversionAssets/DotCom/Documents/Global/PDF/Dualpub_15/Accenture-The-Doctor-Will-Not-See-You.pdf Accenture, Inc. 2015 statistics .
6. https://www.cdc.gov/asthma/impacts_nation/asthmafactsheet.pdf U. S. Centers for Disease Control
7. <https://www.sec.gov/Archives/edgar/data/200406/000020040618000041/a2q10q07-01x18.htm> Johnson & Johnson Form 10-Q for second quarter, 2018. Please see Note 12 – Restructuring.
8. <https://evertiq.com/news/44859> Jabil to take over 14 J&J sites.
9. https://www.sec.gov/Archives/edgar/data/898293/000119312517313834/d424121d10k.htm#tx424121_8 Jabil Inc. FY2017 Form 10-K