

Global Trends in MedTech 2021

The OEM Landscape and Business Drivers



MPO Webinar Series

February 23, 2021

Three Events



Tuesday, February 23

The OEM Landscape and Business Drivers



Wednesday, February 24

*A Consolidating Supply Chain?
A Tiering Supply Chain? Both?*



Thursday, February 25

Panel Discussion of MedTech's Global Trends

About A.S. Freeman Advisors



Tony Freeman

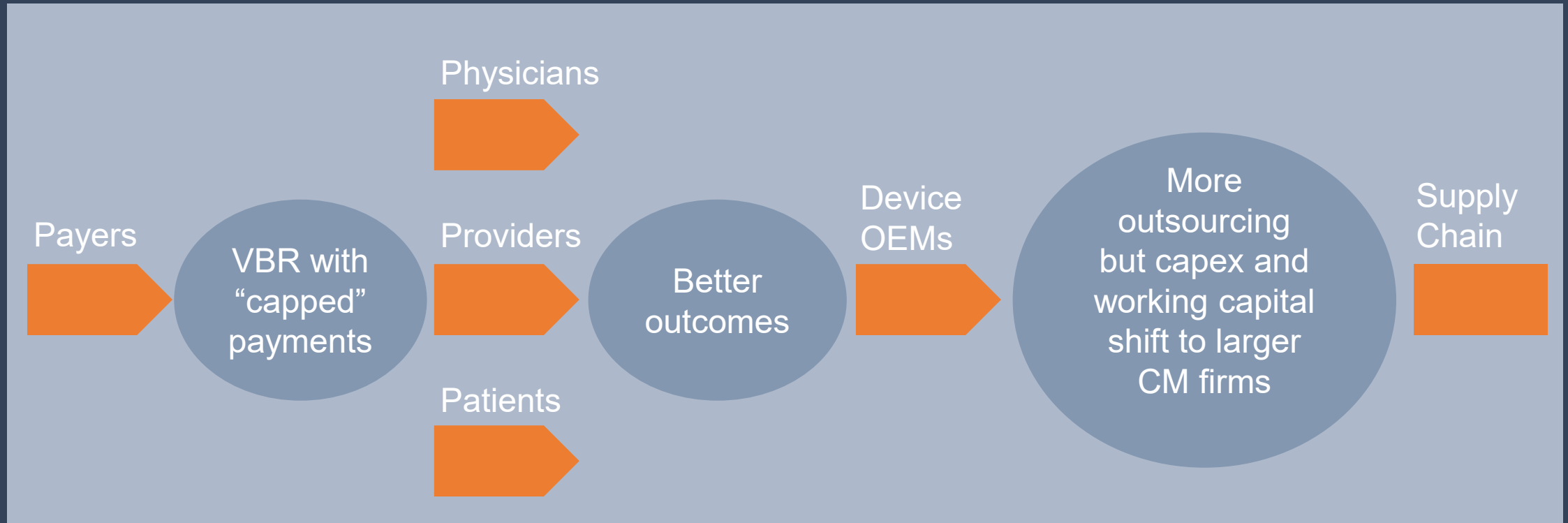


- Merger and acquisition advisory services
- Corporate strategy in support of transactions
- Focus on precision manufacturing and specialty materials markets
- Publishes *Global Trends: Medical Device and Diagnostic OEM Strategy and Implications for the Supply Chain*

Perspective: Looking Out 3 to 10 Years

- Focus on the “seismic trends” driving the industry
- Three- to 10-year horizon
- Source material: OEM presentations to analysts and investors

From 2018 Presentation: Transferring Economic Risk



- Shifting economic risk between players in the medical device ecosystem
- New roles, new strategies for OEMs and the supply chain

2021 Perspective

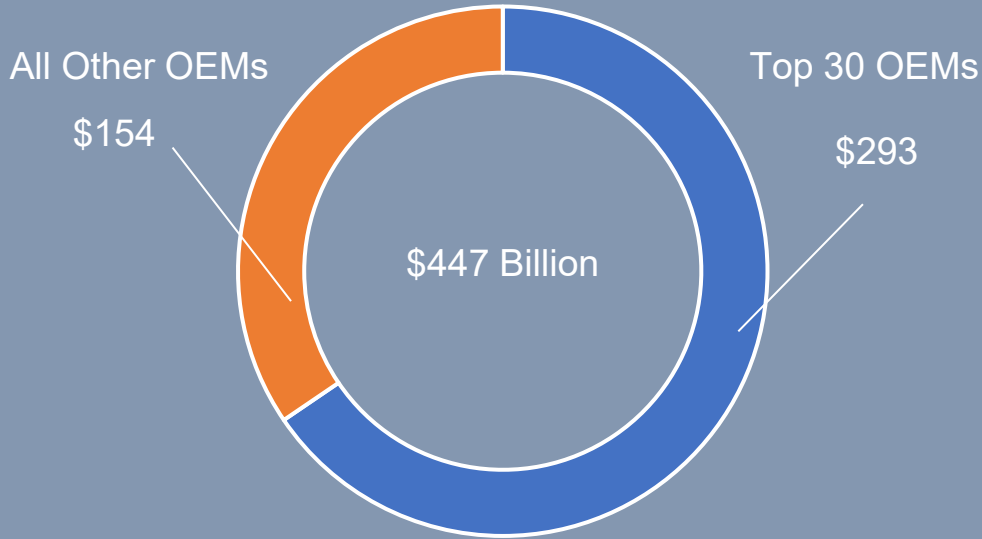
From Broad Expansion to an Era of Profitable Entrenchment

OEMs showing a sharply different set of strategies

1. Focus on winning key departments/medical types with impenetrable barriers to competition – from competition to domination
 - M&A
 - Offering revolutionary new products to an extent not seen since 1960s move to disposable devices
2. Beginning of transition from product companies to healthcare solutions companies, offering a mix of products and services to specific medical fields
3. Continued focus on internal efficiencies

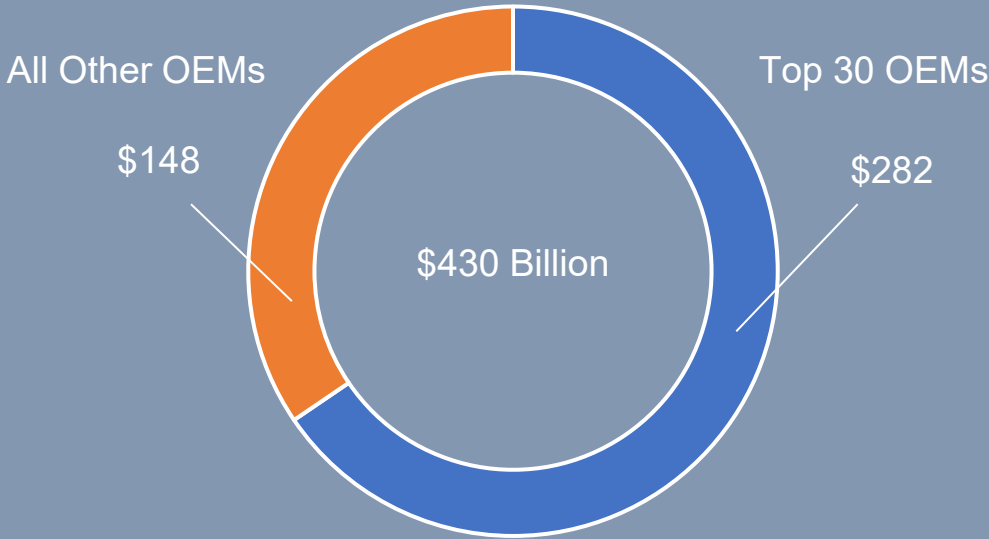
The Medical Device Industry

2019 Global Medical Device Revenues
(in US\$ billions)



2019 Revenues = \$447 billion

2020E Global Medical Device Revenues
(in US\$ billions)

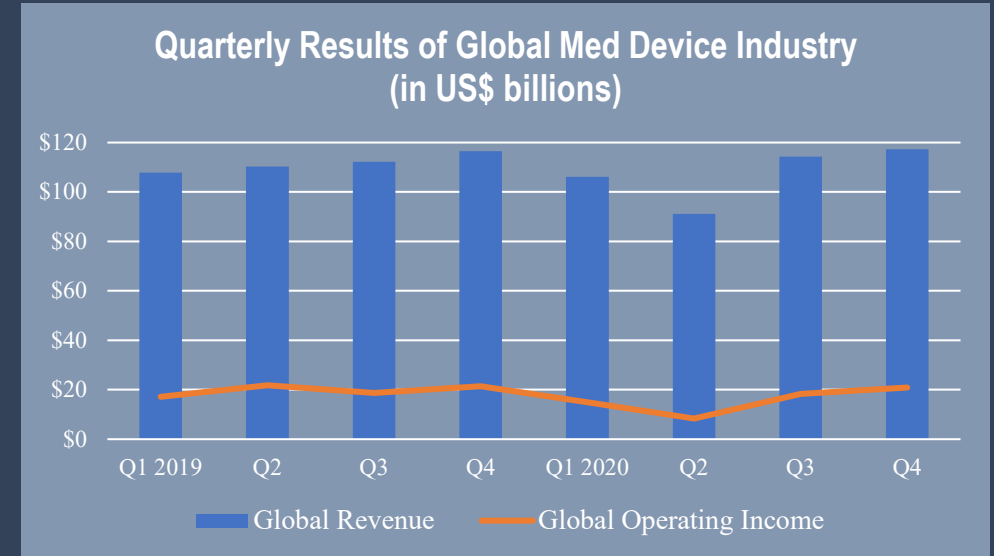


2020 Revenues = \$430 billion

Projected growth rate through 2025 of 5.4%¹

COVID-19's Impact

- Demand shock in Q2 2020 followed by a sharp recovery
- The industry is not immune to shocks
- OEMs state they are making plans
 - A “hardening” of operations
 - Local sourcing
 - Still, a lower priority than “growth opportunities”
 - More tomorrow in discussion of supply chain – outsourcing the risk



Meta Forces



Lift and thrust

- Aging population and the rise of chronic diseases
- Growing middle class in developing countries
- Investment in healthcare infrastructure in developing countries

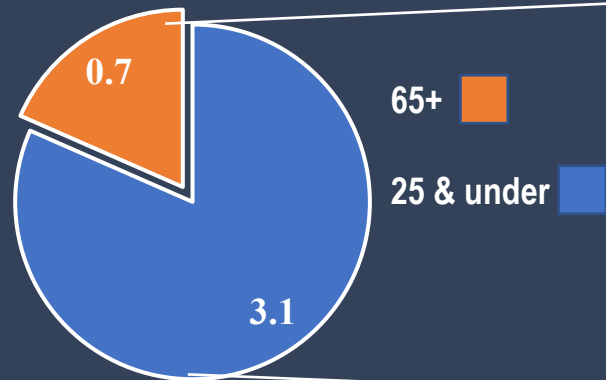
Gravity and drag

- Reimbursement model shift to value-based approach
- Fewer, more challenging customers

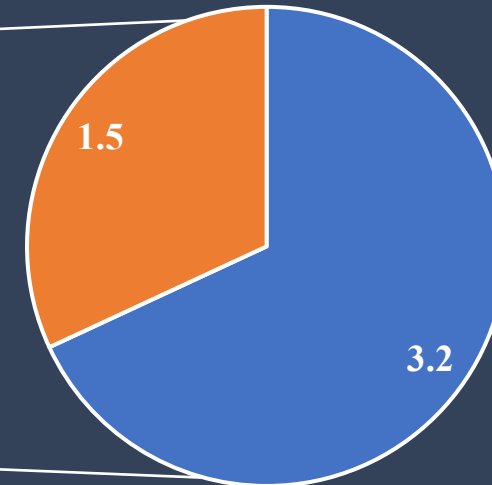
Lift and Thrust

An Older, Richer World is Coming

2020: 25-and-under vs. 65+



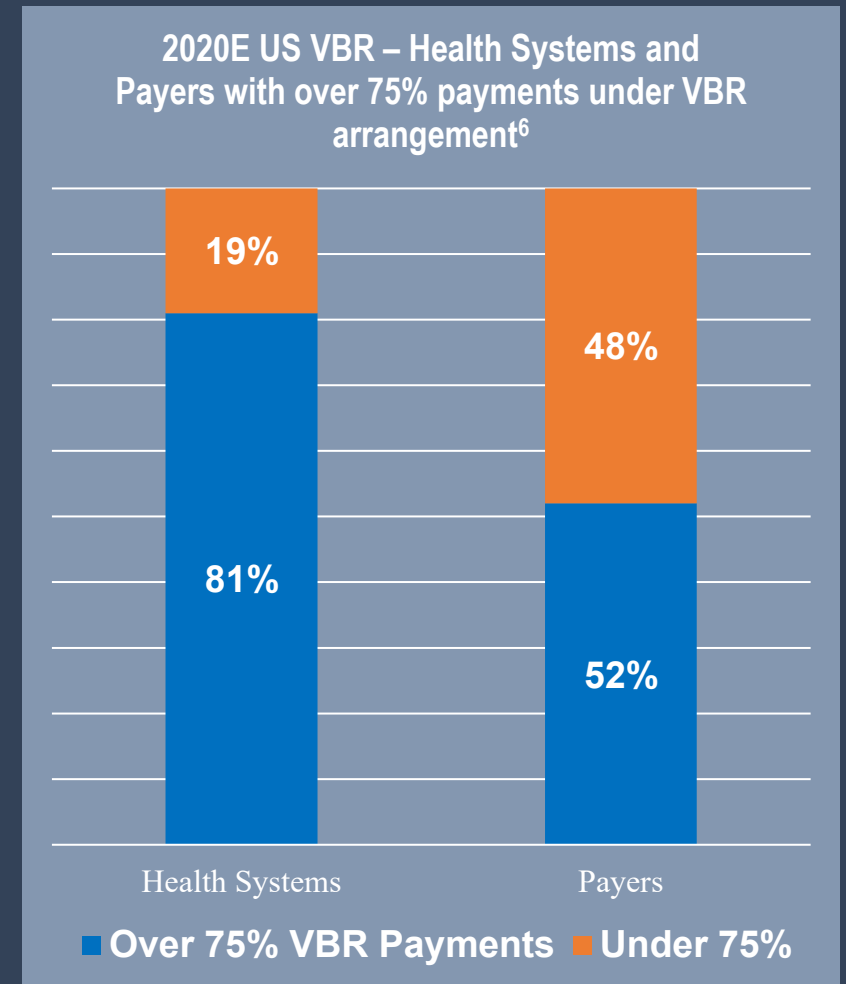
2050: 25-and-under vs. 65+



- Aging populations around the world ²
- Growth of the middle class in developing countries: 1.5B in the next 10-15 years, 90% in Asia ³
- Build-out of medical infrastructure in developing countries (2-3x growth rate of US/Europe/Japan) ⁴
- Rise of chronic diseases (often associated with affluence)
- **Growth market for medical device manufacturers for decades to come**

Reimbursement and Max Healthcare Spending

- Healthcare as % of GDP – Currently 17.7% in USA⁵
 - US market at 40% of global market
 - US drives the market as it combines scale and rich reimbursements
- Value-based reimbursement (VBR) rising sharply in US and Europe
- VBR:
 - Caps spending per procedure
 - Creates financial incentive for providers to find the most effective devices and processes
- **Forces providers to rely on devices that deliver the best outcomes, not just their availability**



Healthcare Consolidation

Fewer, More Demanding Buyers

- Fewer customers
 - Fewer, larger hospital systems: 67% of US hospitals in systems⁷
 - Fewer independent physicians' practices: As of 2018, 53% of US physicians were employees of hospitals or corporate practices⁸
 - For device OEMs:
 - Compelling capable, skilled buyers under financial pressure to choose the most effective device
 - “Hospital consolidation leading to slower decision making and increased purchasing power” - GE Healthcare⁹
- More at stake on each sale for the device OEM

How Are OEMs Reacting to These Trends?

1. Embracing value-based reimbursement as a competitive tool
2. Focusing on dominating areas of medical specialty
→ M&A
3. Core redesign of their products and their role in healthcare
→ Product/service portfolio

Embracing Better Outcomes

- >25 of Top 30 mention value-based healthcare/better outcomes
- In the “olden days” of fee-for-service:
 - OEMs were rewarded for showing up - the holy trinity of product, sales, and distribution
 - Better outcomes mattered but were overshadowed by successful placement
- What happens in a capped world?
 - If a device is demonstrably better, an OEM can drive out competitors, capturing more market share in a defensible, growing niche market

OEMs are shifting from:

Competition → Market leadership → Displacement of future competitors

Rationalizing Product Portfolio Through M&A

Year	Acquirer	Target	Specialty
2021E	Siemens Healthineers	Varian Systems	Cancer radiation systems
2020	Stryker	Wright Medical	Orthopedics
2019	3M	Acelity	Surgical dressings/wound closures
2019	J&J	Auris	Robotic surgery
2019	Boston Scientific	BTG	Oncology
2017	Becton Dickinson	CR Bard	Surgical devices
2017	Hologic	Cynosure	Aesthetics
2017	Abbott Labs	St. Jude	Cardiovascular
2017	Cardinal Health	Medtronic Patient Recovery	Hospital monitoring and supplies
2017	Abbott Labs	Alere	Diagnostics
2017	J&J	Abbott Medical Optics	Vision
2016	Canon	Toshiba Medical	Imaging
2016	Dentsply	Sirona	Dental devices and supplies
2016	Danaher	Cepheid	Diagnostics
2015	Cardinal Health	Cordis (J&J)	Cardiovascular
2015	Becton Dickinson	CareFusion	Drug delivery/fluid management
2015	Danaher	Pall	Life sciences
2015	Wright Medical	Tornier	Orthopedics
2015	Medtronic	Covidien	Spectrum of endosurgical products

Rationalizing Product Portfolio Through M&A *cont.*

- M&A by Top 30 trend toward market share and adjacency plays
- Less talk of “all things to all people” mergers
- Example: Medtronic/Covidien vs. Siemens/Varian
 - **Medtronic/Covidien** \$43 billion
 - Established the largest device company in the world
 - Expanded Medtronic to be the leader in eight of the 10 largest hospital departments
 - **Siemens Healthineers/Varian** \$16 billion
 - Close adjacency between Siemens (imaging) and Varian (cancer therapies) equipment
 - Imaging and cancer treatment as unified offering

Why Does This Trend Matter?

- More reinforcement of current areas of expertise than expansion to far fields of medicine
- Dominant market positions through merger with VBR as amplifier
- The rise of the “broad specialist” device OEM
- *Erecting brand fortresses within hospital departments*

Fundamental Shifts in Portfolios Due to VBR and Fortress Strategies

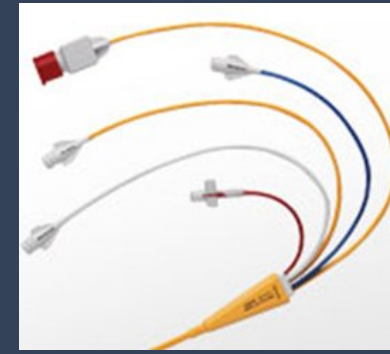
- Digital devices introduced to improve outcomes
- Networking of digital devices creates digital ecosystems
- Digital ecosystems:
 - Remake product portfolios
 - Change competitive dynamics between OEMs and customers
 - Alter how new products are planned and by whom

How Digital Are The OEMs?

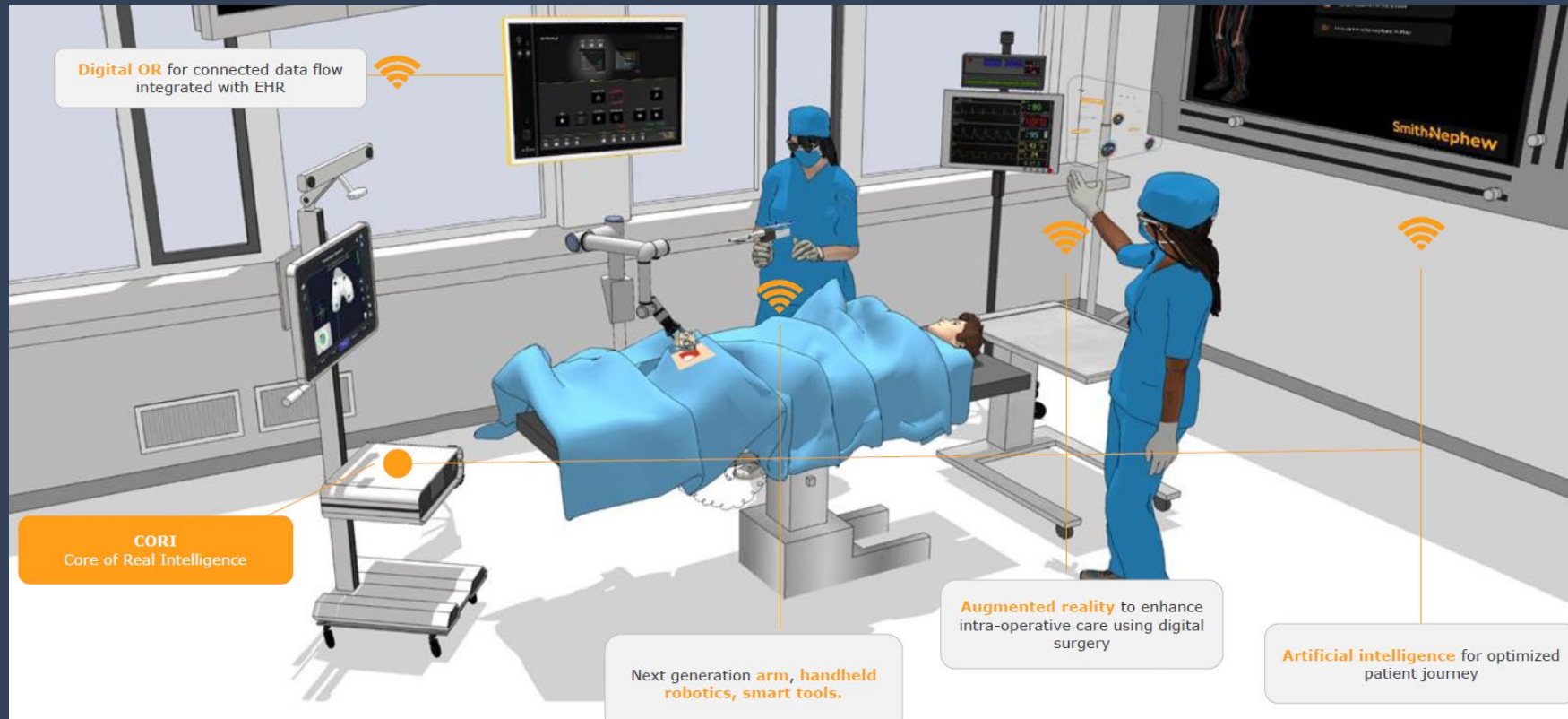
- OEMs are not only digitizing devices but creating networked systems of devices that operate in concert
- Medtronic as an example¹⁰:
 - 13 of 17 new products are digitally enabled
 - 24 of 27 new launches are or will be digitally enabled
- Top 30 OEMs:
 - 9 offer robotic products, 4 with products supporting robotic surgeries
 - 26 currently offer or have announced analytics/AI products

Edwards Lifesciences Smart Recovery Initiative

- Edwards linked traditional devices, digital devices, and AI software into a hypotension warning system
- Doesn't simply report, but **predicts** hypotension incidents
- Reduces hypotension incidents in surgery by up to 50%
- Sold as a system to hospital surgical units



Smith + Nephew CORI System



- Initial offering of digital operating room (launched 2020)
- Combines planning, imaging, robotic, and handheld devices in a single offering
- Augmented reality and AI to be added
- Superior recovery times, shorter hospitalizations

Other Digital Ecosystem Points...

“Data and analytics are the next great frontier in surgery.”¹¹

Geoff Martha, CEO, Medtronic

15% of **J&J** ortho products growth in 2020 came from digital products

Informatics connects 70% of US hospitals to **BD** products

BD employs 1,500 software engineers

GE Healthcare has over 200 digital apps

Philips Healthcare receives 45% of revenue from solutions and recurring revenues

Philips Healthcare teleICU offering reduces costs by \$5,000 per patient

55% of **Varian**'s revenues are from digital products or services, not hardware sales

How Do Digital Products Change OEM Strategy?

- Networked systems restrict competition and bolster fortresses
 - Financial constraints: High infrastructure costs means one preferred solution
 - Logistical constraints: Multiple systems in one department are unwieldy
 - Product benefit: Over time, the system that gathers the most information likely becomes more valuable (more paths to better outcomes) than the competition
- Only room for one winner? Consider Google.
- *Does digitization and networking mean that the information value of a device will come to rival its tangible value?*

How Will Digitization Change Device Companies?

- Rise of electronic and software engineering units
- Rise of analytics and software integration units
- Rise of solutions and recurring revenue
- Digital disciplines will influence and perhaps dictate future product design
 - Data science
 - Systems integration
 - Software development
- New suppliers – Microsoft, AWS, Apple, IBM – will influence product design and capabilities

A Deeper Focus on Internal Efficiency

- Most of the Top 30 stress their campaigns for internal cost improvement
- Goals range from 30 to 50 basis points per year
- Watch for:
 - Reorganizations to reduce overhead throughout the companies
 - Additional outsourcing of manufacturing and development services
 - Fewer facilities in developed countries, expansion in developing countries

Slide of the Year from Terumo Corporation

Paradigm Shift in Healthcare

Medical care system needs a change to resolve the challenges.
Technological advancements (e.g. digitalization) will enable and accelerate the change

	<u>Up to now</u>	<u>Going forward</u>
Where medical care happens	Hospital, clinics	+ Home and community care facilities
Medical care objectives	Acute	+ Management from health to long-term diseases
Basis for pricing	Input	+ Outcome

From
“Adapting to a New Healthcare Era: Disease-oriented Approaches”
 by Shinjiro Sato, President and CEO of Terumo Corporation. Presented November 7, 2019.

MPO Top 30 OEMs

Name/HQ Location	Ticker Symbol	URL
1. Medtronic - IRE	MDT	https://www.medtronic.com/us-en/index.html
2. Johnson & Johnson - USA	JNJ	https://www.jnj.com/
3. Abbott - USA	ABT	https://www.abbott.com/
4. GE Healthcare- USA	GE	https://www.gehealthcare.com/
5. BD- USA	BDX	https://www.bd.com/en-us
6. Philips - NETH	PHG	https://www.usa.philips.com/
7. Siemens Healthineers - GER	SMMNY	https://www.siemens-healthineers.com/
8. Cardinal Health- USA	CAH	https://www.cardinalhealth.com/en.html
9. Stryker- USA	SYK	https://www.stryker.com/
10. Baxter- USA	BAX	https://www.baxter.com/
11. Boston Scientific- USA	BSX	https://www.bostonscientific.com/en-US/Home.html
12. EssilorLuxottica - FRA	ESLOF	https://www.essilorluxottica.com/
13. B. Braun - GER		https://www.bbraunusa.com/en.html
14. Zimmer Biomet- USA	ZBH	https://www.zimmerbiomet.com/
15. 3M Health Care- USA	MMM	https://www.3m.com/3M/en_US/health-care-us/
16. Alcon - SWITZ	ALC	https://www.alcon.com/
17. Danaher- USA	DHR	https://www.danaher.com/
18. Fresenius - GER	FMS	https://fmna.com/
19. Olympus - JAPAN	OCPNY	https://www.olympus-global.com/
20. Terumo - JAPAN	TRUMY	https://www.terumomedical.com/
21. Smith+Nephew - UK	SNN	https://www.smith-nephew.com/
22. Intuitive Surgical- USA	ISRG	https://www.intuitive.com/en-us
23. Edwards Lifesciences- USA	EW	https://www.edwards.com/
24. Dentsply Sirona- USA	XRAY	https://www.dentsplysirona.com/en-us
25. Canon Medical - JAPAN	CAJ	https://us.medical.canon/
26. Hoya - JAPAN	HOCPY	hoya.com
27. Hologic- USA	HOLX	https://www.hologic.com/
28. Hitachi - JAPAN	HTHIY	https://www.hitachi.com/
29. Varian Medical- USA	VAR	https://www.varian.com/
30. Sonova - SWITZ	SONOVY	https://www.sonova.com/en

References and Acknowledgements

1. Fortune Business Insights, February 2020: Global medical device industry is projected to grow to \$612.7B by 2025 at a CAGR of 5.4% from 2019 to 2025. <https://www.medgadget.com/2020/02/medical-devices-market-2020-size-growth-trends-share-demand-key-players-statistics-revenue-new-developments-competitive-landscape-and-regional-forecast-to-2025.html>
2. 9.1% of the world's total population was aged 65 or older. 18.9% of the population of the world's more developed regions was aged 65 or older. The number of persons aged 65 years or older is expected to grow in all regions.p. 4: https://population.un.org/wpp/Publications/Files/WPP2019_DataBooklet.pdf. https://population.un.org/wpp/Publications/Files/WPP2019_Highlights.pdf. https://population.un.org/wpp/Publications/Files/WPP2019_Volume-II-Demographic-Profiles.pdf
3. p. 11-16: https://www.brookings.edu/wp-content/uploads/2017/02/global_20170228_global-middle-class.pdf “We are witnessing the most rapid expansion of the middle class, at a global level, that the world has ever seen... The vast majority—almost 90 percent—of the next billion entrants into the global middle class will be in Asia: 380 million Indians, 350 million Chinese, and 210 million other Asians.” (p. 13)
4. A.S. Freeman Advisors consensus analysis of Top 30 OEM commentary on growth rates and causes of growth in developing regions of the world.
5. Centers for Medicare and Medicaid Services, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical#:~:text=The%20data%20are%20presented%20by,spending%20accounted%20for%2017.7%20percent>.
6. Value-based care over 75% for US healthcare systems. <https://revcycleintelligence.com/news/healthcare-reimbursement-still-largely-fee-for-service-driven>
7. American Hospital Association <https://www.aha.org/system/files/media/file/2021/01/Fast-Facts-Hospitals-Infographic-2021-jan21.pdf>. As of FY2019, 67% (3,453) of community hospitals are system-affiliated while 33% (1,688) are independent.
8. American Medical Association, <https://www.ama-assn.org/system/files/2019-07/prp-fewer-owners-benchmark-survey-2018.pdf>. As of the 2018 AMA Physician Practice Benchmark Survey, 47.4% of the patient care physicians surveyed were employees of hospitals/hospital-owned practices versus 45.9% who had an ownership stake in their practice and 7% who were independent contractors.
9. 2019 GE Healthcare Investor Day presentation, December 2, 2019.
10. A. S. Freeman Advisors analysis of recent Medtronic product announcements.
11. Letter to Medtronic Shareholders, Geoff Martha, CEO, September 29, 2020

Special acknowledgements to A. Connor, J. Howey, S. Fenske, C. Eicher, A. Yan, G. Parsons/E. Harris

For More Information

Please contact:

Tony Freeman

President

A.S. Freeman Advisors, LLC

tfreeman@asfreeman.com

+1 (917) 868-0772