Healthcare 2025: Personalization, Without PCP

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Key Take-Aways:

• Framework for the impact of the widening world of stakeholders in the future healthcare system
• Roadmap for the coming alternative to primary care as we have known it
• Insight on segmentation, stratification and individualization that will change private payer plans
Business Process Change is the Biggest Challenge Facing Healthcare Providers

The adoption of the ACO model is changing the way hospitals look at their structure, roles, activities, how they measure themselves.

“What was once a payment is now a cost. What was once a cost is now a potential savings.”

Is this revolution, or evolution with an accelerated adoption curve?

What changes will challenge healthcare providers in this new model?

- Physician alignment
- Data is everything (and everything needs to be data-driven)
- Data integration
- Democratization of data
- Risk-sharing for everyone – Look in the mirror
- Mobility + security of information
- Core competencies vs outsourcing
- Leveraging lower-skilled clinical personnel and technology to achieve more touch at lower cost
- Patient engagement – Can the interaction gap be closed?
Do You Have Strategies To Deal With These Key Issues?

**FRAGMENTATION**
– Are you part of the problem or part of the solution?

**DATA → INTEGRATION → ANALYTICS → ACTION**

**TECHNOLOGY → APPS → SOLUTIONS**

**SCALABILITY**

Source: Frost & Sullivan analysis.
The shift toward payments based on quality + cost over procedure-based reimbursement will change the way medical technologies are evaluated and purchased

- Decision by committee
- Slower adoption of new technologies – especially large capital purchases?
- Revolution versus evolution?
- Integration of information, analytics – holistic view of patient, eliminate administrative waste and unnecessary care
- Cost of adoption, impact on workflow
- New pricing models, sharing of risk
Realities of the New Market

**Fail Fast**
Product and tactical sales strategies are being evaluated for quick return, resource limitations constrain a company’s ability to support lagging business models.

**U.S. from Exporter to Importer of Med Tech**
Currently one of few the markets where the U.S. has a significant trade surplus with the rest of world, shifts seen in other industries could play out as low cost manufactured products supplant products currently made in the United States.

**Deemphasize the Clinician**
Purchase decisions are moving away from clinicians to hospital-based administrators and committees. Most existing sales team structures and messaging were developed for a market that is quickly fading away.

**Deemphasize Products**
As products increasingly become commoditized and the tax burden is placed on medical product sales, companies are increasingly looking to build revenue mix from service, software, enhanced support, and other offerings.
Healthcare Without PCPs, Or At Least a Changing Role

65,800 = Projected shortage of Primary Care Physicians in 2025*

Traditional roles of the PCP
- Single holistic view of the patient
- Longitudinal tracking of patient record
- Treat wide range of minor conditions, ailments
- First level screening, test and diagnose
- Refer to specialist
- Personal relationship with patient, family
- Focus for behavior change due to factors above

Meanwhile the world has changed

- Social networks
- Retail clinics
- IBM’s Watson
- Consumerism
- Smart phones
- EHR
- Mobile health
- Patient portals
- Wellness
- $80 HD cameras
- Skype
- Job mobility
- Doctor Google
- Telehealth
- Remote monitoring
- Provider consolidation

*AAMC, The Lewin Group
Changing Consumer Attitudes Towards Care Delivery

According to a recent survey of 6,000 people in 10 countries (sponsored by Cisco)

76% of patients say access to care is more important than physical human contact with their care provider.

70% of patients would trust an automated device to provide a diagnosis and determine whether or not they needed to see a doctor.

74% of patients are comfortable having their health records available in the cloud, assuming adequate security (excluding Germany and Japan).

But…

87% of patients would trade off time, money and/or convenience to be treated at a perceived leading healthcare provider, and gain access to trusted care and expertise.
Designated PCPs Not Needed for All

Business model innovation among hospitals and care plans will require reducing care costs and testing new models.

- Consumers have high levels of trust in technology tools.
- People expect more control over time and want convenience, avoid waiting.
- Changing attitudes towards personal interaction.

For at least some portion of the population, a single assigned PCP is not seen as a have-to-have.
No More Employer Contracted Health Plans?

“Survey: Half Of Employers Will Stop Offering Health Coverage, Give Workers Cash For Plans Instead”

“Sears, Olive Garden To Offer Employees Money To Pay For Health Care”

“Employee Healthcare: More Firms Trading With Doctors, Dentists, Pharmacies”

Factors driving change in healthcare coverage

- Rising cost of care
- Development of insurance exchanges
- One size fits all is not consumer friendly
- Micro segmentation drives personalization in choice
What Will The Future Look Like?

- Healthcare increasingly data driven and customized
- Healthcare more like other service industries
- Globalized care delivery
- New care models focused on collaboration, information exchange/awareness, achieving health outcomes, especially with chronic disease care
- Increased development of standards of care and incentives to adopt them
- Personalization of treatment, interaction, coverage
- Increased patient engagement to manage disease via remote monitoring and mobile apps
- Increased leveraging of tech and non-physicians
- More “generics” – technologies providing same value at lower price, stripped down feature sets
- Increased use of analytics to define care pathways
Medical Device Market Overview
- The United States, Western Europe, and Japan dominate the world’s consumption of medical technologies, but most established markets are stuck at growth rates between 5-7%

- Many emerging markets are witnessing annual medical device consumption growth rates of 15-20%

Source: Frost & Sullivan analysis.
Key Takeaway: The market is weighted towards life saving technologies revolving around advanced surgical and implant technology lines.

Medical Devices Market: Segmentation by Product Class, Global, 2012

- Treatment Devices: 72%
- Other: 28%

Other (Including: Durable Medical Equipment, Hospital Supplies, Consumables): 29%
- Ortho: 14%
- Cardiology: 11%
- Woundcare: 6%
- Minimally Invasive Surgery: 11%
- Ophthalmology: 10%
- Uro-Gyno: 2%
- Robotics-Navigation: 2%
- Neuro: 2%
- Respiratory-Anesthesia: 5%
- Audiology: 6%
- Aesthetics: 2%
- Other (Including: Durable Medical Equipment, Hospital Supplies, Consumables): 29%

Note: All figures are rounded. The base year is 2012. Source: Frost & Sullivan analysis.
Asia as the Focus for Healthcare Spending Growth

Key Takeaway: APAC healthcare expenditure is expected to increase 151.0 percent by 2020, while countries with the lowest projected growth rate will be the United Kingdom, Italy, and Germany. China, Vietnam, and India are expected to have the greatest CAGRs in APAC.

Total Healthcare Expenditure, Global, 2010-2020

- **APAC**
  - United States: $3,922.00 billion, CAGR 4.6%
  - APAC: $2,927.00 billion, 151.0% increase 2010-2020, CAGR 9.2%

- **G7**
  - Japan: $563.00 billion, CAGR 3.0%
  - G7: $6,147.00 billion, 50.0% increase 2010-2020, CAGR 4.0%

- **Brazil, Russia, India, and China (BRIC)**
  - Brazil, Russia, India, and China (BRIC): $1,958.00 billion, 212.0% increase 2010-2020, CAGR 12.1%

- **Brazil, Russia, India, China (BRIC)**
  - Brazil: $1,958.00 billion, CAGR 12.1%

- **G7**
  - United States: $3,922.00 billion, CAGR 4.6%
  - G7: $6,147.00 billion, 50.0% increase 2010-2020, CAGR 4.0%

- **APAC**
  - India: $331.00 billion, CAGR 14.5%
  - Indonesia: $47.00 billion, CAGR 8.1%
  - South Korea: $127.00 billion, CAGR 5.5%
  - Singapore: $23.00 billion, CAGR 9.6%
  - Malaysia: $25.00 billion, CAGR 8.4%
  - Vietnam: $31.00 billion, CAGR 14.8%
  - The Philippines: $26.00 billion, CAGR 11.5%
  - China: $1,446.00 billion, CAGR 15.5%
  - Australia: $198.00 billion, CAGR 3.0%
  - Taiwan: $65.00 billion, CAGR 7.8%
  - Thailand: $25.00 billion, CAGR 8.4%

Note: APAC includes India, China, Japan, Hong Kong, The Philippines, South Korea, Australia, Indonesia, Malaysia, Singapore, Vietnam, Thailand, and Taiwan. Source: WHO, World Bank and Frost & Sullivan analysis.
Treatment Paradigm Matrix for Medical Devices

Source: Frost & Sullivan analysis.
Technology Convergence in Medical Devices

**Medical Device Connectivity**
Diagnostic, monitoring, and treatment technologies leveraging developments from telecom and tech companies including long and short range wireless communications, cloud computing, big data analysis, and information security are enabling advances in effectiveness of care and reducing manual workload.

**Nanotech Advances**
Currently used mostly in laboratory and materials coating applications. In the future nano scale robots could be controlled to perform targeted drug delivery, cellular manipulation, or even in-situ surgical procedures.

**Flexible Electronics**
Flexible electronics and displays currently being developed for commercial electronic devices, have tremendous applications for hospital care settings where currently large fixed equipment is creating clutter and workflow challenges.

**Augmented Reality**
Augmented reality devices which can overlay information and images via smart glass technologies could for example, in a surgical setting provide the surgeon access to scans, vitals, and patient data real time without interruption in workflow.

**3D Printing**
As the cost and size of 3D printing technologies continues to become more scalable to healthcare settings, they have the potential to produce customized implants, surgical tools, and bioprinted tissues for various treatment applications.
<table>
<thead>
<tr>
<th>Present-2020</th>
<th>2021-2025</th>
<th>2026-2030</th>
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<tbody>
<tr>
<td>Renal Denervation</td>
<td>Implantable Lab on a Chips</td>
<td>Nanobot Surgery</td>
</tr>
<tr>
<td>Telesurgery</td>
<td>Bionic Prosthetics- Eye</td>
<td>Nanobot Immune Response</td>
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<td>Bioresorbable Stents</td>
<td>Artificial Lungs</td>
<td>Bionic Prosthetics- Brain Augments</td>
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<td>Smart Textiles-Monitoring</td>
<td>Bioprinted- Bone</td>
<td>Bioprinted Heart</td>
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<td>Bionic Prosthetics-Arm, Leg, Eye</td>
<td>Nanotech- Gene Therapy</td>
<td>Bioprinted Pancreas</td>
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<td>Bioprinted-Organ Patches, Blood Vessels, Cartilage, Breast, Nose, Ears</td>
<td>Synthetic Blood</td>
<td>Bioprinted Kidneys</td>
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<td>Nanotech- Coatings, Drug Delivery</td>
<td>Nerve Regeneration</td>
<td>Reverse Aging Treatments</td>
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<td>AI Enhanced Diagnosis</td>
<td>Personalized Genomics and Treatments</td>
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<td>Robot Assistants- Nursing, Wellness, Remote Interaction</td>
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Five Signs A Medical Technology Company Might Need to Reinvent its Business Model

- **Eroding Customer Value Proposition**
  - Customers view its product/services as commoditized
  - Customers see limited differentiation between available devices
  - Diminished customer enthusiasm for new product upgrades

- **Profit Model Under Pressure**
  - Declining YOY margins
  - Competitors going out of business, consolidating, exiting market
  - Significant internal cost cutting necessary to maintain viability

- **Market Disruptors on the Horizon**
  - Business exposed to technology obsolescence, due to new advances
  - New technologies capable of providing comparative product/service value either cheaper, faster, simpler, or to a broader addressable customer base

- **Internal Infrastructure Deteriorating**
  - High employee turnover rates, due to career apathy
  - Strategy focused on maintenance as opposed to expansion
  - Team slow to adapt and/or innovate

- **Investment Dollars Flowing in Opposite Direction**
  - Limited VC/investment buzz for market and its future
  - Limited academic curiosity and interest in advancement
  - Public companies struggling to maintain stock price
Thank You

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Mapping Success in an Outcomes-Driven Healthcare Environment

Jim Hollingshead
President, Americas, ResMed
Key Takeaways

• How outcomes-driven medicine influences go-to-market strategy for medical devices

• Leveraging medical research to inform and reset payor agendas

• Creating compliance systems to align with personalized medicine
Who we are

Global leader in the development, manufacturing and distribution of medical devices to treat sleep-disordered breathing and other respiratory conditions.
About our operations

- Founded in 1989
- Nearly 4,000 employees worldwide
- Products distributed in 70 countries

- Headquartered in San Diego, USA
- EU headquarters in Munich
- APAC headquarters in Sydney
How We Go To Market
Market opportunities

Market Size – 20% sleep apnea in the adult population.*
13% Mild;  7% Moderate to Severe

Young T, Peppard E, and Gottlieb D. Epidemiology of obstructive sleep apnea: a population health perspective. *Am J Respir Crit Care Med* 2002; 165:1217-1239

*More recent U.S., Canadian and Israeli data suggest 25 to 26%
Annual Revenue Growth

$0  $200  $400  $600  $800  $1,000  $1,200  $1,400  $1,600

Sleep Apnea is in the center of major chronic diseases

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Logan et al., *J. Hypertension* 2001
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O’Keefe and Patterson, *Obes Surgery* 2004
Einhorn et al., *Endocrine Prac* 2007
Garrigue et al., *Circulation* 2007
Gami et al., *Circulation* 2004
Sjostrom et al., *Thorax* 2002
Schafer et al., *Cardiology* 1999

Coronary Artery Disease

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Market Dynamics
The Old World – “Efficacy Based” Innovation

Unmet Medical Need + Technology → Clinical Proof of Concept → Reimbursement
The New World – Outcomes

What’s the new innovation model?

Safety and Efficacy, PLUS . . .
Proof of QoL;
Improved health outcomes
Decreased system costs

Unmet Medical Need
+ Technology
Clinical Proof of Concept
Reimbursement

New Types of Data
Proof of Concept, PLUS . . .
Health Economics
Proof of Compliance

Medical device tax

Policy Changes
Reimbursement Models

Down, Down, Down
Innovation for Patients
Innovation for Patients

S9 Series Air Flow Generator

Swift FX Nasal Pillows Mask
Innovation for Patients AND Customers

For Patients:
- Easy to put on
- Easy to wear
- Easy to clean
- Get on therapy
- Stay on therapy
- Improve their health

For Customers:
- Faster fit
- Higher compliance
- Lower service costs
- Get paid, and faster
- Reduce labor costs
- Reduce working capital
- Increase Cash Flow

- Extremely light, unobtrusive, and comfortable
- Fits 90% of faces with one size
- Only 5 parts

Mirage™ FX
NASAL MASK
Innovation for Customers **AND** Payors

EasyCareOnline
Compliance Monitoring Solution
Finding New Opportunities

• Randomized Control Trial of 1300 Heart Failure Patients with Sleep Apnea – largest ever RCT in the Sleep industry

• Aims to demonstrate our Adaptive Servo Ventilation device is a HF therapy, and not just a sleep therapy

• End points are morbidity and mortality

• Rehospitalization is a major focus
Finding New Opportunities

- **Touchless** RR sensor, no patient effort for compliance
- Working on proof of concept to **predict and prevent hospitalizations** from key chronic diseases
In Sum . . .

• We will all need to “do more with less”
• Innovation is the only way out of the box
• You’ve got new customers
• It probably makes sense to think of “the system” as your customer
The New World – Outcomes

Outcomes-Driven Medicine

Safety and Efficacy, PLUS . . .
Improved health outcomes
Decreased system costs

New Types of Data

Proof of Concept, PLUS . . .
Health Economics
Proof of Compliance

Commodity Products?

Unmet Medical Need

Clinical Proof of Concept

Reimbursement

Medical device tax

Policy Changes

Reimbursement Models

Down, Down, Down
What we need from our partners

• We’re thinking creatively and “systemically” – it would be helpful for you to do it too
  – For example, CMS wants fewer hospitalizations, and more people cared for at home, but . . .
  – Provides no reimbursement for remote monitoring
  – Has run a Competitive Bidding process that is putting homecare providers out of business
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75% of US Healthcare Spend
What we need from our partners

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- For example, every payor we talk to is driving toward Care Management models, but . . .
- Every payor wants different data
- UM and CM teams are generally not talking to each other
• Innovation is still the way forward for all parties, and is clearly the best path for patients

• ResMed is committed to leading in our space, and driving innovation across the whole system – for patients, customers, and payors

• “The system” will work best when everyone in it sees it as a system
Thank You

Jim Hollingshead