Value-Based Health Care Delivery: The Agenda for Head & Neck Surgery

Professor Michael E. Porter
American Head & Neck Society

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This presentation draws heavily on Professor Porter’s research in health care delivery including Redefining Health Care (with Elizabeth Teisberg), What is Value in Health Care, NEJM, and The Strategy That Will Fix Health Care, HBR (with Thomas Lee). A fuller bibliography is attached. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means — electronic, mechanical, photocopying, recording, or otherwise — without the permission of Michael E. Porter. For further background and references on value-based health care, see the website of the Institute for Strategy and Competitiveness.
Disclosure

Michael Porter

I have had a commercial relationship with the following organizations:

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<th>Company</th>
<th>Role</th>
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<tr>
<td>Vanderbilt University Medical Center</td>
<td>Strategic Advisor</td>
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<td>Allscripts</td>
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<td>Merck &amp; Co.</td>
<td>Shareholder</td>
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Health Care Remains a Global Issue

Health Care Spending vs GDP and Income

1. Sweden changed reporting methodology and included long-term care spending in 2011, but not prior to 2011; thus HC spend for Sweden is indexed 1995-2010 and 2011-2016 with GDP growth 2010-11. Notes: All indexes based on local currencies; Income = Personal Disposable Income

Source: WHO, EIU (May 2017), BCG analysis

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Incremental “Solutions” Have Had Limited Impact

- Evidence-based medicine
- Safety/eliminating errors
- Prior authorization
- Patients as paying customers
- Electronic medical records
- “Lean” process improvements

- Care coordinators
- Programs to address high cost areas (e.g. readmissions, post acute)
- Mergers and consolidation
- Personalized medicine
- IBM Watson

- **Restructuring health care delivery** is needed, not incremental improvements
Solving the Health Care Problem

• The fundamental **goal and purpose** of health care is to **value for patients**

\[
\text{Value} = \frac{\text{Health outcomes that matter to patients}}{\text{Costs of delivering these outcomes}}
\]

• Delivering high value health care is the **definition of success**

• Value is the only goal that can **unite the interests** of all system participants

• Improving value is the **only real solution**

• The question is how to design a health care delivery system that **substantially improves patient value**
Creating a Value-Based Health Care System

• Today’s care delivery approaches reflect legacy organizational structures, management practices, and payment models based on historical medical science and delivery practices.

• There have been significant advances in medical science, yet service delivery organizational practices have not evolved.

• Health care has gotten lost in the sheer complexity of the system and the pursuit of multiple goals including patient experience, safety, efficacy, access, cost, research, and training, etc.
Principles of Value-Based Health Care Delivery

• Value **cannot be understood** at the level of a hospital, a care site, a specialty, an intervention, a primary care practice or a broad population

• Value is created in caring for a patient’s **medical condition** (acute, chronic) over the **full cycle of care**

\[
\text{Value} = \frac{\text{The set of outcomes that matter for the condition}}{\text{The total costs of delivering these outcomes over the full care cycle}}
\]

• In **primary and preventive care**, value is created in serving **segments of patients** with similar primary and preventive needs

• The medical condition is the proper unit of **value creation** and **value measurement** in health care delivery
Creating a Value-Based Health Care Delivery System

The Strategic Agenda

1. Re-organize care around patient conditions or groups of related conditions into **integrated practice units (IPUs)**, covering the full cycle of care
   - For primary and preventive care, IPUs serve **distinct patient segments**

2. Measure **outcomes** and **costs** for every patient

3. Move to value-based reimbursement models, and ultimately **bundled payments** for conditions

4. **Integrate** and **coordinate** care in multi-site care delivery systems

5. Expand or affiliate **across geography** to reinforce excellence

6. Build an enabling **information technology platform**
Issues Facing Head & Neck Surgeons

• How to provide integrated care with well-resourced multi-disciplinary teams

• How to measure standardized outcomes, including risk factors, that capture the breadth of conditions that represent head & neck disease

• Creating a national and international disease registry in head and neck to enable benchmarking of outcomes and care improvement

• Developing new head & neck cancer reimbursement models

• How to create and optimize affiliate networks that provide the right care in the right locations
Organize Care Around Patient Medical Conditions
Head & Neck Cancer Care at MD Anderson

Historical Model:
Organize by Specialty and Discrete Service

- Medical Oncologist
- Speech & Swallow
- Plastic Surgeon
- Prostodontist
- Head & Neck Surgeon
- Radiation Oncologist
- Radiologist
- Pathologist
- Dentist
- Primary Care or Referring Physician

IPU-Focused Model:
Organize around Conditions

- Shared Ancillary Services:
  - Smoking Cessation
  - Patient Education
  - Integrative Medicine

- Shared Specialties:
  - Pathologist
  - Plastic Surgeons
  - Neurosurgeons
  - Cardiologist
  - Endocrinologist
  - Other Specialties

- Head & Neck Cancer
- MDs:
  - Medical Oncologist
  - Surgical Oncologist
  - Radiation Oncologist
  - Dentist
  - Radiologist

- Specialized Staff:
  - APNs
  - Nurse
  - Social Worker
  - Speech Pathologist
  - Patient Advocate
  - Patient Access
  - Nutritionist

- Facilities:
  - Outpatient Clinic
  - Swallowing Lab
  - Hearing Lab
  - Prosthodontic Lab
  - Voice Lab
  - Radiology Reading Room

Source: Porter, Michael E., Jain, Sachin, The University of Texas MD Anderson Cancer Center: Interdisciplinary Cancer Care. February 26, 2013.
The Playbook for Integrated Practice Units (IPUs)

1. Organized around a **medical condition**, or **groups of closely related conditions**.
2. Care is delivered by a **dedicated, multidisciplinary team** devoting a significant portion of their time to the condition
   - Involve in-house staff, or affiliated staff with ongoing working relationships with the IPU
3. **Co-located in dedicated facilities**.
4. A **hub and spoke** structure, with less complex and repetitive services performed in affiliated sites
5. Takes responsibility for the **full cycle of care**
6. **Patient education, engagement, adherence, follow-up, and prevention** are integrated into the care process
7. The unit has a clear **clinical leader**, a common **scheduling and intake process**, and a unified **financial structure** (single P + L)
8. A **physician team captain, clinical care manager** or both oversees each patient’s care
9. The IPU **routinely measures** outcomes, costs, care processes, and patient experience using a **common platform**
10. The team **accepts joint accountability** for outcomes and costs
11. The team **regularly meets formally and informally** to discuss individual patient care plans, process improvements, and how to improve results.
Volume Matters for IPUs and Value

- **More patients** with the same condition enables higher value
• Measuring **performance** is essential, not just **conformance** to guidelines and certification requirements.
The Outcome Measures Hierarchy

Tier 1
Health Status Achieved or Retained
Survival
- Degree of health/recovery

Tier 2
Process of Recovery
Time to recovery and return to normal activities
- Disutility of the care or treatment process (e.g., diagnostic errors and ineffective care, treatment-related discomfort, complications, or adverse effects, treatment errors and their consequences in terms of additional treatment)

Tier 3
Sustainability of Health
- Sustainability of health/recovery and nature of recurrences
- Long-term consequences of therapy (e.g., care-induced illnesses)

Source: NEJM Dec 2010
Measuring Multiple Outcomes
Prostate Cancer Care in Germany

- Survival alone is **not enough**

Source: ICHOM
Measuring Multiple Outcomes
Prostate Cancer Care in Germany

- Average hospital
- Best hospital

5 year disease specific survival
- Average hospital: 94%
- Best hospital: 95%

Severe erectile dysfunction after one year
- Average hospital: 75.5%
- Best hospital: 17.4%

Incontinence after one year
- Average hospital: 43.3%
- Best hospital: 9.2%
Adult Kidney Transplant Outcomes

1987 - 1989


- Number of centers: 219
- Number of transplants: 19,588
- 1 Year Graft Survival: 79.6%
- 16 Greater than expected graft survival (7%)
- 20 Worse than expected graft survival (10%)
Adult Kidney Transplant Outcomes
2011 - 2013

Number of programs included: 209
Number of transplants: 38,370
1 Year Graft Survival: 94.7%

- Green diamond: 4 Greater than expected graft survival (1.9%)
- Red diamond: 5 Worse than expected graft survival (2.4%)
Standardizing Outcome Sets by Condition
ICHOM

**Standard Sets Complete (2013-14)**
1. Localized Prostate Cancer *
2. Lower Back Pain *
3. Coronary Artery Disease *
4. Cataracts *
5. Parkinson’s Disease*
6. Cleft Lip and Palate*
7. Stroke *
8. Hip and Knee Osteoarthritis*
9. Macular Degeneration*
10. Lung Cancer*
11. Depression and Anxiety*
12. Advanced Prostate Cancer *

**Standard Sets Complete (2015-16)**
13. Breast Cancer*
14. Dementia
15. Frail Elderly
16. Heart Failure
17. Pregnancy and Childbirth
18. Colorectal Cancer*
19. Overactive Bladder
20. Craniofacial Microsomia
21. Inflammatory Bowel Disease*

**Standard Sets Complete (2017-19)**
22. Chronic Kidney Disease*
23. Congenital Upper Limb Malformations
24. Pediatric Facial Palsy*
25. Inflammatory Arthritis*
26. Hypertension*
27. Oral Health
28. Diabetes
29. Atrial Fibrillation

**Committed/In Process**
30. Overall Adult Health
31. Pediatric Health
32. Hand and Wrist
33. Neonates
34. Congenital Heart Disease
35. Depression and Anxiety in Children and Young People
36. Psychotic Disorders
37. Personality Disorders
38. Substance Misuse

* Published Thus Far in Peer-Reviewed Journals (19)
Measure Cost for Every Patient
Time-Driven Activity-Based Costing

• Cost is the **actual expense** of patient care, not the **sum of charges** billed or collected

• Properly measuring the cost of care requires **different cost accounting methods** than prevailing approaches in health care such as departmental, charge-based, or RVU-based costing

• Cost should be measured for **each patient** over the **full cycle of care for the condition**

• Cost depends on the use of **all the resources** involved in a patient’s care (personnel, facilities, supplies, and support services)
  – Time and actual costs, not arbitrary allocations

• Understanding costs requires **mapping the care process**

Mapping Resource Utilization
MD Anderson Cancer Center – New Patient Visit

**Registration and Verification**
- Receptionist, Patient Access Specialist, Interpreter
  - Patient arrives
  - Check in patient; communicate arrival RCPT
  - Verify patient information; complete consent forms PAS
  - Add language translation time for each process INT, RCPT
  - Interpreter needed? RCPT

**Intake**
- Nurse, Receptionist
  - Assess patient; assemble paperwork; place patient in room RN
  - Laryngoscopy needed? RCPT
  - Perform laryngoscopy MD, MA, PSC

**Clinician Visit**
- MD, mid-level provider, medical assistant, patient service coordinator, RN
  - Initiate patient workup; review patient history; conduct physical exam MLP
  - Discuss plan of care MD

**Plan of Care Discussion**
- RN/LVN, MD, mid-level provider, patient service coordinator
  - Review plan of care; introduce testing; review schedule for return visit RN

**Plan of Care Scheduling**
- Patient Service Coordinator
  - Schedule tests and consults; communicate schedule to patient PSC

**Decision Point**
- Time Involved in Process Step (minutes)

Source: HBS, MD Anderson Cancer Center
Major Cost Reduction Opportunities in Health Care

• Perform care in the **right location**
• Utilize **physicians and skilled staff** at the top of their licenses
• Eliminate **low- or non-value added** services or tests
• Reduce **process variation** that increases complexity and raises cost
• **Reduce cycle times** across the care cycle
• Invest in additional services or inputs that will **lower overall care cycle cost**
• Move uncomplicated services **out of highly-resourced** facilities
• Reduce **service duplication** and **volume fragmentation** across sites
• Rationalize redundant **administrative** and **scheduling** units
• Increase **cost awareness** in clinical teams
• Decrease cost of **claims management** and **billing** processes

• Our work reveals typical **cost reduction opportunities of 30+ %**
• Many cost improvements also **improve outcomes**
Emerging Value-Based Payment Models

**Capitation (Population-Based)**
- A single risk-adjusted payment for the overall care for a life
- Responsible for all needed care in the covered population
- Accountable for population level quality metrics
- At risk for the difference between the sum of payments for the population and overall spending
  - Providers take disease incidence risk, not just execution/outlier risk
- Accountable for overall cost and population level quality measures

**Bundled Payment**
- A single risk adjusted payment for the overall care for a condition
  - Not for a specialty, procedure, or short episode
- Covers the full set of services needed over an acute care cycle, or a defined time period for chronic care or primary care
- Contingent on condition-specific outcomes
  - Including responsibility for avoidable complications
- At risk for the difference between the bundled price and the actual cost of all included services
  - Limits of responsibility for unrelated care and outliers
- Accountable for costs and outcomes, patient by patient, and condition by condition
Direct Employer Contracting

Conditions
- Cardiac
- Cancer
- Joint replacement
- Spine
- Transplant
- Weight loss

Payment Design
- Bundled payment
- Prospective pricing
- Broader medical definitions to cover an extended cycle of care
- Shared risk
- Demonstrated savings up to 1/3 of total cost of care
- Up to 50% reduction in “inappropriate use” for spine care
- High patient satisfaction

Providers
- Cleveland Clinic (OH)
- Geisinger (PA)
- Kaiser Permanente (CA)
- Johns Hopkins (MD)
- Mayo Clinic (MN)
- Memorial Hermann (TX)
- Northeast Baptist (TX)
- Virginia Mason (WA)
- Emory (GA)

Source: Compiled from news.Walmart.com and through publically available news and press releases.
Head & Neck Cancer Bundle Payment

MD Anderson Head & Neck Treatment Bundles

1. Surgery
   - A: Co-mor<2
   - B: Co-mor≥2

2. Surgery + Chemotherapy
   - A: Co-mor<2
   - B: Co-mor≥2

3. Surgery + Plastic Reconstruction
   - A: Co-mor<2
   - B: Co-mor≥2

4. Surgery + Plastic Reconstruction + Radiation + Chemotherapy
   - A: Co-mor<2
   - B: Co-mor≥2

*Co-mor = Comorbidities
1. Define the **overall scope of services** at each site
   - Each site should **not provide all services**

2. Concentrate **volume of patients by condition** at **fewer locations** to enable IPUs and improve outcomes and efficiency

3. Perform the **right services** in the **right locations**, based on acuity level, resource fit, and the benefits of patient convenience for repetitive services
   - E.g., move **more complex surgeries** to tertiary hospitals and perform less complex services closer to the patient’s home
   - Optimize **affiliate networks**

4. The IPU integrates the care cycle **across sites**
   - Common **scheduling model**
Delivering the Right Care at the Right Location
Rothman Institute, Philadelphia

Patient Risk Factors: Age, Weight, Expected Activity, General Health, and Bone Quality

Facility Capability
- Lowest Complexity
- Low
- Medium
- Highest Complexity

Price of Total Hip Replacement:
- Ambulatory Surgery Center: ~$12,000 USD
- Rothman Orthopaedic Specialty Hospital: ~$45,000 USD
- Bryn Mawr Community Hospital: ~$12,000 USD
- Jefferson University Academic Medical Center: ~$45,000 USD
Build an Enabling IT Platform

Attributes of a Value-Based IT Platform

1. Combines **all types of data** for each patient across the full care cycle (notes, lab tests, genomics, imaging, costs) using standard definitions and terminology

2. Tools to capture, store, and extract **structured data** and eliminate **free text**

3. Data is captured in the **clinical** and **administrative workflow**

4. Data is stored and easily extractable from a common warehouse. Capability to **aggregate, extract, run analytics** and display **data by condition** and **over time**

5. **Full interoperability** allowing data sharing within and across networks, EMR platforms, referring clinicians, and with **health plans**

6. Platform is structured to enable the capture and aggregation of **outcomes, costing** parameters, and **bundled payment** eligibility/billing

7. Leverages **mobile technology** for scheduling, PROMs collection, secure patient communication and monitoring, virtual visits, access to clinical notes, and patient education
Priorities for Head & Neck Surgeons

1. Think **beyond the operating room** to the full care cycle
   - Move away from surgical silos, and partner with caregivers in preventative care, perioperative care, rehabilitation, short-term follow up, surveillance

2. Institute universal **outcome measurement** and **public reporting** of outcomes to drive improvement and demonstrate high value care

3. Utilize **time-driven activity-based costing** methodology covering the **full cycle of care** to track costs by patient and measure overall efficiency and value

4. Start down the path of **bundled payments** with employers, government payers and private payers advocate for broader implementation

5. **Reorganize care within a region** to optimize resource use
   - Aggregate volume by condition in fewer sites
   - E.g. lower acuity surgery in community hospital settings, higher acuity/complexity surgery in tertiary care hospitals
Expanding the Role of Head & Neck Surgeons in the Care Cycle
Thinking Beyond the Operating Room

<table>
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<tr>
<th>Prevention &amp; Detection</th>
<th>Medical Management</th>
<th>Preoperative Care</th>
<th>Surgical Intervention</th>
<th>Postoperative Care</th>
<th>Rehabilitation</th>
<th>Surveillance</th>
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<td>• Work with primary care to prevent progression of disease</td>
<td>• Partner with medical specialists to manage complex cases and the ongoing evaluation of need for surgery</td>
<td>• Collaborate with primary care, anesthesiologist, dentists, plastic surgeons and applicable specialized to prepare patient for successful surgery</td>
<td>• Optimize the surgical process</td>
<td>• Co-develop best practices with post-operative teams</td>
<td>• Shift post-acute care to appropriate settings (e.g. home, speech &amp; swallow pathology, etc.)</td>
<td>• Ongoing monitoring of patients for recurrence</td>
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<td>• Advise primary care on accurate diagnoses and timely referral</td>
<td>• Develop non-surgical options with other providers if appropriate</td>
<td>• Be accessible to primary care team for pre-operative care questions</td>
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<td>• Ensure seamless transition to post op care</td>
<td>• Extended clinic hours and after-hours hotline</td>
<td>• Measure longer term outcomes</td>
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Prevention & Detection:
- Work with primary care to prevent progression of disease
- Advise primary care on accurate diagnoses and timely referral

Medical Management:
- Partner with medical specialists to manage complex cases and the ongoing evaluation of need for surgery
- Develop non-surgical options with other providers if appropriate

Preoperative Care:
- Collaborate with primary care, anesthesiologist, dentists, plastic surgeons and applicable specialized to prepare patient for successful surgery
- Be accessible to primary care team for pre-operative care questions

Surgical Intervention:
- Optimize the surgical process

Postoperative Care:
- Co-develop best practices with post-operative teams
- Ensure seamless transition to post op care

Rehabilitation:
- Shift post-acute care to appropriate settings (e.g. home, speech & swallow pathology, etc.)
- Extended clinic hours and after-hours hotline
- Educate home health team and PT on best practices
- Coordinate with prosthetics (dental & facial)

Surveillance:
- Ongoing monitoring of patients for recurrence
- Measure longer term outcomes
Value-Based Health Care is Rapidly Diffusing
Peer Reviewed Literature 1990-2018

Journal Articles Related To Value-Based Health Care

From: Science Direct; accessed December 2018, Patrick Clapp, Baker Research Services, Harvard Business School
The Health Care Transformation is Well Underway

- **We** know the path forward
- **Value for patients** is the True North
- **Value based thinking** is leading to restructuring care organization, outcomes measurement, payment models, and health system strategy, across multiple countries
- **Standardized outcome measurement** and new **costing practices** are beginning to accelerate value improvement
- **Employers, suppliers, and insurers** can be the next accelerators
- **Government policy** is beginning to reinforce value improvement
- We are anxious to **work with all** of you in accelerating this transformation
Selected References on Value-Based Health Care

- Websites Including Videos
  - [http://www.isc.hbs.edu/](http://www.isc.hbs.edu/)
  - [https://www.ichom.org/](https://www.ichom.org/)