Value-Based Health Care Delivery: Core Concepts

Professor Michael E. Porter
Harvard Business School

Value-Based Innovation Summit
Cleveland, OH
Tuesday, October 22, 2019

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 a relevant financial relationship with the following companies:

<table>
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<tr>
<th>Company</th>
<th>Role</th>
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<tbody>
<tr>
<td>Allscripts</td>
<td>Advisor</td>
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<tr>
<td>AZTherapies</td>
<td>Advisor, Investor</td>
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<td>American College of Surgeons</td>
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<td>Thermo Fisher Scientific</td>
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Health Care Problem Remains a Global Issue

Health Care Spending vs GDP and Income

**Wages:** Average annual wages per full-time and full-year equivalent employee in the total economy
**Source:** EIU GDP (USD), Average Wages (USD) and Healthcare expenditure (USD) from 1990-2018; ECPE Article 2011

HC expenditure 2018:
- **US:** 17.2% of GDP
- **UK:** 9.8% of GDP
- **S:** 8.9% of GDP
- **F:** 11.2% of GDP
- **D:** 11.5% of GDP
- **I:** 9.3% of GDP
Incremental “Solutions” Have Had Limited Impact

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

- Care coordinators
- Retail clinics / urgent care
- Programs to address high cost areas
- Mergers and consolidation
- Personalized medicine
- Population health
- Analytics and big data

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

• The fundamental **goal and purpose** of health care is to deliver high and rising **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** to reducing the burden of health care on citizens and governments

• The questions are how to design a health care delivery system that **substantially improves patient value**, and to shift competition to **competing on value**
Creating a Value-Based Health Care Delivery System

The Strategic Agenda

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

2. Measure **outcomes** and **costs** for every patient, in the line of care

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**
Re-organize Care Around Patient Medical Conditions

Headache Care in Germany

Organize by department, specialty, and discrete service

Organize around the patient’s condition, or family of related conditions, over the full care cycle into an Integrated Practice Unit (IPU)

Imaging Centers

Outpatient Physical Therapists

Outpatient Neurologists

Inpatient Treatment and Detox Units

Primary Care Physicians

Outpatient Psychologists

Affiliated Imaging Unit

Primary Care Physicians

West German Headache Center Neurologists Psychologists Physical Therapists “Day Hospital”

Essen Univ. Hospital Inpatient Unit

Affiliated “Network Neurologists”

Care by Individuals

Care by a Team

Value-Based Primary Care
Oak Street Health

• Patient segment: older adults with lower-income, living in under-served urban communities

• Co-located in dedicated facilities

• Explicit processes to engage patients, address social and economic determinants of health, and provide free rides/home-visits, in-house pharmacy and selected events for community residents

• Selected in-house services in the most relevant specialties for this patient segment such as behavioral health and podiatry and close relationships with outside specialists

• Meet daily and weekly to discuss each patient’s care plans, and process improvement

• Measurement and accountability for outcomes, cost, and patient experience

• Single full-risk value-based payment covering overall care
  – Including specialty and post-acute care
  – Medicare Advantage
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  
   - Involved dedicated staff and affiliated staff with strong working relationships |
| 3. | **Co-located** in **dedicated facilities**. |
| 4. | Takes responsibility for the **full cycle of care** |
| 5. | A **hub and spoke** structure with that allocates care to the right site |
| 6. | Addressing common complications and comorbidities, as well as **patient education**, **engagement**, **adherence**, **follow-up**, and **prevention** are integrated into the care process |
| 7. | The IPU 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. |
Integrating Across the Care Cycle
Role of Surgeons Beyond the Operating Room

**Upstream**
- **Prevention & Detection**
  - Work with primary care to slow/manage disease progression
- **Medical Management**
  - Partner with medical specialists to manage complex cases and the ongoing evaluation of need for surgery
- **Preoperative Care**
  - Collaborate with primary care & anesthesiologist to prepare the patient for successful surgery
  - Be accessible to patient and primary care team for preoperative care questions
- **Surgical Intervention**
  - Optimize the surgical process and results

**Downstream**
- **Postoperative Care**
  - Co-develop best practices with PACU team
  - Lead integrated multidisciplinary post-operative teams to optimize the hospital stay
- **Rehabilitation**
  - Shift post-acute care to the appropriate setting (e.g. home, rehab)
- **Surveillance**
  - Ongoing monitoring of patients for recurrence
  - Measure longer term outcomes

**Prevention & Detection**
- Work with primary care to slow/manage disease progression
- Advise primary care on accurate diagnoses and timely referrals

**Medical Management**
- Partner with medical specialists to manage complex cases and the ongoing evaluation of need for surgery

**Preoperative Care**
- Collaborate with primary care & anesthesiologist to prepare the patient for successful surgery
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**Surgical Intervention**
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**Postoperative Care**
- Co-develop best practices with PACU team
- Lead integrated multidisciplinary post-operative teams to optimize the hospital stay

**Rehabilitation**
- Shift post-acute care to the appropriate setting (e.g. home, rehab)
- Extended clinic hours and after-hours hotline
- Educate home health providers and PTs on best practices

**Surveillance**
- Ongoing monitoring of patients for recurrence
- Measure longer term outcomes
IPU Volume Enhances Value

The Virtuous Circle of Value

- Greater Patient Volume with the Medical Condition
- Rapidly Accumulating Experience
- Better Information/Clinical Data
- More Fully Dedicated Teams
- More Tailored Facilities
- Rising Process Efficiency
- Better Utilization of Capacity
- Wider Capabilities in the Care Cycle, Including Patient Engagement Mechanisms
- Greater Leverage in Purchasing, Securing Value-Based Payments
- Costs of IT, Measurement, and Process Improvement Spread over More Patients
- Faster Innovation
- Better Outcomes, Adjusted for Risk
- Improving Reputation

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Measure Outcomes for Every Patient
The Quality Measurement Landscape

- Patient Initial Conditions, Risk Factors
  - Protocols/Guidelines
    - E.g., Staff certification, facilities standards
  - Structure
    - E.g., PSA, Gleason score, surgical margin

- Processes
- Indicators
  - E.g., PSA, Gleason score, surgical margin

- Outcomes
Measure Outcomes for Every Patient
The Quality Measurement Landscape

Patient Initial Conditions, Risk Factors

Patient Experience/Engagement/Adherence

Processes
Protocols/Guidelines

Indicators
E.g., PSA, Gleason score, surgical margin

Structure
E.g., Staff certification, facilities standards

Outcomes

Without outcomes measurement, the value of measuring other quality dimensions is greatly diminished
Principles of Outcome Measurement

• Outcomes should be measured by condition or primary care segment
  – Not for specialties, procedures, or interventions
• Outcomes cover the full cycle of care
• Outcomes are always multi-dimensional and include what matters most to patients (and families), not just to clinicians
  – Patient reported outcomes are important in every condition
• Outcome measurement includes initial conditions/risk factors to control for patient differences
• Outcomes should be standardized for each condition, to maximize comparison, learning, and improvement
• Outcomes should be measured in the line of care

• Value-based measurement differs from the historical focus on measuring provider behavior and overall patient success
The Outcome Measures Hierarchy

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

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)
    - Time to diagnosis and treatment
    - Time to return home
    - Time to return to normal activities
    - Care-related pain/discomfort
    - Complications
    - Re-intervention/readmissions

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

Source: NEJM Dec 2010
The Outcome Measures Hierarchy

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

- 5 year disease specific survival
  - Average hospital: 94%
  - Best hospital: 95%
Measuring Multiple Outcomes
Prostate Cancer Care in Germany

- **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%

Source: ICHOM
Adult Kidney Transplant Outcomes

1987 - 1989

Number of centers: 219
Number of transplants: 19,588
1 Year Graft Survival: 79.6%

Green diamonds: 16 Greater than expected graft survival (7%)
Red diamonds: 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%

- 4 Greater than expected graft survival (1.9%)
- 5 Worse than expected graft survival (2.4%)
# Standardizing Outcome Sets

**ICHOM**

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<tr>
<td>5. Parkinson’s Disease *</td>
<td>17. Pregnancy and Childbirth</td>
<td>26. Hypertension *</td>
<td>34. Congenital Heart Disease</td>
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<td>9. Macular Degeneration *</td>
<td>21. Inflammatory Bowel Disease *</td>
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<td>38. Substance Misuse</td>
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<td>11. Depression and Anxiety *</td>
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<tr>
<td>12. Advanced Prostate Cancer *</td>
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* Published Thus Far in Peer-Reviewed Journals (19)
Measure Cost for Every Patient

Principles

• 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 by condition**, over the **full cycle of care**.

• Cost is created by the use of **the resources** involved in a patient’s care (people, facilities, supplies, and support services).
  – Cost depends on **time** and actual **costs** of resource use, 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

**Intake**
- Nurse, Receptionist

**Clinician Visit**
- MD, mid-level provider, medical assistant, patient service coordinator, RN

**Plan of Care Discussion**
- RN/LVN, MD, mid-level provider, patient service coordinator

**Plan of Care Scheduling**
- Patient Service Coordinator

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**Decision Point**

**Time (minutes)**

- Patient arrives
  - Check in patient; communicate arrival
    - RCPT
  - Verify patient information; complete consent forms
    - PAS
  - Interpreter needed?
    - RCPT
  - 5%
  - Add language translation time for each process
    - INT, RCPT

- Assess patient; assemble paperwork; place patient in room
  - N
  - 95%
  - 40

- Initiate patient workup; review patient history; conduct physical exam
  - MLP
  - 45

- Laryngoscopy needed?
  - N
  - 10%
  - 90%

- Perform laryngoscopy
  - MD, MA, PSC
  - 10

- Clean room; complete paperwork; check email and voicemail for updates or changes to plan of care
  - RN
  - 15

- Changes to Plan of Care?
  - Y
  - 5-10%
  - Notify patient of changes
    - RN
    - 30

- Patient discharged
  - PSC

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

- Utilize **physicians and skilled staff** at the top of their licenses (people ~65% of costs)
- Reduce **process variation** that increases complexity and raises cost
- Eliminate **low- or non-value added** services or tests
- **Reduce cycle times** across the care cycle, which **expands capacity**
- Invest in additional services (e.g. extra visits, telemedicine), or higher costs inputs that will **lower overall care cycle cost**
- Reduce **service duplication** and **volume fragmentation** across sites
- Rationalize redundant **administrative** and **scheduling** units
- Move uncomplicated services **out of highly-resourced** facilities
- Increase **cost awareness** in clinical teams, (e.g. costs of inputs (sutures vs. staples))
- Improve the efficiency and automation of **claims management** and **billing** processes
- The number one way to reduce costs is through **better outcomes**
- Many cost improvements also **improve outcomes**

- Our work with numerous providers reveals typical **cost reduction opportunities of 30+%**
Move to Value-Based Payment Models

Volume

- Fee for Service
- Global Budgets

Value

- Capitation/Population Based Payments
- Bundled Payment

- Both approaches create positive incentives for reducing costs and separate payment from performing particular services
- Capitation at the hospital or system level can coexist with bundle payment at the condition level
### Emerging Value-Based Payment Models

<table>
<thead>
<tr>
<th>Capitation (Population-Based)</th>
<th>Bundled Payment</th>
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<tbody>
<tr>
<td>• A single risk-adjusted payment for the overall care for a <strong>life</strong></td>
<td>• A single risk adjusted payment for the overall care for a <strong>condition</strong></td>
</tr>
<tr>
<td>• Responsible for <strong>all needed care</strong> in the covered population</td>
<td>• <strong>Not</strong> for a specialty, procedure, or short episode</td>
</tr>
<tr>
<td>• Accountable for <strong>population level quality metrics</strong></td>
<td>• Covers the <strong>full set</strong> of services needed over an <strong>acute care cycle</strong>, or a <strong>defined time period</strong> for chronic care or primary care</td>
</tr>
<tr>
<td>• At risk for the difference between the <strong>sum of payments</strong> for the population and <strong>overall spending</strong></td>
<td>• Contingent on <strong>condition-specific outcomes</strong></td>
</tr>
<tr>
<td>- <strong>Providers</strong> take on disease incidence risk, not just execution/outlier risk</td>
<td>- Including responsibility for avoidable complications</td>
</tr>
<tr>
<td>• Accountable for <strong>overall cost</strong> and <strong>population level quality measures</strong></td>
<td>• At risk for the difference between the <strong>bundled price</strong> and the <strong>actual cost</strong> of all included services</td>
</tr>
<tr>
<td>- <strong>Limits of responsibility</strong> for unrelated care and outliers</td>
<td>• Accountable for costs and outcomes <strong>patient by patient</strong>, and <strong>condition by condition</strong></td>
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Bundled Payments: Walmart Centers of Excellence

Conditions:
- Cardiac Surgery
- Cancer
- Joint replacement
- Spine
- Organ Transplant
- Weight loss

Source: Compiled from news.Walmart.com and through publicly available news and press releases.

Partnerships:
- 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)

Note: Not all providers participate in every Walmart condition.
Shifting The Strategic Logic of Health Systems

Confederation of Standalone Units/Facilities

- Increase **volume**
- More clout in **contracting** and **purchasing**
- **Spreading** “fixed overhead” costs
- Use **owned or affiliated** primary care practices to “**guarantee**” referrals

Clinically Integrated Care Delivery System

- Increase **value**
- Value-based **delivery models**
- **Concentrate, allocate, and integrate** care across appropriate sites
- The system is **more than** the sum of its parts
Value and The Geography of Care and Value

• The Traditional Care Geography Model
  - Care organized around specialties and interventions at each site
  - Duplication of services across sites/facilities
  - Sites provide care for multiple acuity levels
  - Limited integration of care across sites
  - Model reinforced by fee-for-service model and siloed IT systems

• Geography and Value: Strategic Principles
  - Organize care by condition in IPUs (the hubs)
    - Multi-disciplinary teams
    - Responsibility for full care cycle
  - IPUs allocate services across the care cycle to sites based on: site capabilities, care complexity, patient risk, cost, and patient convenience
  - Incorporating telemedicine, home services, and affiliated provider sites into the care cycle
  - IPUs developing formal systems to direct patients to the most appropriate site
Delivering the Right Care at the Right Location
Rothman Institute, Philadelphia

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

Price of Total Hip Replacement:
- ~$12,000 USD
- ~$45,000 USD

Patient Risk Factors: Age, Weight, Expected Activity, General Health, and Bone Quality
Allocate and Integrate Care Across Sites
Children’s Hospital of Philadelphia Care Network

**Wholly-Owned Outpatient Units**
- Primary Care Practices
- Specialty Care Centers
- Specialty Care Center, Surgery Center & After-Hours Urgent Care
- Specialty Care & Surgery Centers
- Specialty Care Center, Surgery Center, After-Hours Urgent Care & Home Care

**Community Inpatient Partnerships**
- CHOP Newborn Care
- CHOP Pediatric Care
- CHOP Newborn & Pediatric Care
- Hospital & Integrated Specialty Program
Build an Enabling IT Platform
Attributes of a Value-Based IT Platform

1. Combines all types of data for each patient’s condition across the full care cycle (notes, lab tests, 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. Platform is structured to enable the capture and aggregation of outcomes, costing parameters, and bundled payment eligibility/billing

6. Leverages mobile technology for scheduling, PROMs collection, secure patient communication and monitoring, virtual visits, access to clinical notes, and patient education

7. Full interoperability allowing data sharing within and across networks, EMR platforms, referring clinicians, and health plans
A Mutually Reinforcing Strategic Agenda

Organize into Integrated Practice Units (IPUs)

Measure Outcomes and Cost For Every Patient

Move to Bundled Payments for Care Cycles

Integrate Care Delivery Systems

Expand Geographic Reach

Build an Integrated Information Technology Platform
The Health Care Transformation is Well Underway

• We know the path forward

• Value for patients is True North

• Value based thinking is restructuring care organization, outcome measurement, payment models, and health system strategy

• Standardized outcome measure sets 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 in many countries

• We are excited to work with all of you in accelerating this transformation

• We invite every one of you to get started on this path
NEJM Catalyst Innovations in Care Delivery is a new digital, peer-reviewed journal from NEJM Group, the publisher of The New England Journal of Medicine.

Publishing six issues each year, NEJM Catalyst Innovations in Care Delivery aims to accelerate health care delivery transformation by publishing real-world examples and practical solutions so that health care leaders can address today’s urgent care delivery challenges and shape the future of health care delivery across the globe.

Editorial Leadership:

Co-Chair and Editor-in-Chief —
Tom Lee, MD, MSc, Chief Medical Officer, Press Ganey; Professor, Harvard Medical School, TH Chan School of Public Health; Internist, Brigham & Women’s Hospital

Co-Chair —
Michael Porter, PhD, Bishop William Lawrence University Professor, Harvard Business School

Quick Facts:

Frequency: Bimonthly (6x/year)
Launch Date: January 2020
Format: Online only
Indexed: Anticipate indexing in PubMed and MEDLINE
Audience: Health care executives, clinical leaders, clinicians, academics, industry analysts, consultants, policy makers, government officials
Implement comparable outcome and cost measurement sets in select conditions at leading providers throughout the U.S. and create risk adjusted benchmarks to generate systems improvement and reward high value providers.

**Conditions**
- 3 Surgical Conditions
  - Colon Cancer
  - Breast Cancer
  - Obesity
- Full cycle of care (including key surgical, medical, behavioral and social elements of care)

**Sites**
- 10-15 Sites per condition
- Leading Centers of Excellence across the U.S.

**Measurement**
- Measure ICHOM outcomes sets and cost at the condition level
- Create the playbook for implementation
- Develop scalable approach for risk adjusted benchmarking and systems improvement
- Inform value-based payments
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Presentation Posted At: www.isc.hbs.edu
Selected References on Value-Based Health Care

Value-Based Health Care


Integrated Practice Units and Primary Care


Outcome Measurement


Cost Measurement


Reimbursement


Regional and National Expansion

• Cosgrove T. The *Cleveland Clinic Way.* McGrawHill, New York, 2014

Information Technology


HBS Case