Value-Based Health Care Delivery: Core Concepts

Professor Michael E. Porter
Harvard Business School

Partners HealthCare Residents and Fellows Course
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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 a relevant financial relationship with the following companies:

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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; ECIPE Article 2011
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 (or 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 across 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

Care by Individuals

- Imagining Centers
- Outpatient Physical Therapists
- Outpatient Neurologists
- Outpatient Psychologists
- Inpatient Treatment and Detox Units
- Primary Care Physicians

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

Care by a Team

- Affiliated Imaging Unit
- Primary Care Physicians
- West German Headache Center Neurorologists Psychologists Physical Therapists “Day Hospital”
- Affiliated “Network Neurologists”
- Essen Univ. Hospital Inpatient Unit

Integrating Across the Care Cycle
Role of Surgeons Beyond the Operating Room

**Upstream**

- **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
  - Develop non-surgical options with other providers (e.g. physical therapists)

- **Preoperative Care**
  - Collaborate with primary care & anesthesiologist to prepare the patient for successful surgery
  - Be accessible to patient and primary care team for pre-operative 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)
  - 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
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.
• 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
IPU Volume Enhances Value

The Virtuous Circle of Value

- Faster Innovation
- Costs of IT, Measurement, and Process Improvement Spread over More Patients
- Greater Leverage in Purchasing, Securing Value-Based Payments
- Wider Capabilities in the Care Cycle, Including Patient Engagement Mechanisms
- Rising Capacity for Sub-Specialization
- Better Utilization of Capacity
- Rising Process Efficiency
- More Tailored Facilities
- More Fully Dedicated Teams
- Better Information/Clinical Data
- Rapidly Accumulating Experience
- Greater Patient Volume with the Medical Condition
- 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**
- **Processes**
  - Protocols/Guidelines
- **Structure**
  - E.g., Staff certification, facilities standards
- **Indicators**
  - E.g., PSA, Gleason score, surgical margin
- **Outcomes**
Measure Outcomes for Every Patient
The Quality Measurement Landscape

Patient Initial Conditions, Risk Factors → Processes → Indicators → Outcomes

Patient Experience/Engagement/Adherence

Protocols/Guidelines

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

Structure

E.g., Staff certification, facilities standards

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

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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

Tier 2

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/recovery and nature of recurrences

Sustainability of Health

Long-term consequences of therapy (e.g., care-induced illnesses)

- Achieved clinical status
- Achieved functional status
- Time to diagnosis and treatment
- Time to return home
- Time to return to normal activities
- Care-related pain/discomfort
- Complications
- Re-intervention/readmissions
- Long-term clinical status
- Long-term functional status

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

- Average hospital: 94%
- Best hospital: 95%

5 year disease specific survival
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%

- 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%

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

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<td>17. Pregnancy and Childbirth</td>
<td>26. Hypertension *</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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<td>12. Advanced Prostate Cancer *</td>
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* Published Thus Far in Peer-Reviewed Journals (19)

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

**Intake**
- Nurse, Receptionist
  - Assess patient; assemble paperwork; place patient in room RN

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

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

**Plan of Care Scheduling**
- Patient Service Coordinator
  - Schedule tests and consults; communicate schedule to patient PSC
    - Scheduled for same day? PSC
      - N 90-95%
    - PI discharged
      - Y 90%
      - Enter next process

**Time (minutes)**
- 2
- 20
- 40
- 45
- 30
- 15
- 5
- 10
- 10
- 30

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
  - Pay for care for a *life*
- Bundled Payment
  - Pay for care for *conditions* (acute, chronic) or for *primary care patient segments*

- 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

**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 on 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**
Bundled Payments: Walmart Centers of Excellence

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)

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

Note: Not all providers participate in every Walmart condition

Source: Compiled from news.Walmart.com and through publicly available news and press releases.
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
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
  - Traditional Model reinforced by fee-for-service payments 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

Ambulatory Surgery Center
Price of Total Hip Replacement: ~$12,000 USD

Rothman Orthopaedic Specialty Hospital

Bryn Mawr Community Hospital
Price of Total Hip Replacement: ~$45,000 USD

Jefferson University Academic Medical Center

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
Value-Based Health Care Thinking and Practice Are Rapidly Diffusing
Peer Reviewed Literature 1990-2019

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.

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

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Value-Based Health Care

Integrated Practice Units and Primary Care

Outcome Measurement

Cost Measurement

Reimbursement

Regional and National Expansion

Information Technology

HBS Case

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