Value-Based Health Care Delivery

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CMS Speaker Series
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Redefining Health Care Delivery

• The core issue in health care is the **value of health care delivered**

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Value: Patient health outcomes per dollar spent
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• Value is the only goal that can **unite the interests** of all system participants

• How to design a health care delivery system that **dramatically improves patient value**

• How to construct a **dynamic system** that keeps rapidly improving
Creating a Value-Based System

• Significant improvement in value will require fundamental restructuring of health care delivery, not incremental improvements

Today, 21st century medical technology is often delivered with 19th century organization structures, management practices, and payment models

• Process guidelines, safety programs, care coordination and other overlays to the current structure are beneficial, but not sufficient
Principles of Value-Based Health Care Delivery

- The central goal in health care must be value for patients, not cost containment, convenience, or customer service.

\[
\text{Value} = \frac{\text{Health outcomes}}{\text{Costs of delivering the outcomes}}
\]

- Outcomes are the full set of patient health results over the care cycle.
- Costs are the total costs of care for a patient’s condition over the care cycle.
Principles of Value-Based Health Care Delivery

- **Better health** is the goal, not more treatment
- Better health is inherently less expensive than poor health

**Quality improvement** is the key driver of cost containment and value improvement, where quality is health outcomes

- Prevention of illness
- Early detection
- Right diagnosis
- Right treatment to the right patient
- Early and timely treatment
- Treatment earlier in the causal chain of disease
- Rapid cycle time of diagnosis and treatment
- Less invasive treatment methods

- Fewer complications
- Fewer mistakes
- Fewer failed therapies
- Faster recovery
- More complete recovery
- Greater functionality and less need for long term care
- Less disability
- Fewer recurrences, relapses, flare ups, or acute episodes
- Slower disease progression
- Less care induced illness
Creating a Value-Based Health Care Delivery System

The Strategic Agenda

1. Organize into Integrated Practice Units (IPUs) Around Patient Medical Conditions
   - Organize primary and preventive care to serve distinct patient populations

2. Establish Universal Measurement of Outcomes and Cost for Every Patient

3. Move to Bundled Prices for Care Cycles

4. Integrate Care Delivery Across Separate Facilities

5. Expand Excellent IPUs Across Geography

6. Create an Enabling Information Technology Platform
1. Organizing Around Patient Medical Conditions
Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Services

New Model:
Organize into Integrated Practice Units (IPUs)

# Integrating Across the Cycle of Care
## Breast Cancer

## INFORMING AND ENGAGING
- **Advice on self screening**
- **Consultations on risk factors**
- **Counseling patient and family on the diagnostic process and the diagnosis**
- **Explaining patient treatment options/shared decision making**
- **Patient and family psychological counseling**
- **Counseling on the treatment process**
- **Education on managing side effects and avoiding complications**
- **Achieving compliance**
- **Counseling on long term risk management**
- **Achieving compliance**

## MEASURING
- **Self exams**
- **Mammograms**
- **Mammograms**
- **Labs**
- **Procedure-specific measurements**
- **Range of movement**
- **Side effects measurement**
- **MRI, CT**
- **Recurring mammograms (every six months for the first 3 years)**

## ACCESSING THE PATIENT
- **Office visits**
- **Mammography**
- **Lab visits**
- **Office visits**
- **Lab visits**
- **High risk clinic visits**
- **Office visits**
- **Hospital visits**
- **Lab visits**
- **Hospital stays**
- **Visits to outpatient radiation or chemotherapy units**
- **Pharmacy visits**
- **Office visits**
- **Lab visits**
- **Mammographic labs and imaging center visits**

## MONITORING/PREVENTING
- **Medical history**
- **Control of risk factors (obesity, high fat diet)**
- **Genetic screening**
- **Clinical exams**
- **Monitoring for lumps**
- **Medical history**
- **Determining the specific nature of the disease (mammograms, pathology, biopsy results)**
- **Genetic evaluation**
- **Labs**
- **Choosing a treatment plan**
- **Surgery prep (anesthetic risk assessment, EKG)**
- **Plastic or oncoplastic surgery evaluation**
- **Neo-adjuvant chemotherapy**
- **Surgery (breast preservation or mastectomy, oncoplastic alternative)**
- **Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)**
- **In-hospital and outpatient wound healing**
- **Treatment of side effects (e.g. skin damage, cardiac complications, nausea, lymphedema and chronic fatigue)**
- **Physical therapy**
- **Periodic mammography**
- **Other imaging**
- **Follow-up clinical exams**
- **Treatment for any continued or later onset side effects or complications**

## DIAGNOSING
- **Mammograms**
- **Ultrasound**
- **MRI**
- **Labs (CBC, etc.)**
- **Biopsy**
- **BRACA 1, 2...**
- **CT**
- **Bone Scans**
- **Labs**
- **Procedure-specific measurements**
- **Range of movement**
- **Side effects measurement**

## PREPARING
- **Office visits**
- **Lab visits**
- **High risk clinic visits**
- **Office visits**
- **Hospital visits**
- **Lab visits**
- **Hospital stays**
- **Visits to outpatient radiation or chemotherapy units**
- **Pharmacy visits**
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## INTERVENING
- **Office visits**
- **Lab visits**
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- **Lab visits**
- **Hospital stays**
- **Visits to outpatient radiation or chemotherapy units**
- **Pharmacy visits**
- **Office visits**
- **Lab visits**
- **Mammographic labs and imaging center visits**

## RECOVERING/REHABING
- **Office visits**
- **Lab visits**
- **High risk clinic visits**
- **Office visits**
- **Lab visits**
- **High risk clinic visits**
- **Office visits**
- **Lab visits**
- **High risk clinic visits**
- **Office visits**
- **Lab visits**
- **High risk clinic visits**

## MONITORING/MANAGING
- **Office visits**
- **Lab visits**
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- **Lab visits**
- **High risk clinic visits**
- **Office visits**
- **Lab visits**
- **High risk clinic visits**

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What is Integrated Care?

Attributes of an Integrated Practice Unit (IPU):

1. Organized around the patient’s medical condition
2. Involves a dedicated, multidisciplinary team who devote a significant portion of their time to the condition
3. Where providers are part of a common organizational unit
4. Utilizing a single administrative and scheduling structure
5. Providing the full cycle of care for the condition
   - Encompassing outpatient, inpatient, and rehabilitative care as well as supporting services (e.g. nutrition, social work, behavioral health)
   - Including patient education, engagement and follow-up
6. Co-located in dedicated facilities
7. With a physician team captain and a care manager who oversee each patient’s care process
8. Where the team meets formally and informally on a regular basis
9. And measure outcomes, processes, and costs as a team using a common information platform
10. Accepting joint accountability for outcomes and costs
Volume and experience will have an even greater impact on value in an IPU structure than in the current system.
## Fragmentation of Services
### Hospital Services in Sweden

<table>
<thead>
<tr>
<th>DRG</th>
<th>Number of admitting providers</th>
<th>Average percent of total national admissions</th>
<th>Average admissions/provider/ year</th>
<th>Average admissions/provider/ week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee Procedure</td>
<td>68</td>
<td>1.5%</td>
<td>55</td>
<td>1</td>
</tr>
<tr>
<td>Diabetes age &gt; 35</td>
<td>80</td>
<td>1.3%</td>
<td>96</td>
<td>2</td>
</tr>
<tr>
<td>Kidney failure</td>
<td>80</td>
<td>1.3%</td>
<td>97</td>
<td>2</td>
</tr>
<tr>
<td>Multiple sclerosis and cerebellar ataxia</td>
<td>78</td>
<td>1.3%</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td>Inflammatory bowel disease</td>
<td>73</td>
<td>1.4%</td>
<td>66</td>
<td>1</td>
</tr>
<tr>
<td>Implantation of cardiac pacemaker</td>
<td>51</td>
<td>2.0%</td>
<td>124</td>
<td>2</td>
</tr>
<tr>
<td>Splenectomy age &gt; 17</td>
<td>37</td>
<td>2.6%</td>
<td>3</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Cleft lip &amp; palate repair</td>
<td>7</td>
<td>14.2%</td>
<td>83</td>
<td>2</td>
</tr>
<tr>
<td>Heart transplant</td>
<td>6</td>
<td>16.6%</td>
<td>12</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>


- **Minimum volume standards** are an interim step to drive service consolidation until comprehensive outcome information is available.
2. Measuring Outcomes and Cost for Every Patient

- Patient Initial Conditions
- Processes
- Indicators
- (Health) Outcomes

- Protocols/Guidelines
  - E.g., Staff certification, facilities standards

- Patient Compliance
  - E.g., Hemoglobin A1c levels for diabetics
The Outcome Measures Hierarchy

Tier 1
Health Status Achieved or Retained
- Survival

Tier 2
Process of Recovery
- Degree of health/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
The Outcome Measures Hierarchy

Breast Cancer

- Survival
  - Survival rate
    - (One year, three year, five year, longer)

- Degree of recovery / health
  - Degree of remission
  - Functional status
  - Breast conservation
  - Depression

- Time to recovery or return to normal activities
  - Time to remission
  - Time to functional status

- Disutility of care or treatment process
  - Nosocomial infection
  - Nausea/vomiting
  - Febrile neutropenia
  - Suspension of therapy
  - Failed therapies
  - Limitation of motion
  - Depression

- Sustainability of recovery or health over time
  - Cancer recurrence
  - Sustainability of functional status

- Long-term consequences of therapy (e.g., care-induced illnesses)
  - Incidence of secondary cancers
  - Brachial plexopathy
  - Fertility/pregnancy complications
  - Premature osteoporosis

Initial Conditions/Risk Factors

- Stage upon diagnosis
- Type of cancer (infiltrating ductal carcinoma, tubular, medullary, lobular, etc.)
- Estrogen and progesterone receptor status (positive or negative)
- Sites of metastases
- Previous treatments
- Age
- Menopausal status
- General health, including co-morbidities
- Psychological and social factors
Adult Kidney Transplant Outcomes
U.S. Centers, 1987-1989

Number of programs: 219
Number of transplants: 19,588
One year graft survival: 79.6%

- 16 greater than predicted survival (7%)
- 20 worse than predicted survival (10%)
Adult Kidney Transplant Outcomes
U.S. Centers, 2005-2007

Number of programs: 240
Number of transplants: 38,515
One year graft survival: 93.2%

- 16 greater than expected graft survival (6.6%)
- 19 worse than expected graft survival (7.8%)
Registries and Outcome Measurement: Next Steps for CMS

1. Define the appropriate **units of measurement**
   - Organize registries around medical conditions and patient populations
2. Provide **matching funds** to develop or improve registries that meet certain criteria:
   - Outcomes focused
   - Path to transparency
3. Fund or create a **registry think tank**
   - Provide consulting / technical assistance
   - Share best practices
   - Develop **common tools** that can be taken “off the shelf” (e.g. data auditing)
4. Create a **registry of registries** to coordinate all registry activity
   - E.g. Common data depository
   - Standardize reporting protocols
5. Address **policy hurdles** to registry functions
   - Privacy rules, IT standards, National patient identifier
6. Create a **business model / motivation** for registry reporting
   - Tie reporting to new reimbursement methods (Bundled payments, Accountable Care Organizations)
   - Tie to current reimbursement
   - Tie to provider certification or professional recognition
Measuring the Cost of Care Delivery: Principles

- Cost should be measured around the patient.
- Cost depends on the actual use of resources involved in a patient’s care.
- The only way to properly measure cost per patient is to track the time devoted to each patient by these resources (personnel, facilities, and support services) and their capacity cost.
Mapping Resource Utilization
MD Anderson Cancer Center

Registration and Verification
Receptionist, Patient Access Specialist (PAS), Language Assistance

Intake
Nurse (RN), Receptionist

Clinician Visit
MD, MLP, MA, PSC, RN

Plan of Care Discussion
 RN reviews Plan of Care #1; introduces team, reviews schedule for return visit
 RN/LVN, MD, MLP, PSC

Plan of Care Scheduling
Patient Service Coordinator (PSC)

Patient arrives MDA
Check In at Reception Desk and communicate pt arrival with PAS
Receptionist

2

Verification of Information and Consent Forms PAS
Receptionist

40

Pt. assessment; paperwork assembled; pt placed in room; Medication Reconciliation
RN

20

Intake

Pt. work-up initiated. PHDB reviewed and physical exam of
pt. MLP

45

Clinician Visit

Attending MD discusses Plan of Care #1

30

Pt. has a scope procedure MD, MA, PSC

10

Plan of Care Scheduling

RN reviews Plan of Care #1; introduces team, reviews schedule for return visit

15

Room cleaned, paperwork completed RN

10

N 90-95%

Y

5-10%

Changes to Plan of Care?

Pt discharged

 Confirmation of Care: re-schedules, email, voicemails. Pt is notified of charges
RN (80%) MLP (20%)

30

New appointments scheduled and charges entered into CARE PSC

10

N 10%

Y

Scheduled for Same Day? PSC

5

Test, consults are scheduled and communicated to pt. PSC

Y

50%

N

Patient Service Coordinator (PSC)

Decision point

Time (min)

Receptionist

Interpreter

PAS: Patient Access Specialist

RN: Registered Nurse

MD: Medical Doctor,

MA: Medical Assistant

PSC: Patient Service Coordinator

PHDB: Patient History Database

Pt: Patient, outside of process
Measuring the Cost of Care Delivery: Principles

• Cost should be measured around the **patient**

• Cost depends on the **actual use of resources** involved in a patient’s care

• The only way to properly measure cost per patient is to track the **time devoted to each patient** by these resources (personnel, facilities, and support services) and their **capacity cost**.

• Cost should be aggregated for the **medical condition level** for each patient **over the full cycle of care**, not for departments, services, or line items

• Cost measurement should be combined with **outcome measurement** to inform process improvement and cost reduction
  – E.g. Reduce high cost activities that **do not contribute** to superior outcomes
  – Optimize the value of the **entire cycle of care**, versus seek to minimize the cost of individual activities
  – **Speed up** cycle time

• Combining actual costs and outcomes will **transform the discussion** about care improvement
3. Setting Bundled Prices for Care Cycles

**Bundled Price**
- A single price covering the **full care cycle for an acute medical condition**
- Time-based reimbursement for full care of a **chronic condition**
- Time-based reimbursement for **primary/preventive care for a defined patient population**
Bundled Payment in Practice
Hip and Knee Replacement in Stockholm, Sweden

• **Components** of the bundle

<table>
<thead>
<tr>
<th>Pre-op evaluation</th>
<th>All physician and staff fees and costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab tests</td>
<td>1 follow-up visit within 3 months</td>
</tr>
<tr>
<td>Radiology</td>
<td>Any additional surgery to the joint</td>
</tr>
<tr>
<td>Surgery &amp; related admissions</td>
<td>within 2 years</td>
</tr>
<tr>
<td>Prosthesis</td>
<td>If post-op infection requiring</td>
</tr>
<tr>
<td>Drugs</td>
<td>antibiotics occurs, guarantee extends</td>
</tr>
<tr>
<td>Inpatient rehab, up to 6 days</td>
<td>to 5 years</td>
</tr>
</tbody>
</table>

• Currently applies to all **relatively healthy patients** (i.e. ASA scores of 1 or 2)
• The same **referral process** from PCPs is utilized as the traditional system
• **Mandatory reporting** by providers to the joint registry plus supplementary reporting
• Provider participation is **voluntary**. All providers are participating

• The Stockholm bundled price for a knee or hip replacement is about **US $8,000**
Bundled Payment vs. Global Capitation

Medical Condition Capitation
• Fosters integrated care delivery (IPUs)
• Focuses providers on areas of excellence
• Drives provider control and accountability for outcomes at the medical condition level
• Creates strong incentives to improve value
• Ties payment to what providers can directly control
• Aligns reimbursement with value creation
• Accelerates care delivery integration

Global Capitation
• Shifts overall insurance risk to providers
• Encourages overly broad services lines and large, dominant provider systems
• Introduces pressure to limit / restrict services
• Reinforces provider incentive to attract generally healthy patients
• Decouples payment from what providers can control
• Aligns reimbursement with managing insurance risk
• Complicates true care delivery integration
4. Integrating Care Delivery Across Separate Facilities
Children’s Hospital of Philadelphia Care Network

**Network Hospitals:**
- [ ] CHOP Newborn Care
- [ ] CHOP Pediatric Care
- [ ] CHOP Newborn & Pediatric Care

**Wholly-Owned Outpatient Units:**
- [ ] Pediatric & Adolescent Primary Care
- [ ] Pediatric & Adolescent Specialty Care Center
- [ ] Pediatric & Adolescent Specialty Care Center & Surgery Center
- [ ] Pediatric & Adolescent Specialty Care Center & Home Care

The Children’s Hospital of Philadelphia®
Integrating Provider Systems

• Choosing the **overall scope of service lines** in which a provider can achieve excellence

• **Rationalizing service lines / IPUs** across facilities to improve volume, avoid duplication, and deepen teams

• Offering specific services at the **appropriate facility**
  – E.g. acuity level, resource intensity, cost level, need for convenience

• Clinically integrating care **across facilities**, within an IPU structure
  – Better **connecting** preventive/primary care units to specialty IPUs
  – **Widening** and **integrating** the care cycle

• There are major value improvements from **moving care out** of heavily resourced hospital, tertiary and quaternary facilities
5. Expanding Excellent IPUs Across Geography

Leading Providers
- Grow **areas of excellence across locations:**
  - Satellite pre- and post-acute services
  - Affiliations with community providers
  - New IPU hubs
  **NOT**
  - Widening the service line locally
  - Growing through new broad line, stand-alone units

Community Providers
- **Affiliate with excellent providers** in medical conditions and patient populations where there is insufficient volume or expertise to achieve superior value
  - New roles for rural and community hospitals
6. Building an Enabling Information Technology Platform

Utilize information technology to enable **restructuring of care delivery** and **measuring results**, rather than treating it as a solution itself.

- Common *data definitions*
- Combine **all types of data** (e.g. notes, images) for each patient
- Data encompasses the **full care cycle**, including care by referring entities
- Allow access and communication among **all involved parties**, including patients
- **Templates** for medical conditions to enhance the user interface
- “**Structured**” data vs. free text
- Architecture that allows easy extraction of **outcome measures, process measures**, and **activity based cost measures** for each patient and medical condition
- Interoperability standards enabling communication among **different provider** (and payor) **organizations**
Creating a Value-Based Health Care Delivery System

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Accountable Care Organizations and Value

**Potential**

- **Promote integration** across full cycles of care for medical conditions
  - Accelerate standardized **results measurement** and reporting for medical conditions
    - E.g. disease registries, cost measurement
  - Enable choice of providers by patients and referring physicians based on **medical condition results**
  - Facilitate **bundled payment** at the medical condition level
  - Promote **value-based competition among multiple providers** for each condition

**Risks**

- Slightly **improved coordination** rather than true integration
  - I.e. streamlining patient handoffs rather than minimizing handoffs
- Create numerous **ACO-level** measurement and reporting systems, which reduce accountability rather than increase it
  - And wrong measures at wrong levels
- Lock patients into an ACO system for **all types of care**, regardless of performance
  - Encourage hospitals or provider systems to offer full service lines to avoid “losing” patients
- ACOs lead reimbursement to **global capitation**
- Promote **over-consolidation** into large “integrated delivery systems” that compete on bargaining power rather than value
Moving to a Value-Based System
Leverage Points for Government

1. Organize into Integrated Practice Units (IPUs) Around Patient Medical Conditions and Patient Populations
   - Provider **certification** based on **care integration measures** (e.g. multidisciplinary teams, unified outcome measurement, dedicated facilities)
   - Reduce **regulatory obstacles** to care integration (e.g. Stark Laws, corporate practice of medicine)

2. Establish Universal Measurement of Outcomes and Cost for Every Patient
   - Create a **national outcome registry framework**
   - Tie reimbursement to registry **reporting**
   - Require provider reporting of **patient volume by medical condition** as an interim step
   - **Reset reimbursement levels** based on modern cost accounting principles

3. Move to Bundled Prices for Care Cycles
   - Combine technical fees and physician fees in a **single payment**
   - **Expand DRG** care episodes and set guidelines for bundled payment reimbursement requirements
   - Create a **bundled pricing framework** and rollout schedule
Moving to a Value-Based System
Leverage Points for Government

4. Integrate Care Delivery Across Separate Facilities
   - Introduce *minimum volume standards* by medical condition

5. Expand Excellent IPUs Across Geography
   - Encourage *affiliations* between community / rural providers and qualifying centers of excellence for complex care

6. Create an Enabling Information Technology Platform
   - Set *standards* for common data definitions, interoperability, and the ability to easily extract outcome, process, and costing measures for all HIT systems
For additional information on

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www.isc.hbs.edu
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Creating a Bundled Pricing System

• Defining the Bundle
  – **Scope** of the medical condition and care cycle duration
  – **Services** included, but retaining flexibility on methods
  – **Complications** and **comorbidities** included/excluded

• Pricing the Bundle: Key Choices
  – **Level** of bundled price vs. sum of current charges
  – Price **stability** commitment
  – Extent of **severity/risk** adjustment
  – Extent of “**guarantees**” by providers
  – Mechanism for handling **outliers** and **unanticipated** complications
  – Bonuses for **excellent outcomes**?

• Implementing the Bundle
  – Internal **distribution of the payment** among providers (dividing the pie)
  – **Billing and claims** processes
  – **Outcome measurement** to minimize incentives to limit value-enhancing services

• **Accurate costing** at the medical condition level is a prerequisite for negotiating bundled prices
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