Value-Based Health Care Delivery

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World Innovation Forum
June 8, 2010

Redefining Health Care Delivery

• Universal coverage and access to care are **essential, but not enough**

• 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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• How to design a health care system that **dramatically improves patient value**
  – Ownership of entities is secondary (e.g. non-profit vs. for profit vs. government)

• How to construct a **dynamic system** that keeps rapidly improving
Creating a Value-Based Health Care 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 pricing models

- Process improvements, lean production concepts, safety initiatives, care pathways, disease management and other overlays to the current structure are beneficial but not sufficient
- Consumers cannot fix the dysfunctional structure of the current system
Zero-Sum Competition in U.S. Health Care

**Bad Competition**
- Competition to *exclude less healthy individuals*
- Competition to *shift costs* or *capture greater revenue*
- Competition to *increase bargaining power* to secure discounts or price premiums
- Competition to *capture patients* and *restrict choice*
- Competition to *restrict services*

**Good Competition**
- Competition to *increase value for patients*

Zero or Negative Sum Competition

Positive Sum Competition
Principles of Value-Based Health Care Delivery

The central goal in health care must be **value for patients**, not access, volume, convenience, or cost containment.

Value = \( \frac{\text{Health outcomes}}{\text{Costs of delivering the outcomes}} \)

- Outcomes are the **full set of patient health outcomes** over the care cycle.
- Costs are the **total costs of care for the patient’s condition**, not just the cost of a single provider or a single service.

How to design a health care system that **dramatically improves patient value**
Principles of Value-Based Health Care Delivery

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

- Prevention
- 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 and repeats in treatment
- Faster recovery
- More complete recovery
- Less disability
- Fewer relapses or acute episodes
- Slower disease progression
- Less need for long term care
- Less care induced illness

- **Better health** is the goal, not more treatment
- Better health is **inherently less expensive** than poor health
Cost versus Quality, Sweden
Health Care Spending by County, 2008

Note: Cost including; primary care, specialized somatic care, specialized psychiatry care, other medical care, political health- and medical care activities, other subsidies (e.g. drugs)
Source: Öppna jämförelser, Socialstyrelsen 2008; Sjukvårdsdata i fokus 2008; BCG analysis
Value-Based Health Care Delivery
The Strategic Agenda

1. Organize into Integrated Practice Units Around the Patient’s Medical Condition (IPUs)
   - Including primary and preventive care for distinct patient populations

2. Measure 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. Organize into Integrated Practice Units

Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Services

New Model:
Organize into Integrated Practice Units (IPUs)

Organizing Around the Patient

A medical condition is an interrelated set of patient medical circumstances best addressed in an integrated way

- Defined from the patient’s perspective
- Including the most common co-occurring conditions and complications
- Involving multiple specialties and services

IPUs can address a single medical condition or groups of closely related medical conditions involving similar specialties, services, and expertise

The patient’s medical condition is the unit of value creation in health care delivery
# 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 of treatment
- Achieving compliance
- Psychological counseling
- Counseling on rehabilitation options, process
- Achieving compliance
- Counseling on long term risk management
- Achieving Compliance

### MEASURING
- Self exams
- Mammograms
- Mammograms
- Ultrasound
- MRI
- Labs (CBC, etc.)
- Blood chems, etc.
- Biopsy
- BRACA 1, 2...
- CT
- Bone Scans
- Labs
- Procedure-specific measurements
- Range of movement
- Side effects measurement
- MRI, CT
- Recurring mammograms (every six months for the first 3 years)

### ACCESSING
- Office visits
- Mammography lab visits
- Office visits
- Hospital stays
- Office visits
- Office visits
- Hospital visits
- Lab visits
- Visits to outpatient radiation or chemotherapy units
- Pharmacy
- Rehabilitation facility visits
- Pharmacy
- 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
- Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)
- Physical therapy
- In-hospital and outpatient wound healing
- Treatment of side effects (e.g. skin damage, cardiac complications, nausea, lymphoheda and chronic fatigue)
- Follow-up clinical exams
- Treatment for any continued or later onset side effects or complications
- Periodic mammography
- Other imaging

### DIAGNOSING

### PREPARING

### INTERVENING

### RECOVERING/ REHABING

### MONITORING/ MANAGING

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Breast Cancer Specialist
Other Provider Entities

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Integrated Models of Primary Care

• Today’s primary care is **fragmented** and attempts to address **overly broad** needs with limited resources

Value-Based Primary Care

• Prevention, screening, diagnosis, wellness and health maintenance **service bundles**

• Designed around **specific patient populations** (e.g. healthy adults, frail elderly, type II diabetics) rather than attempting to be all things to all patients

• Services are provided by **multidisciplinary teams, including** ancillary health professionals and support staff in **dedicated facilities**

• Delivered not only in traditional facilities but at the **workplace, community organizations**, and in **other settings** that offer regular patient contact and the ability to develop a group culture of wellness

• With **formal alliances** with specialty IPUs for the prevalent medical conditions represented in the patient base
IPUs and Value

Outcomes

- Better decisions in terms of diagnosis and treatment
  - Specialized experience and expertise
  - Better coordination/peer review
  - Better integration of co-occurrences
- Better execution of treatment
  - Specialized experience and expertise
  - Tailored facilities
  - Seamless management of common co-occurrences
- Faster cycle time
- Full range of support services needed to achieve success for the patient (e.g. nutrition, rehabilitation, psychological counseling)
- Improved patient compliance and engagement with care
- Vastly greater patient convenience

Cost

- Greater provider and team efficiency
- Better utilization of facilities
- Streamlined administrative costs

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Volume and experience have an even greater impact on value in an IPU structure than in the current system
## Fragmentation of Hospital Services
### 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>
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</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>
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<td>1</td>
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<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>
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<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>
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<tr>
<td>Heart transplant</td>
<td>6</td>
<td>16.6%</td>
<td>12</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

2. Measure Outcomes and Cost for Every Patient

- **For** medical conditions
- **Real time** and “on-line” in care delivery, not just retrospective
- **Not** for interventions or short episodes
- **Not** separately for types of service (e.g. inpatient, outpatient, tests, rehabilitation)
- **Not** for practices, departments, clinics, or entire hospitals

**Volume** measurement and reporting by medical condition is an interim first step
Dimensions of Measurement

- **Patient Initial Conditions**
  - Protocols/Guidelines

- **Processes**
  - E.g., Hemoglobin A1c levels for diabetics

- **Indicators**

- **(Health) Outcomes**

**Patient Compliance**
The Outcome Measures Hierarchy

**Tier 1**
- Health Status Achieved
  - Degree of health/recovery

**Tier 2**
- Time to recovery or return to normal activities
  - Process of Recovery
    - Disutility of care or treatment process (e.g., discomfort, complications, adverse effects, errors, and their consequences)

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

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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
(e.g., treatment-related discomfort, complications, adverse effects, diagnostic errors, treatment errors)
- 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. Center Results, 1987-1989

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

- 16 greater than predicted survival (7%)
- 20 worse than predicted survival (10%)
Adult Kidney Transplant Outcomes, U.S. Center Results, 1998-2000

1 year graft survival 90.9%
- 10 greater than predicted survival (4.5%)
- 14 worse than predicted survival (6.4%)
Adult Kidney Transplant Outcomes
U.S. Center Results, 2005-2007

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

- 16 greater than expected graft survival (6.6%)
- 19 worse than expected graft survival (7.8%)
Swedish National Quality Registers, 2007*

**Respiratory Diseases**
- Respiratory Failure Register (Swedevox)
- Swedish Quality Register of Otorhinolaryngology

**Childhood and Adolescence**
- The Swedish Childhood Diabetes Registry (SWEDIABKIDS)
- Childhood Obesity Registry in Sweden (BORIS)
- Perinatal Quality Registry/Neonatology (PNQn)
- National Registry of Suspected/Confirmed Sexual Abuse in Children and Adolescents (SÖK)

**Circulatory Diseases**
- Swedish Coronary Angiography and Angioplasty Registry (SCAAR)
- Registry on Cardiac Intensive Care (RIKS-HIA)
- Registry on Secondary Prevention in Cardiac Intensive Care (SEPHIA)
- Swedish Heart Surgery Registry
- Grown-Up Congenital Heart Disease Registry (GUCH)
- National Registry on Out-of-Hospital Cardiac Arrest
- Heart Failure Registry (RiksSvikt)
- National Catheter Ablation Registry
- Vascular Registry in Sweden (Swedvasc)

**Endocrine Diseases**
- National Diabetes Registry (NDR)
- Swedish Obesity Surgery Registry (SOREg)
- Scandinavian Quality Register for Thyroid and Parathyroid Surgery

**Gastrointestinal Disorders**
- Swedish Hernia Registry
- Swedish Quality Registry on Gallstone Surgery (GallRiks)
- Swedish Quality Registry for Vertical Hernia

**Musculoskeletal Diseases**
- Swedish Shoulder Arthroplasty Registry
- National Hip Fracture Registry (RIKSHÖFT)
- Swedish National Hip Arthroplasty Register
- Swedish Knee Arthroplasty Register
- Swedish Rheumatoid Arthritis Registry
- National Pain Rehabilitation Registry
- Follow-Up in Back Surgery
- Swedish Cruciate Ligament Registry – X-Base
- Swedish National Elbow Arthroplasty Register (SAAR)

* Registers Receiving Funding from the Executive Committee for National Quality Registries in 2007
Measuring the Costs of Health Care

Aspiration

• Cost should be aggregated at the **medical condition level** (which includes common co-occurring conditions), not for services or entire facilities
• Cost should be aggregated **for each patient** across the **full cycle of care**
• The cost of each activity involved in caring for a patient should reflect **that patient’s use of resources** (e.g. time, staff, facilities, service), rather than average allocations or allocations based on charges
• The only way to properly measure cost per patient is to track the **time** or **shared resource capacity** devoted to each patient by providers, facilities, support services, and other shared costs

Current Reality

• Most providers track **charges** not costs
• Most providers track cost by **billing category**, not for medical conditions
• Most providers cannot **accumulate total costs** over the care cycle for particular patients
• Most providers use **arbitrary or average** allocations of cost categories, not patient specific allocations
• Many providers allocate cost based in part on **charge levels**, which biases cost estimates
3. Move to Bundled Prices for Care Cycles

- Fee for service
- Bundled reimbursement for medical conditions
- Global capitation
- Global budgeting
What is a Bundled Payment?

• A **total package price** for the care cycle for a medical condition
  – Time-based bundled reimbursement for **managing chronic conditions**
  – Time-based reimbursement for defined **prevention, screening, wellness/health maintenance** service bundles
  – Should include responsibility for **avoidable complications**
  – “Medical condition capitation”

• The bundled price should be **severity adjusted**

What is Not a Bundled Payment

• Price for a **short** episode (e.g. inpatient only, procedure only)
• **Separate** payments for physicians and facilities
• **Pay-for-performance** bonuses
• “**Medical Home**” payment for care coordination

• DRGs can be a **starting point** for bundled payment models
• **Providers** and **health plans** should be proactive in driving new reimbursement models, not wait for government
**Bundled Payment in Practice**

**Hip and Knee Replacement in Sweden**

- Beginning in 2009, all joint replacements (hip and knee) in Stockholm County Council are reimbursed with a **bundled price** that includes:
  - Pre-op evaluation
  - Lab tests
  - Radiology
  - Surgery & related admission
  - Prosthesis
  - Drugs
  - Inpatient rehab, up to 6 days
  - 1 follow-up visit within 3 months
  - Any additional surgery to the joint within 2 years
  - If post-op infection requiring antibiotics occurs, guarantee extends to 5 years

- The bundled price 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
- There is **mandatory reporting** by providers to the joint registry plus supplementary reporting
- Provider participation is **voluntary** but all providers are involved
  - 6 public hospitals, 4 private hospitals
  - 3400 patients treated in 2009
- The bundled price for a knee or hip replacement is about **US $8,000**
4. Integrate Care Delivery Across Separate Facilities

Confederation of Standalone Units/Facilities

- Increase overall **volume**
- Benefits limited to **contracting** and **spreading** limited fixed overhead

Integrated Care Delivery Network

- Increase **value**
- The network is **more than** the sum of its parts
Building an Integrated Care System
Children’s Hospital of Philadelphia

Hospital Affiliates

- University Medical Center Princeton
  Newborn and Pediatric Care
- Abington Hospital
  Pediatric Care
- Doylestown Hospital
  Newborn Care
- Phoenixville Hospital
  Newborn Care
- Grandview Hospital
  Pediatric Care
- Chester Hospital
  Pediatric Care
- Children’s Hospital of Philadelphia
  Main Campus
- Pennsylvania Hospital
  Pediatric Care
- Holy Redeemer
  Hospital
  Newborn Care
- Shore Memorial Hospital
  Newborn and Pediatric Care
Levels of System Integration

- **Rationalize service lines/ IPUs** across facilities to improve volume, avoid duplication, and concentrate excellence
- **Offer specific services** at the appropriate facility
  - E.g. acuity level, cost level, need for convenience
  - Patient referrals across units
- **Clinically integrate care across facilities**, within an IPU structure
  - Expand and integrate the care cycle
  - Better connect **preventive/primary care** units to specialty IPUs
5. Expand Excellent IPUs Across Geography
The Cleveland Clinic Managed Practices

- Grow in ways that improve value, not just volume
Models of Geographic Expansion

**Affiliations**
- Affiliation Agreements with Independent Provider Organizations
- Second Opinions and Telemedicine

**Dispersed Services**
- Dispersed Diagnostic Centers
- Convenience Sensitive Service Locations in the Community
- Complex IPU Components (e.g. surgery) in Additional Locations

**New Hubs**
- Specialty Hospitals as Referral Hubs in Additional Locations
- New Broader-Line Hospital Hubs
6. Create 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 over time
- Data encompasses the full care cycle, including referring entities
- Allowing access and communication among all involved parties, including patients
- “Structured” data vs. free text
- Templates for medical conditions to enhance the user interface
- Architecture that allows easy extraction of outcome, process, and cost measures
- Interoperability standards enabling communication among different provider systems
Value-Based Health Care Delivery
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Value-Based Healthcare Delivery:
Implications for Contracting Parties/Health Plans

“Payor” → Value-Added Health Organization
Value-Adding Roles of Health Plans

- Assemble, analyze and manage the total medical records of members
- Provide for comprehensive and integrated prevention, wellness, screening, and disease management services to all members
- Monitor and compare provider results by medical condition
- Provide advice to patients (and referring physicians) in selecting excellent providers
- Assist in coordinating patient care across the care cycle and across medical conditions
- Encourage and reward integrated practice unit models by providers
- Design new bundled reimbursement structures for care cycles instead of fees for discrete services
- Measure and report overall health results for members by medical condition versus other plans

- Health plans will require new capabilities and new types of staff to play these roles
Value-Based Health Care: The Role of Employers

• Employer interests are more closely aligned with patient interests than any other system participant
  – Employers need healthy, high performing employees
  – Employers bear the costs of chronic health problems and poor quality care
  – The cost of poor health is 2 to 7 times more than the cost of health benefits
    o Absenteeism
    o Presenteeism

• Employers are uniquely positioned to improve employee health
  – Daily interactions with employees
  – On-site clinics for quick diagnosis and treatment, prevention, and screening
  – Group culture of wellness

• Providers can establish direct relationships with employers to enable value based approaches
Value-Based Health Care Delivery: Implications for Government

- Remove obstacles to the restructuring of health care delivery around the integrated care of medical conditions
- Establish universal measurement and reporting of provider health outcomes
- Require universal reporting by health plans of health outcomes for members
- Shift reimbursement systems to bundled prices for cycles of care instead of payments for discrete treatments or services
- Open up competition among providers and across geography
- Mandate EMR adoption that enables integrated care and supports outcome measurement
  - National standards for data definitions, communication, and aggregation
  - Software as a service model for smaller providers
- Set policies that encourage greater responsibility of individuals for their health and their health care

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