Value-Based Health Care Delivery

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Redefining Health Care Delivery

• Achieving universal coverage and access to care are essential, but not enough
• The core issue in health care is the value of health care delivered

Value: Patient health outcomes per dollar spent

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

• 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 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

- Care pathways, safety initiatives, disease management 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 access, volume, convenience, or cost containment

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

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

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

<table>
<thead>
<tr>
<th>Prevention of illness</th>
<th>Fewer complications</th>
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</thead>
<tbody>
<tr>
<td>Early detection</td>
<td>Fewer mistakes and repeats in treatment</td>
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<tr>
<td>Right diagnosis</td>
<td>Faster recovery</td>
</tr>
<tr>
<td>Right treatment to the right patient</td>
<td>More complete recovery</td>
</tr>
<tr>
<td>Early and timely treatment</td>
<td>Less disability</td>
</tr>
<tr>
<td>Treatment earlier in the causal chain of disease</td>
<td>Fewer recurrences, relapses, flare ups, or acute episodes</td>
</tr>
<tr>
<td>Rapid cycle time of diagnosis and treatment</td>
<td>Slower disease progression</td>
</tr>
<tr>
<td>Less invasive treatment methods</td>
<td>Greater functionality and less need for long term care</td>
</tr>
<tr>
<td></td>
<td>Less care induced illness</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>INFORMING AND ENGAGING</th>
<th>MEASURING</th>
<th>ACCESSING THE PATIENT</th>
<th>MONITORING/PREVENTING</th>
<th>DIAGNOSING</th>
<th>PREPARING</th>
<th>INTERVENCING</th>
<th>RECOVERING/REHABING</th>
<th>MONITORING/MANAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Advice on self screening • Consultations on risk factors</td>
<td>• Counseling patient and family on the diagnostic process and the diagnosis</td>
<td>• Explaining patient treatment options/ shared decision making</td>
<td>• Counseling on the treatment process • Education on managing side effects and avoiding complications • Achieving compliance</td>
<td>• Counseling on rehabilitation options, process • Achieving compliance • Psychological counseling</td>
<td>• Counseling on long term risk management • Achieving compliance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Self exams • Mammograms</td>
<td>• Self exams • Mammograms • Ultrasound • MRI • Labs (CBC, etc.) • Biopsy • BRACA 1, 2… • CT • Bone Scans</td>
<td>• Labs</td>
<td>• Procedure-specific measurements</td>
<td>• Range of movement • Side effects measurement</td>
<td>• MRI, CT • Recurring mammograms (every six months for the first 3 years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Office visits • Mammography • Lab visits</td>
<td>• Office visits • Lab visits</td>
<td>• Office visits • Hospital visits • Lab visits</td>
<td>• Hospital stays • Visits to outpatient radiation or chemotherapy units • Pharmacy visits</td>
<td>• Office visits • Rehabilitation facility visits • Pharmacy visits</td>
<td>• Office visits • Lab visits • Mammographic labs and imaging center visits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Medical history • Control of risk factors (obesity, high fat diet) • Genetic screening • Clinical exams • Monitoring for lumps</td>
<td>• Medical history • Determining the specific nature of the disease (mammograms, pathology, biopsy results) • Genetic evaluation • Labs</td>
<td>• Choosing a treatment plan • Surgery prep (anesthetic risk assessment, EKG) • Plastic or oncoplastic surgery evaluation • Neo-adjuvant chemotherapy</td>
<td>• Surgery (breast preservation or mastectomy, oncoplastic alternative) • Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)</td>
<td>• Periodic mammography • Other imaging • Follow-up clinical exams • Treatment for any continued or later onset side effects or complications</td>
<td>• In-hospital and outpatient wound healing • Treatment of side effects (e.g. skin damage, cardiac complications, nausea, lymphedema and chronic fatigue) • Physical therapy</td>
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</table>
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 measures outcomes and processes as a team, not individually using a common information platform
10. Accepting joint accountability for outcomes and costs
Integrated Diabetes Care
Joslin Diabetes Center

Source: Joslin company documents.

1. Check-in
2. Endocrinologist
3. Nurse Coordinator
4. Eye Exam
5. Laboratory – Blood, urine
6. Diabetes Education
7. Mental Health
8. Renal
9. Check-out
What is Not Integrated Care?

Integrated care is not the same as:

– Co-location per se
– Care delivered by the same organization
– A multispecialty group practice
– Freestanding focused factories
– A clinical pathway
– An institute or center
– A Center of Excellence
– A health plan/provider system (e.g. Kaiser Permanente)
– Medical homes
– Accountable care organizations
Integrated Models of Primary Care

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

• Organize primary care around teams serving **specific patient populations** (e.g. healthy adults, type II diabetics) rather than attempting to be all things to all patients

• Deliver **defined service bundles** covering appropriate prevention, screening, diagnosis, and health maintenance

• Provide services with **multidisciplinary teams** including ancillary health professionals and support staff

• Form **alliances with specialty IPUs** covering the prevalent medical conditions represented in the patient population

• Deliver services not only in traditional settings but at the **workplace, schools, community organizations**, and in **other locations** offering regular patient contact and the ability to develop a group culture of wellness
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. Measure Outcomes and Cost for Every Patient

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

**Patient Compliance**

- Protocols/Guidelines
- E.g., Hemoglobin A1c levels for diabetics
- Structure
  - E.g., Staff certification, facilities standards
The Outcome Measures Hierarchy

Tier 1
Health Status
Achieved or Retained

Tier 2
Process of Recovery

Tier 3
Sustainability of Health

Survival

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)

Sustainability of health/recovery and nature of recurrences

Long-term consequences of therapy (e.g., care-induced illnesses)
Measuring Head and Neck Cancer Outcomes
MD Anderson Cancer Center

- Survival
  - Survival rate

- Degree of recovery / health
  - Degree of remission
  - Can swallow normally
  - Can talk normally

- Time to recovery or return to normal activities
  - Time to remission
  - Time-to’s (referral, appt., etc.)
  - Completion of all treatments within 100 days

- Disutility of care or treatment process
  (e.g., treatment-related discomfort, complications, adverse effects, diagnostic errors, treatment errors)

- Sustainability of recovery or health over time
  - Postoperative complications
  - Readmissions

- Long-term consequences of therapy (e.g., care-induced illnesses)
  - Cancer recurrence
  - Disease-free survival
  - Incidence of secondary cancers
In-vitro Fertilization
Success Rates Over Time

Percent Live Births per Fresh, Non-Donor Embryo Transferred by Clinic Size
Women Age <38, 1997-2007

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%)
Selected 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)

- National Quality Registry for Stroke (Riks-Stroke)
- National Registry of Atrial Fibrillation and Anticoagulation (AuriculA)

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
Creating an Outcome Measurement System
Schön Klinik

1. Designate medical conditions to measure
   • Define medical conditions and boundaries
   • Chart the CDVC

2. Develop outcome dimensions, measures, and risk adjustments
   • Measures developed by convening groups of involved physicians and members of Schön’s quality improvement team
   • Five metrics per medical condition

3. Data collection infrastructure
   • Physicians and nurses enter data during the patient’s stay
   • Data can be extracted from the EMR reducing the burden of capture
   • Collection of long term follow-up data still done manually

4. Incentives and mechanisms for data reporting
   • Reporting of all metrics is mandated for all physicians
   • Involvement in the metrics development process increases physician buy-in

5. Compliance and accuracy validation
   • Accuracy validated through trend analysis

6. Outcome reporting
   • Outcome data captured for 70% of patients
   • Report results internally at the individual physician level
   • Annual quality report (27 process and outcome measures) disseminated externally

7. Process for outcome improvement
   • Physicians trust metrics and are convinced of their value in driving improvement
   • Physician pay linked to quality of care delivered
Measuring Cost in Health Care

• Current cost accounting practices in health care **obscure understanding of the actual costs** of care delivery and **severely compromise** true cost reduction

Cost Definition Problem
• Costs are widely confused with **charges**, or allocated based on charges

Cost Aggregation Problem
• Cost are measured and aggregated for departments, specialties, discrete services, and line items (e.g. devices)
• Costs should be aggregated over the **full care cycle for the patient’s medical condition**

Cost Allocation Problem
• Shared resources are allocated using **averages or estimates**
• Costs should be allocated to **individual patients** based on their **actual use of the resources involved**
• The application of **time-driven activity-based costing** to health care delivery reveals many structural opportunities for cost reduction
Cost Reduction Opportunities in Health Care

- Over-resourced facilities
  - E.g. routine care delivered in expensive hospital settings
- Under-utilization of expensive clinical space, equipment, and facilities
- Poor utilization of highly skilled physicians and staff
- Over-provision of low- or no-value testing and other services in order to justify billing/follow rigid protocols
- Long cycle times
- Redundant administrative and scheduling personnel
- Missed opportunities for volume procurement
- Excess inventory and weak inventory management
- Lack of cost knowledge and awareness in clinical teams

- Such cost reduction opportunities do not require outcome tradeoffs, but may actually improve outcomes
3. Move to Bundled Prices for Care Cycles

- A single price covering the **full care cycle for an acute medical condition**
- Time-based reimbursement for **chronic conditions**
- 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

  - Pre-op evaluation
  - Lab tests
  - Radiology
  - Surgery & related admissions
  - Prosthesis
  - Drugs
  - Inpatient rehab, up to 6 days

  - All physician and staff costs
  - 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

- 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** but all providers are involved

- The bundled price for a knee or hip replacement is about **US $8,000**
Moving to Value-Based Reimbursement
Bundled Payment vs. Global Capitation

Medical Condition Capitation
• Fosters integrated care delivery (IPUs)
• Reinforces focus on areas of excellence
• Promotes provider control and accountability for outcomes at the medical condition level
• Creates strong incentives to improve value through reducing delays, avoidable complications, and unnecessary services
• Payment is aligned with areas 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 ration services
• Strengthens 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. Integrate Care Delivery Across Separate Facilities

Confederation of Standalone Units/Facilities  \rightarrow  Integrated Care Delivery Network
Choose the **scope of service lines** where each provider unit can achieve excellence

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

**Offer specific services** at the **appropriate facility**
- E.g. acuity level, cost level, need for convenience

**Clinically integrate care across facilities**, within an IPU structure
- **Widen** and **integrate** the care cycle
- Better connect **preventive/primary care** units to specialty IPUs
5. Expand Excellent IPUs Across Geography

• Grow areas of excellence across locations, rather than:
  – offering every service in the local service area
  – growth through new broad line, stand-alone units

• Affiliate with excellent providers in medical conditions and patient populations where there is insufficient volume or expertise to achieve superior value
Expanding Across Geography
The Cleveland Clinic Managed Practices

- Rochester General Hospital, NY
  Cardiac Surgery
- CLEVELAND CLINIC
  Cardiac Care
- Chester County Hospital, PA
  Cardiac Surgery
- Cape Fear Valley Health System, NC
  Cardiac Surgery
- McLeod Heart & Vascular Institute, SC
  Cardiac Surgery
- Cleveland Clinic Florida Weston, FL
  Cardiac Surgery
6. Build 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**
A Mutually Reinforcing Strategic Agenda

- Organize into Integrated Practice Units
- Measure Outcomes and Cost For Every Patient
- Move to Bundled Prices for Care Cycles
- Integrate Care Delivery Across Separate Facilities
- Grow Excellent Services Across Geography

Build an Enabling IT Platform
Moving to a Value-Based System

Implications for Government

1. Organize into Integrated Practice Units (IPUs) Around Patient Medical Conditions
   - Provider reporting and certification based on care integration measures
     (e.g. multidisciplinary teams, dedicated facilities)

2. Establish Universal Measurement of Outcomes and Cost for Every Patient
   - Introduce mandatory outcome measurement by medical condition
   - Require provider reporting of patient volume by medical condition as an interim step

3. Move to Bundled Prices for Care Cycles
   - Expand DRG care episodes

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

5. Expand Excellent IPUs Across Geography
   - Encourage affiliations between small or rural providers and qualifying centers of excellence

6. Create an Enabling Information Technology Platform
   - Require universal data definitions, interoperability, and the ability to easily extract outcome, process, and costing measures by all HIT systems
For additional information on

Value-Based Health Care Delivery:

www.isc.hbs.edu
Value-Adding Roles of Payors

- 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 Delivery: The Role of Employers

• Employer interests are closely aligned with patient interests
  – 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
    ▪ Absenteeism
    ▪ Presenteeism

• Employers are uniquely positioned to improve employee health
  – Daily interactions with employees
  – Group culture of wellness
  – On-site clinics for quick diagnosis and treatment, prevention, and screening
  – Consortia of smaller employers can spread their practices beyond large companies

• Employers can encourage and support value-based delivery organizations and approaches