Creating a Value-Based Health Care Delivery Organization

The Strategic Agenda

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

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 Areas of Excellence

6. Create an Enabling Information Technology Platform
2. Measuring Outcomes and Cost for Every Patient

- **Patient Initial Conditions**
  - Protocols/Guidelines
    - E.g., Staff certification, facilities standards

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

- **Indicators**
  - (Health) Outcomes

**Example Indicators**:
- Hemoglobin A1c levels for diabetics
- Staff certification, facilities standards
Principles of Outcome Measurement

• Outcomes should be measured by **medical condition** or **primary care patient segment**
• Outcomes should reflect the **full cycle of care**
• Outcomes should encompass **near-term** and **longer-term** patient health, covering a period that reflects the ultimate results of care
• Outcomes are **multi-dimensional** and should include the health circumstances **most relevant to patients**
• Measurement should include **initial conditions/risk factors** to allow for risk adjustment
• Ultimately, outcome measurement should be **real time** and **in the line of care**, not just retrospective or in clinical studies
The Outcome Measures Hierarchy

Tier 1
Health Status Achieved or Retained
Survival
Degree of health/recovery

Tier 2
Process of Recovery
Time to recovery and return to normal activities
Disutility of the care or treatment process (e.g., diagnostic errors and ineffective care, treatment-related discomfort, complications, or adverse effects, treatment errors and their consequences in terms of additional treatment)

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 (e.g., treatment-related discomfort, complications, adverse effects, diagnostic errors, treatment errors)
- Nosocomial infection
- Nausea/vomiting
- Febrile neutropenia

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
Survival Outcome Performance Over Time
MD Anderson Oral Cavity Cancer Survival by Patient Registration Year

Source: MD Anderson Cancer Center
Comparative Success Rates Across Centers
In-vitro Fertilization

Percent Live Births per Fresh, Non-Donor Embryo Transferred by Clinic Size
Women Under 38 Years of Age, 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. Center Results, 2008-2010

Number of programs included: 236
Number of transplants: 38,535
1-year graft survival: **93.55%**

- 8 greater than expected graft survival (3.4%)
- 14 worse than expected graft survival (5.9%)
Steps to Creating an Outcomes Measurement System

1. Designing outcome measures
2. Collecting outcome data
3. Compiling and analyzing outcomes
4. Reporting
1. Designing Outcome Measures

- Establish an **outcome measures team** including physicians, nurses and skilled staff involved in the care cycle
- Define the **medical condition**
- Create a **Care Delivery Value Chain** for the condition
- Use the **outcome hierarchy** to define a comprehensive set of **outcome dimensions**, and **specific measures**
  - Engage patients to understand the outcomes **that matter to them**
- Tie the **outcome measures to the CDVC** to check for completeness and start to identify the causal connections between activities and each outcome
- Identify the **set of initial conditions** or **risk factors** necessary to control for patient differences
# The Care Delivery Value Chain

## Acute Knee-Osteoarthritis Requiring Replacement

### INFORMING AND ENGAGING
- **Joint-specific symptoms and function (e.g., WOMAC scale)**
- **Overall health (e.g., SF-12 scale)**

### MEASURING
- **Baseline health status**
- **Fitness for surgery (e.g., ASA score)**

### ACCESSING
- **PCP office**
- **Health club**
- **Physical therapy clinic**

### MONITORING/PREVENTING
- **Imaging**
  - Perform and evaluate MRI and x-ray
  - Assess cartilage loss
  - Assess bone alterations

### DIAGNOSING
- **CLINICAL EVALUATION**
  - Review history and imaging
  - Perform physical exam

### PREPARING
- **OVERALL PREP**
  - Conduct home assessment
  - Monitor weight loss

### INTERVENING
- **ANESTHESIA**
  - Administer anesthesia (general, epidural, or regional)

### SURGICAL PREP
- **SURGICAL PROCEDURE**
  - Determine approach (e.g., minimally invasive)
  - Insert device
  - Cement joint

### PAIN MANAGEMENT
- **Prescribe preemptive multimodal pain meds**

### RECOVERING/REHABBING
- **SURGICAL**
  - Immediate return to OR for manipulation, if necessary

### PHYSICAL THERAPY
- **Daily or twice daily PT sessions**

### MANAGING
- **Consult regularly with patient**

### PREVENT
- **Prescribe anti-inflammatory medicines**
- **Recommend exercise regimen**
- **Set weight loss targets**

### INFORMING AND ENGAGING
- **Importance of exercise, weight reduction, proper nutrition**
- **Meaning of diagnosis**
- **Prognosis (short- and long-term outcomes)**
- **Drawbacks and benefits of surgery**

### MEASURING
- **Loss of cartilage**
- **Change in subchondral bone**
- **Joint-specific symptoms and function**
- **Overall health**

### ACCESSING
- **Specialty office**
- **Imaging facility**
- **Pre-op evaluation center**

### MONITORING/PREVENTING
- **Review history and imaging**
- **Perform physical exam**

### DIAGNOSING
- **Perform and evaluate MRI and x-ray**
- **Assess cartilage loss**
- **Assess bone alterations**

### PREPARING
- **Conduct home assessment**
- **Monitor weight loss**

### INTERVENING
- **Administer anesthesia (general, epidural, or regional)**

### SURGICAL PREP
- **Determine approach (e.g., minimally invasive)**
- **Insert device**
- **Cement joint**

### PAIN MANAGEMENT
- **Prescribe preemptive multimodal pain meds**

### RECOVERING/REHABBING
- **Nursing facility**
- **Rehab facility**
- **Physical therapy clinic**
- **Home**

### MANAGING
- **Prescribe prophylactic antibiotics when needed**
- **Set long-term exercise plan**
- **Revise joint, if necessary**

### PREVENT
- **Prescribe anti-inflammatory medicines**
- **Recommend exercise regimen**
- **Set weight loss targets**

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*Orthopedic Specialist
Other Provider Entities*
2. Collecting Outcome Data: Initial Steps

• Extract available information from clinical and administrative systems

• Identify the best placed individual(s) for entering data and making the most informed judgment on each measure
  – E.g. physicians, nurses, patients or dedicated measurement staff

• Create an auditing system to eliminate clerical and other errors, as well as to test the objectivity of qualitative scoring and judgments

• Chart review and paper-based forms are starting points in expanding the measures tracked
2. Collecting Outcome Data: Moving to a Real-time System

EMR Capture
• Modify the EMR to allow efficient collection of clinician-reported measures
  – E.g. standardized, medical-condition specific templates
• Create paper or web-based tools that incorporate patient-reported outcomes
  – E.g. Dartmouth Spine Center tablets, patient portals

Long Term Tracking
• Develop a practical patient tracking system to follow patients over extended time periods
  – Links to registries, payor databases, and government records (death, worker’s compensation, unemployment, etc.)
3. Compiling and Analyzing Outcomes

• Compile outcomes data and initial conditions in a **centralized registry or database**
  – Structured around patients and their **medical conditions**, not visits or episodes

• Create reports for **risk-adjusted patient cohorts** over time
  – Comparisons **across providers and locations**

• Convene **regular meetings** to analyze variations and trends
  – Create an environment that allows **open discussion of results** with no repercussions for participants willing to learn and make constructive changes

• Utilize outcome learning to investigate **processes, potential care innovations, and other improvement approaches**
  – Combine with care cycle costing data

• **Refine** the measures, collection methods, and risk-adjustment factors over time
4. Reporting

• Create an agreed upon path to external transparency of outcomes
  – Start first with internal reporting to providers and move over time to referring providers, payors, and patients

• Work with provider peers, payors, and government to standardize reporting measures and methods, including
  – Unit of analysis (individual physician vs. group practice)
  – Method of stratification/risk adjustment
  – Process for improving metrics and practices

• Collaborate with registries and leading national and international providers to benchmark performance and compare best practices

• Ultimately, national reporting of standardized measures will be the strongest driver in value improvement
The Role of Registries in Outcome Measurement: 
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)

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

**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
Enabling Universal Outcomes Measurement: Leverage Points for Government

- Streamline **policy hurdles** that impede measurement and registry development and implementation (e.g., privacy rules, definitive patient identifiers)
- Strengthen **IT standards** to allow easy transfer of information across data sources
- **Stimulate EMR improvements** that enable efficient data-entry workflow and easy extraction of outcome measures
- Provide **seed funding** for registry development
- **Incentivize** outcomes measurement and reporting
  - Initially, incentives for reporting
  - Required reporting for participation in new reimbursement models
  - Required reporting for **all** reimbursement
Enabling Universal Outcomes Measurement: Leverage Points for Patients, Payors, and Employers

Patients

• Work with providers to define the outcomes that matter to patients by medical condition

• Expect outcomes data as part of provider selection

Payors

• Become active consumers of outcome data to inform contracting and guide subscriber choices

• Introduce incentives for outcome reporting and registry participation
  – Tie pay-for-performance programs initially to reporting of outcomes, but eventually to outcomes themselves

• Create a pathway to transparency of outcomes

Employers

• Use purchasing power to require outcomes reporting by medical condition as a condition for contracting
3. Move to Bundled Prices for Care Cycles

- Bundled reimbursement covers the **full care cycle for an acute medical condition**, time-based reimbursement for **chronic conditions**, and time-based reimbursement for **primary/preventive care for a defined patient population**
What is a Bundled Payment?

- **A total package price** for the care cycle for a **medical condition**
  - "Medical condition capitation"
- Time-based bundled reimbursement for **managing chronic conditions**
- Time-based reimbursement for **primary / preventative service bundles** to **defined patient segments**
- Bundles should include responsibility for **avoidable complications**
- Bundles should be **severity adjusted**

What is Not a Bundled Payment

- **Separate** payments for physicians and facilities
- Payment for a **short** episode (e.g. inpatient only, procedure only)
- **Carve outs** for drug, behavioral health, or disease management
- **Pay-for-performance** bonuses
- "**Medical Home**" payment for care coordination
- **DRGs** can be a **starting point** for bundled payment models
  - DRGs in **some countries** are closer to true bundles
- Providers and health plans should be **proactive** in driving new reimbursement models, not wait for government
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 fees and 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

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
Applies to all qualifying patients. Provider participation is voluntary, but all providers are continuing to offer total joint replacements

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

**Bundled Payment**

- Fosters integrated care delivery (IPUs)
- Payment is aligned with areas the provider can control
- Promotes provider accountability for the quality of care at the medical condition level
- Creates strong incentives to improve value and reduce avoidable complications

Aligns reimbursement with value creation

**Global Capitation**

- Shifts overall insurance risk to providers
- Largely decouples payment from what providers can control
- Introduces pressure to ration services
- Encourages large provider systems offering overly broad services lines
- Amplifies provider incentive to target generally healthy patients

Aligns reimbursement with overall insurance risk
Creating a Bundled Pricing System

• Defining the Bundle
  – **Scope** of the medical condition
  – **Range of services** included
  – **Complications** and **comorbidities** included/excluded
  – **Duration** of care cycle/time period
  – **Flexibility** on methods/process of care essential

• Pricing the Bundle: Key Choices
  – The bundled price relative to the **sum of current costs**
  – Extent of **incentive** to improve value by reducing avoidable complications, improving efficiency, etc.
  – Extent of “**guarantees**” and responsibility for avoidable complications by providers
  – Extent of **severity/risk** adjustments
  – Mechanism for handling **outliers** and **unanticipated** complications

• Implementing Bundles
  – **Provider** billing processes
  – Internal **distribution of the payment** among providers (dividing the pie)
    o Degree of risk sharing by specialty
  – **Claims** management process and infrastructure at payors
  – **Outcomes measurement** is essential to measure success and minimize incentives to limit value-enhancing services
Moving to Bundled Pricing: Challenges and Enablers

• Obstacles
  – Lack of historical **cost data** aggregated by patient and by medical condition
  – **Fragmentation** of providers and payors
  – Existing **care delivery structure**
  – Absence of **interoperable EMRs** across the units involved in care
  – The need to modify insurer **reimbursement infrastructure**
  – **Legal impediments** such as gainsharing rules
  – **Resistance** by physicians (e.g. risk-taking)
  – Achieving stakeholder **consensus**
  – Absence of **outcome** measurement

• Enablers
  – Established **IPUs**
  – **Employed** physicians
  – Medical condition-based **cost accounting** (TDABC)
  – Established **outcome measurement**
  – Direct negotiation with **employers**