Value-Based Health Care Delivery: Outcomes Measurement and Reimbursement

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January 5, 2012

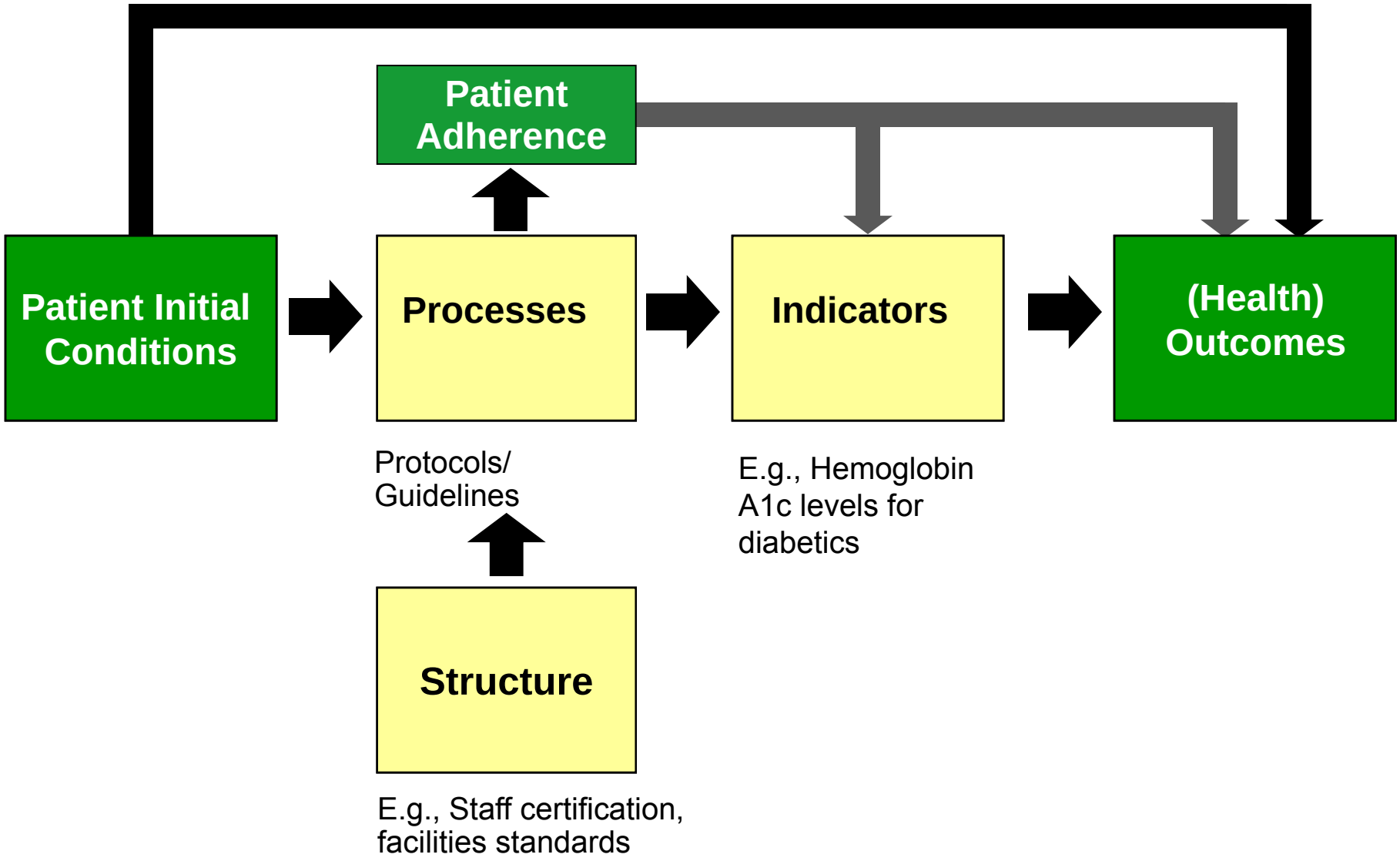
This presentation draws on Redefining Health Care: Creating Value-Based Competition on Results (with Elizabeth O. Teisberg), Harvard Business School Press, May 2006; "A Strategy for Health Care Reform—Toward a Value-Based System," *New England Journal of Medicine*, June 3, 2009; "Value-Based Health Care Delivery," *Annals of Surgery* 248: 4, October 2008; "Defining and Introducing Value in Healthcare," *Institute of Medicine Annual Meeting*, 2007. Additional information about these ideas, as well as case studies, can be found the Institute for Strategy & Competitiveness Redefining Health Care website at http://www.hbs.edu/rhc/index.html.

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

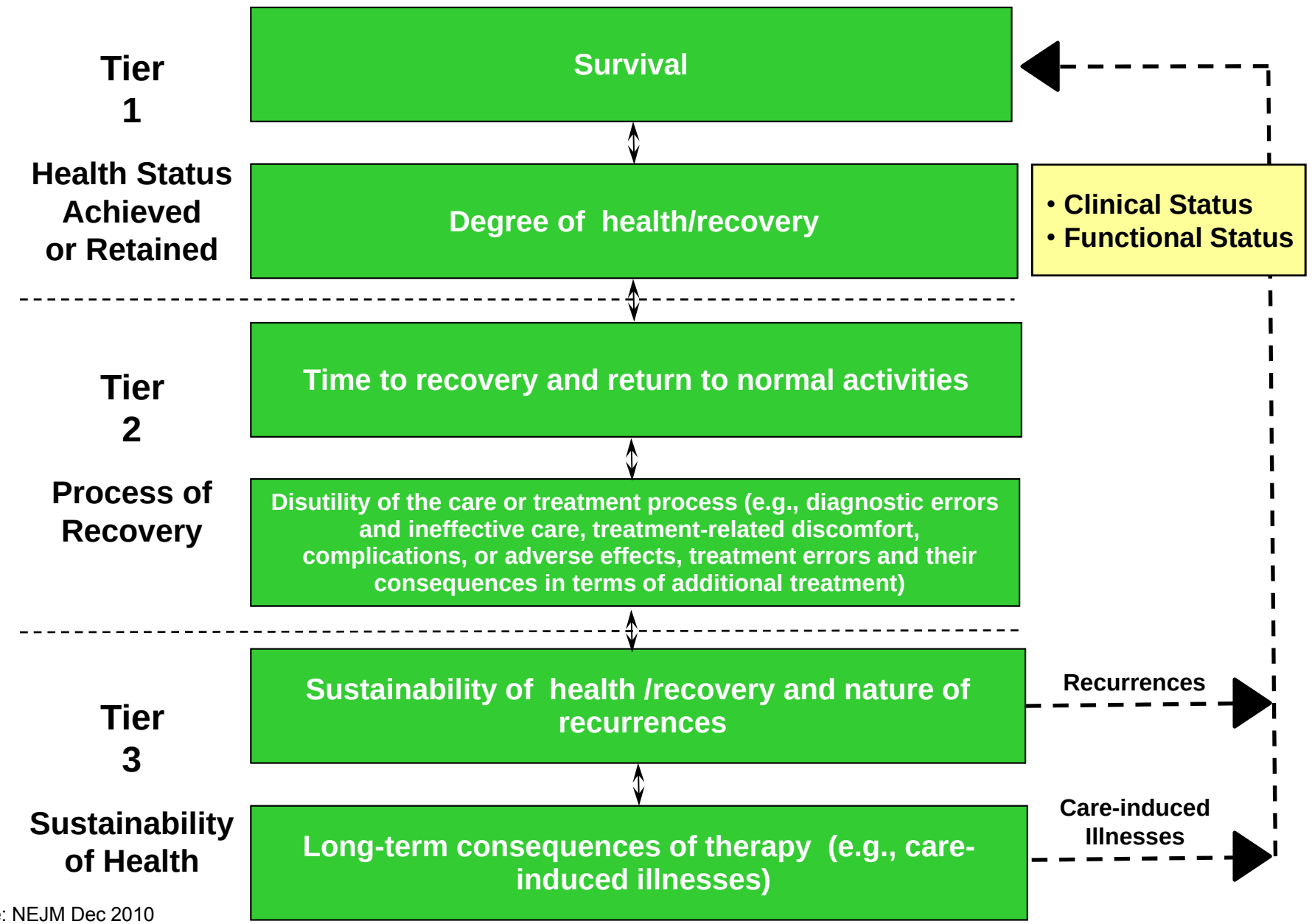
2. Measuring Outcomes and Cost for Every Patient



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

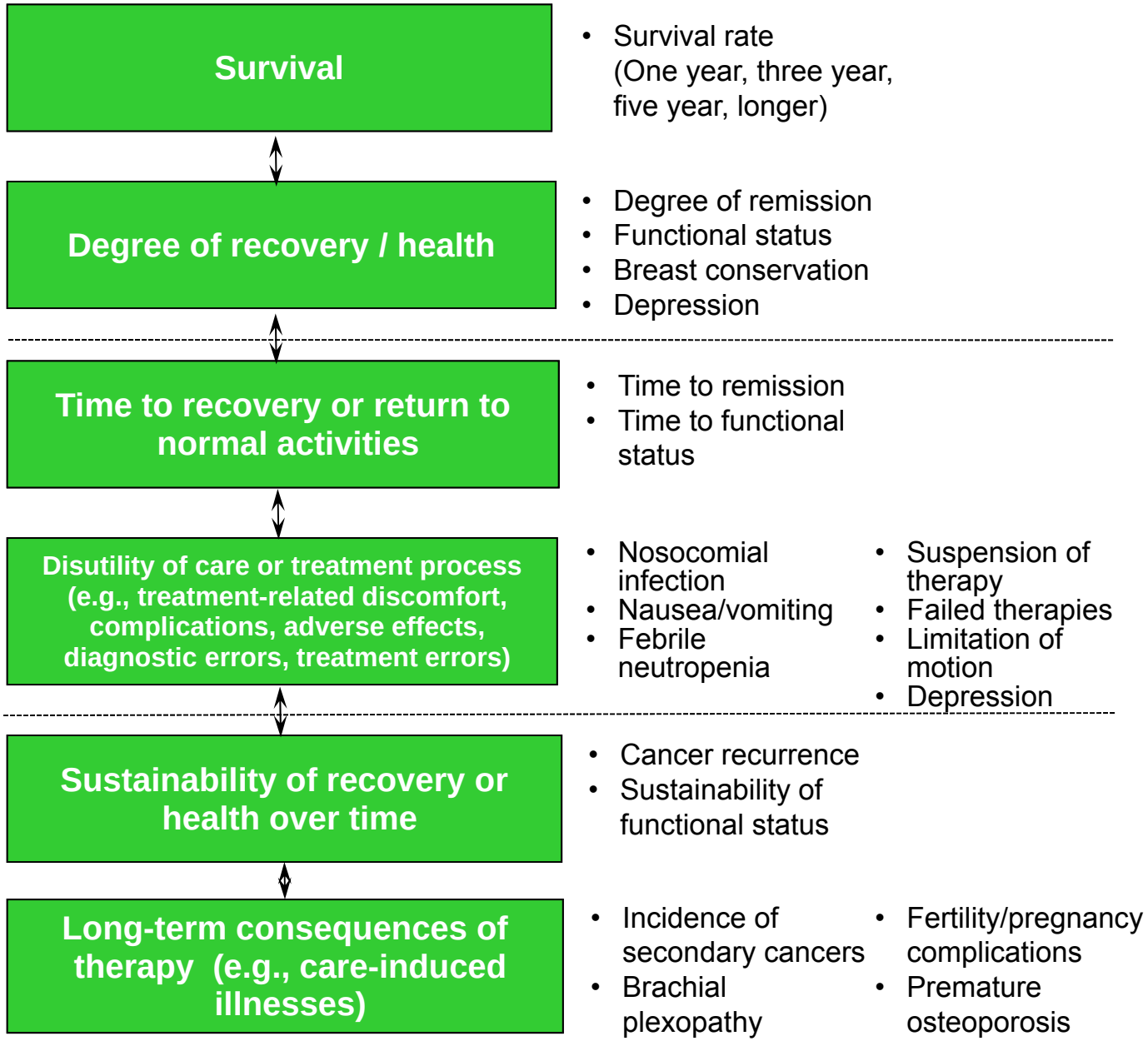
The Outcome Measures Hierarchy



Source: NEJM Dec 2010

The Outcome Measures Hierarchy

Breast Cancer

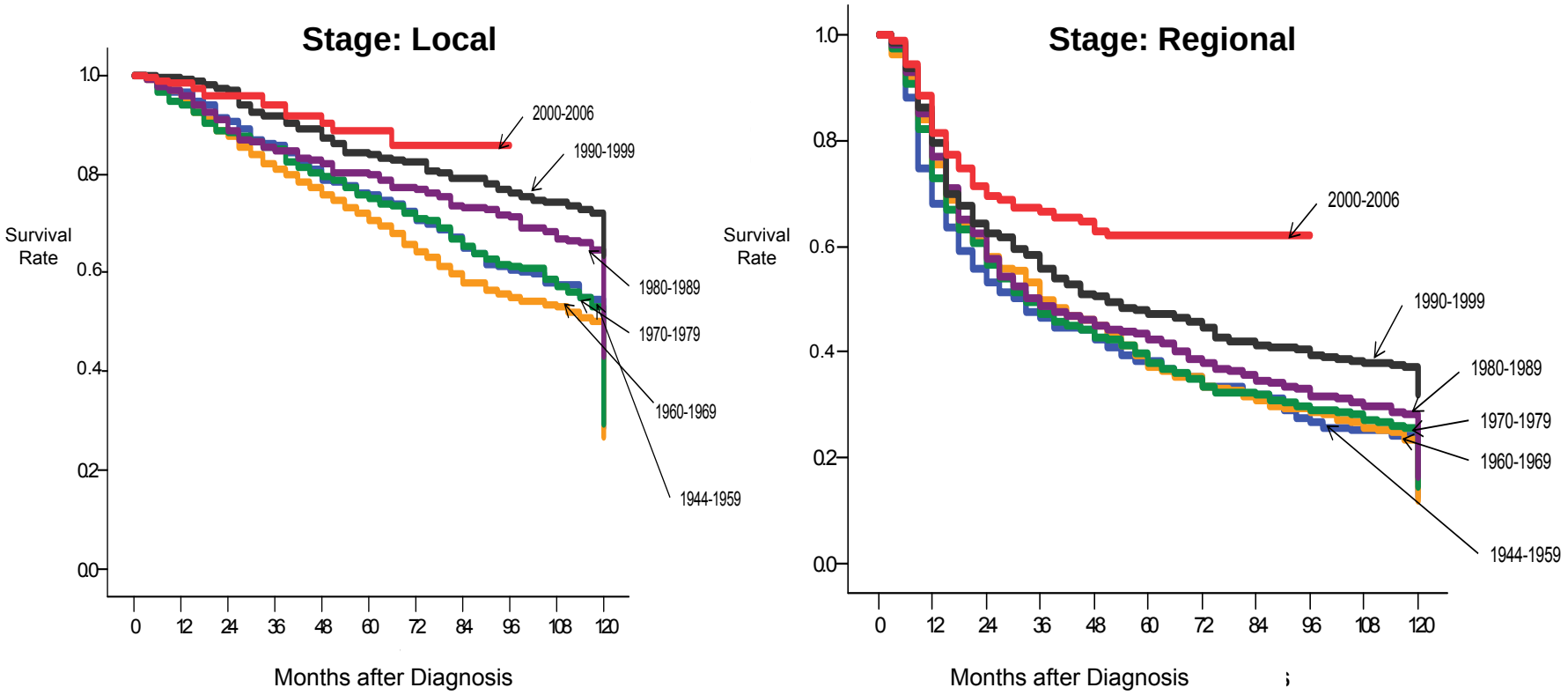


Initial Conditions/Risk Factors

- 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

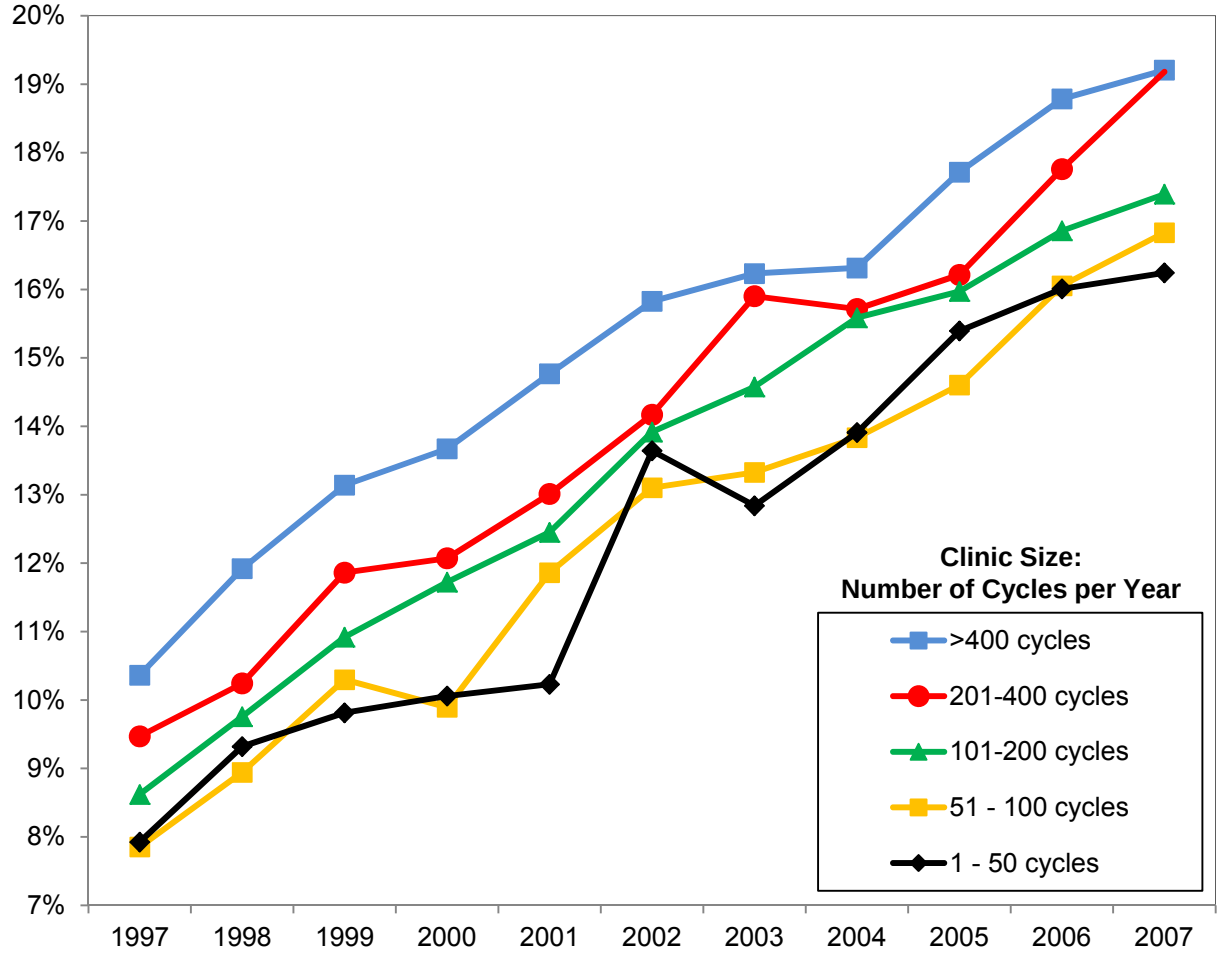
MD Anderson Oral Cavity Cancer Survival by Patient Registration Year



Source: MD Anderson Cancer Center

Comparative Success Rates Across Centers
In-vitro Fertilization

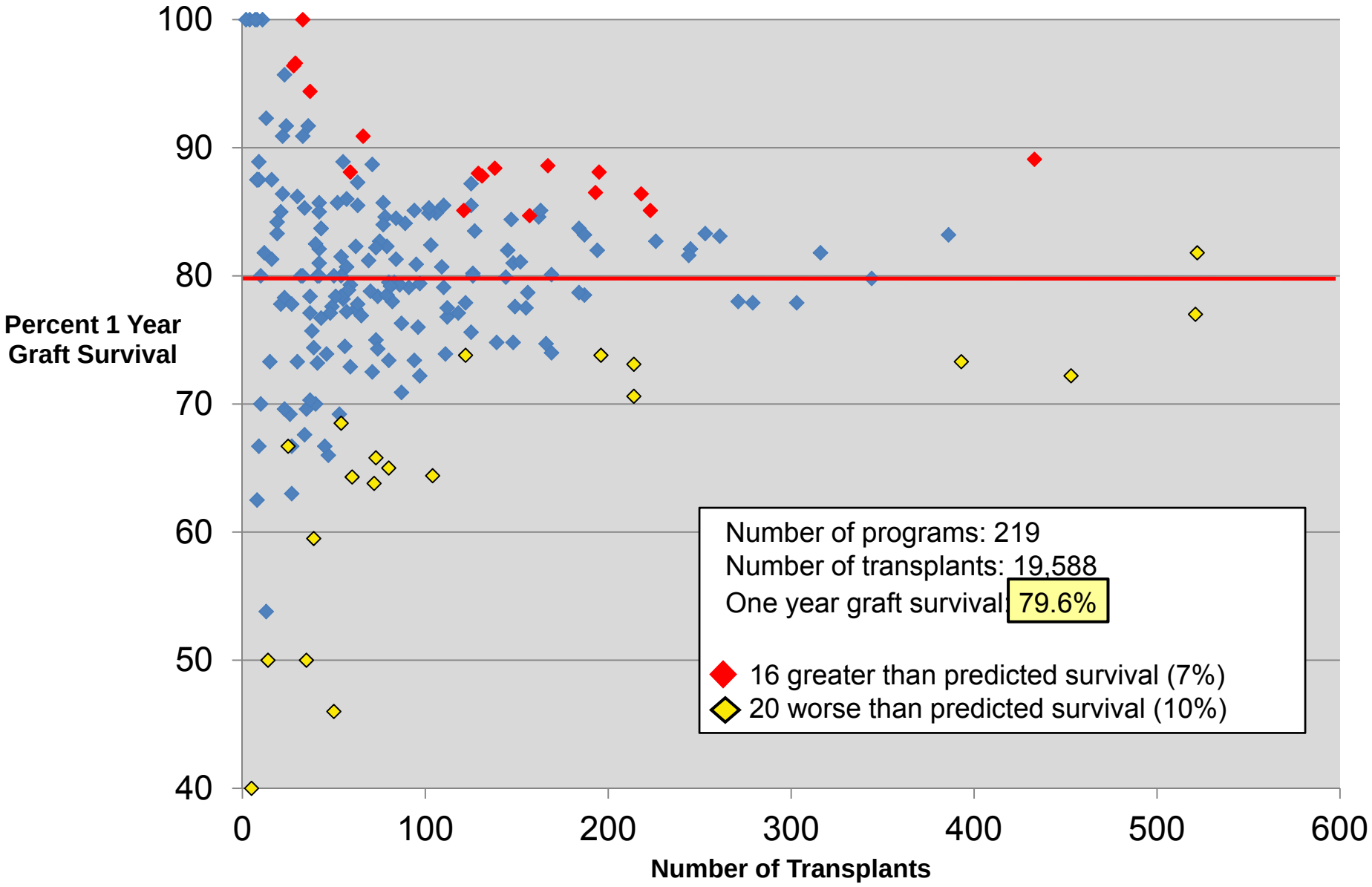
Percent Live Births per Fresh, Non-Donor Embryo Transferred by Clinic Size
Women Under 38 Years of Age, 1997-2007



Source: Michael Porter, Saquib Rahim, Benjamin Tsai, *Invitro Fertilization: Outcomes Measurement*. Harvard Business School Press, 2008
Data: Center for Disease Control and Prevention. "Annual ART Success Rates Reports." <http://www.cdc.gov/art/ARTReports.htm>, Dec. 12, 2010.

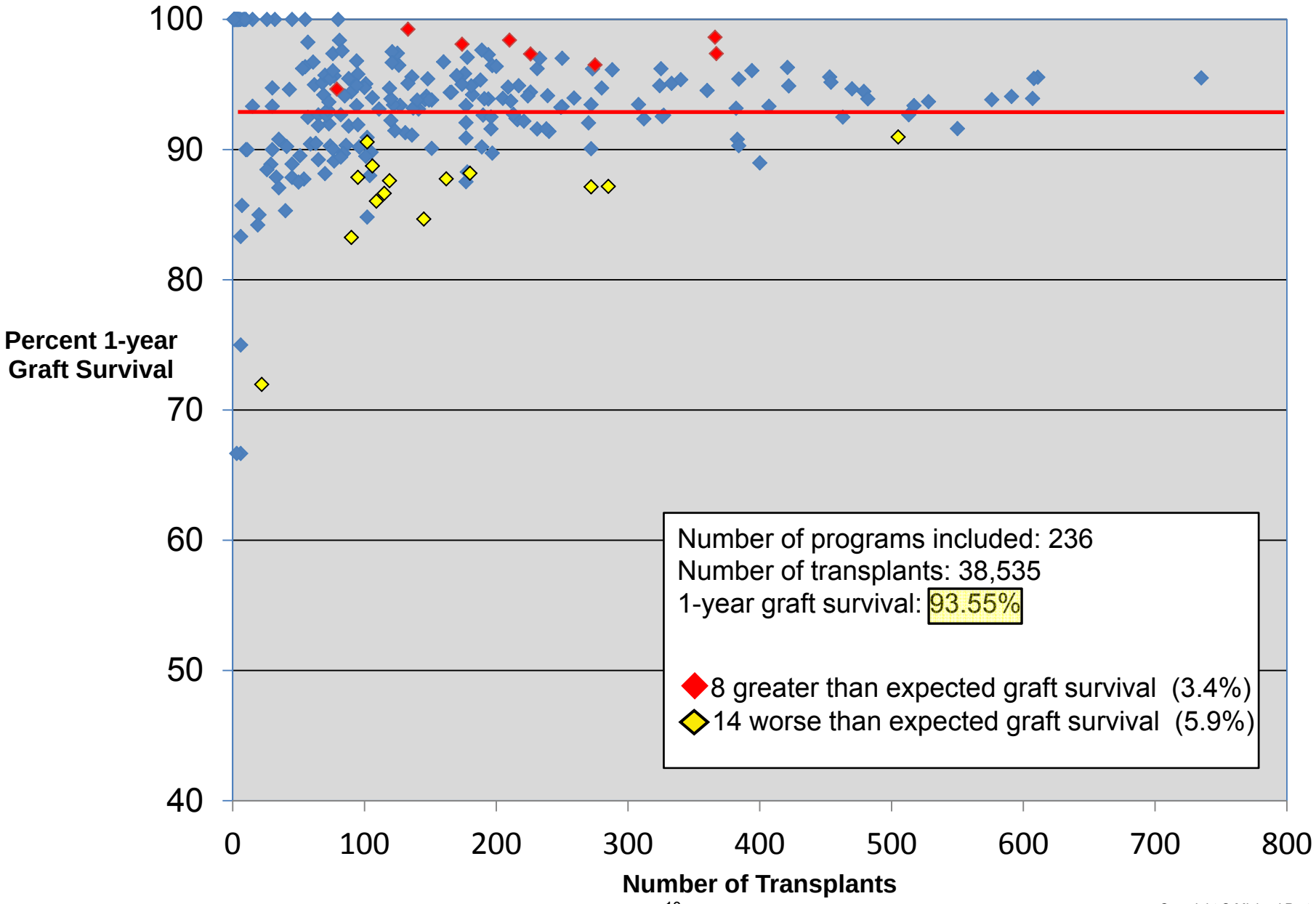
Adult Kidney Transplant Outcomes

U.S. Centers, 1987-1989



Adult Kidney Transplant Outcomes

U.S. Center Results, 2008-2010



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

	MONITORING/ PREVENTING	DIAGNOSING	PREPARING	INTERVENING	RECOVERING/ REHABBING	MONITORING/ MANAGING
INFORMING AND ENGAGING	• Importance of exercise, weight reduction, proper nutrition	• Meaning of diagnosis • Prognosis (short- and long-term outcomes) • Drawbacks and benefits of surgery	• Setting expectations • Importance of nutrition, weight loss, vaccinations • Home preparation	• Expectations for recovery • Importance of rehab • Post-surgery risk factors	• Importance of rehab adherence • Longitudinal care plan	• Importance of exercise, maintaining healthy weight
MEASURING	• Joint-specific symptoms and function (e.g., WOMAC scale) • Overall health (e.g., SF-12 scale)	• Loss of cartilage • Change in subchondral bone • Joint-specific symptoms and function • Overall health	• Baseline health status • Fitness for surgery (e.g., ASA score)	• Blood loss • Operative time • Complications	• Infections • Joint-specific symptoms and function • Inpatient length of stay • Ability to return to normal activities	• Joint-specific symptoms and function • Weight gain or loss • Missed work • Overall health
ACCESSING	• PCP office • Health club • Physical therapy clinic	• Specialty office • Imaging facility	• Specialty office • Pre-op evaluation center	• Operating room • Recovery room • Orthopedic floor at hospital or specialty surgery center	• Nursing facility • Rehab facility • Physical therapy clinic • Home	• Specialty office • Primary care office • Health club
CARE DELIVERY	**MONITOR** • Conduct PCP exam • Refer to specialists, if necessary **PREVENT** • Prescribe anti-inflammatory medicines • Recommend exercise regimen • Set weight loss targets	**IMAGING** • Perform and evaluate MRI and x-ray -Assess cartilage loss -Assess bone alterations **CLINICAL EVALUATION** • Review history and imaging • Perform physical exam • Recommend treatment plan (surgery or other options)	**OVERALL PREP** • Conduct home assessment • Monitor weight loss **SURGICAL PREP** • Perform cardiology, pulmonary evaluations • Run blood labs • Conduct pre-op physical exam	**ANESTHESIA** • Administer anesthesia (general, epidural, or regional) **SURGICAL PROCEDURE** • Determine approach (e.g., minimally invasive) • Insert device • Cement joint **PAIN MANAGEMENT** • Prescribe preemptive multimodal pain meds	**SURGICAL** • Immediate return to OR for manipulation, if necessary **MEDICAL** • Monitor coagulation **LIVING** • Provide daily living support (showering, dressing) • Track risk indicators (fever, swelling, other) **PHYSICAL THERAPY** • Daily or twice daily PT sessions	**MONITOR** • Consult regularly with patient **MANAGE** • Prescribe prophylactic antibiotics when needed • Set long-term exercise plan • Revise joint, if necessary

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)
- 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

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

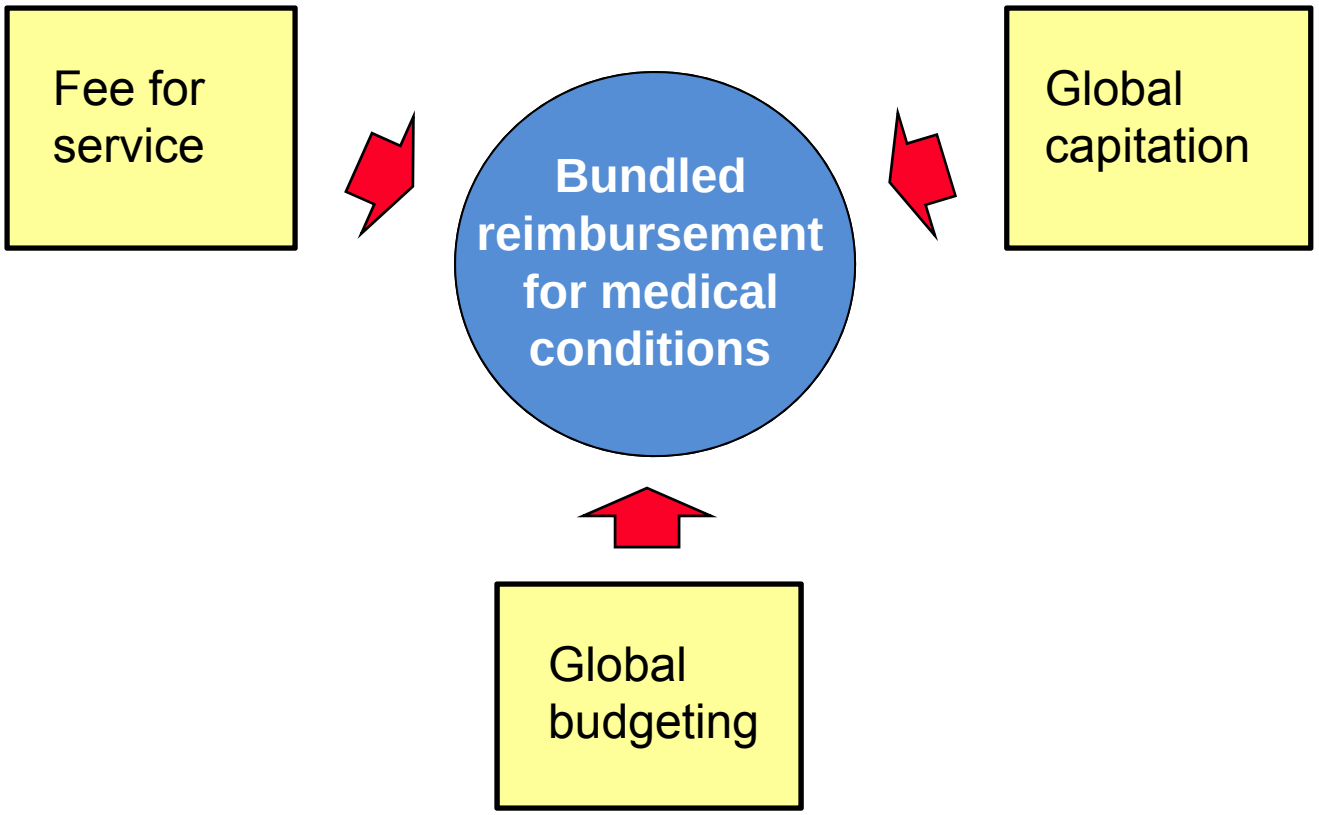
Payors

- 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

Bundled Payment in Practice
Hip and Knee Replacement in Stockholm, Sweden

- **Components** of the bundle

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

- 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)
    - 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**