Value-Based Health Care Delivery

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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.

Redefining Health Care Delivery

- 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 delivery system that **dramatically improves patient value**
- How to construct a **dynamic system** that keeps rapidly improving

Creating The Right Kind of Competition

- Patient **choice** and **competition** for patients are powerful forces to encourage continuous improvement in value and restructuring of care
- Today's competition in health care **is not aligned with value**

Financial success of system participants	$\neq$	Patient success

- Creating positive-sum **competition on value** is fundamental to health care reform in every country

Principles of Value-Based Health Care Delivery

- The overarching goal in health care must be **value for patients**, not access, cost containment, convenience, or customer service

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

  - Outcomes are the **health results that matter for a patient's condition** 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 most powerful 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
- Rapid cycle time of diagnosis and treatment
- Treatment earlier in the causal chain of disease
- Less invasive treatment methods
- Fewer complications
- Fewer mistakes and repeats in treatment
- Faster recovery
- More complete recovery
- Greater functionality and less need for long term care
- Fewer recurrences, relapses, flare ups, or acute episodes
- Reduced need for ER visits
- Slower disease progression
- Less care induced illness

- **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

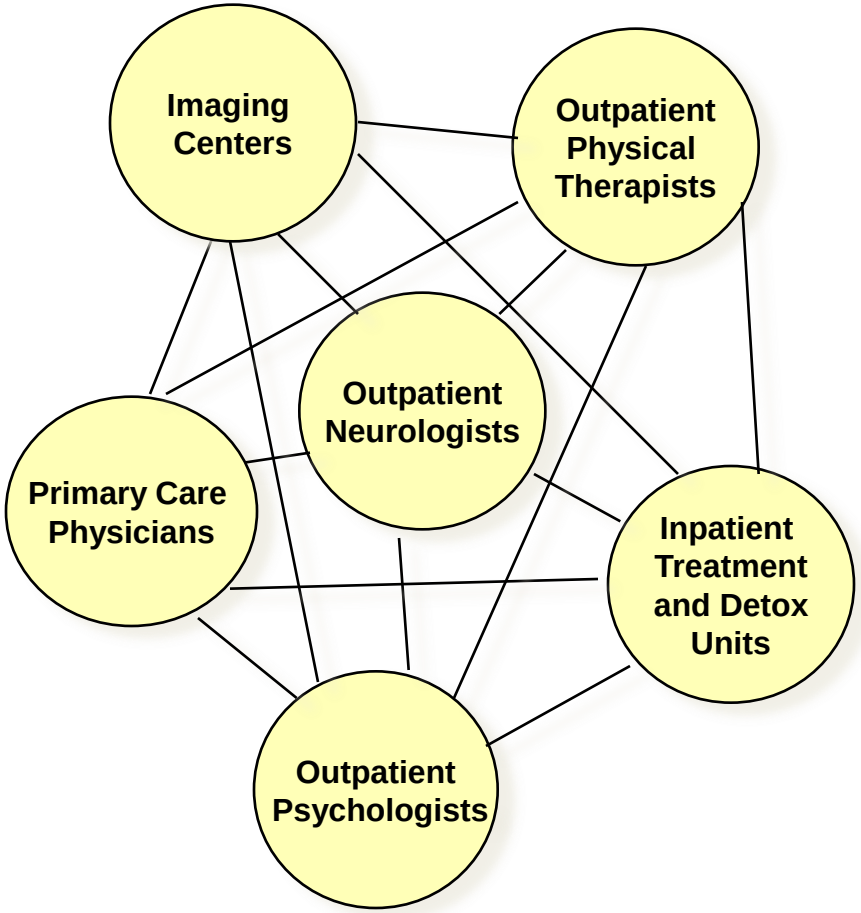
1. Organize Care into Integrated Practice Units (IPUs) around Patient Medical Conditions
   - Organize primary and preventive care to serve distinct patient segments
2. Measure Outcomes and Cost for Every Patient
3. Reimburse through Bundled Prices for Care Cycles
4. Integrate Care Delivery Across Separate Facilities
5. Expand Geographic Coverage by Excellent Providers
6. Build an Enabling Information Technology Platform

1. Organizing Care Around Patient Medical Conditions

Migraine Care in Germany

Existing Model:

Organize by Specialty and Discrete Services



Source: Porter, Michael E., Clemens Guth, and Elisa Dannemiller, *The West German Headache Center: Integrated Migraine Care*, Harvard Business School Case 9-707-559, September 13, 2007

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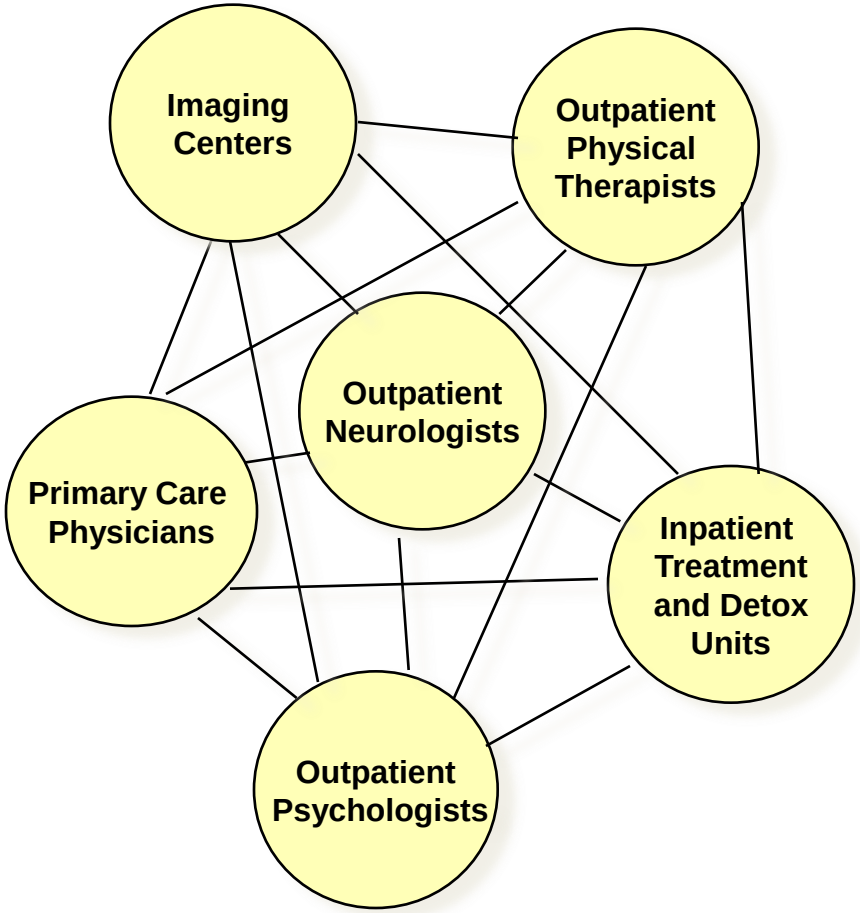
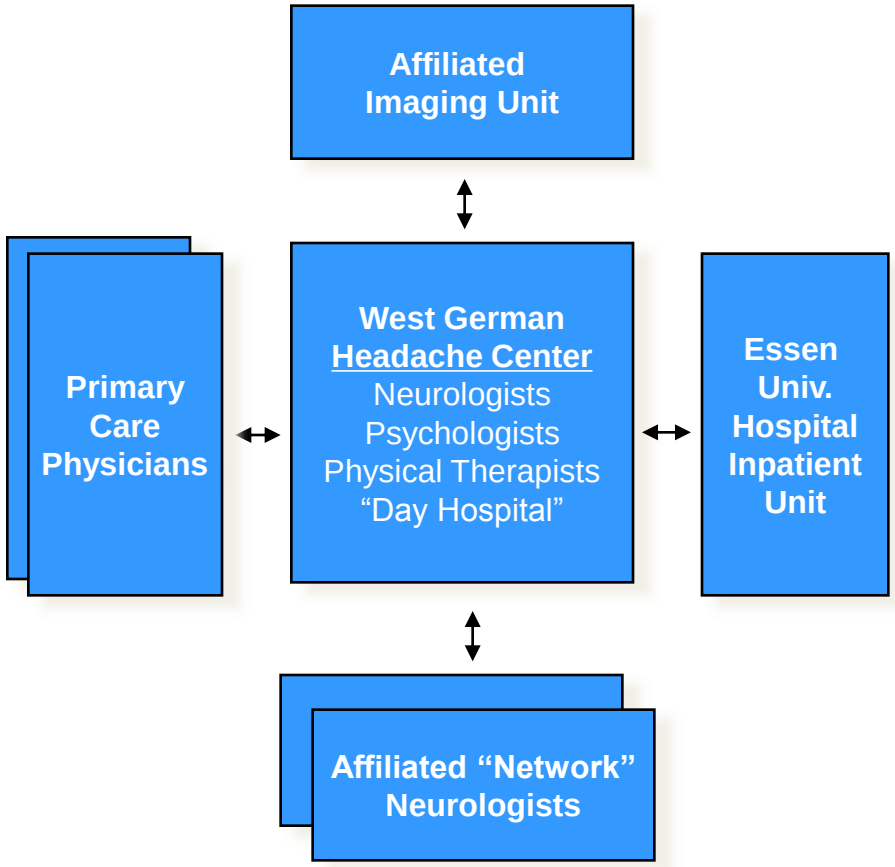


New Model:
Organize into Integrated Practice Units (IPUs)



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What is a Medical Condition?

- A medical condition is **an interrelated set of patient medical circumstances best addressed in an integrated way**
  - Defined from the **patient's** perspective
  - Involving **multiple** specialties and services
  - **Including** common co-occurring conditions and complications
  - E.g., diabetes, breast cancer, knee osteoarthritis

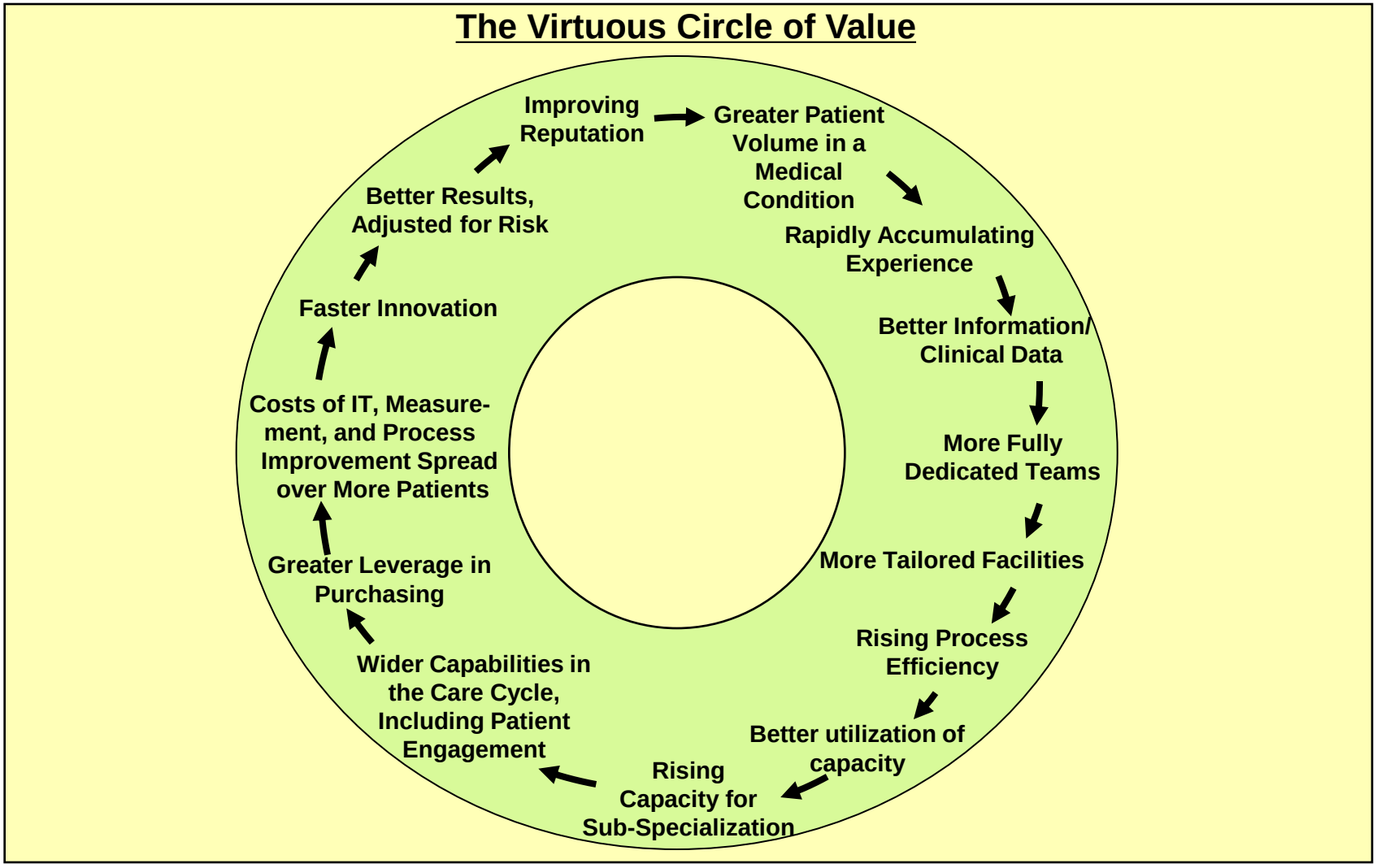
- In primary / preventive care, the **unit of value creation** is **defined patient segments** with similar preventive, diagnostic, and primary treatment needs (e.g. healthy adults, frail elderly)

- The medical condition / patient segment is the proper **unit of value creation** and the **unit of value measurement** in health care delivery

Integrating Across the Cycle of Care
Breast Cancer

	MONITORING/ PREVENTING	DIAGNOSING	PREPARING	INTERVENING	RECOVERING/ REHABING	MONITORING/ MANAGING
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 rehabilitation options, process • Achieving compliance • Psychological counseling	• Counseling on long term risk management • Achieving compliance
MEASURING	• Self exams • Mammograms	• Mammograms • Ultrasound • MRI • Labs (CBC, 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 THE PATIENT	• Office visits • Mammography unit • Lab visits	• Office visits • Lab visits • High risk clinic visits	• Office visits • Hospital visits • Lab visits	• Hospital stays • Visits to outpatient radiation or chemo-therapy units • Pharmacy visits	• Office visits • Rehabilitation facility visits • Pharmacy visits	• Office visits • Lab visits • Mammographic labs and imaging center visits
	• 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 onco-plastic 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

Volume in a Medical Condition Enables Value



- Volume and experience will have an even greater impact on value **in an IPU structure** than in the current system

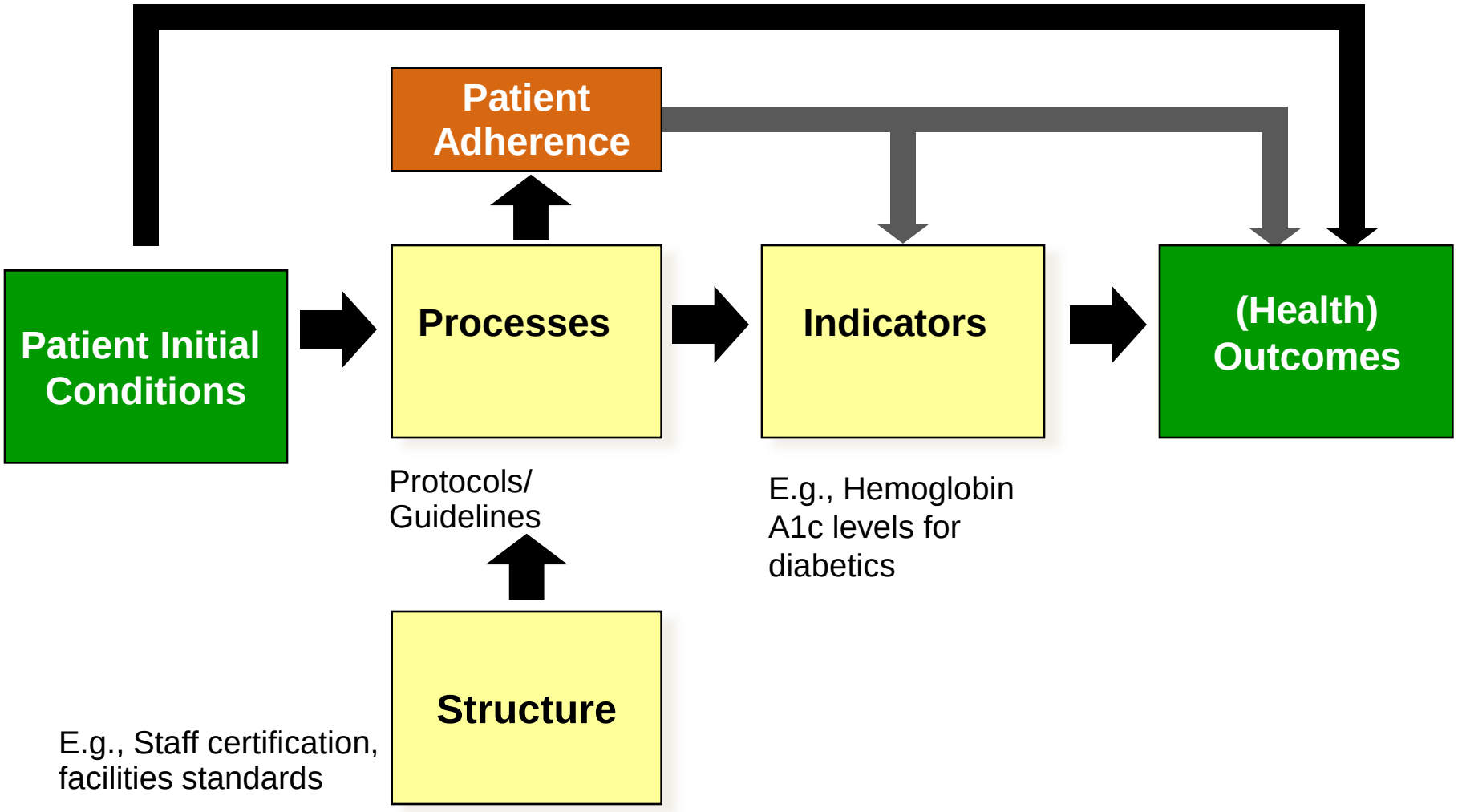
Role of Volume in Value Creation
Fragmentation of Hospital Services in Sweden

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

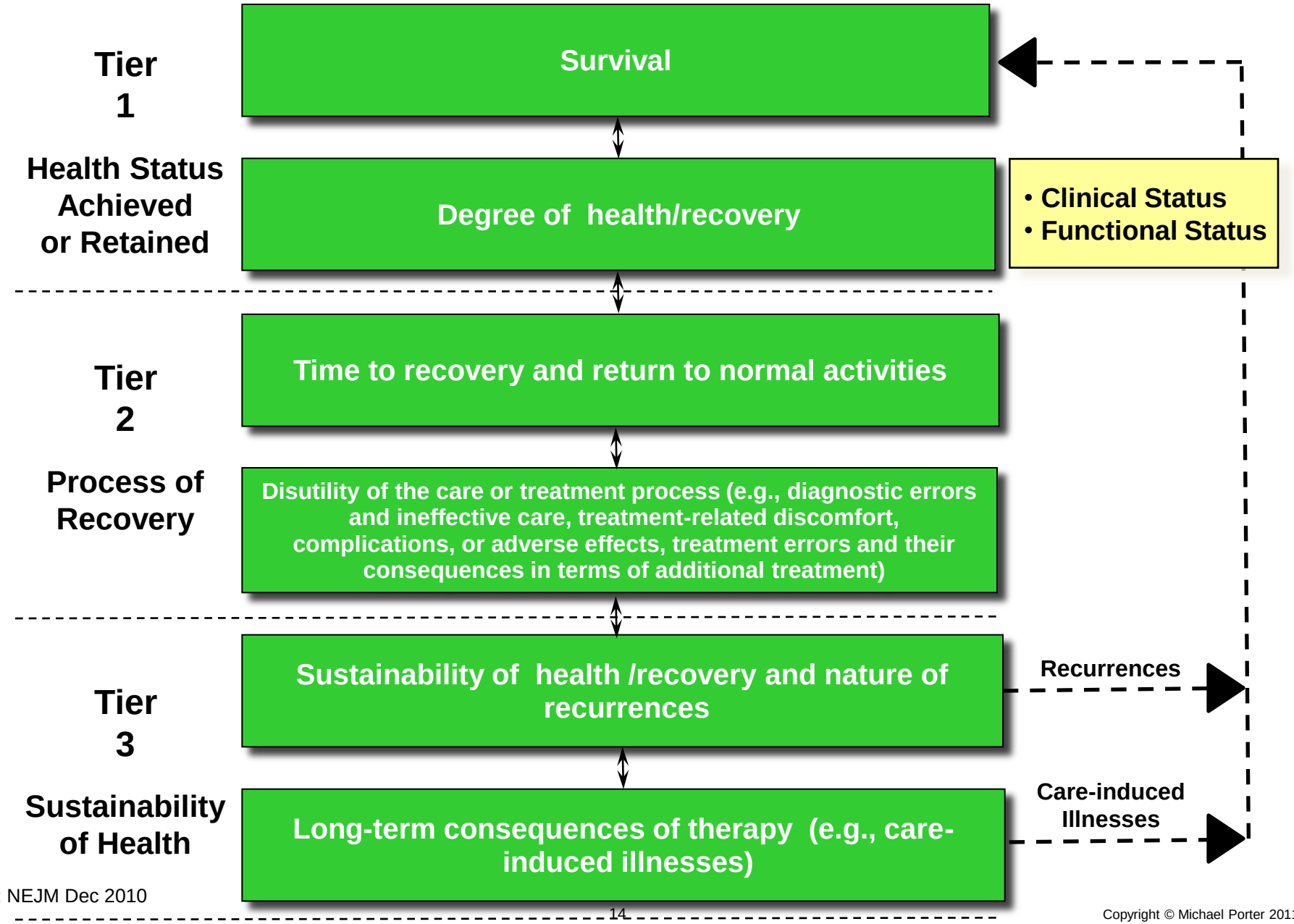
Source: Compiled from The National Board of Health and Welfare Statistical Databases – DRG Statistics, Accessed April 2, 2009.

2. Measuring Outcomes and Cost for Every Patient

The Measurement Landscape



The Outcome Measures Hierarchy



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
- 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)

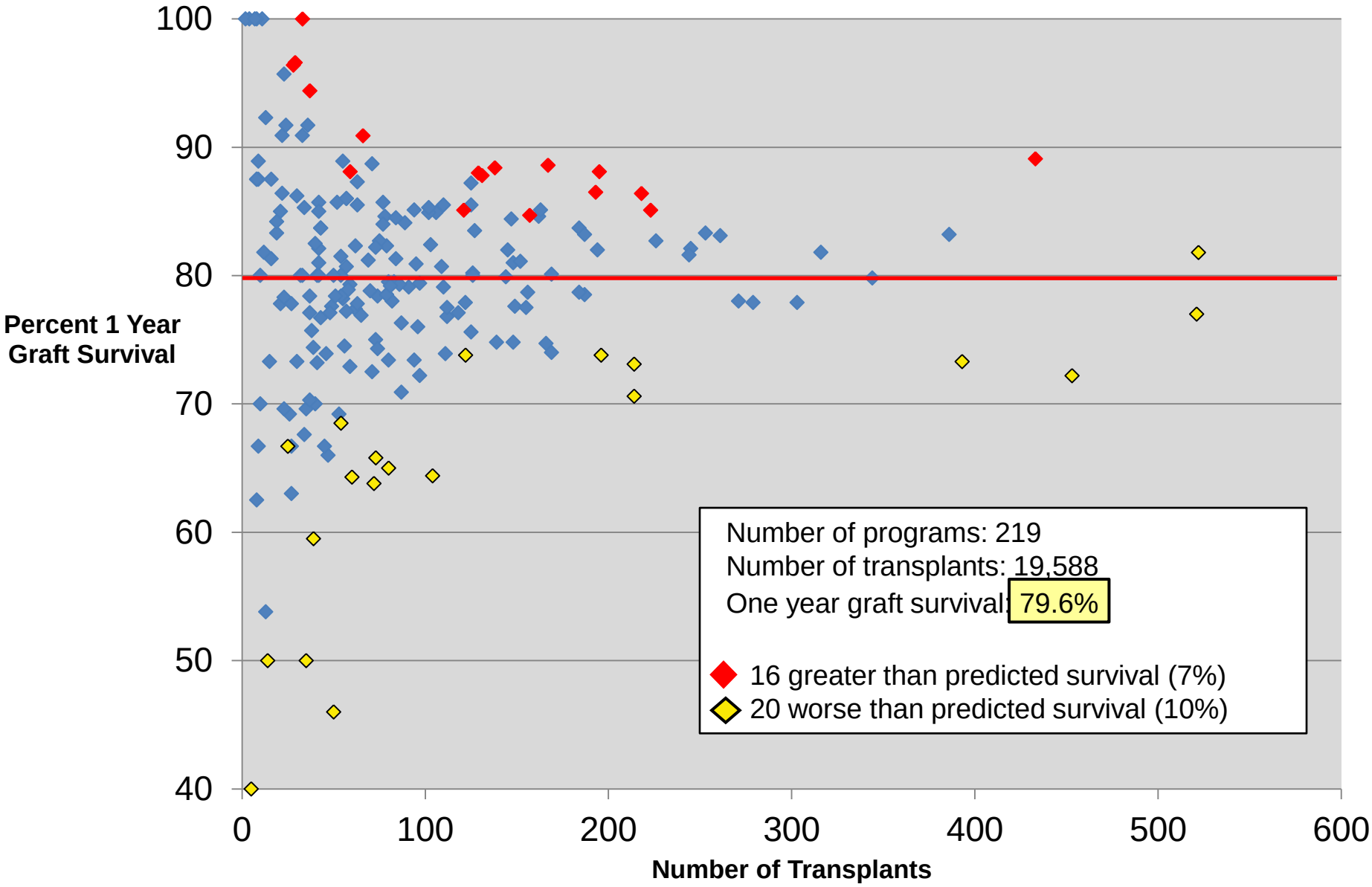
- Incidence of secondary cancers
- Brachial plexopathy
- Fertility/pregnancy complications
- Premature osteoporosis

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

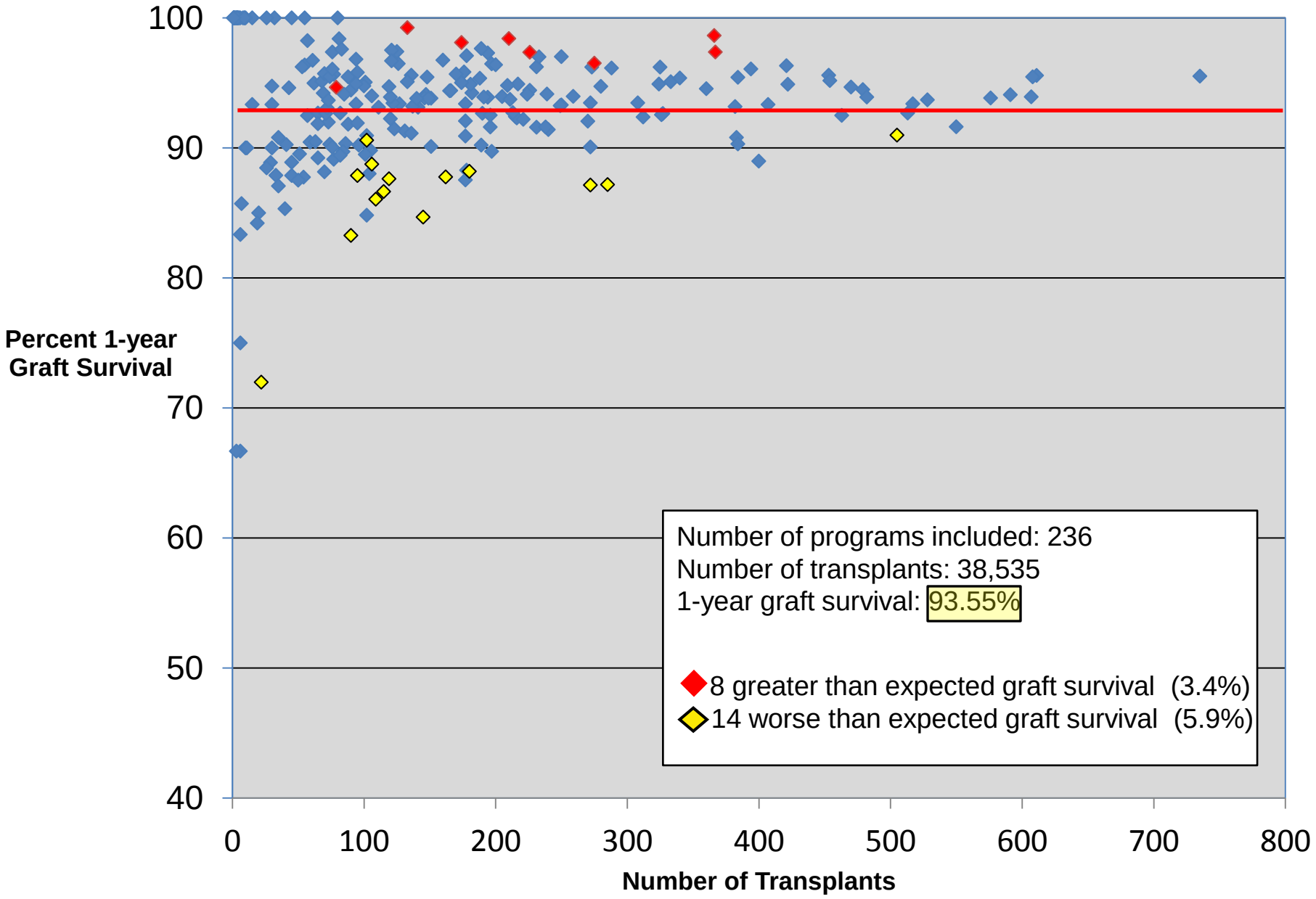
Adult Kidney Transplant Outcomes

U.S. Centers, 1987-1989



Adult Kidney Transplant Outcomes

U.S. Center Results, 2008-2010



The International Consortium for Health Outcomes Measurement (ICHOM)

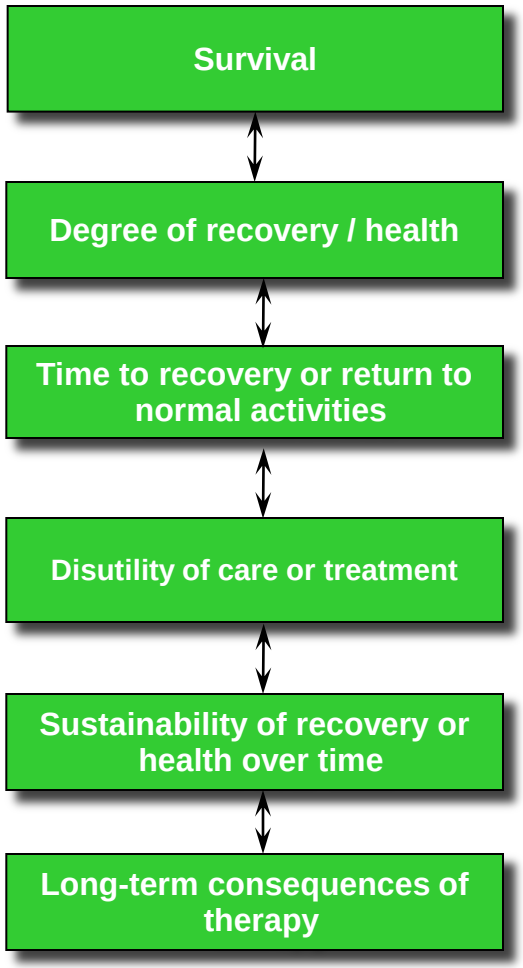
Strategic Vision

1. Become the **single global repository** of in-use outcome measures and risk-adjustment factors by medical condition
   - ICHOM Metrics Repository
2. Enable **international standardization** of outcome measures by medical condition
3. Identify and disseminate global outcome **measurement best practices**
   - Registry Development Compass
   - Provider case studies
4. Develop an **cross-stakeholder, cross-country network** dedicated to advancing outcomes measurement and Value-Based Health Care Delivery
   - Annual conferences
   - Working groups

A non-profit, joint effort by Professor Michael Porter, The Karolinska University and The Boston Consulting Group to advance outcomes measurement worldwide

Initial Findings from the ICHOM Metrics Repository:

Variable Coverage of the Outcome Hierarchy Across Conditions

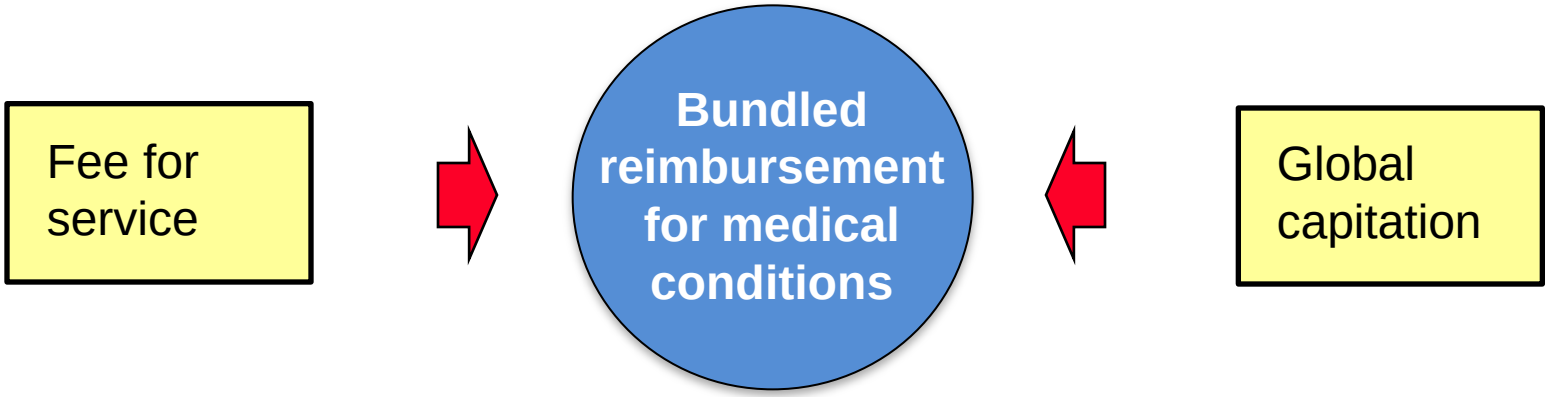


	Musculoskeletal			Cancer			
Dimension	**Hip Osteo-arthritis**	**Knee Osteo-arthritis**	**Chronic Low Back Pain**	**Breast Cancer**	**Colorectal Cancer**	**Leukemia & Lymphoma**	**Lung Cancer**
Mortality	◆	◆		◆	◆	◆	◆
Short-term Clinical Status	◆	◆	◆				
Short-term Functional Status	◆	◆	◆				
Time to recovery			◆				
Complications	◆	◆	◆		◆		
Reintervention/Readmission	◆	◆	◆	◆	◆		
Care-related Pain/Discomfort							
Long-term Clinical Status	◆	◆	◆				
Long-term Functional status	◆	◆	◆				
Long-term complications of therapy	◆						

Measuring the Cost of Care Delivery: Principles

- Cost is the **actual expense** of patient care, not the **charges** billed or collected
- Cost should be measured around the **patient**
- Cost should be aggregated over the **full cycle of care for the patient's medical condition,** not for departments, services, or line items
- Cost depends on the **actual use of resources** involved in a patient's care process (personnel, facilities, supplies)
  - The **time** devoted to each patient by these resources
  - The **capacity cost** of each resource
  - The **support costs** required for each patient-facing resource

3. Move to Bundled Prices for Care Cycles



Bundled Price

- A single price covering the **full care cycle for an acute medical condition**
- Time-based reimbursement for overall care of a **chronic condition**
- Time-based reimbursement for **primary/preventive care** for a **defined patient segment**

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

- **Components** of the bundle

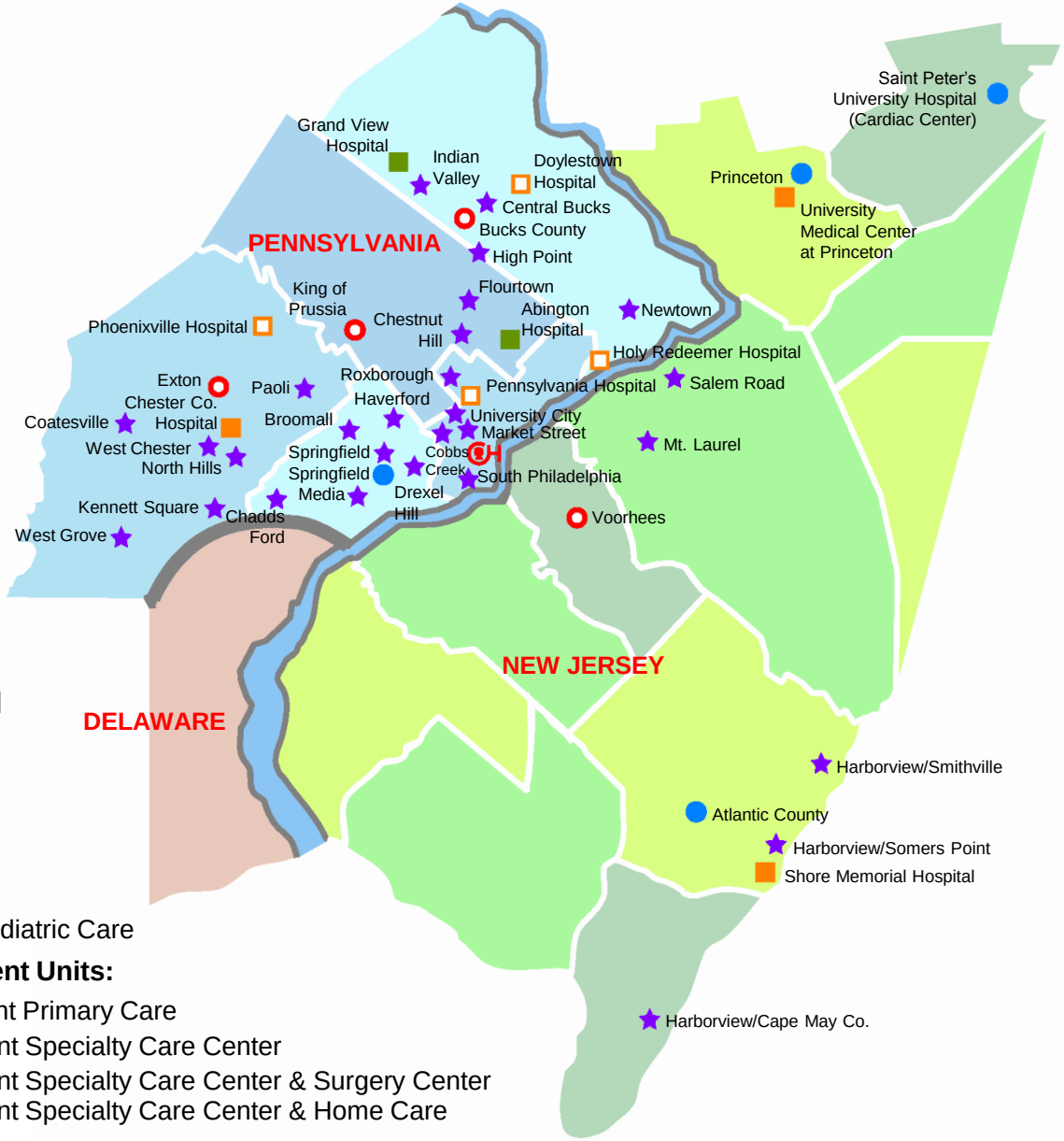
- Pre-op evaluation - Lab tests - Radiology - Surgery & related admissions - Prosthesis - Drugs - Inpatient rehab, up to 6 days	- All physician and staff fees and costs - 1 follow-up visit within 3 months - Any additional surgery to the joint within 2 years - If post-op infection requiring antibiotics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

4. Integrating Care Delivery Across Separate Facilities

Children's Hospital of Philadelphia Care Network



The Children's Hospital *of* Philadelphia®

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

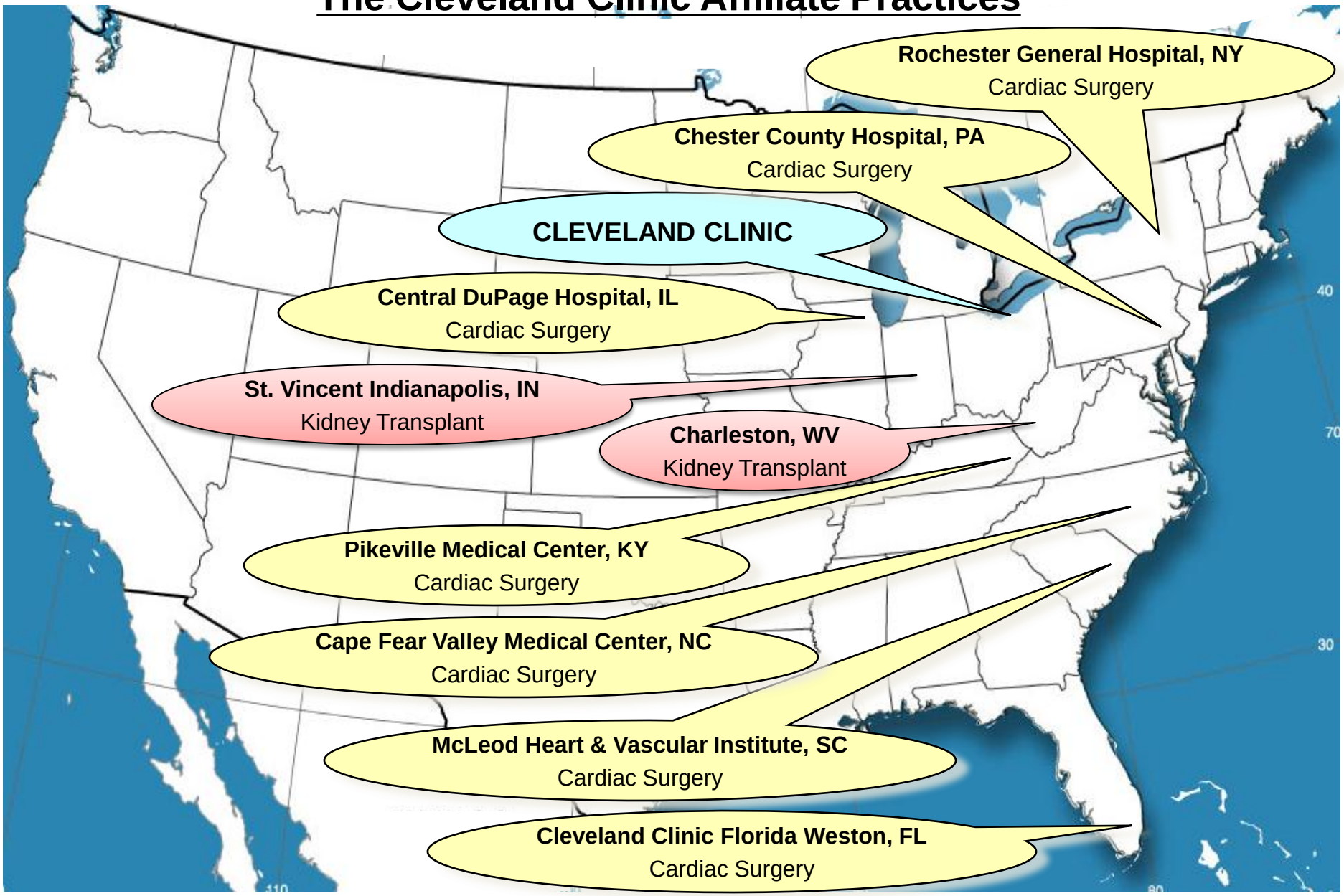
Four Levels of Provider System Integration

1. Choose an **overall scope of services** where the provider system can achieve excellence in value
2. **Rationalize service lines / IPUs across facilities** to improve volume, better utilize resources, and deepen teams
3. Offer specific services at the **appropriate facility**
   - Based on acuity level, resource intensity, cost level, need for convenience
   - E.g., shifting routine surgeries to smaller, more specialized facilities
4. Clinically integrate care **across units and facilities** using an IPU structure
   - Integrate services across the care cycle
   - Integrate preventive/primary care units with specialty IPUs

There are major value improvements available from **concentrating volume** by medical condition and moving care **out of heavily resourced** hospital, tertiary and quaternary facilities

5. Expanding Geographic Coverage by Excellent Providers

The Cleveland Clinic Affiliate Practices

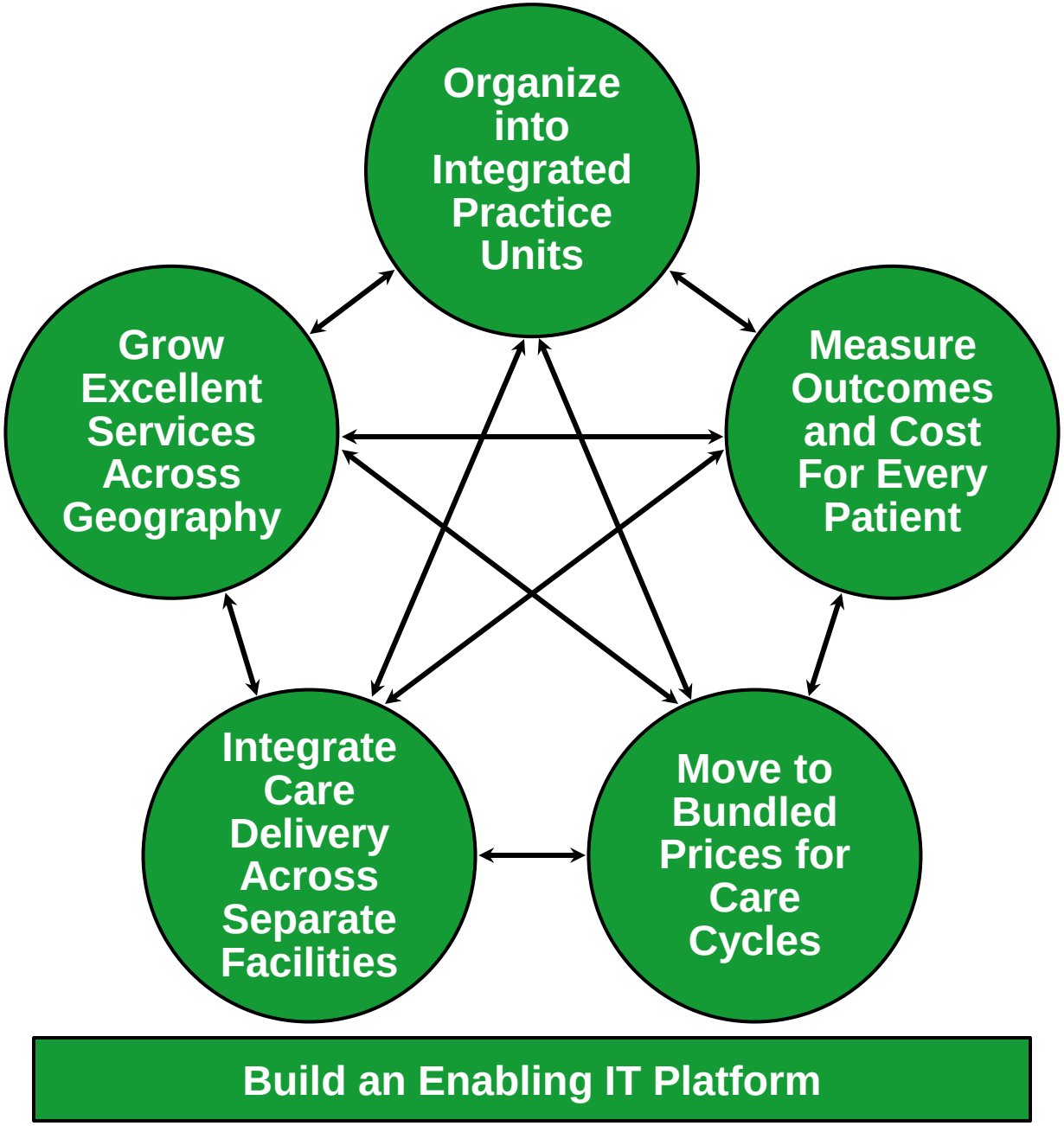


6. Building an Enabling Information Technology Platform

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 with 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



Creating a Value-Based Health Care Delivery Organization

Implications for Suppliers

1. Integrated Practice Units (IPUs)	• **Work to embed drugs/devices in the right care delivery processes**
2. Measure Cost and Outcomes	• **Demonstrate value based on careful study of long term outcomes and costs versus alternative approaches** • **Ensure that the products are used by the right patients**
3. Move to Bundled Prices	• **Move to value-based pricing approaches (e.g. price for success, guarantees)**
5. Expand Excellence Across Geography	• **Support providers with knowledge of best practices and possible innovations in organization and delivery of care**

Creating a Value-Based Health Care Delivery Organization

Implications for Payors

1. Integrated Practice Units (IPUs)	• **Encourage and reward integrated practice unit models by providers**
2. Measure Cost and Outcomes	• **Monitor and compare provider results by medical condition**
3. Move to Bundled Prices	• **Design new bundled reimbursement structures for care cycles instead of fees for discrete services**
4. Integrate Across Separate Facilities	• **Assist in coordinating patient care across the care cycle and across medical conditions**
5. Expand Excellence Across Geography	• **Provide advice to patients (and referring physicians) in selecting excellent providers**
6. Enabling IT Platform	• **Assemble, analyze and manage the total medical records of members to their adoption and use**

Creating a Value-Based Health Care Delivery Organization

Implications for Government

1. Integrated Practice Units (IPUs)	• Reduce regulatory obstacles to care integration
2. Measure Cost and Outcomes	• Create a national framework of medical condition outcome registries and a path to universal measurement • Tie reimbursement to outcome reporting
3. Move to Bundled Prices	• Create a bundled pricing framework and rollout schedule
4. Integrate Across Separate Facilities	• Introduce minimum volume standards by medical condition
5. Expand Excellence Across Geography	• Encourage affiliations between providers who fall below minimum volume standards and qualifying centers of excellence for more complex care
6. Enabling IT Platform	• Set standards for common data definitions, interoperability, and the ability to easily extract outcome, process, and costing measures for qualifying HIT systems