

Introduction to 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>. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means — electronic, mechanical, photocopying, recording, or otherwise — without the permission of Michael E. Porter and Elizabeth O. Teisberg.

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

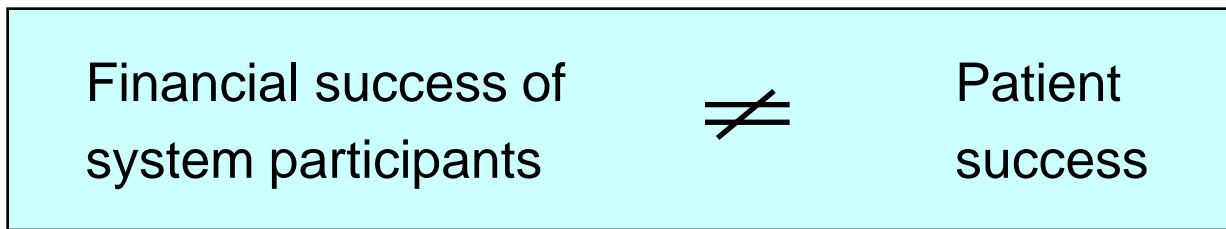
Creating a Value-Based Health Care System

- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements
- Today's delivery approaches reflect 19th century organizational structures, management practices, measurement methods, and payment models

Care pathways, process improvements, safety initiatives, case managers, disease management and other **overlays** to the current structure are beneficial, but not sufficient

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**



- 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

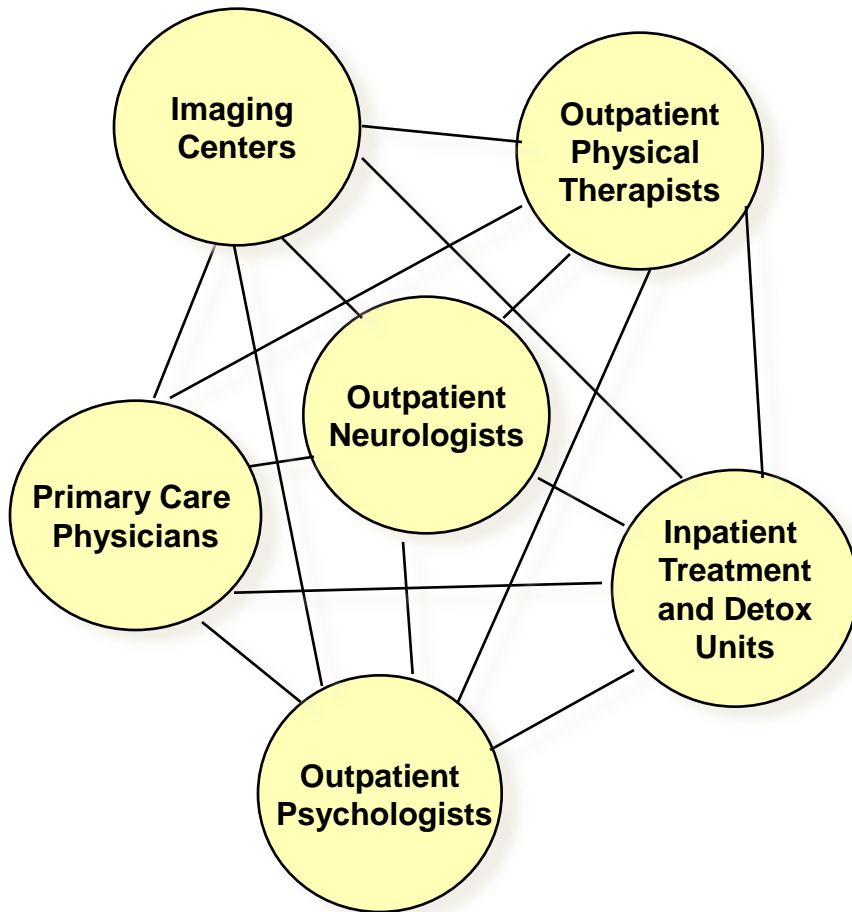
1. Organize Care into **Integrated Practice Units (IPUs)** around Patient Medical Conditions
 - Organize primary and preventive care to serve **distinct patient segments**
2. Measure **Outcomes** and **Cost** for Every Patient
3. Reimburse through **Bundled Prices** for Care Cycles
4. Integrate Care 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



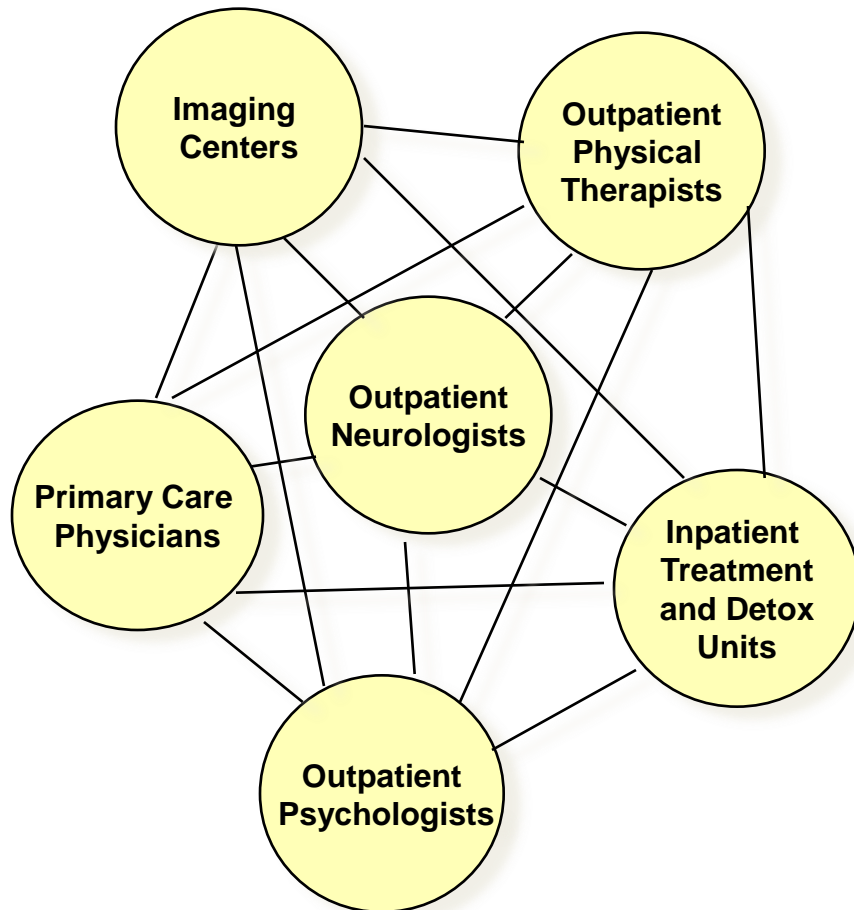
Source: Porter, Michael E., Clemens Guth, and Elisa Dannemiller, *The West German Headache Center: Integrated Migraine Care*, Harvard Business School Case 9-707-559, September 13, 2007

1. Organizing Care Around Patient Medical Conditions

Migraine Care in Germany

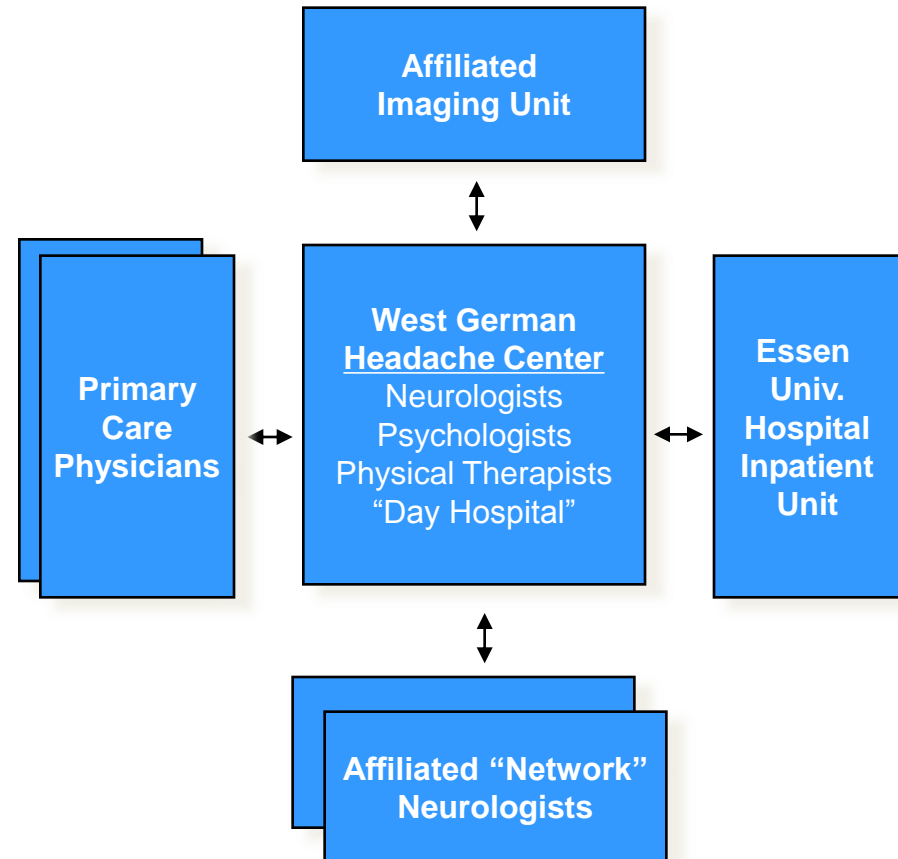
Existing Model:

Organize by Specialty and Discrete Services



New Model:

Organize into Integrated Practice Units (IPUs)



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

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

INFORMING AND ENGAGING	<ul style="list-style-type: none"> • Advice on self screening • Consultations on risk factors 	<ul style="list-style-type: none"> • Counseling patient and family on the diagnostic process and the diagnosis 	<ul style="list-style-type: none"> • Explaining patient treatment options/ shared decision making • Patient and family psychological counseling 	<ul style="list-style-type: none"> • Counseling on the treatment process • Education on managing side effects and avoiding complications • Achieving compliance 	<ul style="list-style-type: none"> • Counseling on rehabilitation options, process • Achieving compliance • Psychological counseling 	<ul style="list-style-type: none"> • Counseling on long term risk management • Achieving compliance
MEASURING	<ul style="list-style-type: none"> • Self exams • Mammograms 	<ul style="list-style-type: none"> • Mammograms • Ultrasound • MRI • Labs (CBC, etc.) • Biopsy • BRACA 1, 2... • CT • Bone Scans 	<ul style="list-style-type: none"> • Labs 	<ul style="list-style-type: none"> • Procedure-specific measurements 	<ul style="list-style-type: none"> • Range of movement • Side effects measurement 	<ul style="list-style-type: none"> • MRI, CT • Recurring mammograms (every six months for the first 3 years)
ACCESSING THE PATIENT	<ul style="list-style-type: none"> • Office visits • Mammography unit • Lab visits 	<ul style="list-style-type: none"> • Office visits • Lab visits • High risk clinic visits 	<ul style="list-style-type: none"> • Office visits • Hospital visits • Lab visits 	<ul style="list-style-type: none"> • Hospital stays • Visits to outpatient radiation or chemotherapy units • Pharmacy visits 	<ul style="list-style-type: none"> • Office visits • Rehabilitation facility visits • Pharmacy visits 	<ul style="list-style-type: none"> • Office visits • Lab visits • Mammographic labs and imaging center visits
	MONITORING/ PREVENTING	DIAGNOSING	PREPARING	INTERVENING	RECOVERING/ REHABING	MONITORING/ MANAGING
	<ul style="list-style-type: none"> • Medical history • Control of risk factors (obesity, high fat diet) • Genetic screening • Clinical exams • Monitoring for lumps 	<ul style="list-style-type: none"> • Medical history • Determining the specific nature of the disease (mammograms, pathology, biopsy results) • Genetic evaluation • Labs 	<ul style="list-style-type: none"> • Choosing a treatment plan • Surgery prep (anesthetic risk assessment, EKG) • Plastic or oncologic surgery evaluation • Neo-adjuvant chemotherapy 	<ul style="list-style-type: none"> • Surgery (breast preservation or mastectomy, oncoplastic alternative) • Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy) 	<ul style="list-style-type: none"> • In-hospital and outpatient wound healing • Treatment of side effects (e.g. skin damage, cardiac complications, nausea, lymphedema and chronic fatigue) • Physical therapy 	<ul style="list-style-type: none"> • Periodic mammography • Other imaging • Follow-up clinical exams • Treatment for any continued or later onset side effects or complications

Value-Based Primary Care

Organize primary care **around patient segments** with similar health circumstances and care needs:

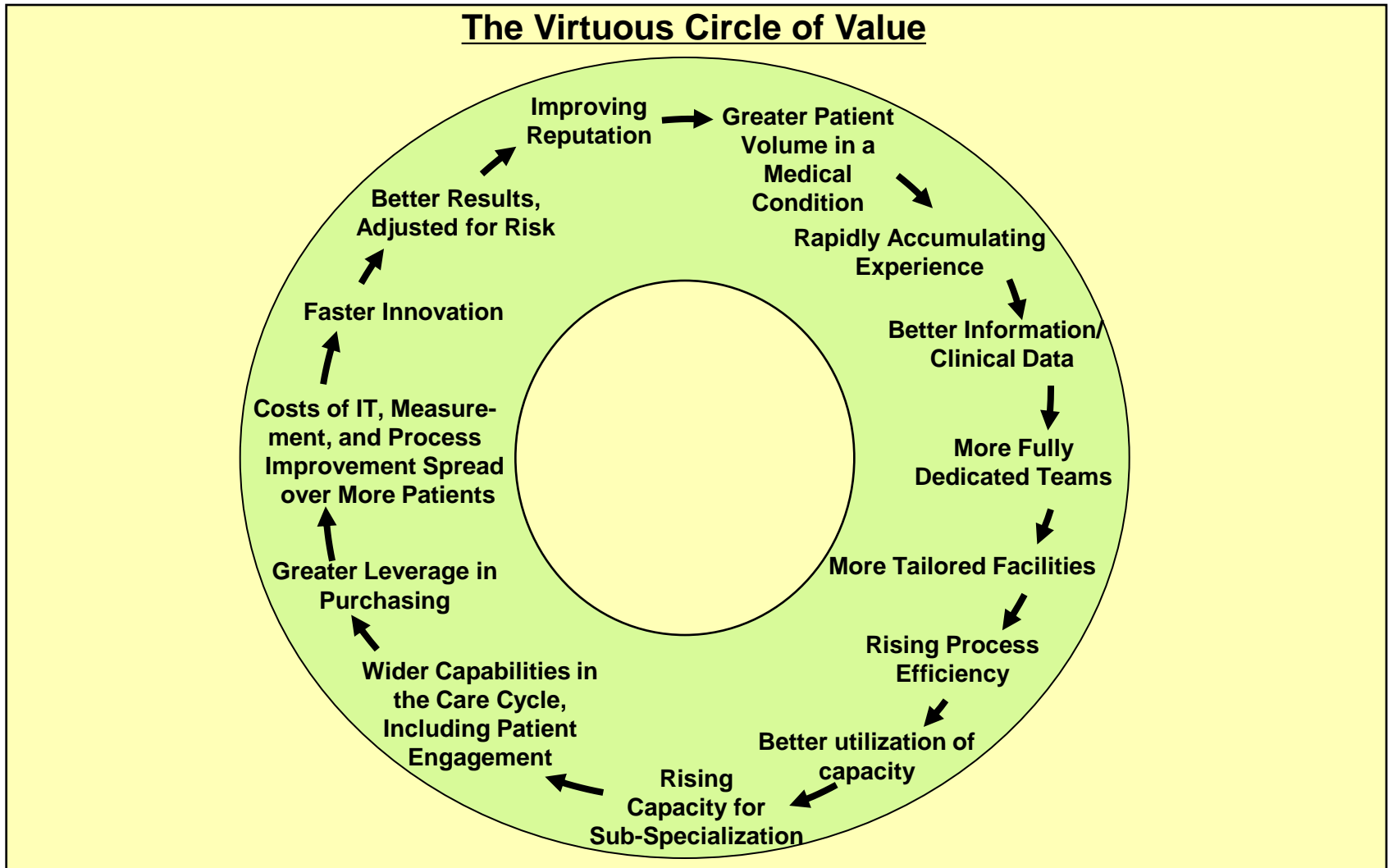
Illustrative Segments

- Healthy adults
- Mothers and young children
- Adults at risk of developing chronic or acute disease
 - E.g. family history, environmental exposures, lifestyle
- Chronically ill adults with one or more complex chronic conditions
 - E.g. diabetes, COPD, heart failure
- Adults with rare conditions
- Frail elderly or disabled

Tailor the Care Delivery Team and Facilities to Each Segment

- The set of physicians, nurses, educators, and other staff best equipped to meet the medical and non-medical needs of the segment
- Care delivered in locations reflecting patient circumstances

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

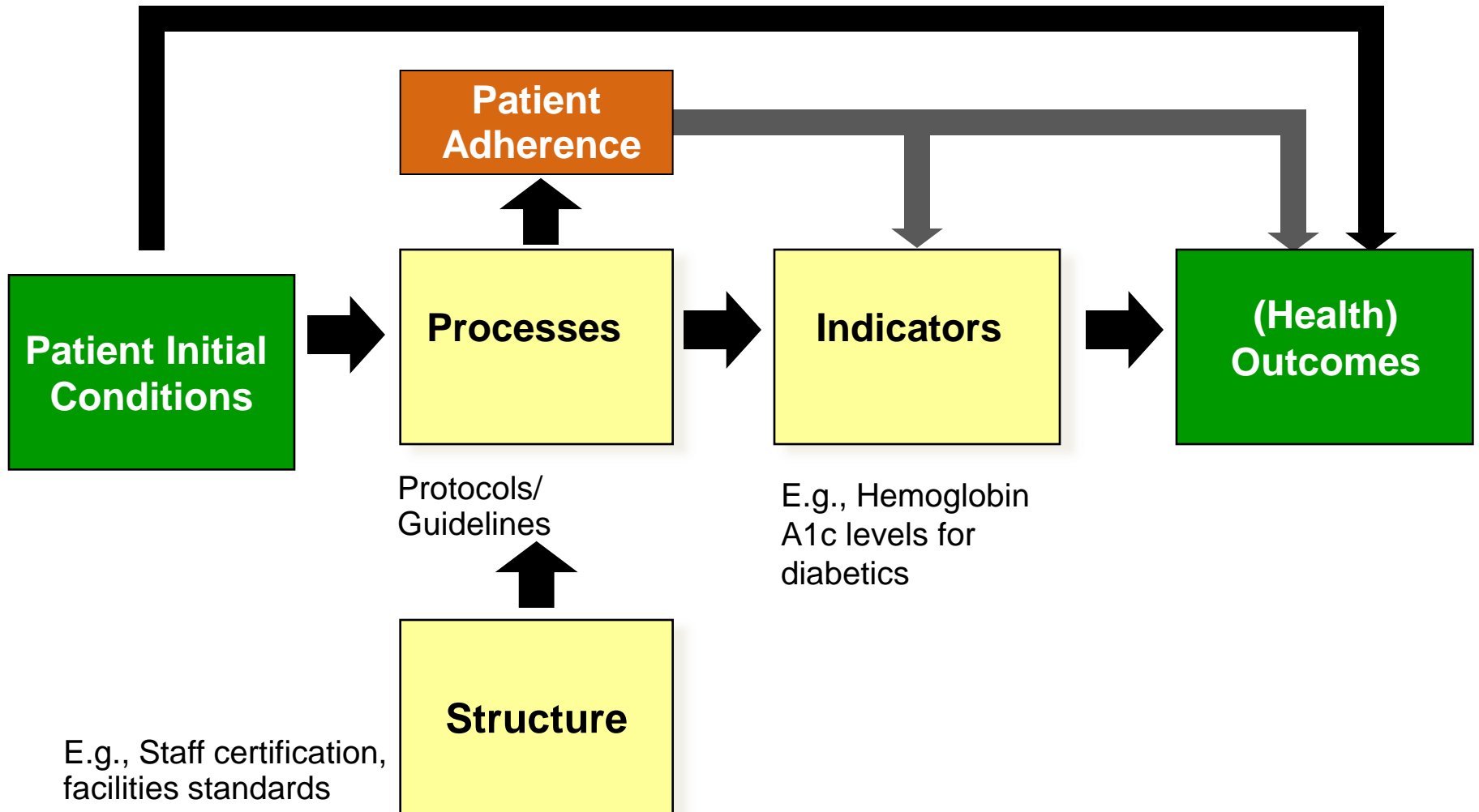
Fragmentation of Hospital Services in Sweden

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

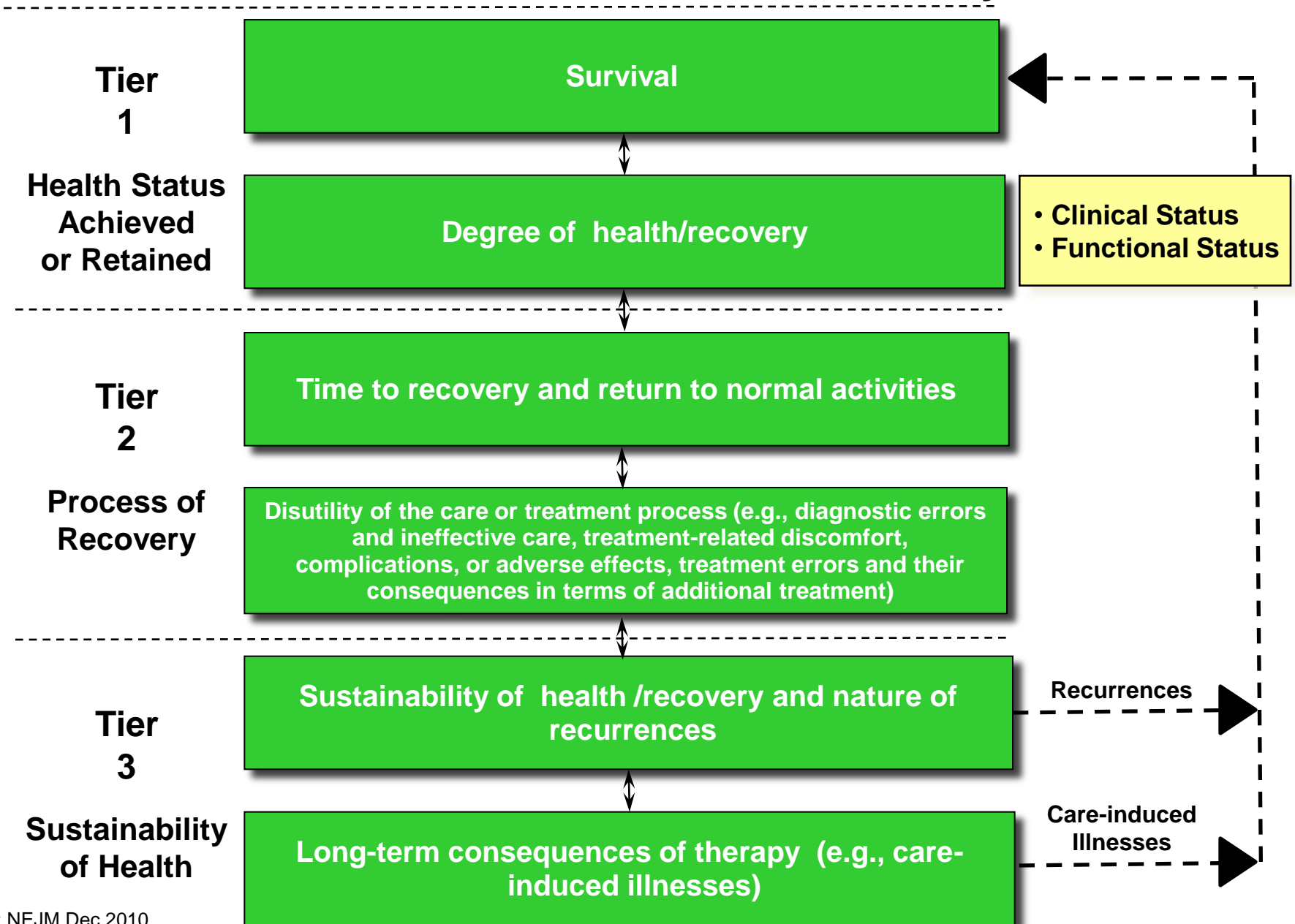
Source: Compiled from The National Board of Health and Welfare Statistical Databases – DRG Statistics, Accessed April 2, 2009.

2. Measuring Outcomes and Cost for Every Patient

The Measurement Landscape



The Outcome Measures Hierarchy



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)

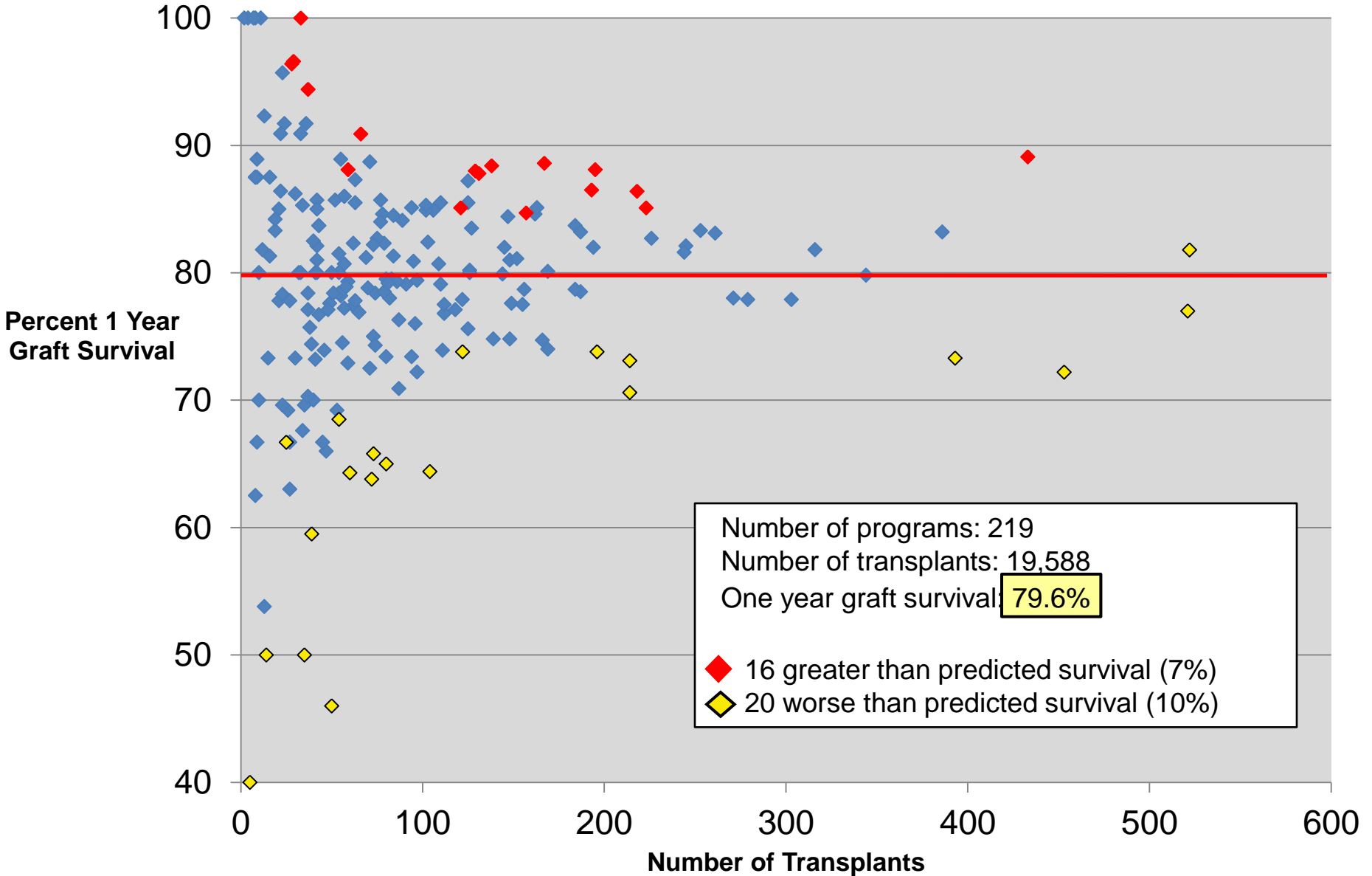
- Incidence of secondary cancers
- Brachial plexopathy
- Fertility/pregnancy complications
- Premature osteoporosis

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

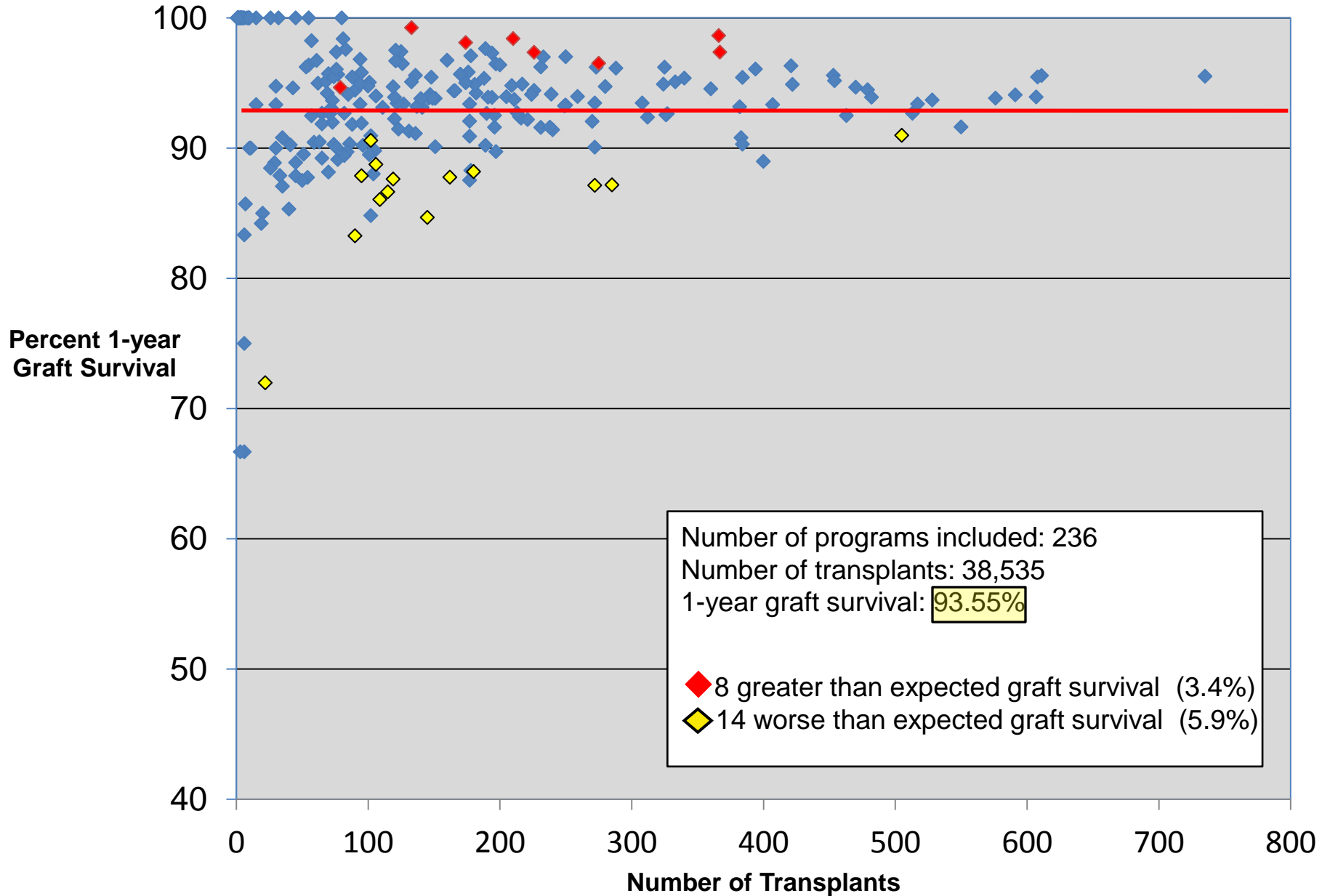
Adult Kidney Transplant Outcomes

U.S. Centers, 1987-1989



Adult Kidney Transplant Outcomes

U.S. Center Results, 2008-2010

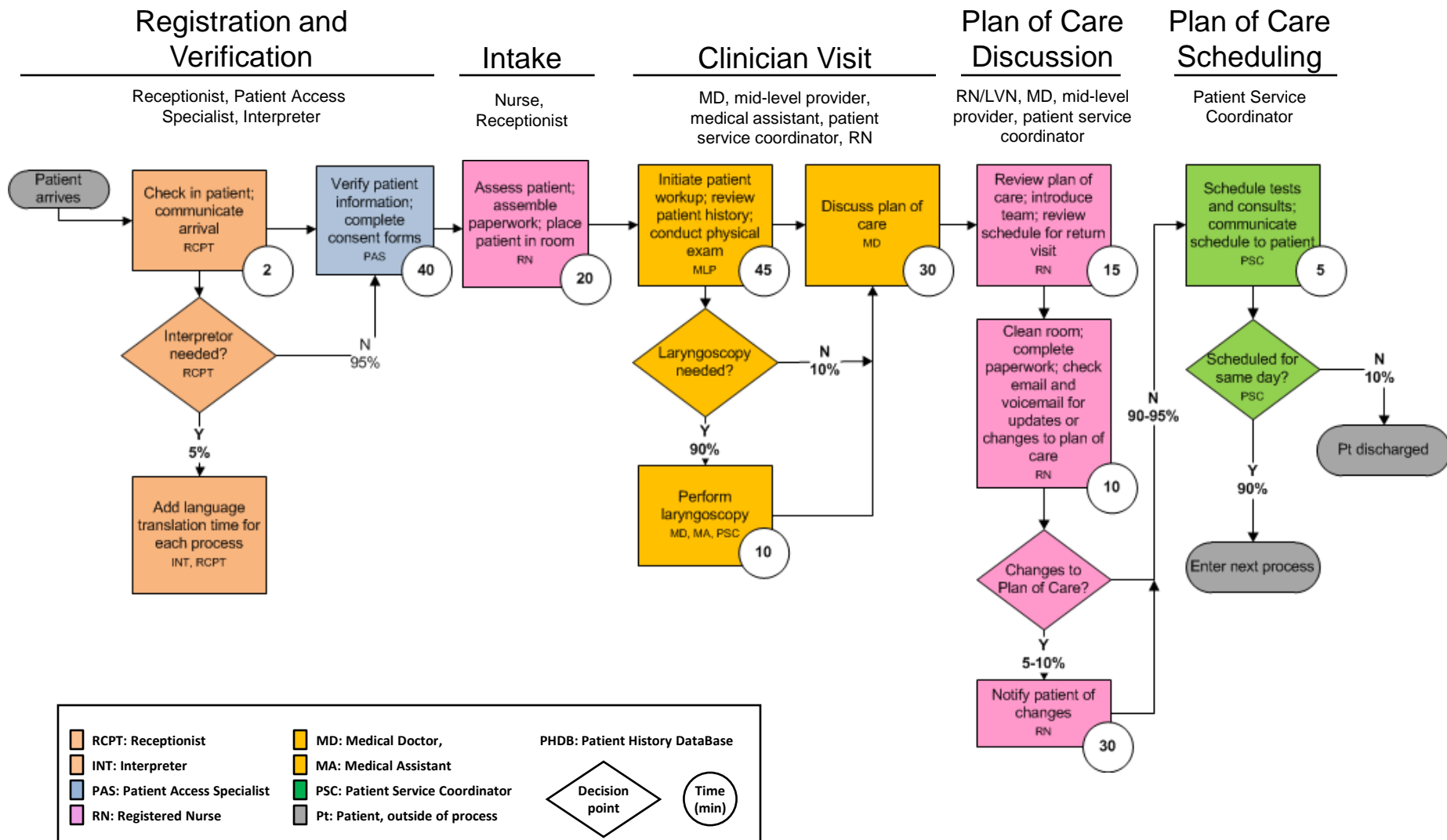


Measuring the Cost of Care Delivery: Principles

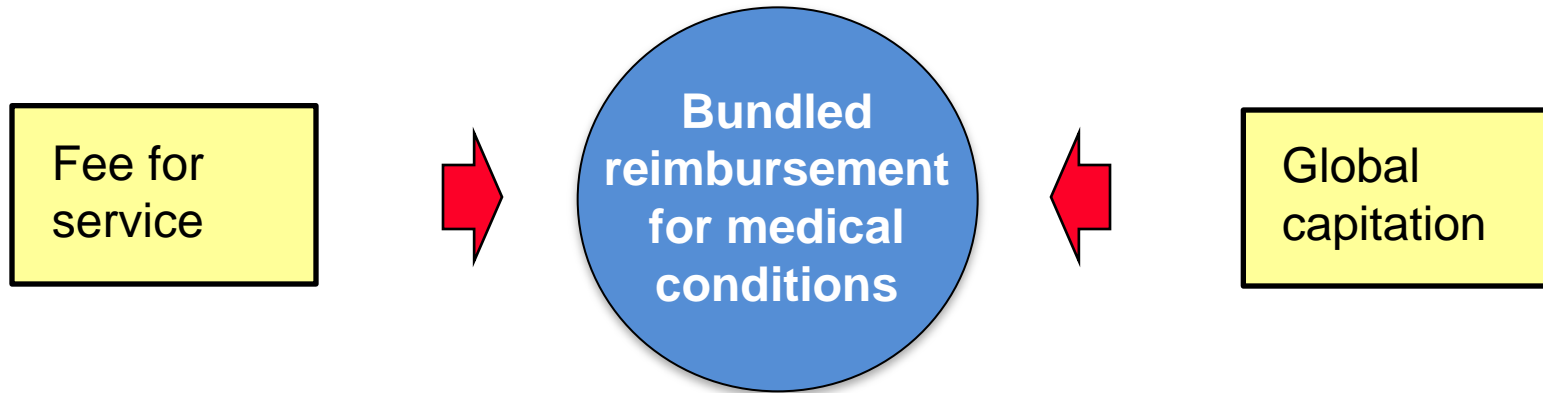
- Cost is the **actual expense** of patient care, not the **charges** billed or collected
- Cost should be measured around the **patient**
- Cost should be aggregated over the **full cycle of care for the patient's medical condition**, not for departments, services, or line items
- Cost depends on the **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

Mapping Resource Utilization

MD Anderson Cancer Center – New Patient Visit



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 | - 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 | |

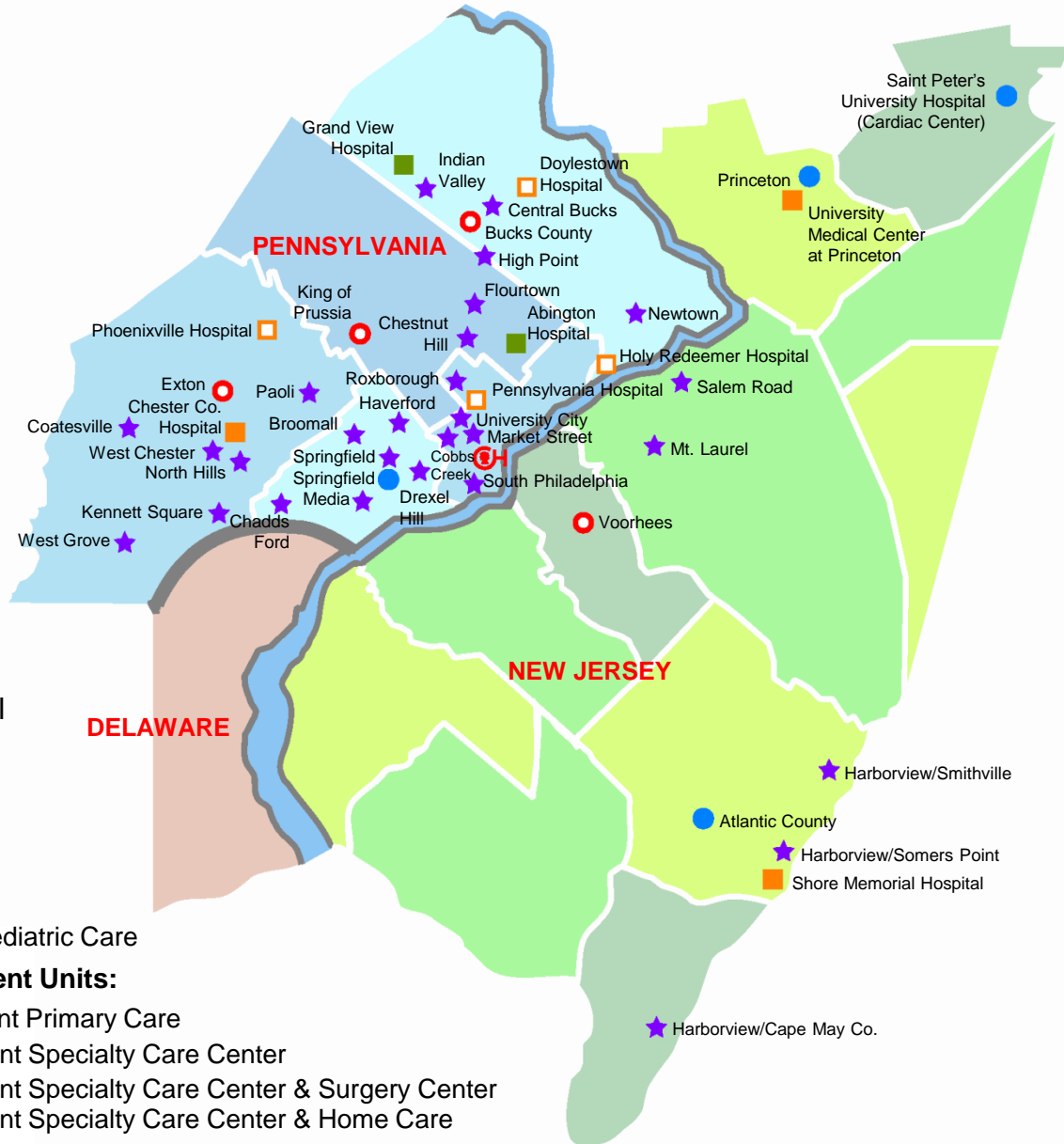
- Currently applies to all **relatively healthy patients** (i.e. ASA scores of 1 or 2)
- The same **referral process** from PCPs is utilized as the traditional system
- **Mandatory reporting** by providers to the joint registry plus supplementary reporting
- Applies to **all** qualifying patients. Provider 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**




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

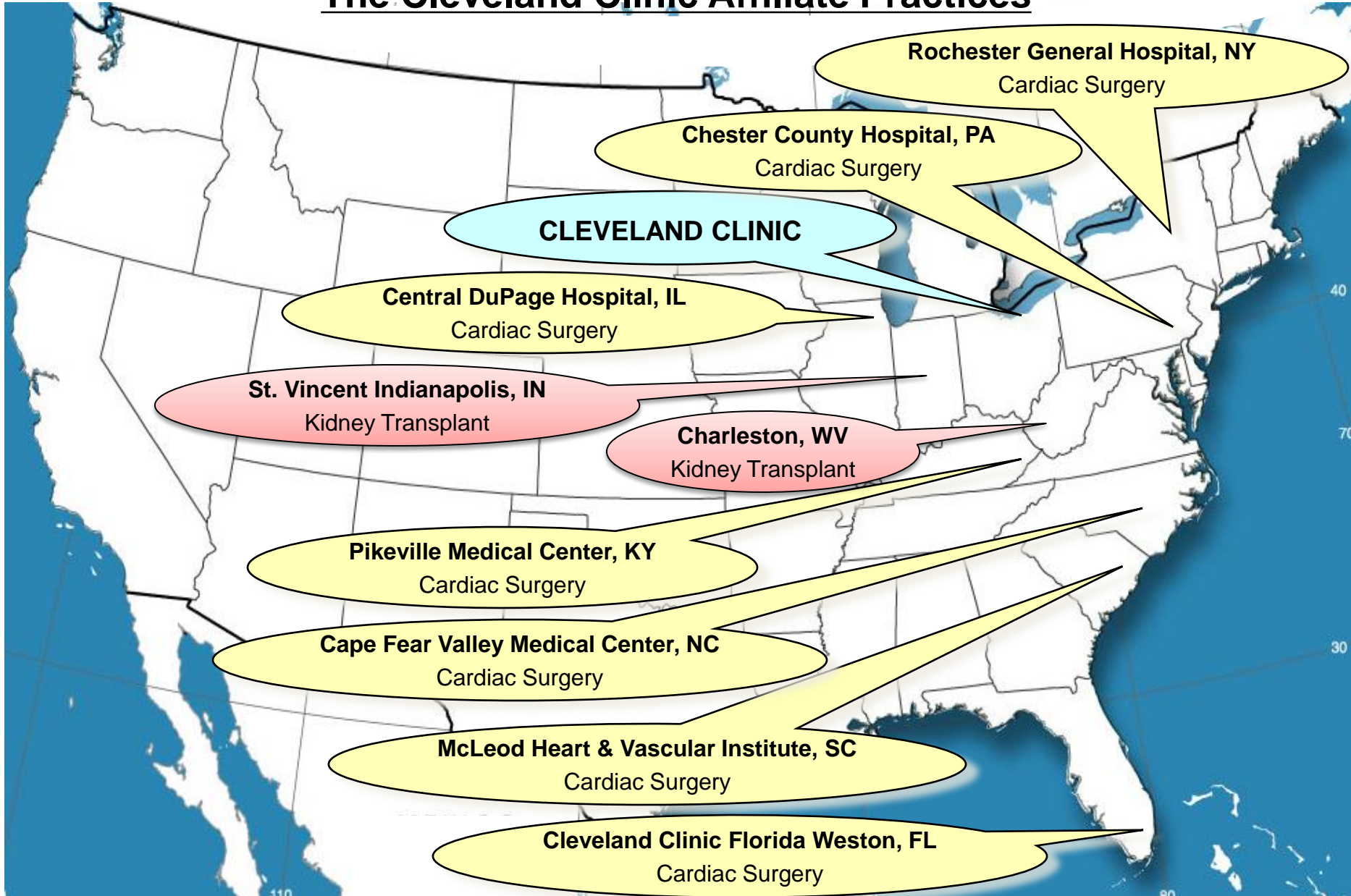
1. Choose an **overall scope of services** where the provider system can achieve excellence in value
2. **Rationalize service lines / IPUs across facilities** to improve volume, better utilize resources, and deepen teams
3. Offer specific services at the **appropriate facility**
 - Based on acuity level, 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

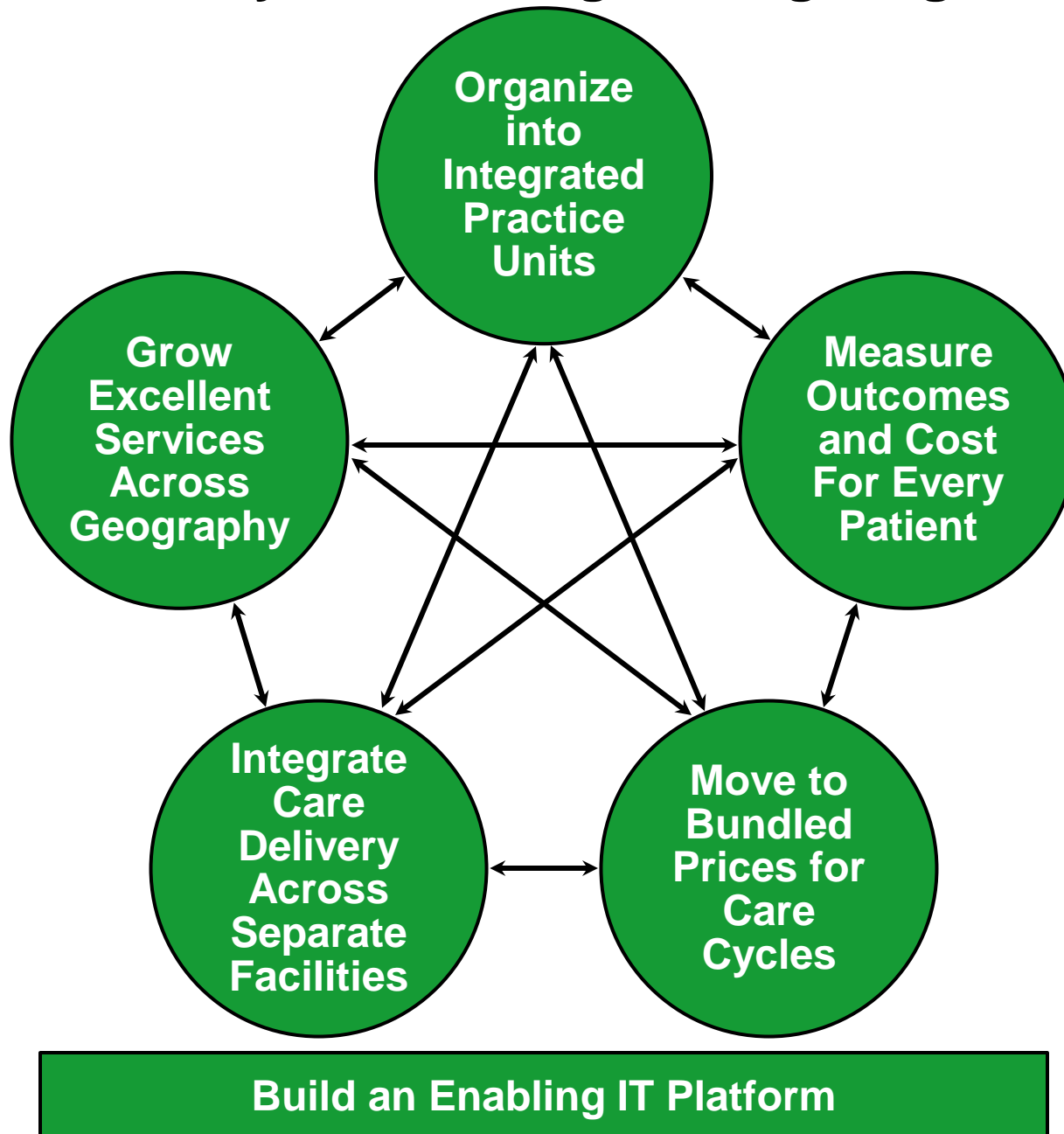


6. Building an Enabling Information Technology Platform

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 Physician Leaders

1. Organize into Integrated Practice Units (IPUs) Around Patient Medical Conditions
 - Lead **multidisciplinary teams**, not specialty divisions or departments
2. Establish Universal Measurement of Outcomes and Cost for Every Patient
 - Become an **expert in measurement** and process improvement
3. Move to Bundled Prices for Care Cycles
 - Lead the development of new **packaged reimbursement options** and **care guarantees**
4. Integrate Care Delivery Across Separate Facilities
 - View relationships across inpatient and outpatient units, or with sister hospitals, as **value drivers** not loss of autonomy
5. Expand Excellent IPUs Across Geography
 - **Aspire to influence patient care outside the local area**
6. Create an Enabling Information Technology Platform
 - Become a **champion for the right EMR** systems, not an obstacle to their adoption and use