

# Value-Based Health Care Delivery

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*HMS Health Policy*  
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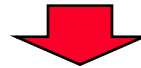
This presentation draws on Michael E. Porter and Elizabeth Olmsted Teisberg: Redefining Health Care: Creating Value-Based Competition on Results, Harvard Business School Press, May 2006, and Porter, Michael E. "A Strategy for Health Care Reform." *New England Journal of Medicine*. June 3, 2009. Porter, Michael E. "Defining and Introducing value in Health Care." Evidence-Based Medicine and the Changing Nature of Healthcare: Meeting Summary (IOM Roundtable on Evidence-Based <http://www.nap.edu/catalog/12041.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 Olmsted Teisberg. Further information about these ideas, as well as case studies, can be found on the website of the Institute for Strategy & Competitiveness at <http://www.isc.hbs.edu>.

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# Redefining Health Care Delivery

- 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



- 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 Health Care System

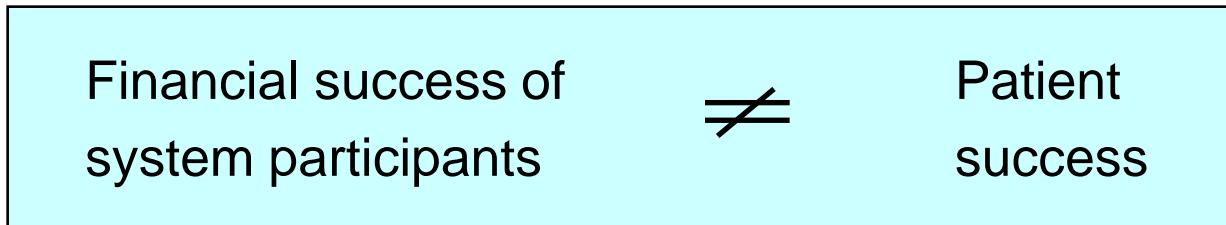
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

Today, 21<sup>st</sup> century medical technology is often delivered with 19<sup>th</sup> century organization structures, management practices, and pricing models

- Process improvements, lean production concepts, safety initiatives, care pathways, disease management and other **overlays** to the current structure are beneficial, but not sufficient
- Consumers **cannot fix the dysfunctional structure** of the current system

# Creating Competition on Value

- **Competition for patients/subscribers** is a powerful force to encourage restructuring of care and continuous improvement in value
- Today's competition in health care **is not aligned with value**



- Creating positive-sum **competition on value** is a central challenge in health care reform in every country

# Zero-Sum Competition in U.S. Health Care

## Bad Competition

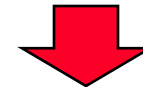
- Competition to **shift costs** or **capture greater revenue**
- Competition to **capture patients** and **restrict choice**
- Competition to **increase bargaining power** to secure discounts or price premiums
- Competition to **exclude less healthy individuals**



Zero or Negative Sum  
Competition

## Good Competition

- Competition to **increase value for patients**



Positive Sum  
Competition

# 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 the patient's condition** over the care cycle



How to design a health care system that **dramatically improves patient value**

# Principles of Value-Based Health Care Delivery

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

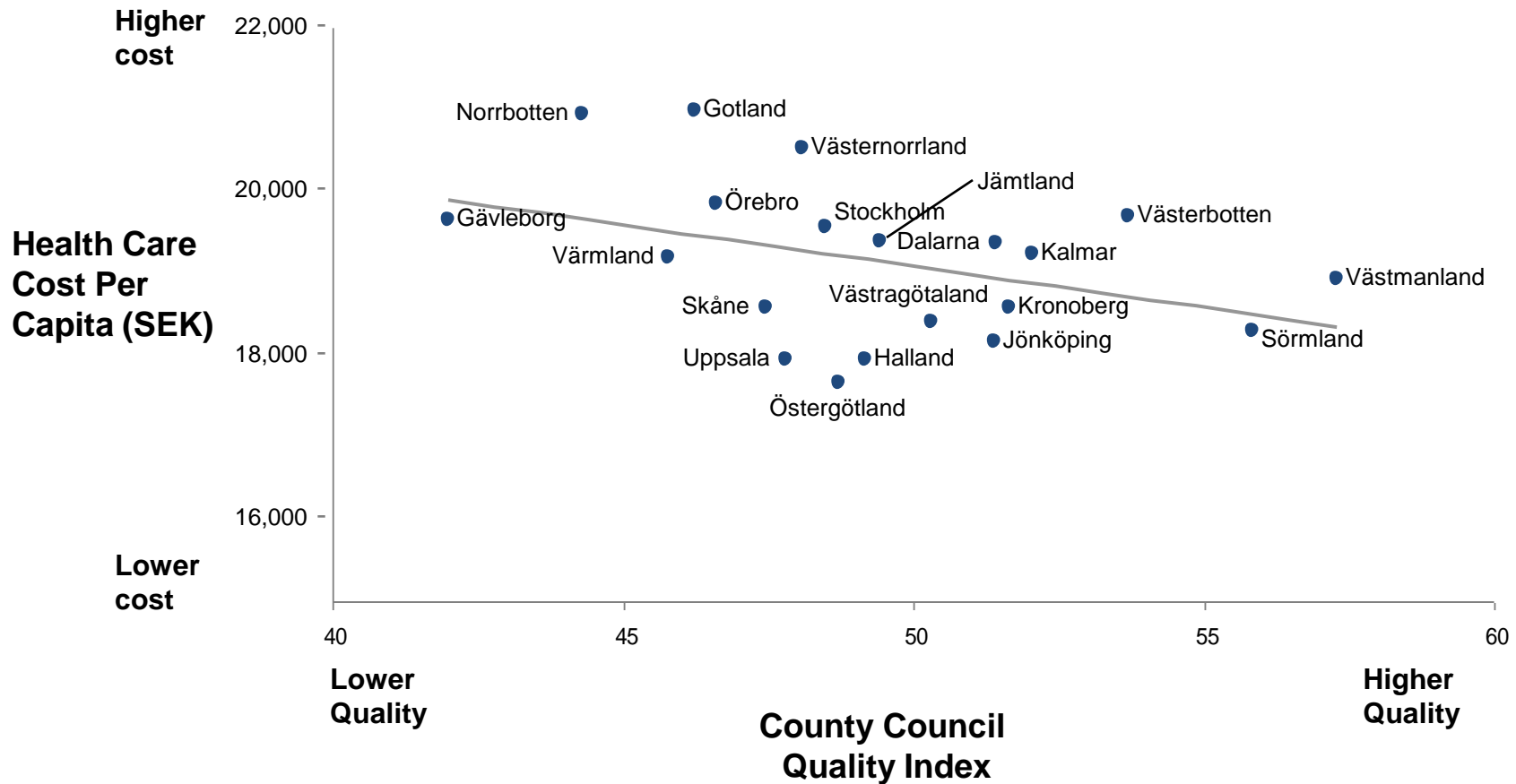
- |  |   |
|--|---|
| - Prevention                                       | - Fewer complications                     |
| - Early detection                                  | - Fewer mistakes and repeats in treatment |
| - Right diagnosis                                  | - Faster recovery                         |
| - Right treatment to the right patient             | - More complete recovery                  |
| - Early and timely treatment                       | - Less disability                         |
| - Treatment earlier in the causal chain of disease | - Fewer relapses or acute episodes        |
| - Rapid cycle time of diagnosis and treatment      | - Slower disease progression              |
| - Less invasive treatment methods                  | - Less need for long term care            |
|  | - Less care induced illness               |



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

# Cost versus Quality, Sweden

## Health Care Spending by County, 2008



Note: Cost including; primary care, specialized somatic care, specialized psychiatry care, other medical care, political health- and medical care activities, other subsidies (e.g. drugs)  
Source: Öppna jämförelser, Socialstyrelsen 2008; Sjukvårdsdata i fokus 2008; BCG analysis



# **Value-Based Health Care Delivery**

## **The Strategic Agenda**

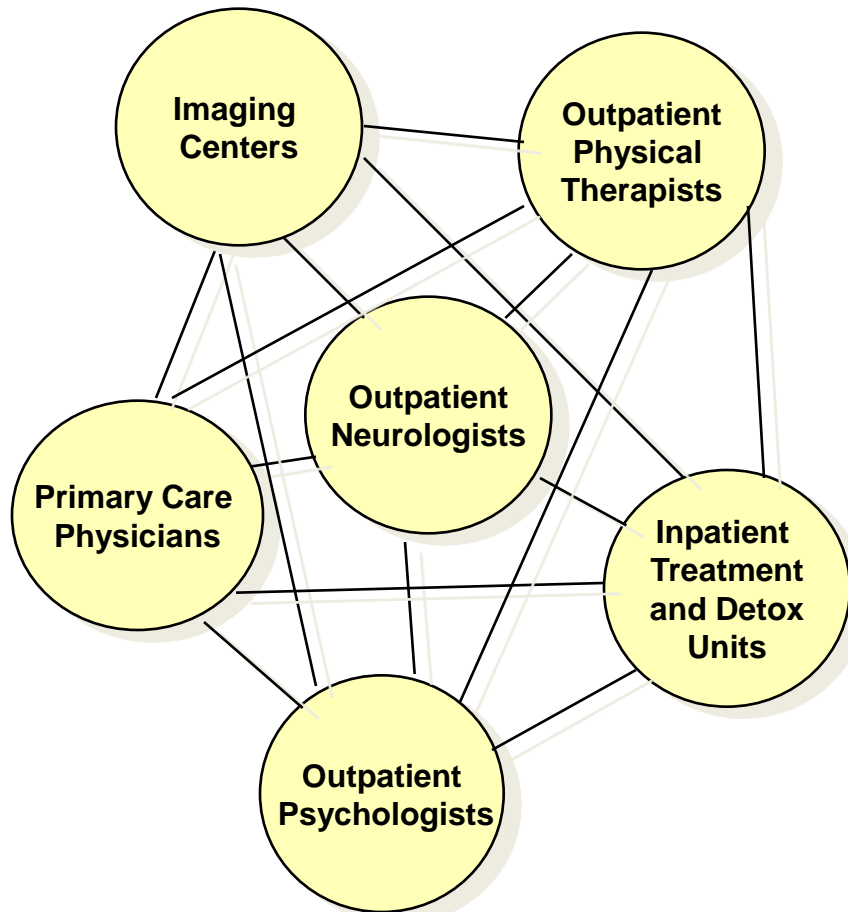
- 1. Organize into Integrated Practice Units Around the Patient's Medical Condition (IPUs)**
  - Including primary and preventive care for **distinct patient populations****
- 2. Measure Outcomes and Cost for Every Patient**
- 3. Move to Bundled Prices for Care Cycles**
- 4. Integrate Care Delivery Across Separate Facilities**
- 5. Expand Excellent IPUs Across Geography**
- 6. Create an Enabling Information Technology Platform**

# 1. Moving to Care Delivery Integrated Around the Patient

## Migraine Care in Germany

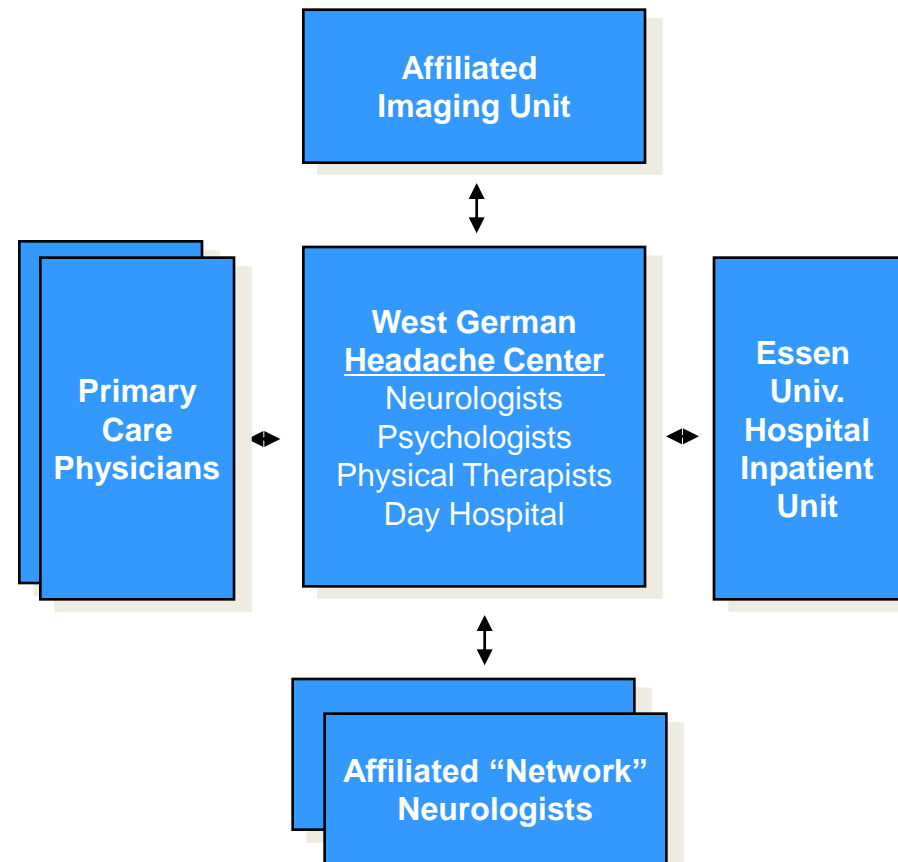
### Existing Model:

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

# Integrating Across the Cycle of Care

## Breast Cancer

INFORMING AND ENGAGING	▪Advice on self screening	▪Counseling patient and family on the diagnostic process and the diagnosis	▪Explaining patient treatment options/shared decision making	▪Counseling on the treatment process ▪Education on managing side effects and avoiding complications of treatment ▪Achieving compliance	▪Counseling on rehabilitation options, process ▪Achieving compliance	▪Counseling on long term risk management ▪Achieving Compliance
	▪Consultations on risk factors		▪Patient and family psychological counseling		▪Psychological counseling	
MEASURING	▪Self exams ▪Mammograms	▪Mammograms ▪Ultrasound ▪MRI ▪Labs (CBC, Blood chems, 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	▪Office visits ▪Mammography lab visits	▪Office visits	▪Office visits	▪Hospital stays	▪Office visits	▪Office visits
		▪Lab visits	▪Hospital visits ▪Lab visits	▪Visits to outpatient radiation or chemotherapy units ▪Pharmacy	▪Rehabilitation facility visits ▪Pharmacy	▪Lab visits ▪Mammographic labs and imaging center visits
		▪High risk clinic visits				
MONITORING/ PREVENTING		DIAGNOSING	PREPARING	INTERVENING	RECOVERING/ REHABING	MONITORING/MANAGING
▪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)	▪Surgery (breast preservation or mastectomy, oncoplastic alternative)	▪In-hospital and outpatient wound healing ▪Treatment of side effects (e.g. skin damage, cardiac complications, nausea, lymphodema and chronic fatigue)	▪Periodic mammography ▪Other imaging  ▪Follow-up clinical exams ▪Treatment for any continued or later onset side effects or complications
			▪Plastic or onco-plastic surgery evaluation ▪Neo-adjuvant chemotherapy	▪Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)		
					▪Physical therapy	

☐ Breast Cancer Specialist  
☐ Other Provider Entities

# What is Integrated Care?

## Attributes of an Integrated Practice Unit (IPU):

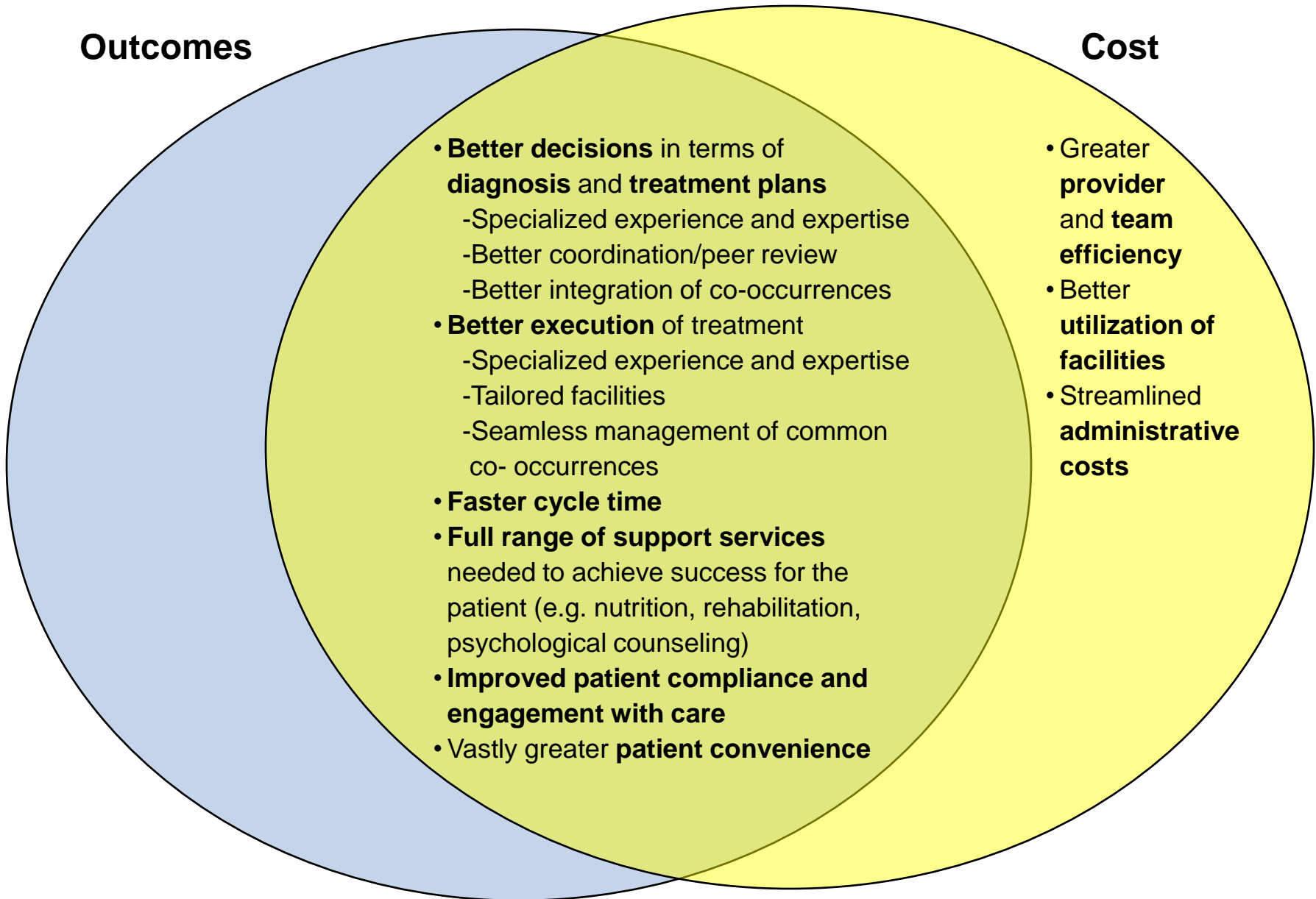
1. Organized around the **patient's medical condition**
2. Provides the full cycle of care for a the condition, including **patient education, engagement** and **follow-up**
  - Encompasses **inpatient, outpatient, and rehabilitative** care as well as **supporting services** (e.g. nutrition, social work)
3. Involves a **dedicated team** who devote a significant portion of their time to the medical condition
4. Providers are part of a **common organizational unit**
5. **Co-located** in **dedicated facilities**
6. Utilizing a **single administrative** and **scheduling structure**
7. A **physician team captain** and a **care manager** oversee each patient's care process
8. The team **meets formally and informally** on a regular basis
9. Measures **processes** and **outcomes** as a **team**, not individually
10. Accepts **joint accountability** for outcomes and costs

# 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

# IPUs and Value

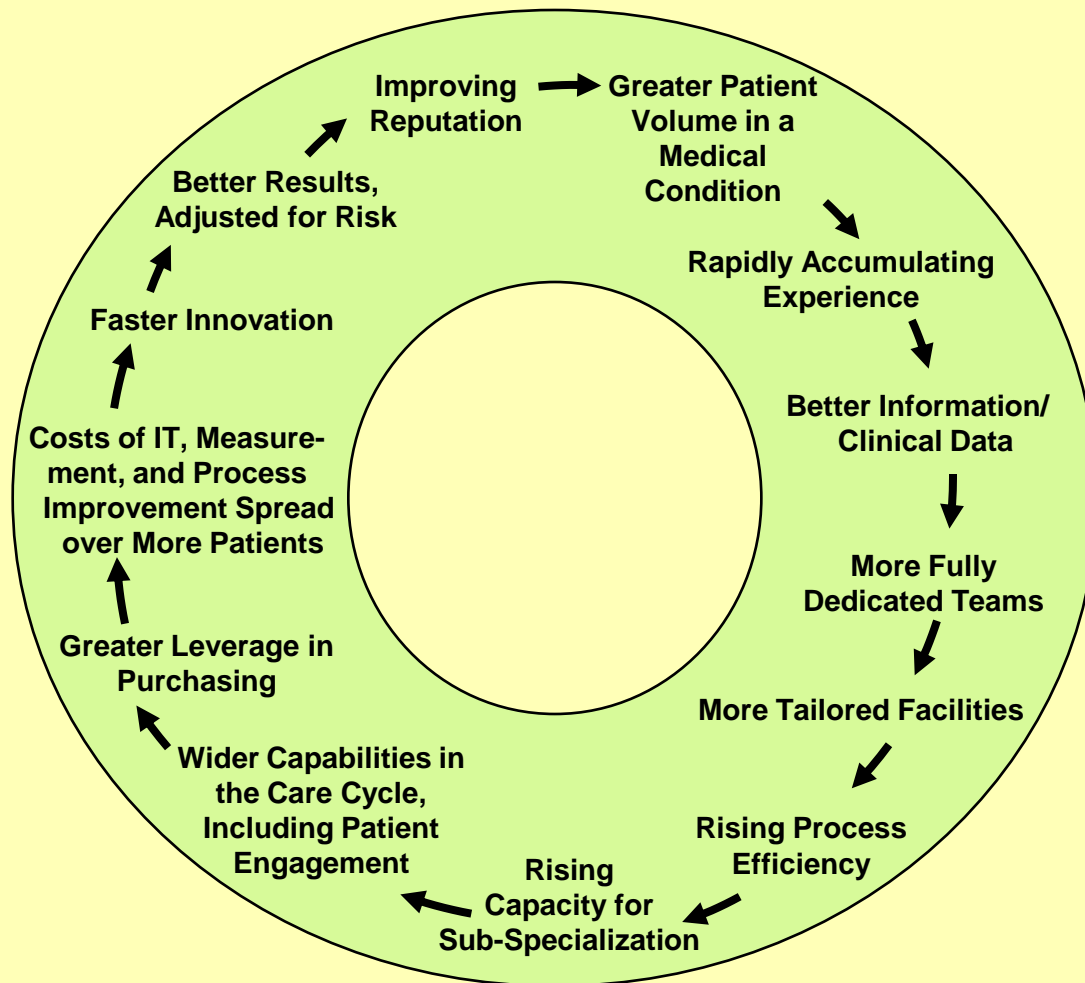


# Integrated Models of Primary Care

- **Defined service bundles** covering prevention, screening, diagnosis, wellness and health maintenance
  - Designed around **specific patient populations** (e.g. healthy adults, frail elderly, type II diabetics) rather than attempting to be all things to all patients
  - Services are provided by **multidisciplinary teams**, including ancillary health professionals and support staff in **dedicated facilities**
  - Delivered not only in traditional facilities but at the **workplace**, **community organizations**, and in **other settings** that offer regular patient contact and the ability to develop a group culture of wellness
  - **Alliances** with specialty IPUs covering the prevalent medical conditions represented in the patient base
- 
- Today's primary care is **fragmented** and attempts to address **overly broad** needs with limited resources

# Volume and Experience in a Medical Condition Drive Patient Value

## The Virtuous Circle of Value



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



# Fragmentation of Hospital Services

## 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.

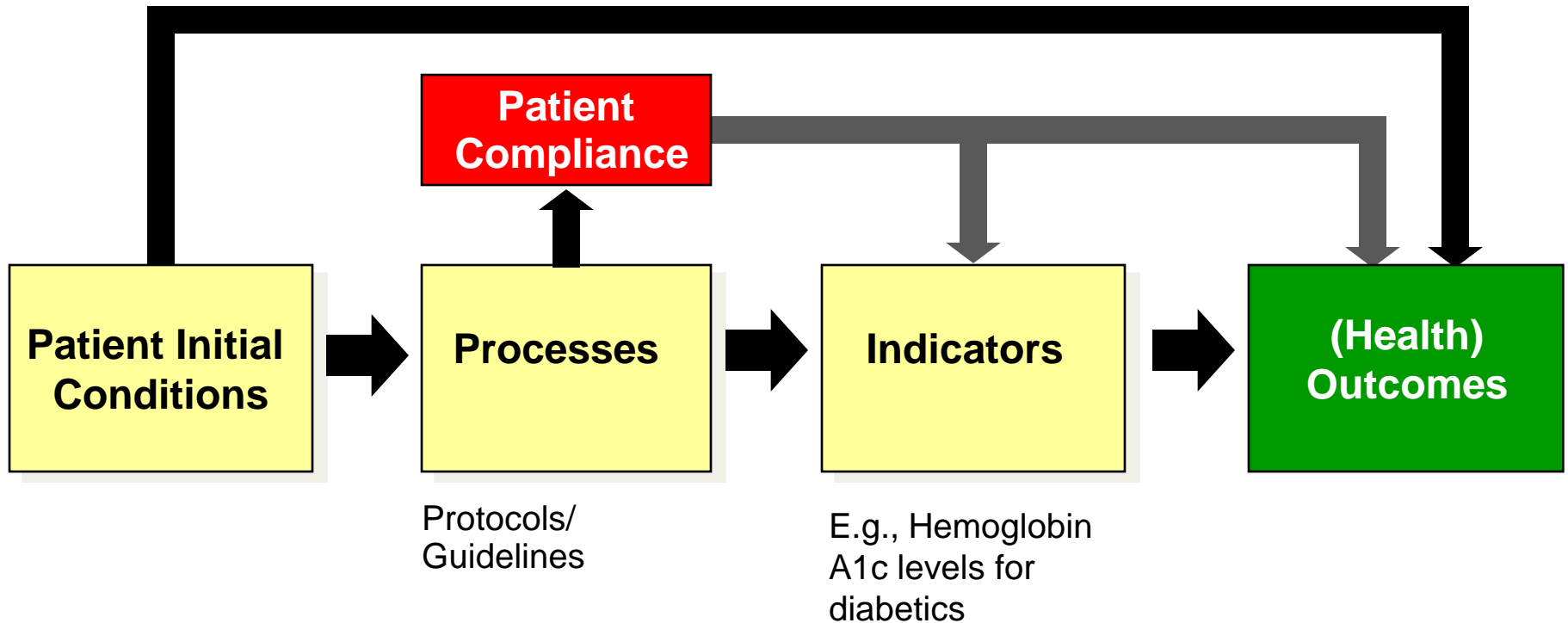
## 2. Measure Outcomes and Cost for Every Patient

- **For** medical conditions
- **Real time** and “**on-line**” in care delivery, not just retrospective
- **Not** for interventions or short episodes
- **Not** separately for types of service (e.g. inpatient, outpatient, tests, rehabilitation)
- **Not** for practices, departments, clinics, or entire hospitals

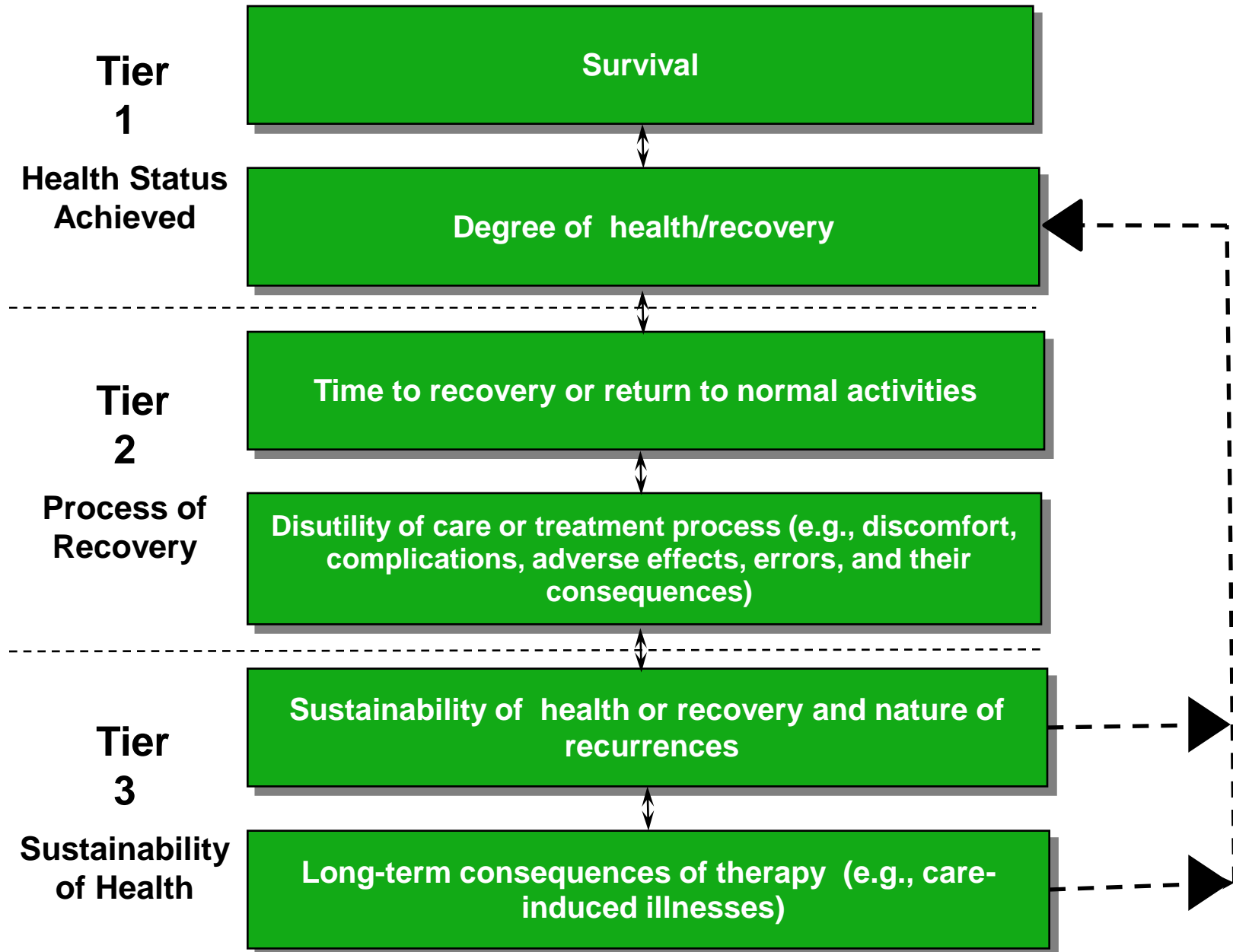


**Volume** measurement and reporting by medical condition is an interim first step

# Measuring Value

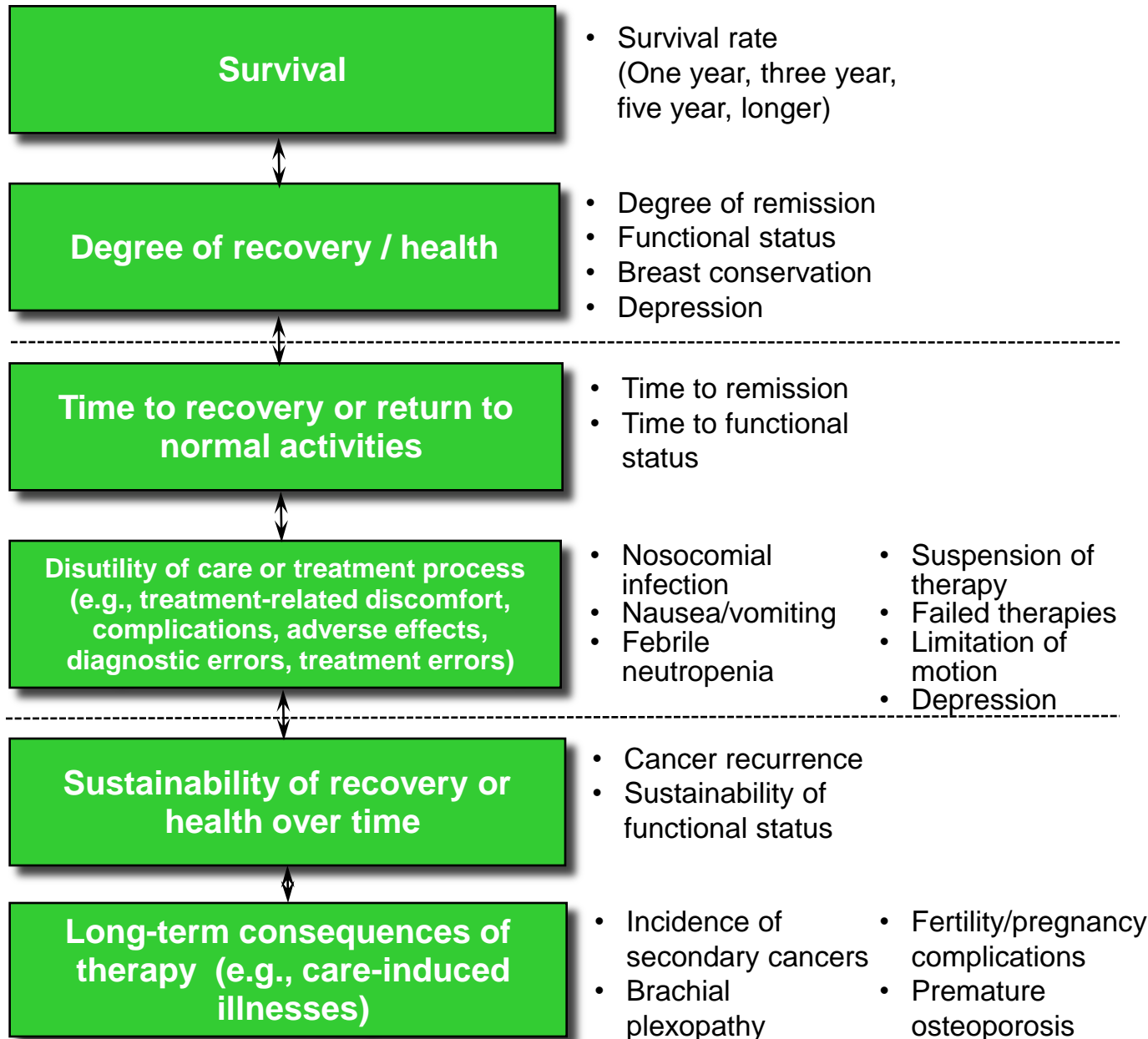


# The Outcome Measures Hierarchy



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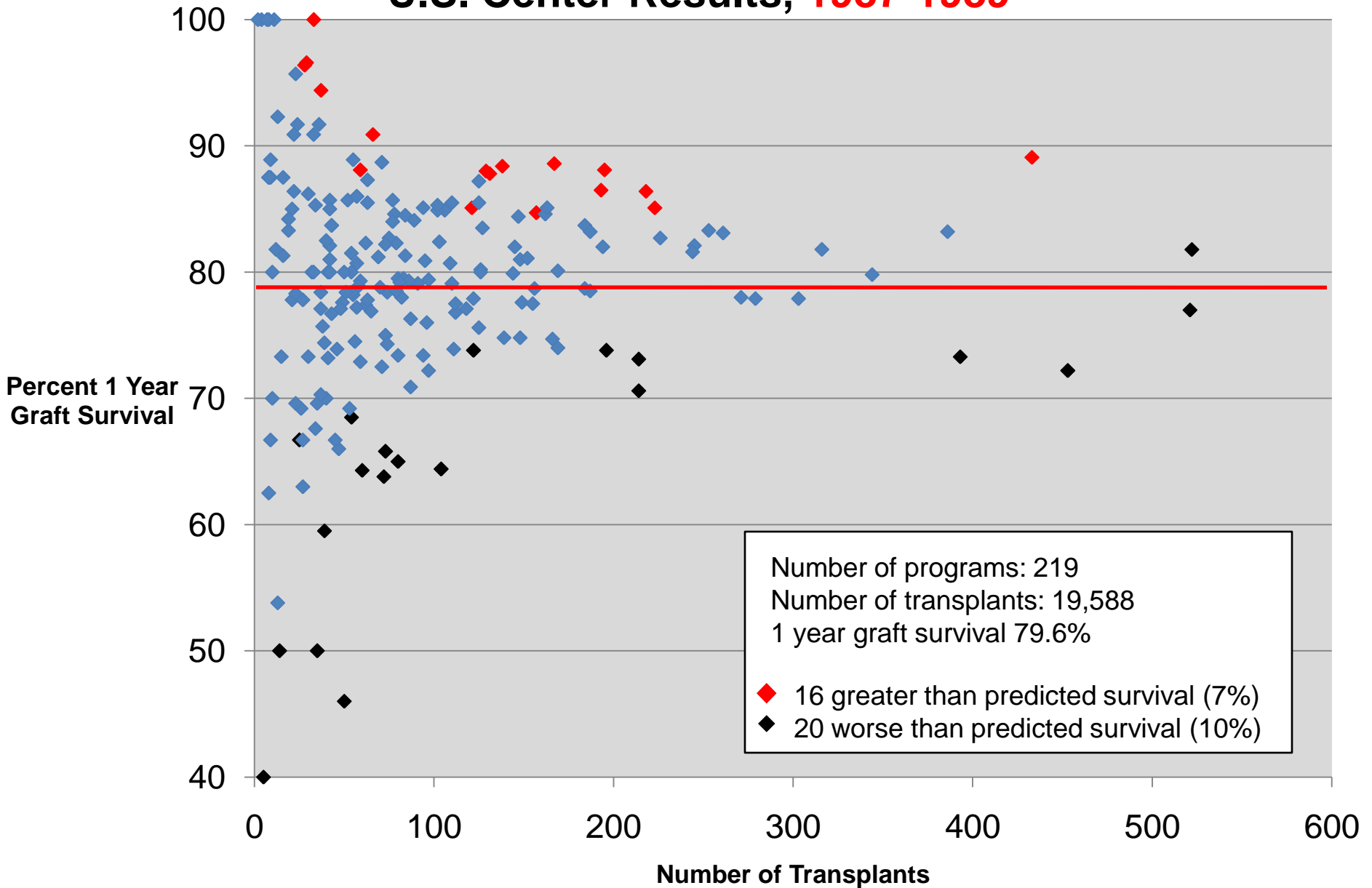
## Breast Cancer



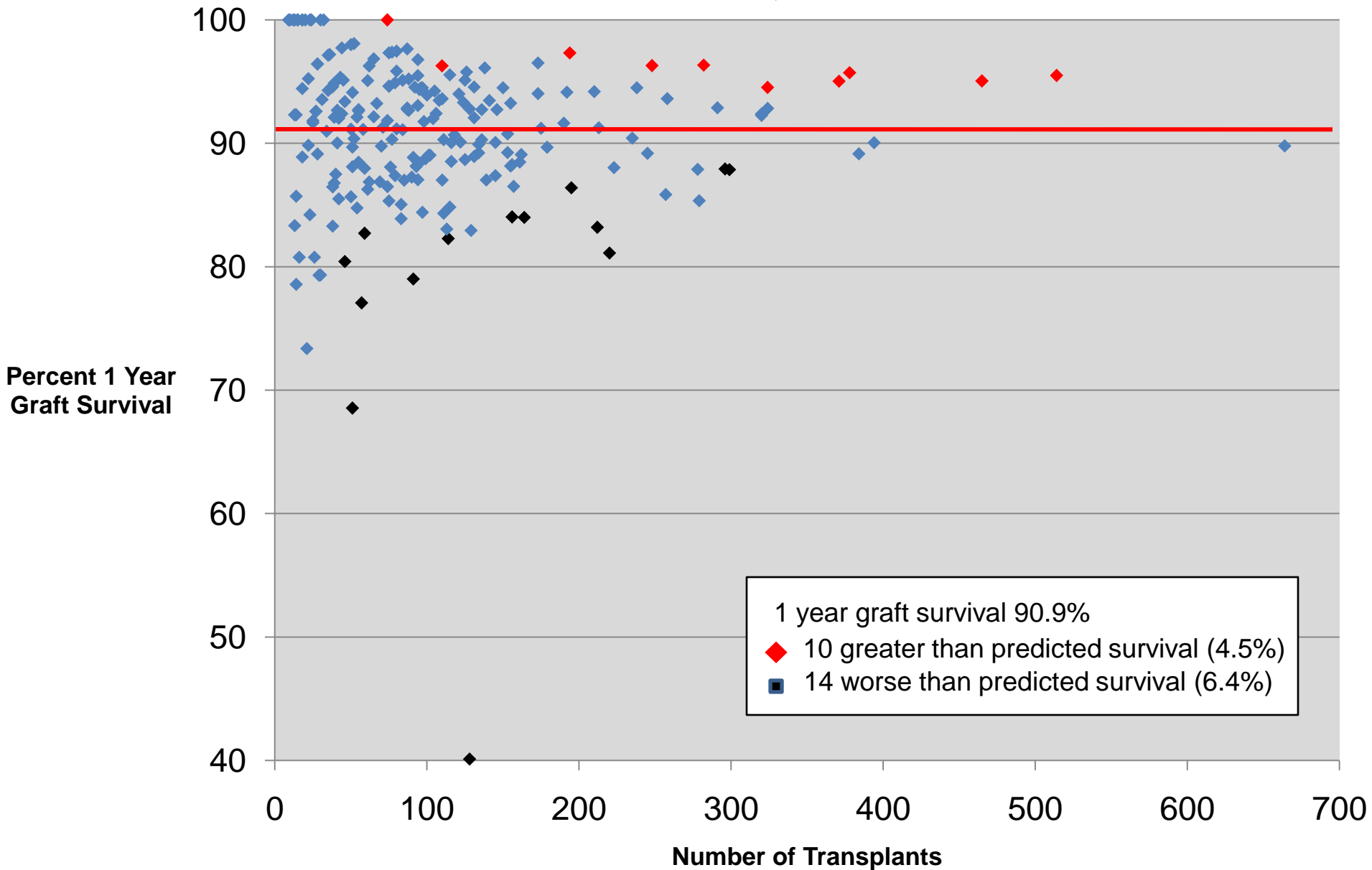
### Initial Conditions/Risk Factors

- 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

# Adult Kidney Transplant Outcomes, U.S. Center Results, 1987-1989

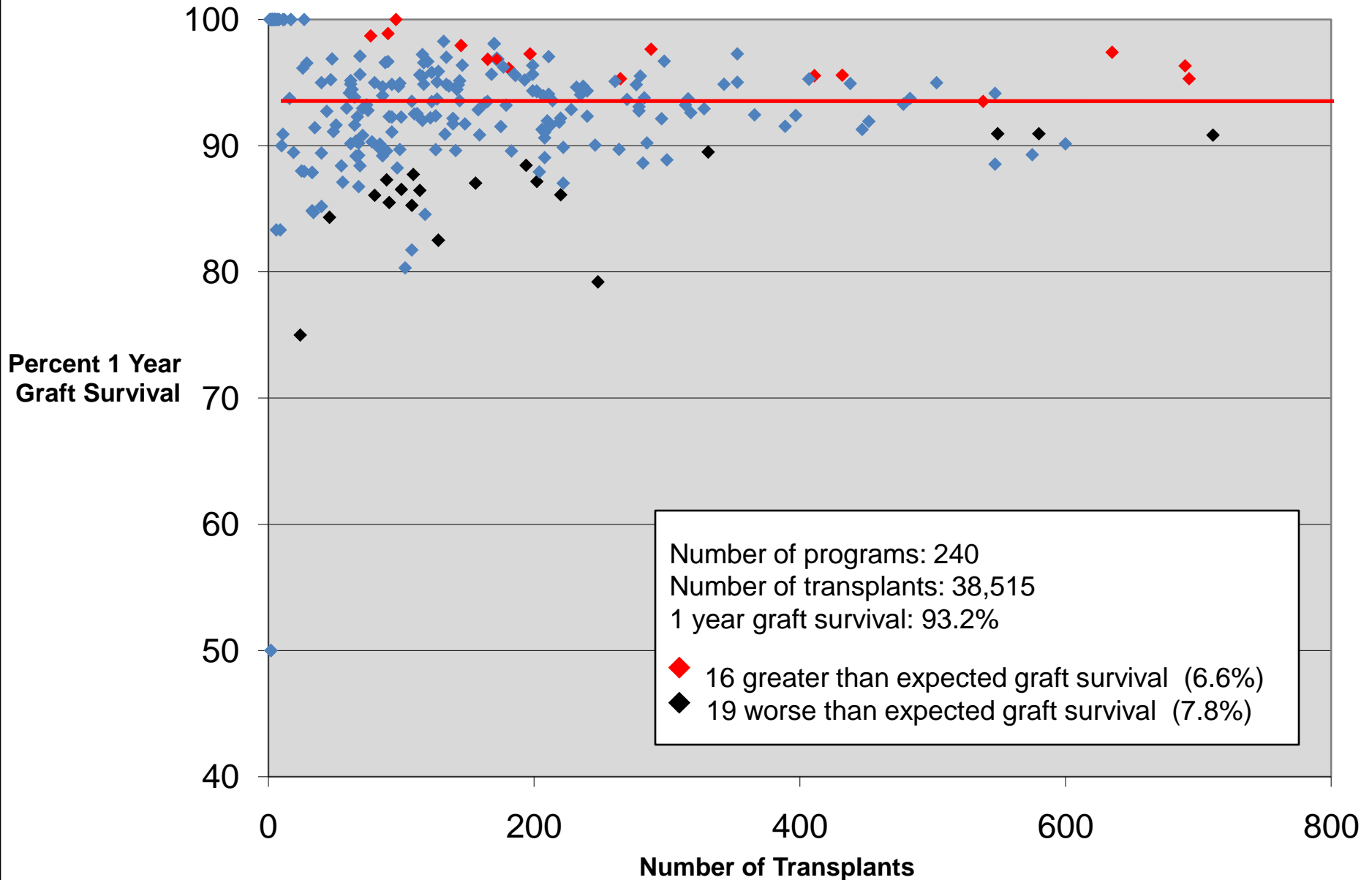


# Adult Kidney Transplant Outcomes, U.S. Center Results, 1998-2000



# Adult Kidney Transplant Outcomes

## U.S. Center Results, 2005-2007





# 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

# Cost Measurement

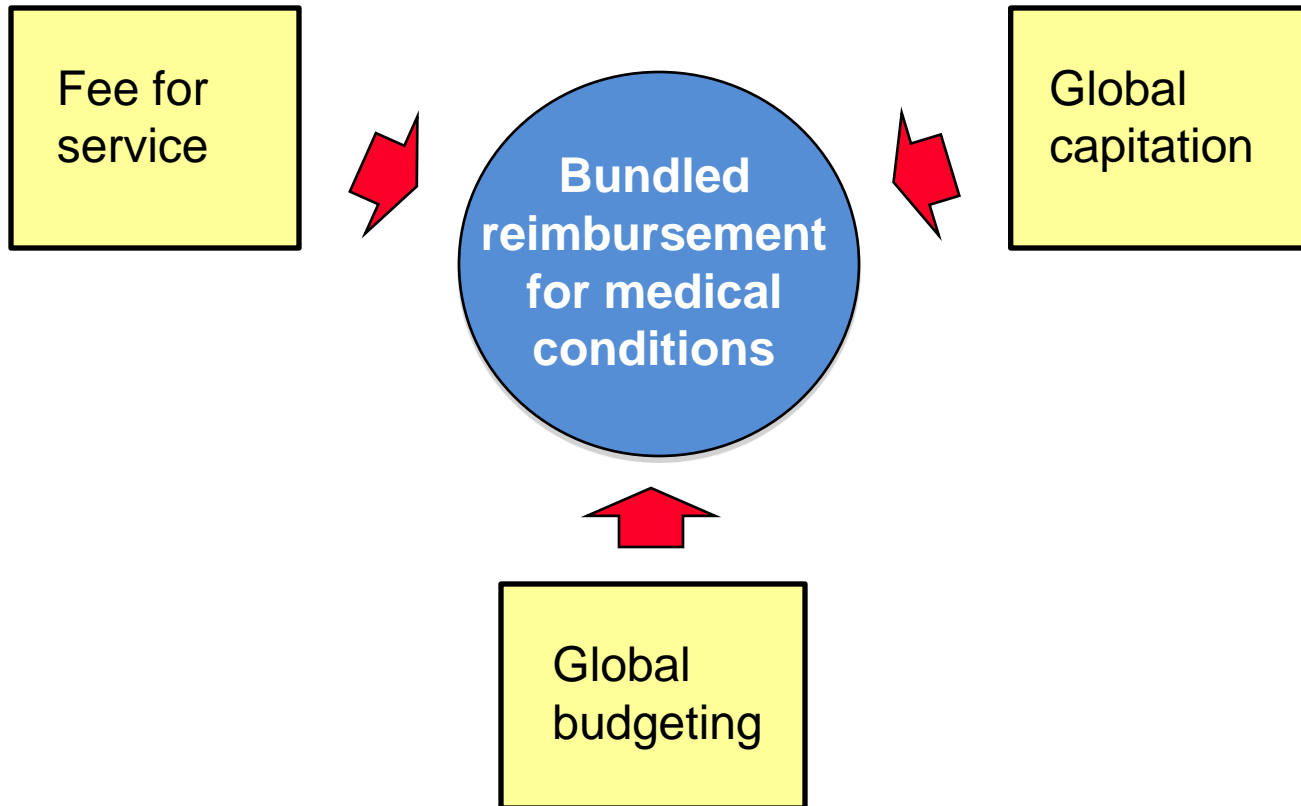
## Aspiration

- Cost should be measured for **each medical condition** (which includes common co-occurring conditions), not for departments, services, or hospitals as a whole
- Cost should be measured **for each patient**, aggregated across the **full cycle of care**
- The cost of each activity or input attributed to a patient should reflect **that patient's use of resources** (e.g. time, facilities, service), not average allocations
- The only way to properly measure cost per patient is to track the **time devoted to each patient** by providers, facilities, support services, and other shared costs

## Reality

- Most providers track **charges** not costs
- Most providers track cost by **billing category**, not for medical conditions
- Most providers cannot **accumulate total costs** for particular patients
- Most providers use **arbitrary or average** allocations, not patient specific allocations
- Many providers allocate cost based in part on **charge levels**, which biases

### 3. Move to Bundled Prices for Care Cycles



# What is a Bundled Payment?

- A **total package price** for the care cycle for a **medical condition**
  - Time-based bundled reimbursement for **managing chronic conditions**
  - Time-based reimbursement for defined **prevention, screening, wellness/health maintenance** service bundles
  - Should include responsibility for **avoidable complications**
  - “Medical condition capitation”
- The bundled price should be **severity adjusted**

## What is Not a Bundled Payment

- Price for a **short** episode (e.g. inpatient only, procedure only)
- **Separate** payments for physicians and facilities
- **Pay-for-performance** bonuses
- “**Medical Home**” payment for care coordination



- DRGs can be a **starting point** for bundled payment models
- **Providers** and **health plans** should be proactive in driving new reimbursement models, not wait for government

# Bundled Payment in Practice

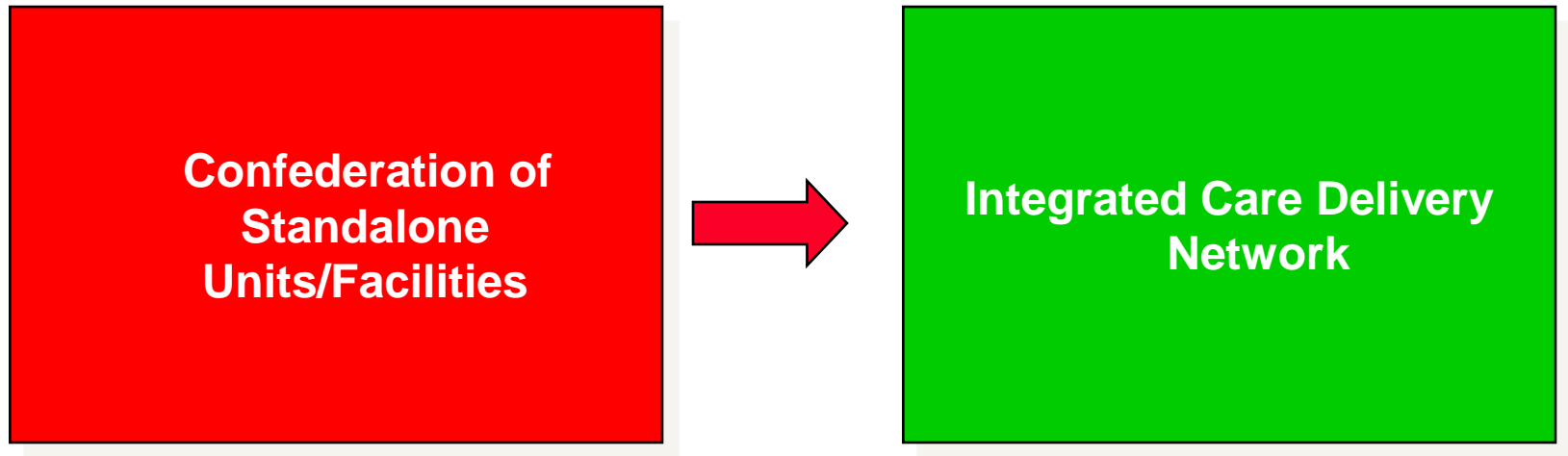
## Hip and Knee Replacement in Sweden

- Beginning in 2009, all joint replacements (hip and knee) in Stockholm County Council are reimbursed with a **bundled price** that includes:

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

- The bundled price 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
- There is **mandatory reporting** by providers to the joint registry plus supplementary reporting
- Provider participation is **voluntary** but all providers are involved
  - 6 public hospitals, 4 private hospitals
  - 3400 patients treated in 2009
- The bundled price for a knee or hip replacement is about **US \$8,000**

## 4. Integrate Care Delivery Across Separate Facilities



- Increase overall **volume**  
↓
- Benefits limited to **contracting** and **spreading limited fixed overhead**

- Increase **value**  
↓
- The network is **more than** the sum of its parts

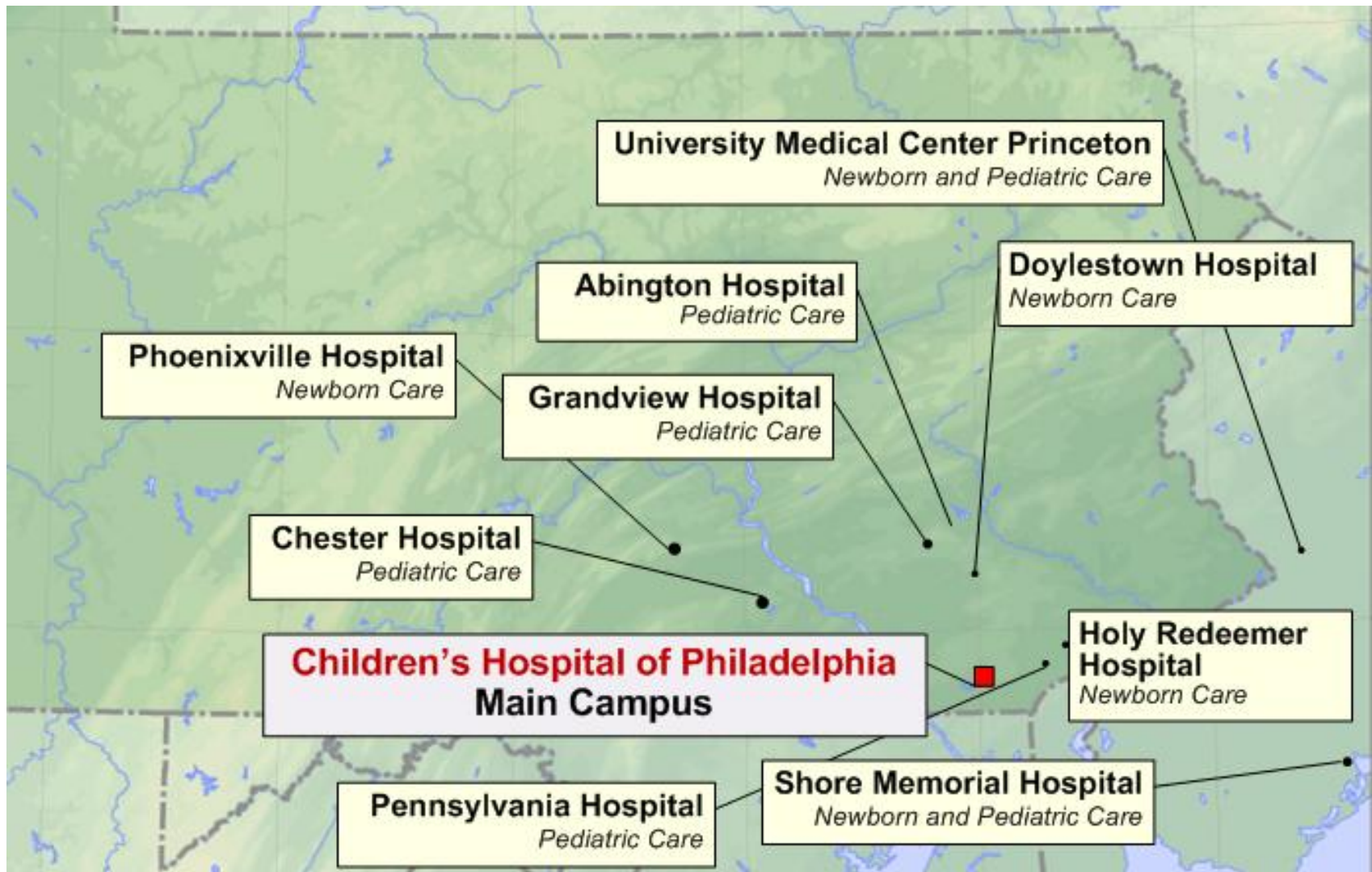
# Levels of System Integration

- **Rationalize service lines/ IPU**s across facilities to improve volume, avoid duplication, and concentrate excellence
- **Offer specific services** at the **appropriate facility**
  - E.g. acuity level, cost level, need for convenience
  - Patient referrals across units
- **Clinically integrate care across facilities**, within an IPU structure
  - **Expand** and **integrate** the care cycle
  - Better connect **preventive/primary care** units to specialty IPUs

# Provider System Integration

## Children's Hospital of Philadelphia (CHOP)

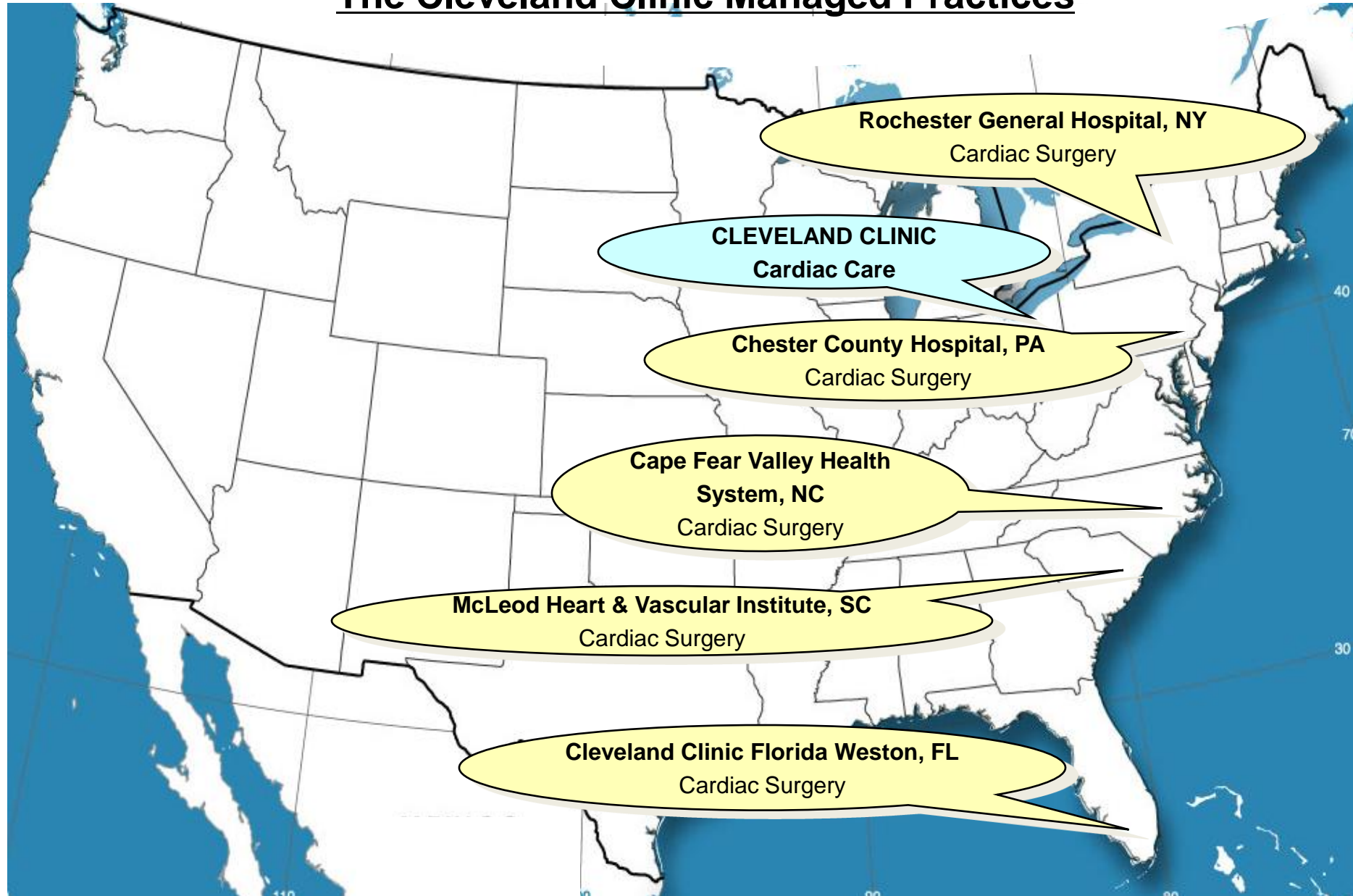
### Hospital Affiliates





## 5. Expand Excellent IPU's Across Geography

### The Cleveland Clinic Managed Practices



# Models of Geographic Expansion

## Affiliations

**Affiliation  
Agreements  
with  
Independent  
Provider  
Organizations**

**Second  
Opinions and  
Telemedicine**

## Dispersed Services

**Dispersed  
Diagnostic  
Centers**

**Convenience  
Sensitive  
Service  
Locations in the  
Community**

**Complex IPU  
Components  
(e.g. surgery)  
in Additional  
Locations**

## New Hubs

**Specialty  
Hospitals as  
Referral Hubs  
in Additional  
Locations**

**New Broader-  
Line Hospital  
Hubs**

## 6. Create 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 over time
- Data encompasses the **full care cycle**, including referring entities
- Allowing access and communication among **all involved parties**, including patients
- **“Structured”** data vs. free text
- **Templates** for medical conditions to enhance the user interface
- Architecture that allows **easy extraction of outcome, process, and cost measures**
- Interoperability standards enabling communication among **different provider systems**

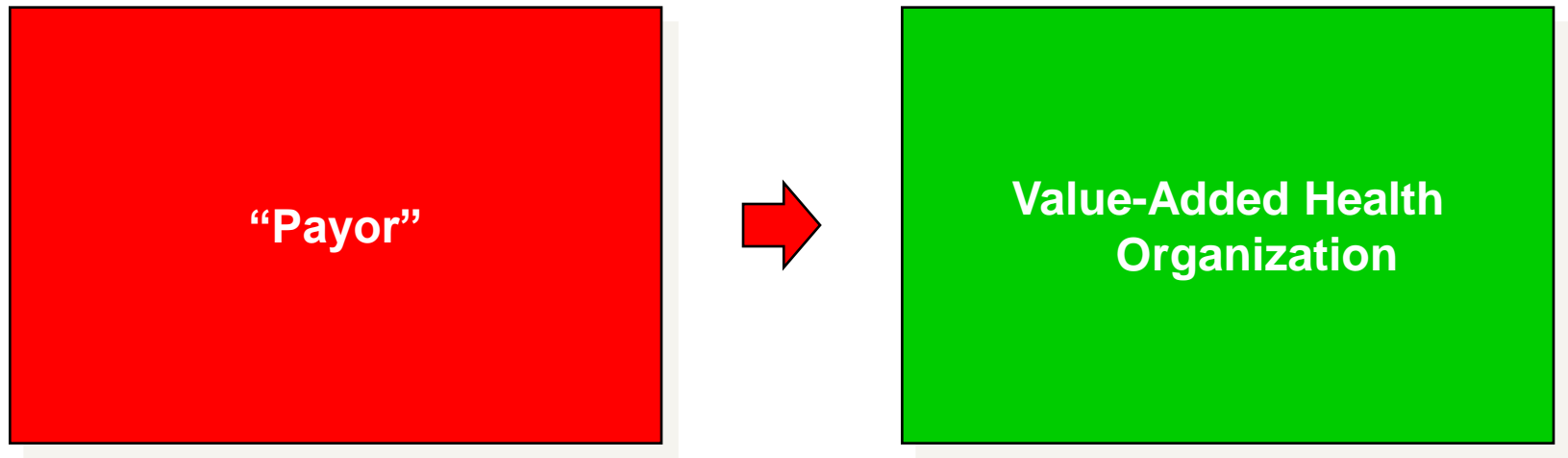
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## **The Strategic Agenda**


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# **Value-Based Healthcare Delivery:**

## **Implications for Contracting Parties/Health Plans**



# Value-Based Health Care: The Role of Employers

- Employer interests are **more closely aligned with patient interests** than any other system participant
    - 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
    - On-site clinics for quick diagnosis and treatment, prevention, and screening
    - Group culture of wellness
  - Providers can establish **direct relationships with employers** to enable value based approaches

# Value-Based Health Care Delivery: Implications for Government

- Establish **universal measurement** and **reporting** of provider **health outcomes**
  - Also require universal reporting by **health plans**
- Remove obstacles to the **restructuring of health care delivery** around the integrated care of medical conditions
- Shift reimbursement systems to **bundled prices for cycles of care** instead of payments for discrete treatments or services
- **Open up competition** among providers and across geography
- Mandate **EMR adoption** that enables integrated care and supports outcome measurement
  - National **standards** for data definitions, communication, and aggregation
  - **Software as a service** model for smaller providers
- Set policies that encourage greater **responsibility of individuals** for their health and their health care