

# Value-Based Health Care Delivery

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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 “How Physicians Can Change the Future of Health Care,” *Journal of the American Medical Association*, 2007; 297:1103:1111. 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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# 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**, not just the cost of a single provider or a single service



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

# Value-Based Health Care Delivery

## The Strategic Agenda

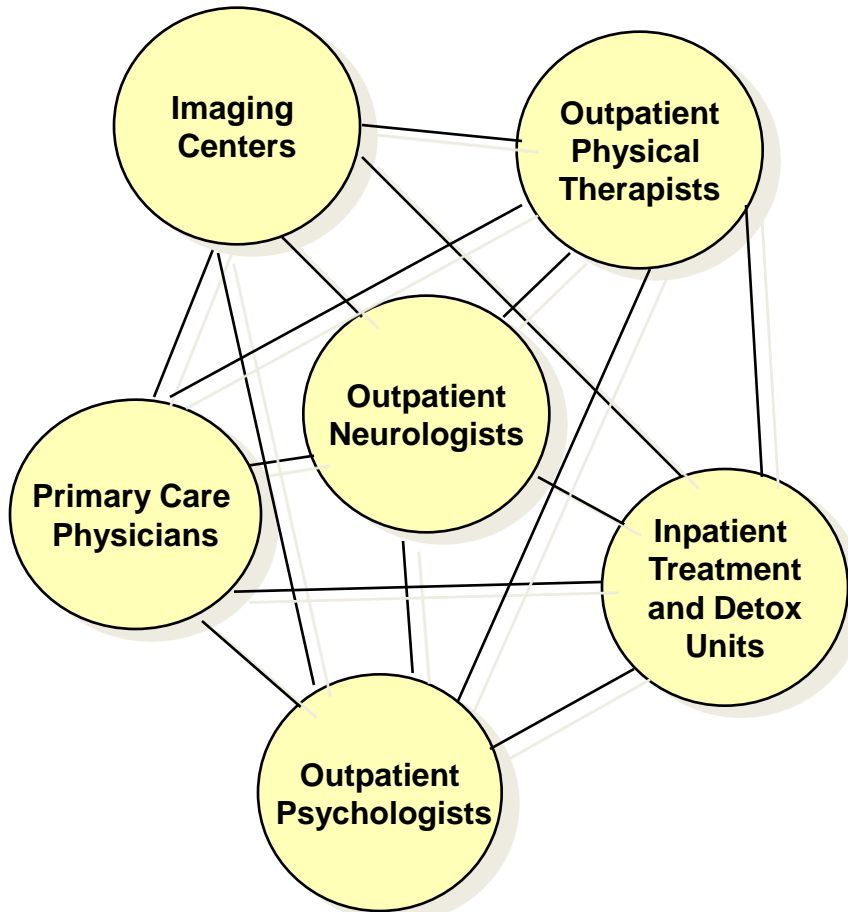
1. Organize into Integrated Practice Units around the Patient's Medical Condition (IPUs)
  - Including primary and preventive care for **distinct patient populations**
2. Measure Outcomes and Cost for Every Patient
3. Move to Bundled Prices for Care Cycles
4. Integrate Care Delivery Across Separate Facilities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

# 1. Organize into Integrated Practice Units

## Migraine Care in Germany

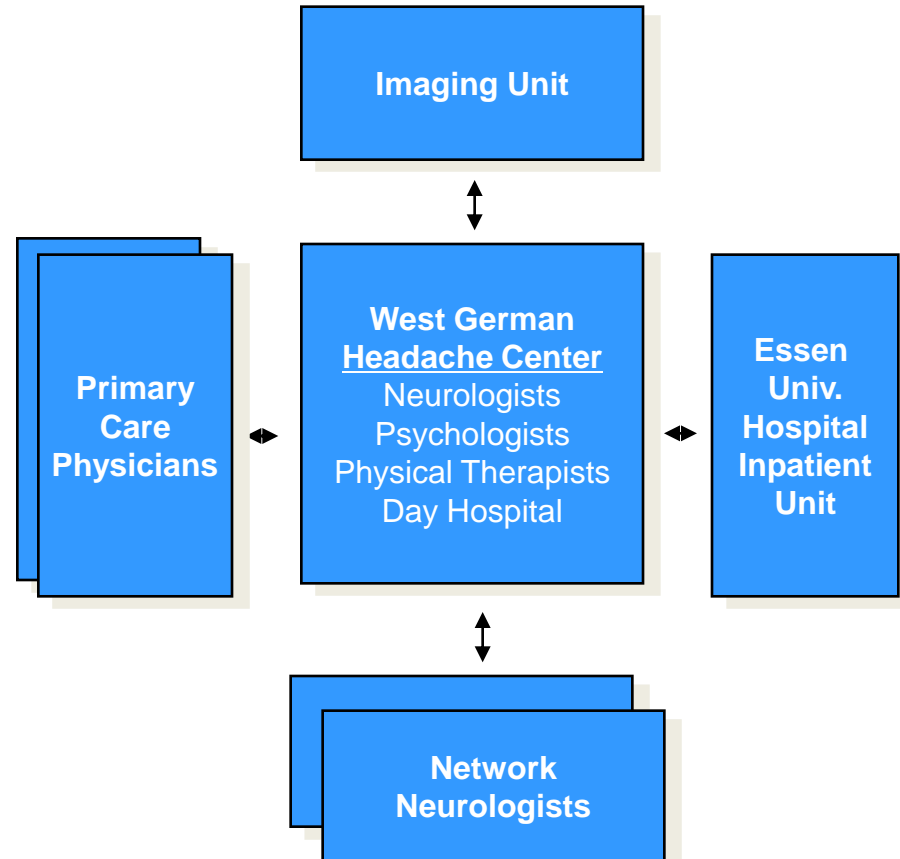
### Existing Model:

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

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

Breast Cancer Specialist  
 Other Provider Entities

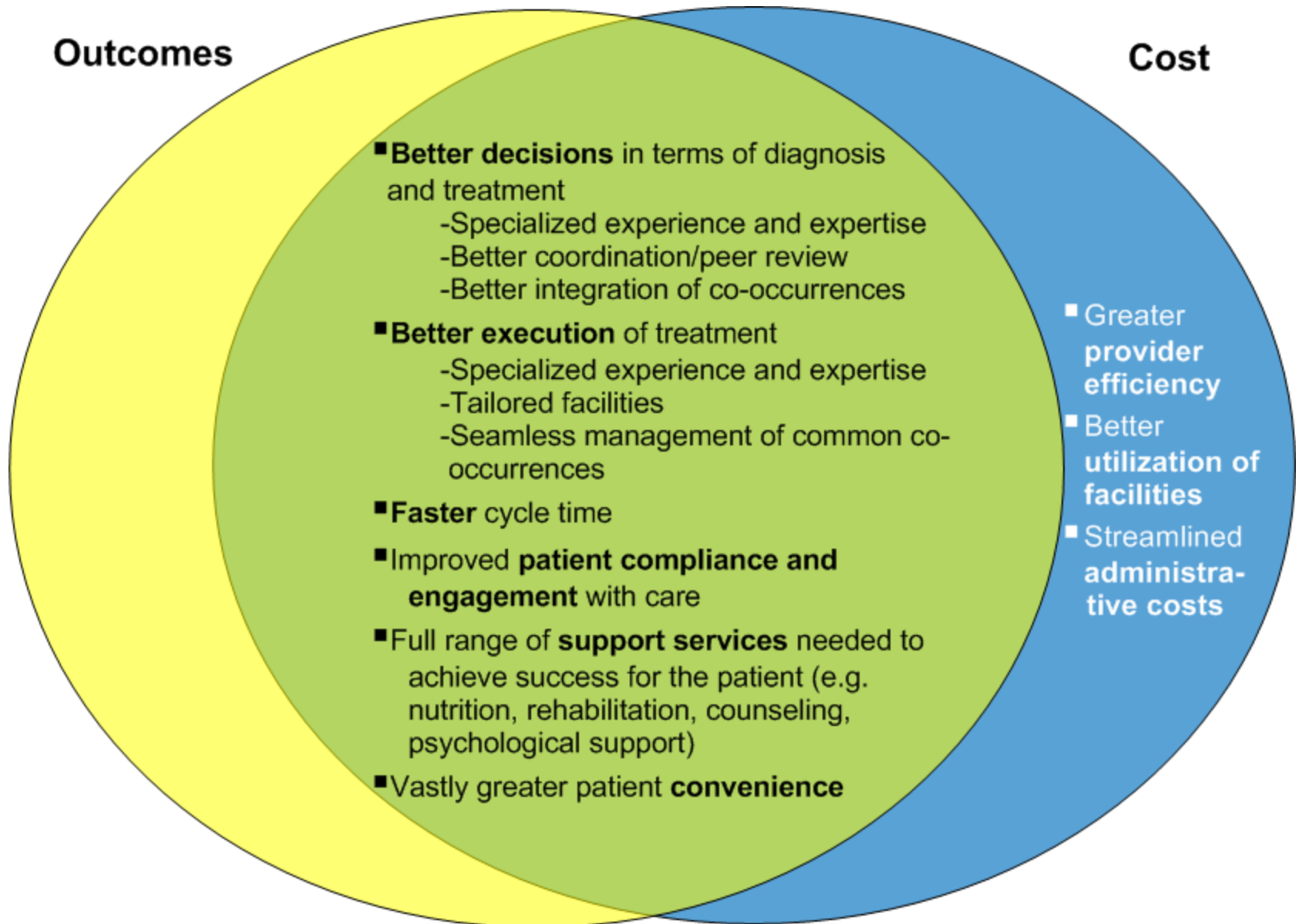
# Integrating Across the Cycle of Care

## Breast Cancer

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 of treatment Achieving compliance	Counseling on rehabilitation options, process Achieving compliance Psychological counseling	Counseling on long term risk management Achieving Compliance
MEASURING	Self exams Mammograms	<ul style="list-style-type: none"> <li>▪ Mammograms</li> <li>▪ Ultrasound</li> <li>▪ MRI</li> <li>▪ Labs (CBC, etc.)</li> </ul>	Labs	Procedure-specific measurements	Range of movement Side effects measurement	MRI, CT Recurring mammograms (every six months for the first 3 years)
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	<b>MONITORING/ PREVENTING</b>	<b>DIAGNOSING</b>	<b>PREPARING</b>	<b>INTERVENING</b>	<b>RECOVERING/ REHABING</b>	<b>MONITORING/MANAGING</b>
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			Plastic or onco-plastic surgery evaluation Neo-adjuvant chemotherapy	Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)	Physical therapy	Follow-up clinical exams Treatment for any continued or later onset side effects or complications

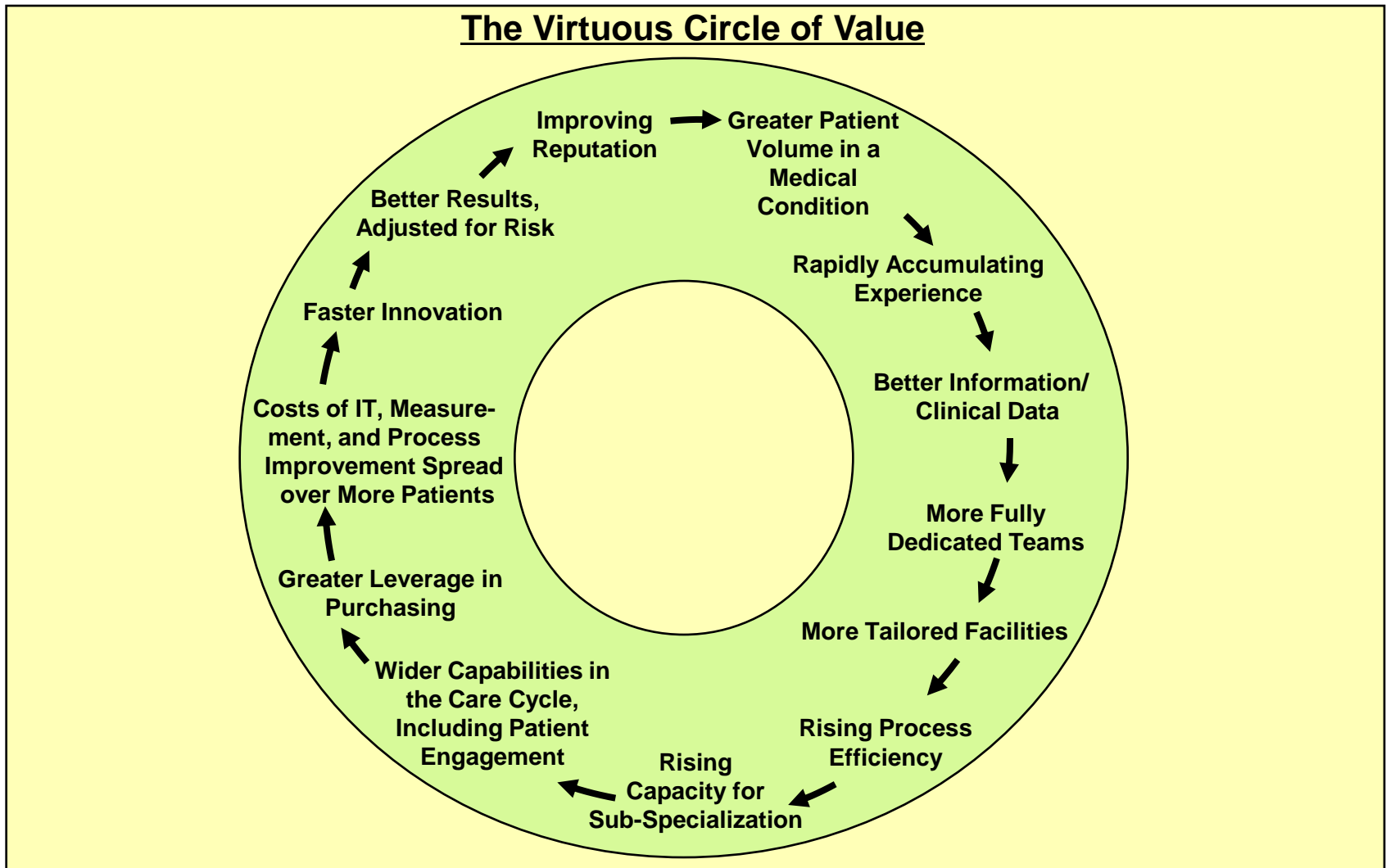
Breast Cancer Specialist  
 Other Provider Entities

# IPUs and Value





# Volume and Experience in a Medical Condition Drive Patient Value



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

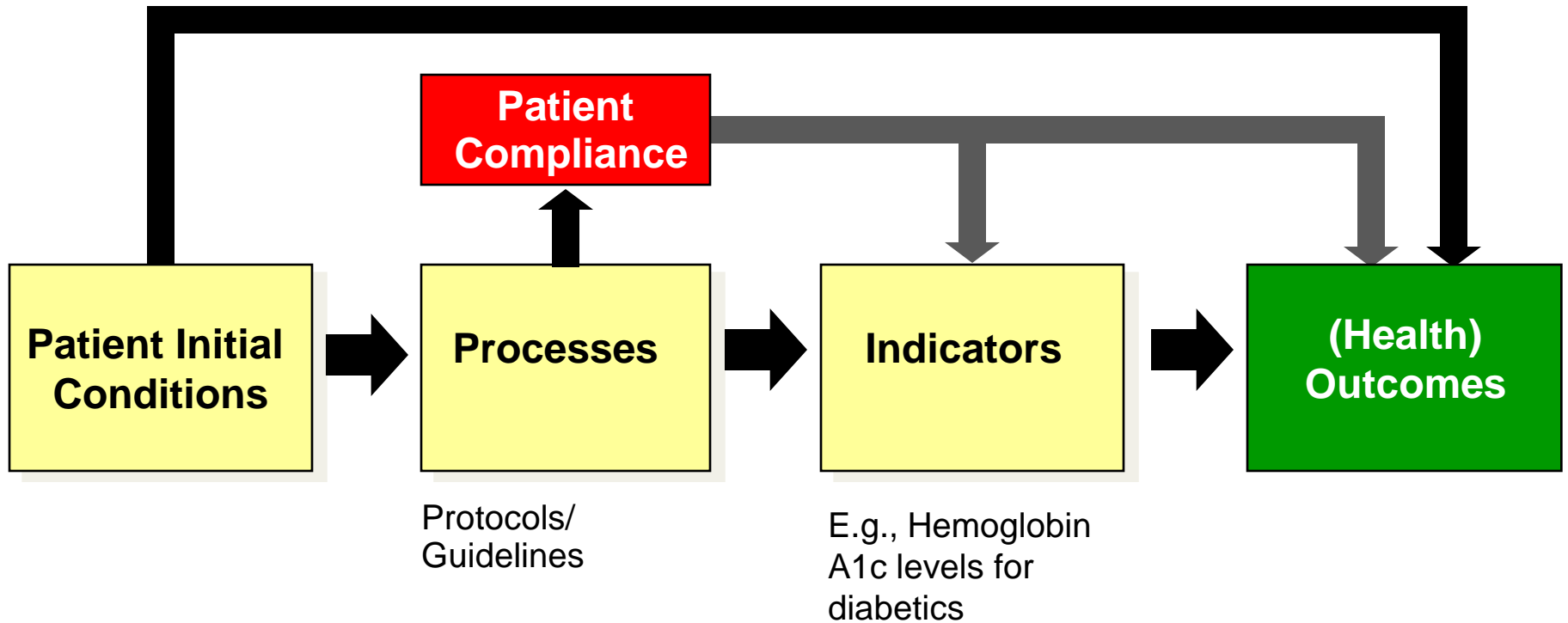
# Fragmentation of Hospital Services

## Sweden

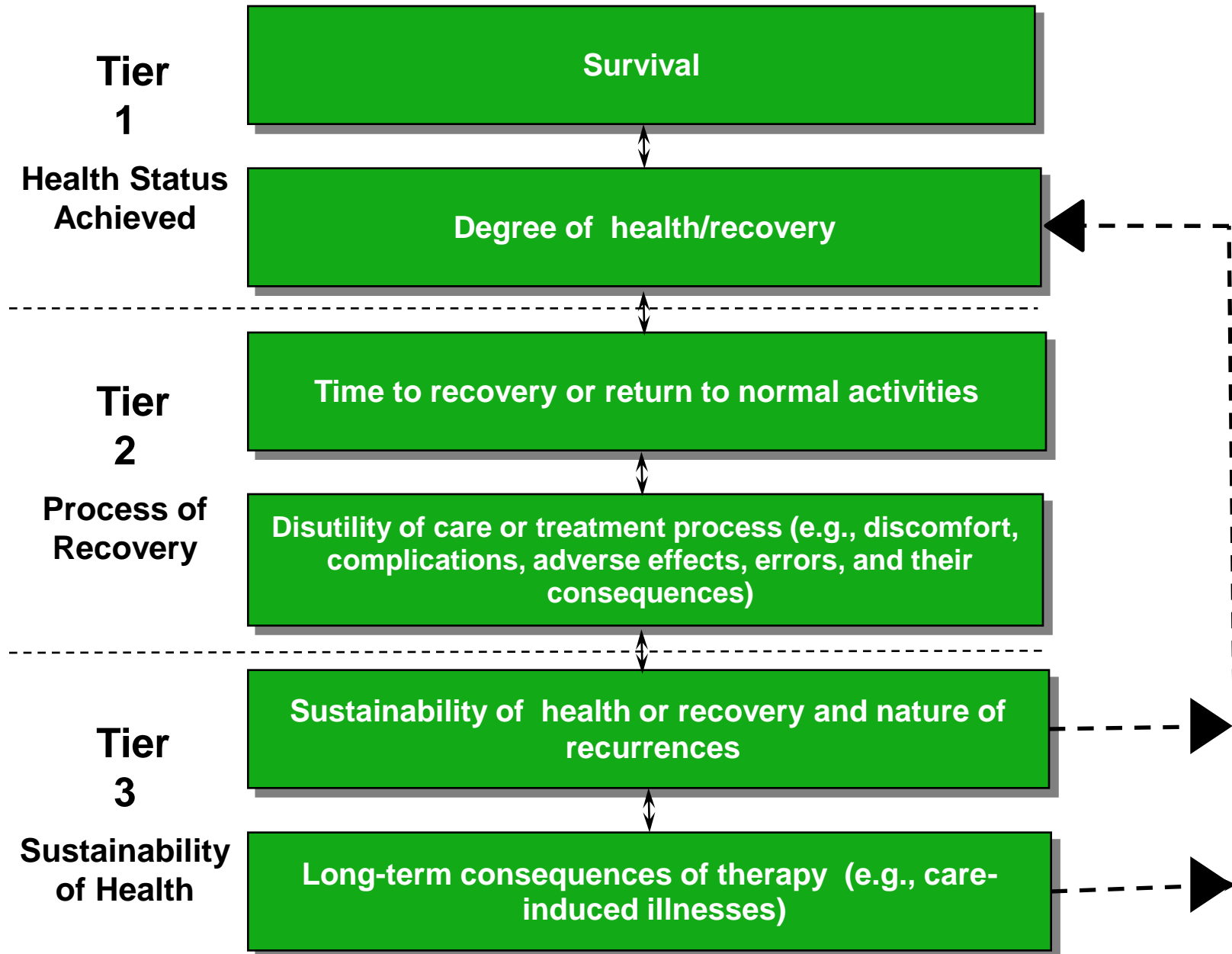
<b>DRG</b>	<b>Number of admitting providers</b>	<b>Average percent of total national admissions</b>	<b>Average admissions/ provider/ year</b>	<b>Average admissions/ provider/ week</b>
Knee Procedure	68	1.5%	55	1
Diabetes age > 35	80	1.3%	96	2
Kidney failure	80	1.3%	97	2
Multiple sclerosis and cerebellar 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 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

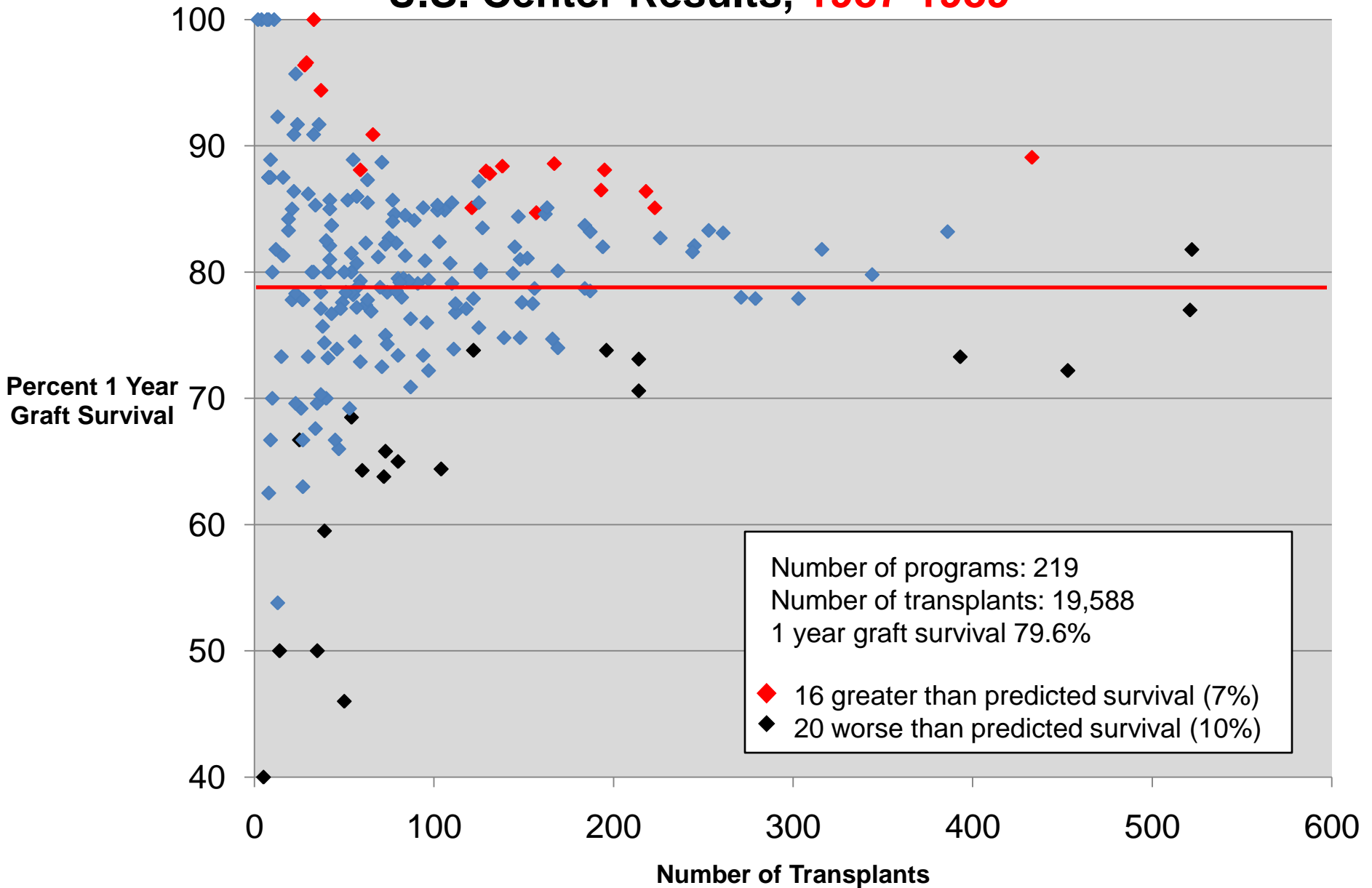
**Long-term consequences of therapy (e.g., care-induced illnesses)**

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

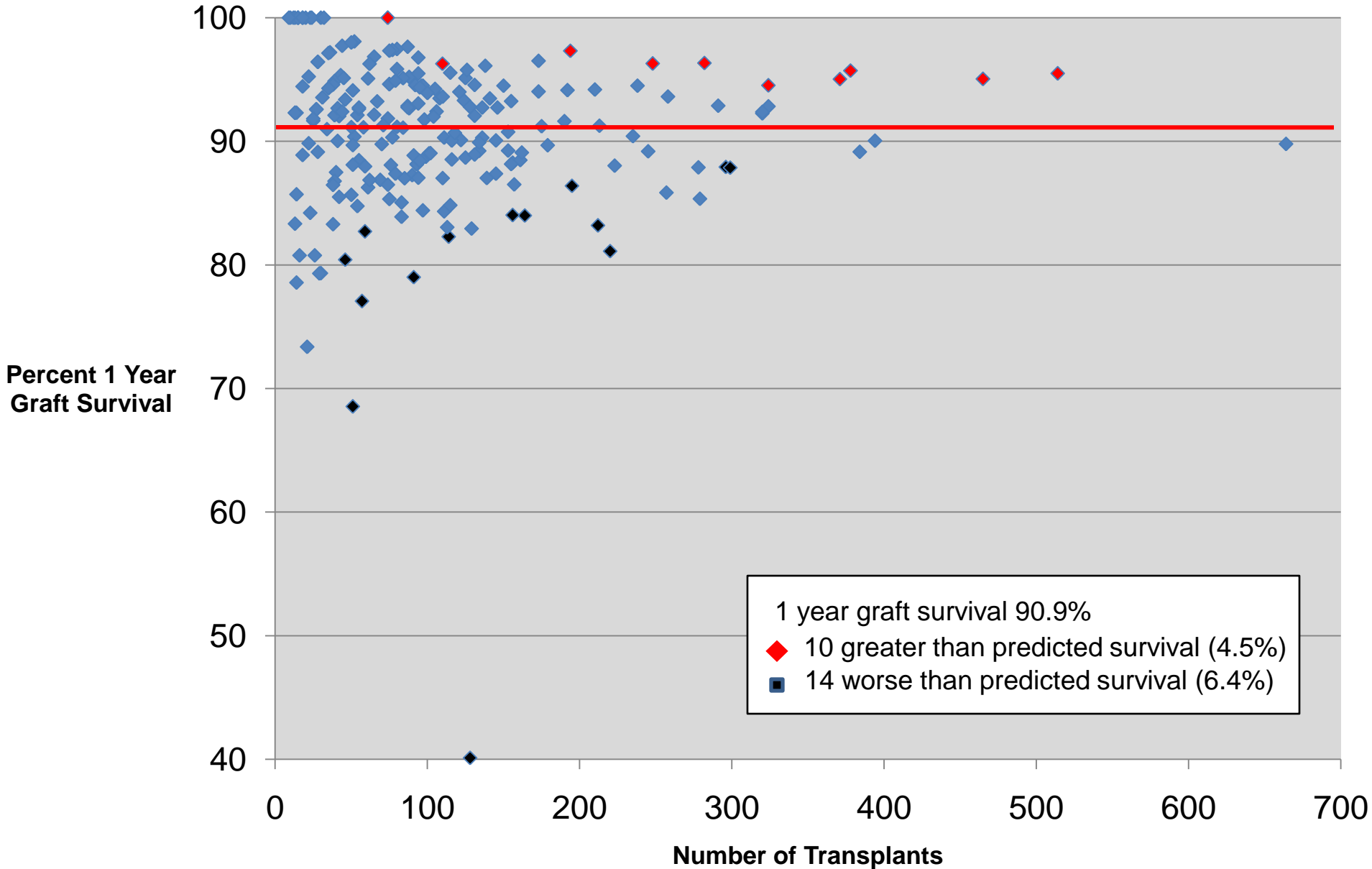
### Initial Conditions/Risk Factors

- Stage of disease
- 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







# Cost Measurement

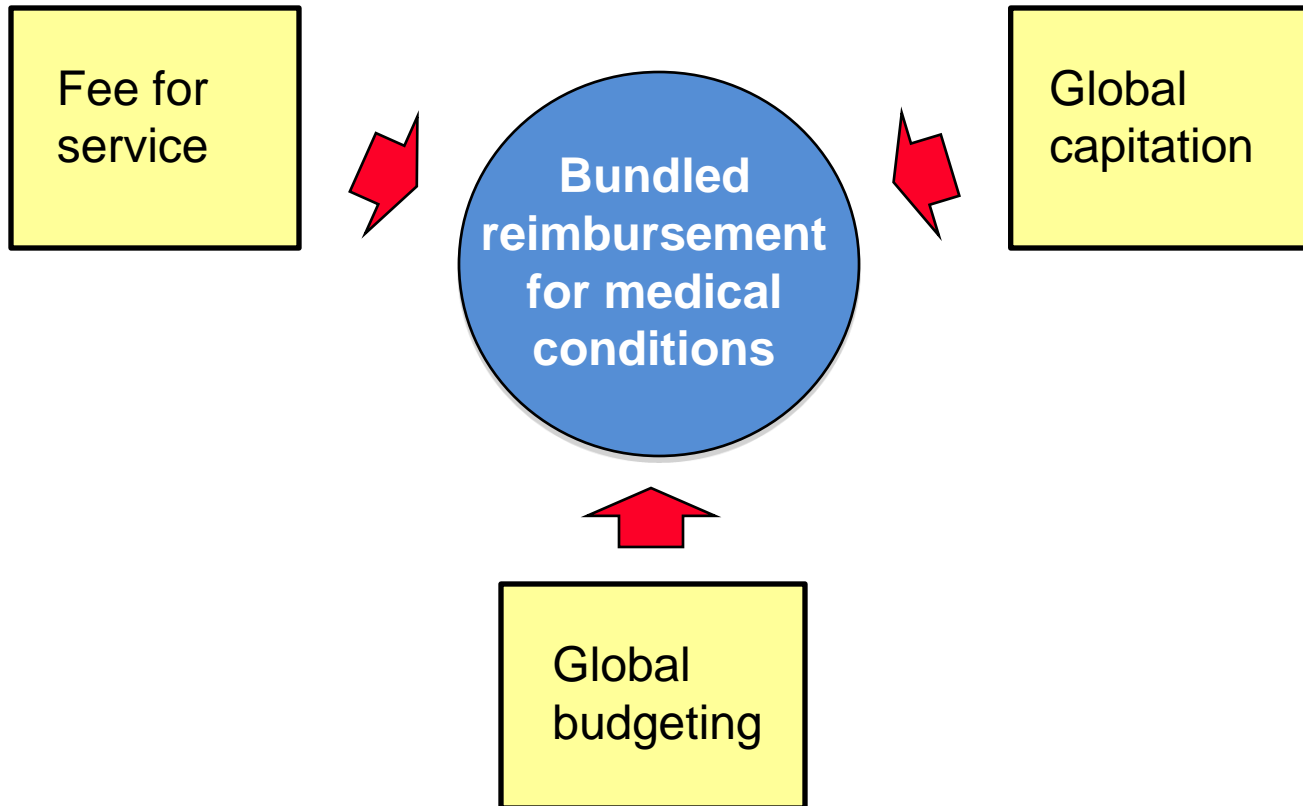
## Aspiration

- Cost should be measured **for each patient**, aggregated across the **full cycle of care**
- Cost should be measured for **each medical condition** (which includes common co-occurring conditions), not for all services
- 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

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



# What is Bundled Payment?

- **Total package price** for the care cycle for a medical condition
  - Includes responsibility for **avoidable complications**
  - Medical condition capitation
- The bundled price should be **severity adjusted**

## What is Not Bundled Payment

- Prices for **short** episodes (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 models

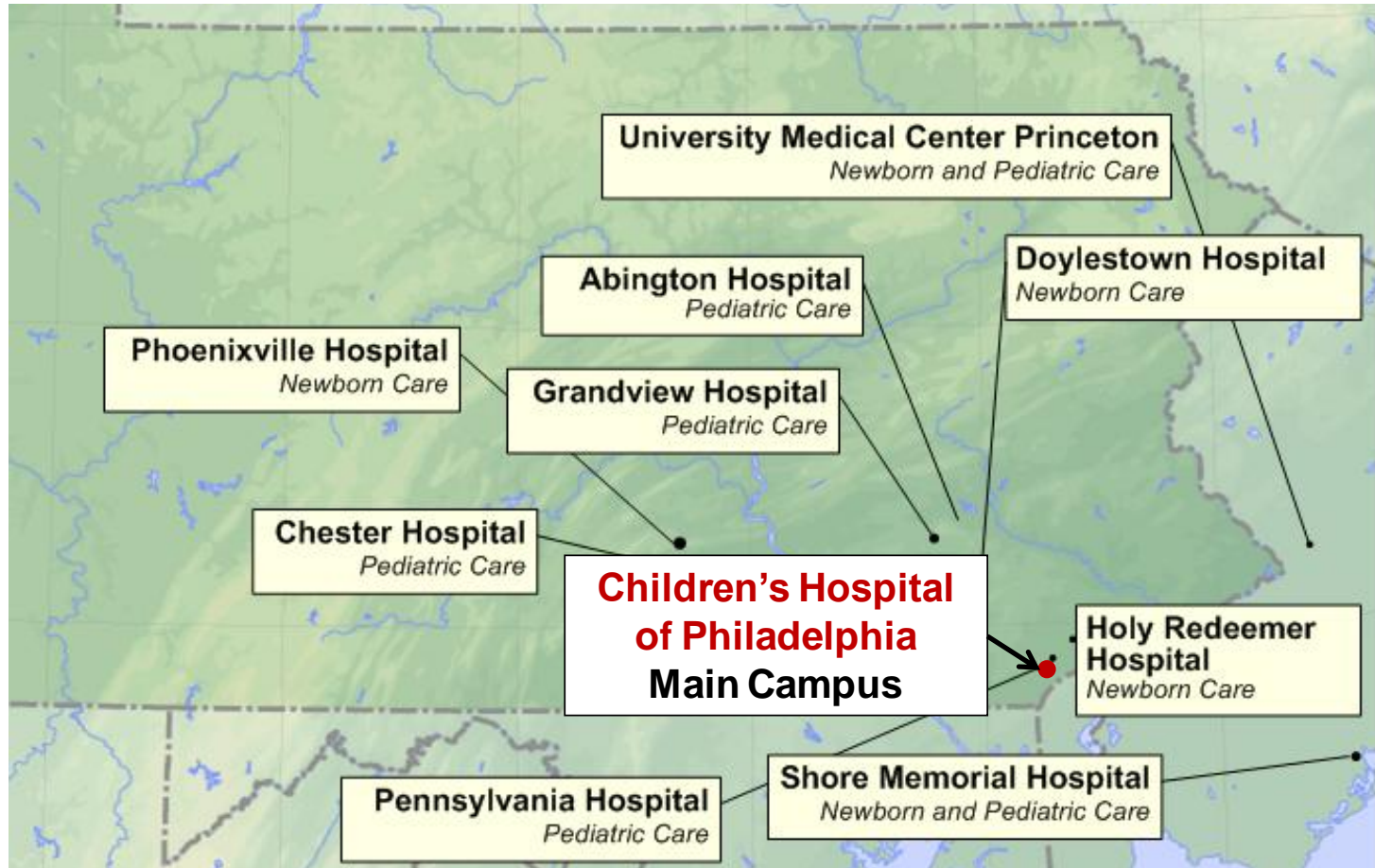
# **Bundled Payment in Practice**

## **Hip and Knee Replacement in Sweden**

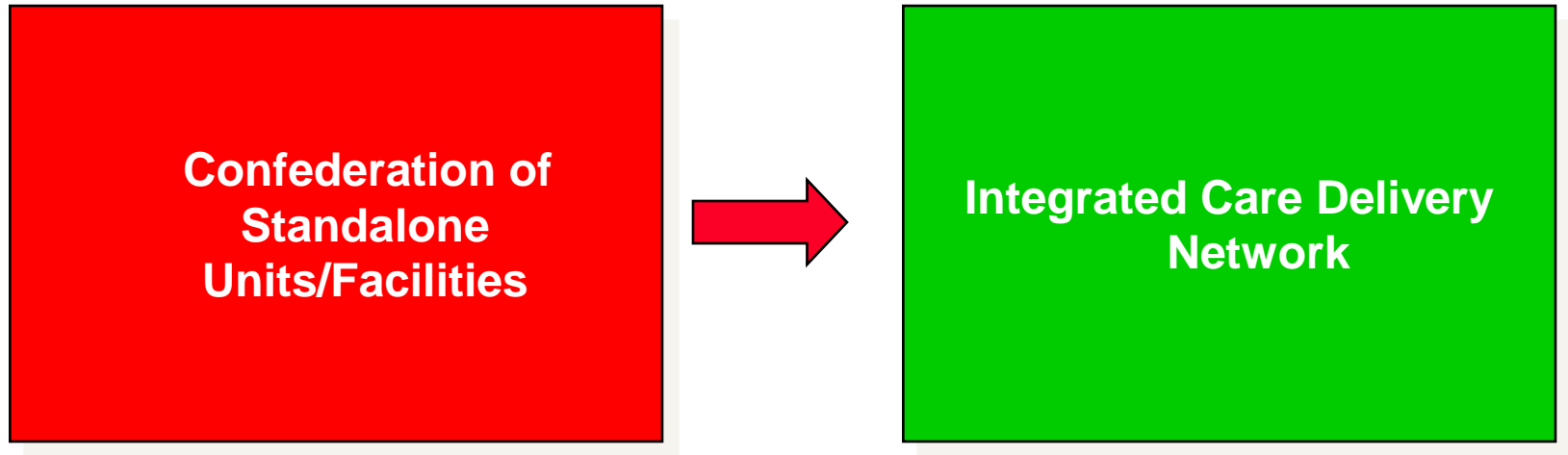
- In 2009, Stockholm County Council began to offer a **bundled price for joint replacement** (hip and knee), that includes:
  - Pre-op evaluation
  - Lab tests
  - Radiology
  - Surgery & related admission
  - Prosthesis
  - Drugs
  - Inpatient rehab, up to 6 days
  - 1 follow-up visit within 3 months
  - Any additional surgery to the joint within 2 years
  - If post-op infection requiring antibiotics occurs, guarantee extends to 5 years
- Eligibility is restricted to **relatively healthy patients** (i.e. ASA scores of 1 or 2)
- **Same referral** process as the traditional system
- **Mandatory** reporting to joint registry plus supplementary
- 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

## Children's Hospital of Philadelphia (CHOP) Hospital Affiliates



# Imperative of System Integration



- Increase **volume**
- Benefits limited to **contracting** and **spreading fixed cost**

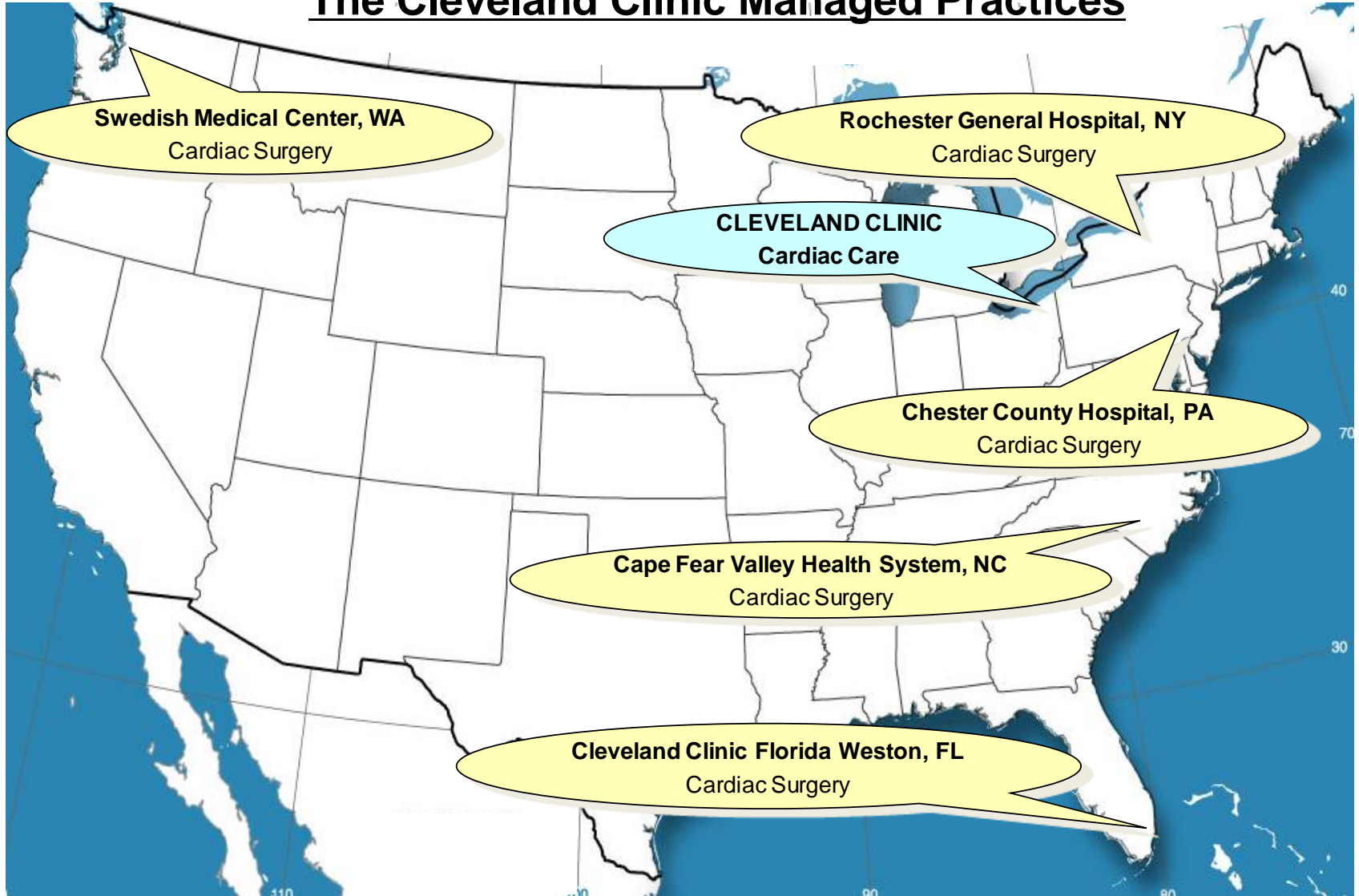
- Increase **value**
- The network is **more than** the sum of its parts

# 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** care across facilities
  - **Consistent protocols** and access to experts throughout the network (IT enabled)
  - Connect **ancillary service units** to IPUs
    - E.g. home care, rehabilitation, behavioral health, social work, addiction treatment (organize within service units to align with IPUs)
  - Better connect **preventive/primary care** units and specialty IPUs

# 5. Grow by Expanding Excellent IPU's Across Geography

## The Cleveland Clinic Managed Practices



- Grow in ways that improve **value**, not just volume



# Models of Geographic Expansion

**Affiliation  
Agreements  
with  
Independent  
Provider  
Organizations**

**Second  
Opinions and  
Telemedicine**

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**Dispersed  
Diagnostic  
Centers**

**Convenience  
Sensitive  
Service  
Locations in the  
Community**

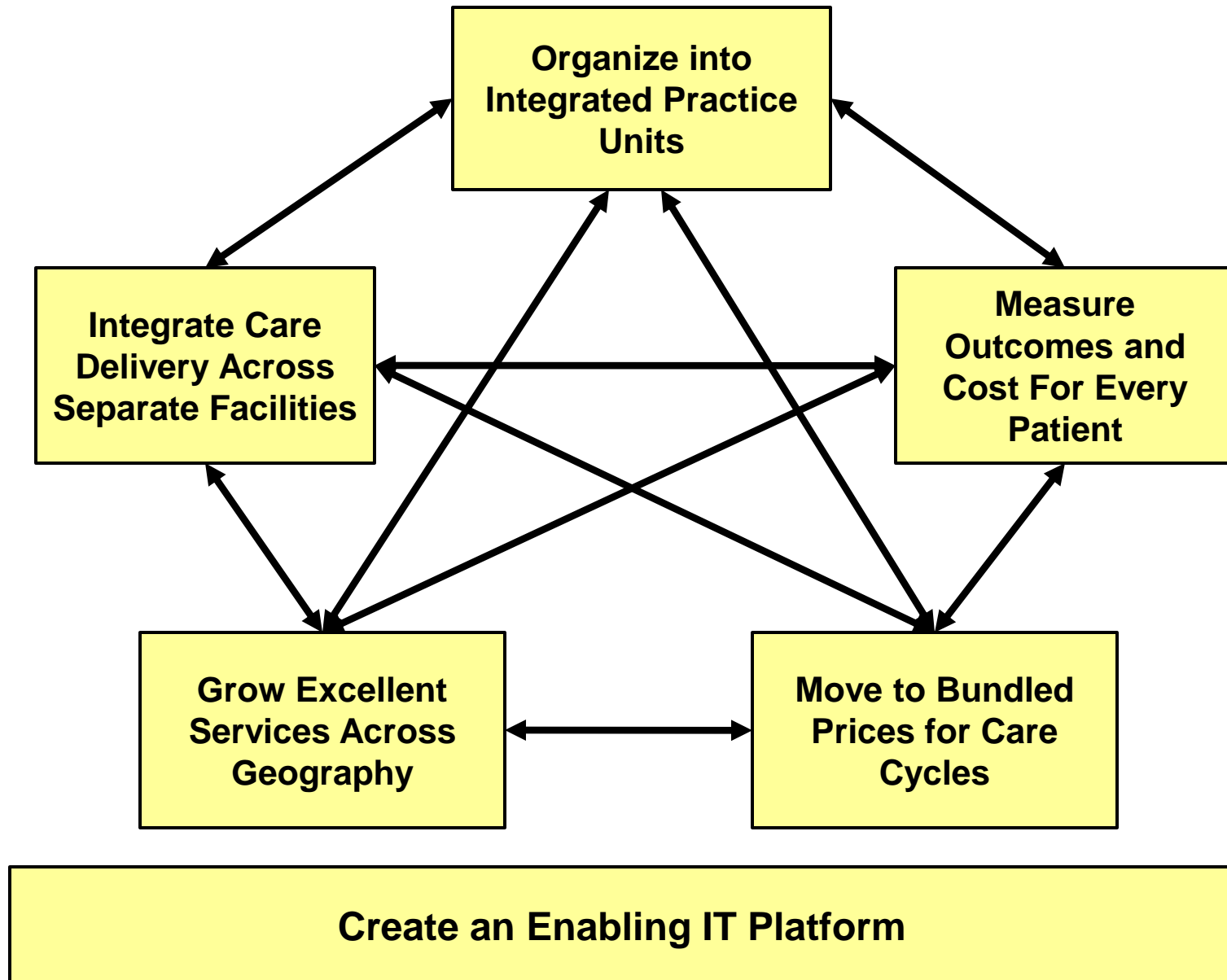
**Complex IPU  
Components  
(e.g. surgery)  
in Additional  
Locations**

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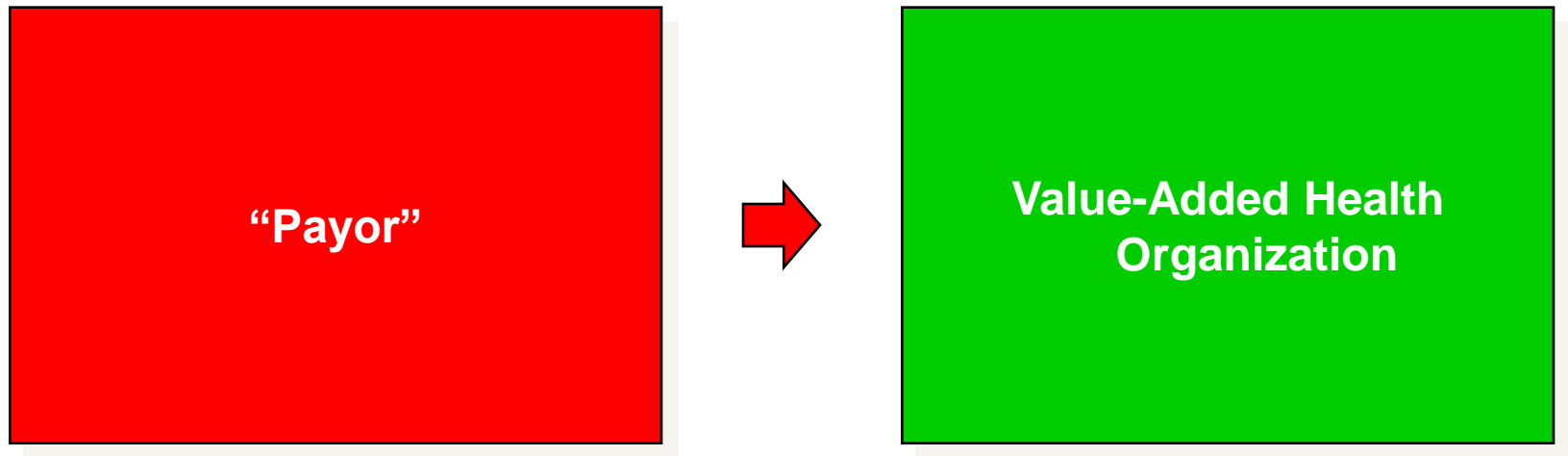
**Specialty  
Hospitals as  
Hubs in  
Additional  
Locations**

**New Broader-  
Line Hospital  
Hubs**


# A Mutually Reinforcing Strategic Agenda



# **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 player
    - 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 should establish **direct relationships with employers** to enable value based approaches

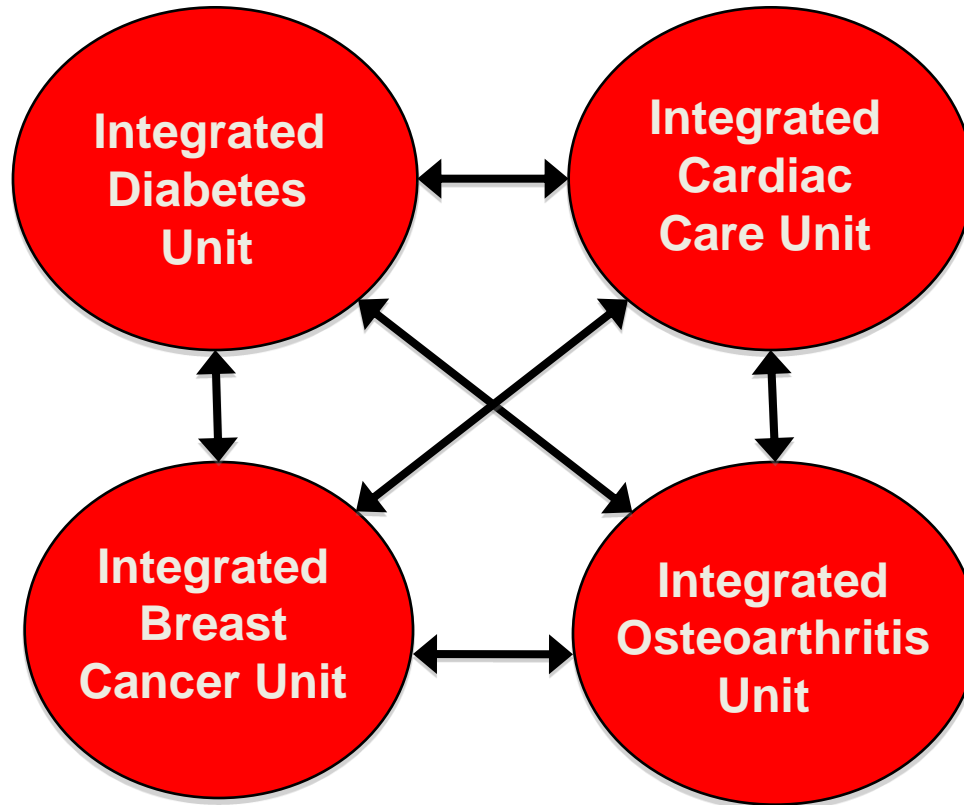
# Value-Based Health Care Delivery: Implications for Government

- Remove obstacles to the **restructuring of health care delivery** around the integrated care of medical conditions
- Establish **universal measurement** and **reporting** of provider **health outcomes**
- Require universal reporting by health plans of **health outcomes for members**
- 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
- Encourage greater **responsibility of individuals** for their health and their health care



# Coordinating Care Across IPUs

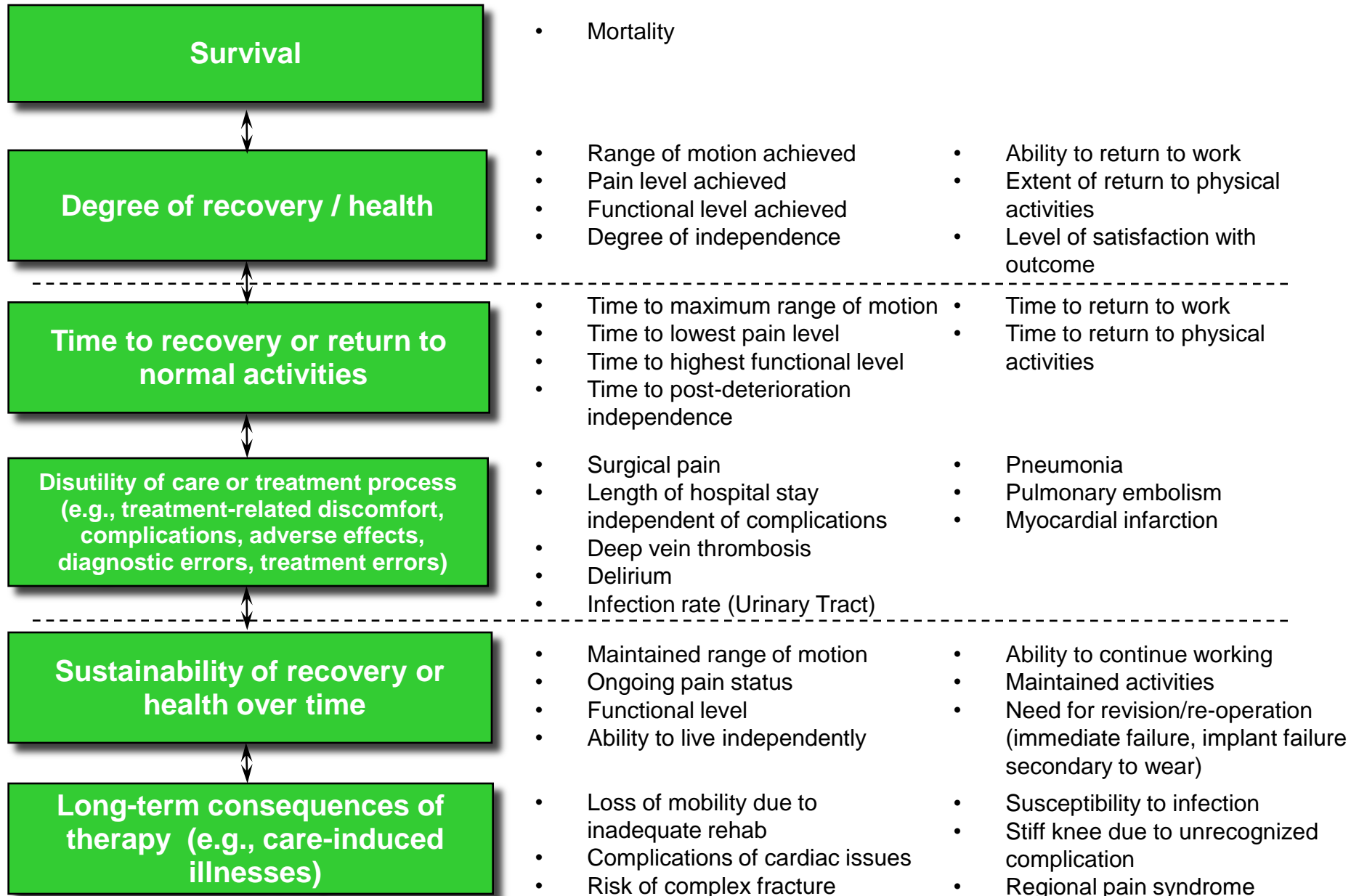
## Patients with Multiple Medical Conditions



- The primary organizational structure for care delivery should be around the forms of integration required for **every patient**, or IPUs
    - The current system is organized around the **exception**, not the rule
  - **Overlay mechanisms** should manage **coordination across IPUs**
- ↓
- The IPU model will **greatly simplify** coordination of care for patients with multiple medical conditions

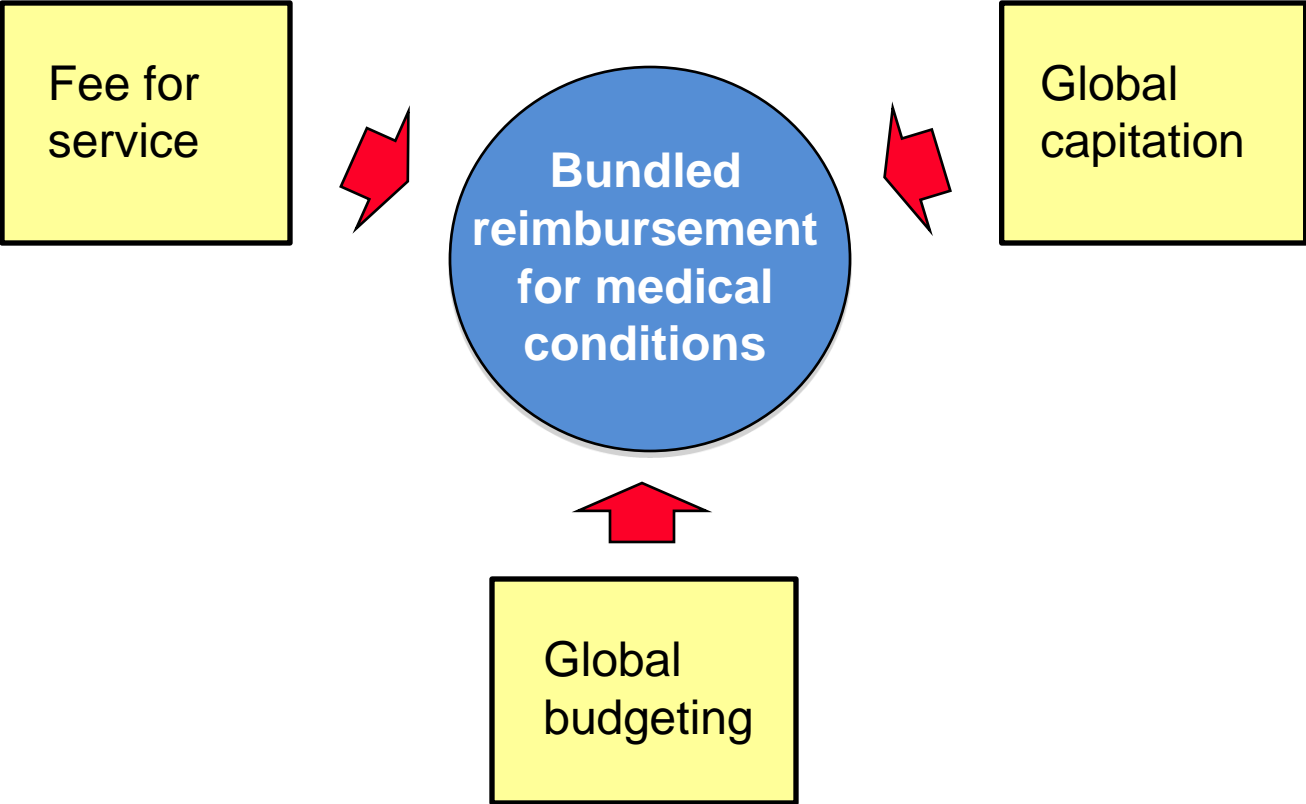
# The Outcomes Measures Hierarchy

## Acute Knee-Osteoarthritis Requiring Replacement





# Move to Bundled Prices for Care Cycles



# Enabling System Integration

## Practice Structure

- **IPU structure**
  - First step is to increase **consistency** of protocols/processes across sites
  - **“Virtual” IPU**s even if providers practice at different locations
  - **Case management structure** spanning units where appropriate

## Physician Organization

- **Employed** physicians
- Formal **affiliations** with independent physicians
  - Support service is an inducement for affiliation (E.g. IT, back office)
- **Rotation** of staff across locations

## Common Systems

- **Common EMR platform** which aggregates information across units
- Common **outcome and process measurement** systems

## Scheduling

- Common or federated **patient scheduling service** across units

## Cost Measurement

- Ability to accurately accumulate **cost per patient** across the entire care cycle
- Ability to measure **cost by location**

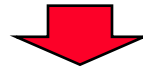
## Culture

- Management practices that foster **affiliation with the organization**, developing **personal relationships**, and **regular contact** among dispersed staff

# 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 delivery 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

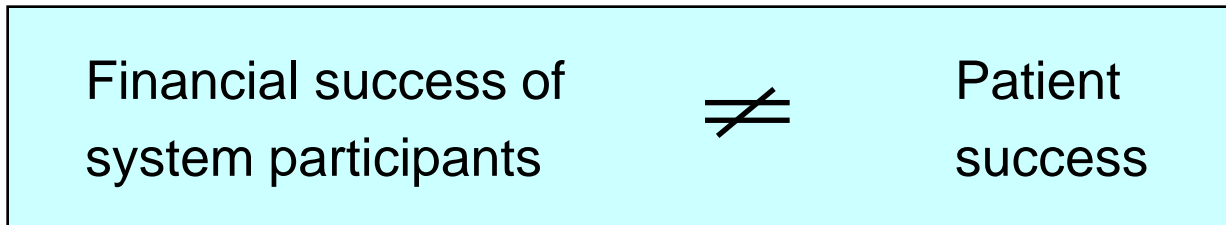
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

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

- Process improvements, care pathways, lean production, safety initiatives, 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

# Principles of Value-Based Health Care Delivery

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