

# Value-Based Health Care Delivery

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*MD Anderson Cancer Center*  
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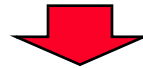
This presentation draws on Michael E. Porter and Elizabeth Olmsted Teisberg: *Redefining Health Care: Creating Value-Based Competition on Results*, Harvard Business School Press, May 2006, and “How Physicians Can Change the Future of Health Care,” *Journal of the American Medical Association*, 2007; 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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# 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

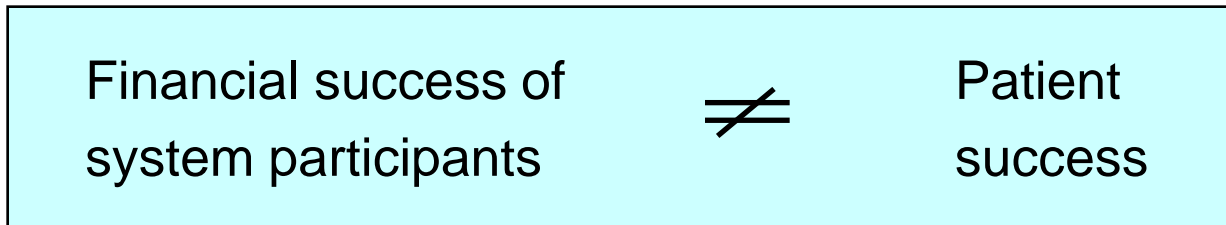
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

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

# Harnessing 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

The central goal in health care must be **value for patients**, not access, equity, 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

# Principles of Value-Based Health Care Delivery

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

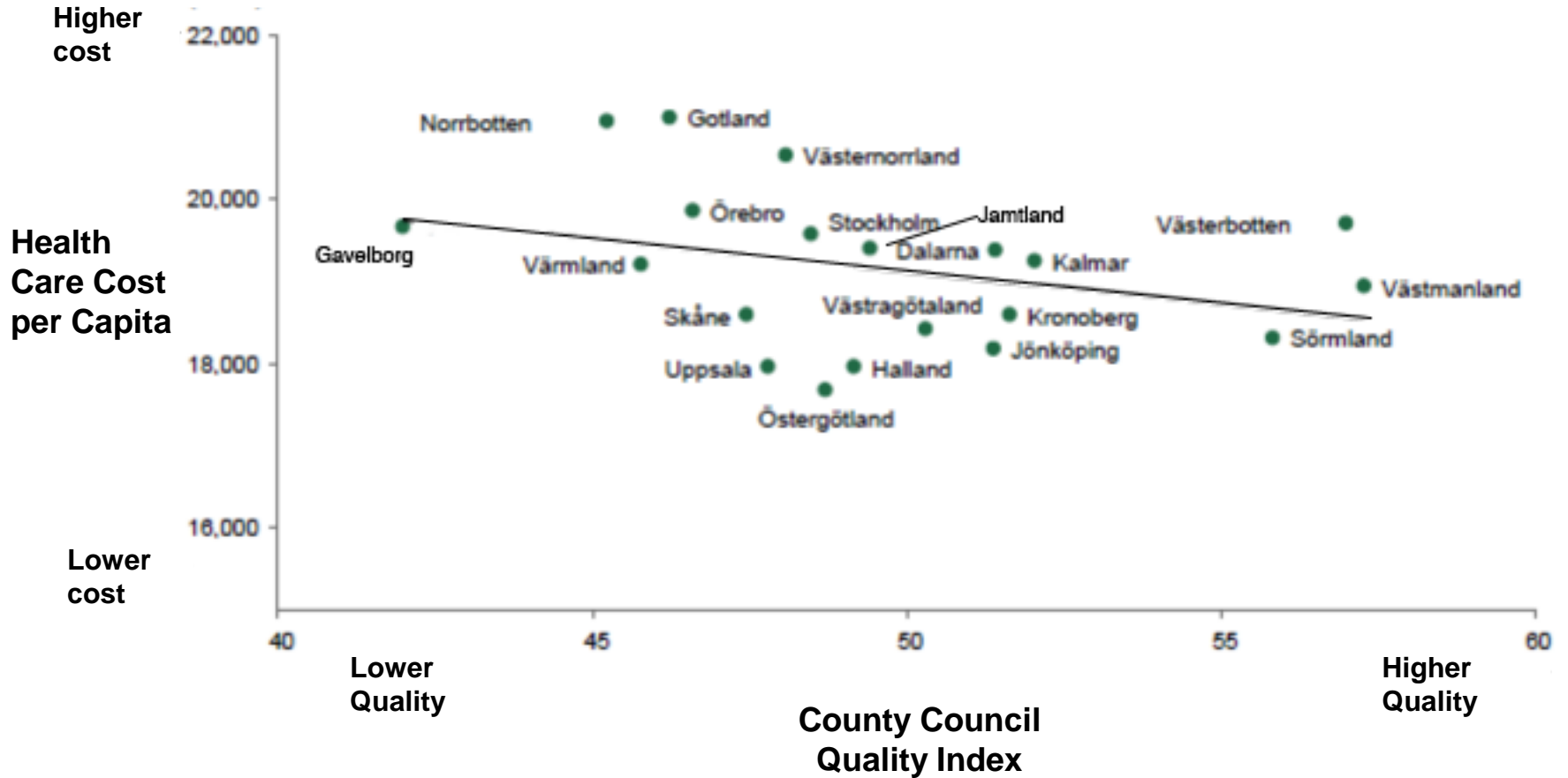
- Prevention
- Early detection
- Right diagnosis
- Right treatment to the right patient
- Early and timely treatment
- Treatment earlier in the causal chain of disease
- Rapid cycle time of diagnosis and treatment
- Less invasive treatment methods
- Fewer complications
- Fewer mistakes and repeats in 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

# 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. **Grow by Expanding Excellent IPUs Across Geography**
6. **Create an Enabling Information Technology Platform**

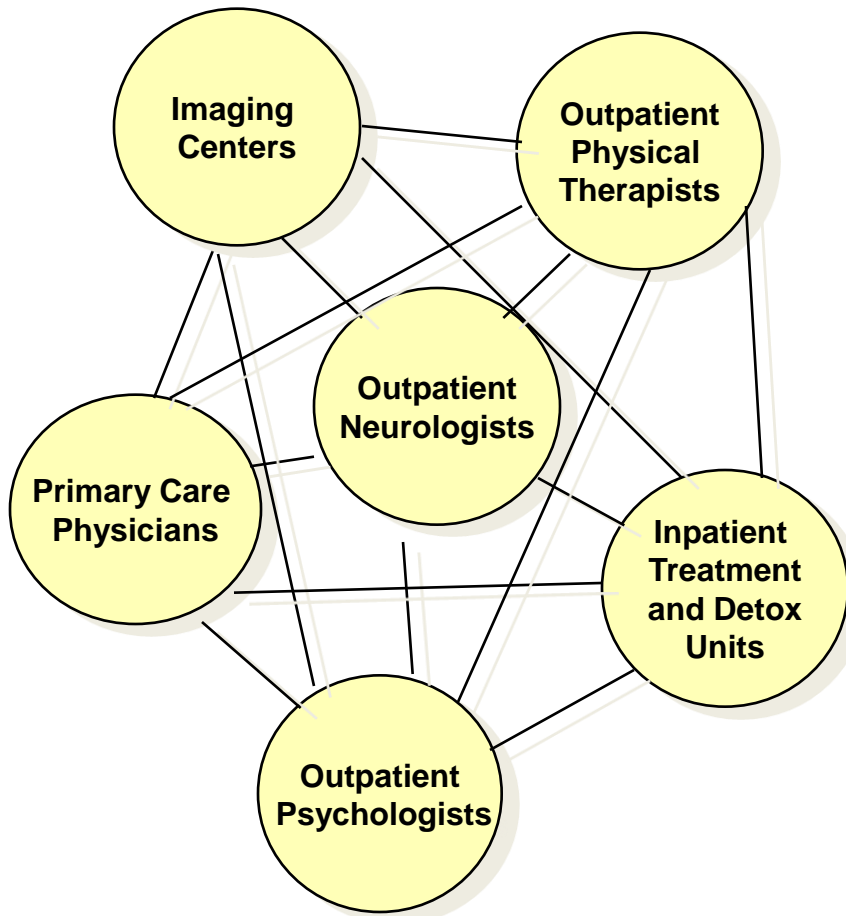


# 1. Organize into Integrated Practice Units

## Migraine Care in Germany

### Existing Model:

Organize by Specialty and Discrete Services

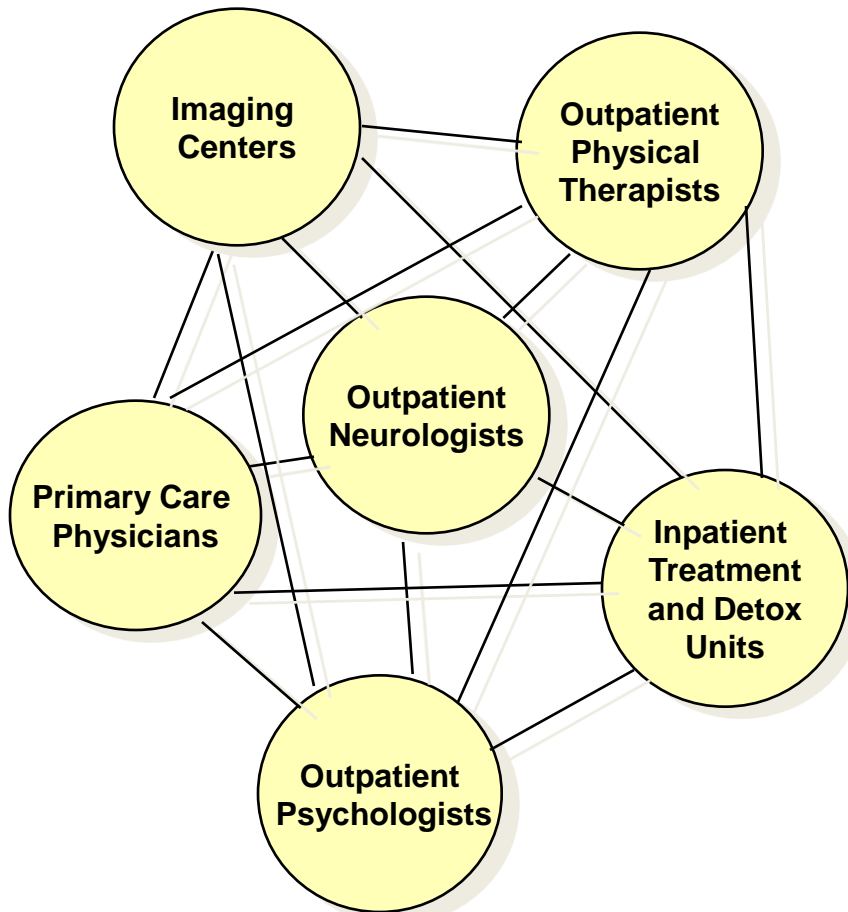


# 1. Organize into Integrated Practice Units

## Migraine Care in Germany

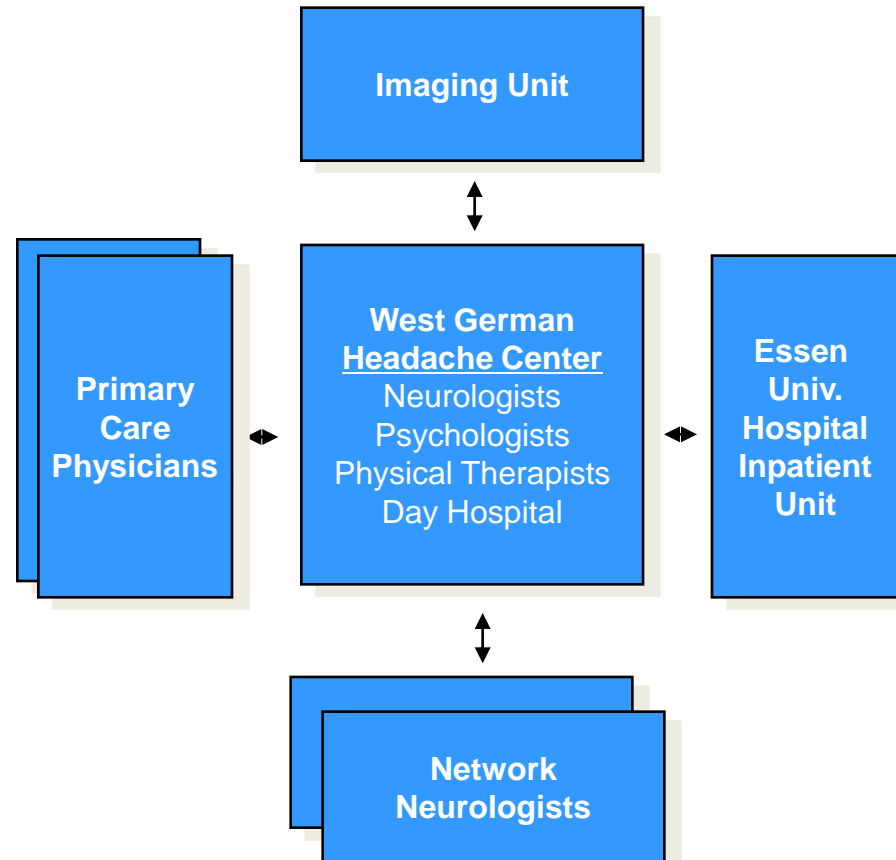
### Existing Model:

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>
		<ul style="list-style-type: none"> <li>Lab visits</li> </ul>	<ul style="list-style-type: none"> <li>Hospital visits</li> <li>Lab visits</li> </ul>	<ul style="list-style-type: none"> <li>Visits to outpatient radiation or chemotherapy units</li> <li>Pharmacy</li> </ul>	<ul style="list-style-type: none"> <li>Rehabilitation facility visits</li> <li>Pharmacy</li> </ul>	<ul style="list-style-type: none"> <li>Lab visits</li> <li>Mammographic labs and imaging center visits</li> </ul>
		<ul style="list-style-type: none"> <li>High risk clinic visits</li> </ul>				
<b>MONITORING/PREVENTING      DIAGNOSING      PREPARING      INTERVENING      RECOVERING/REHABING      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

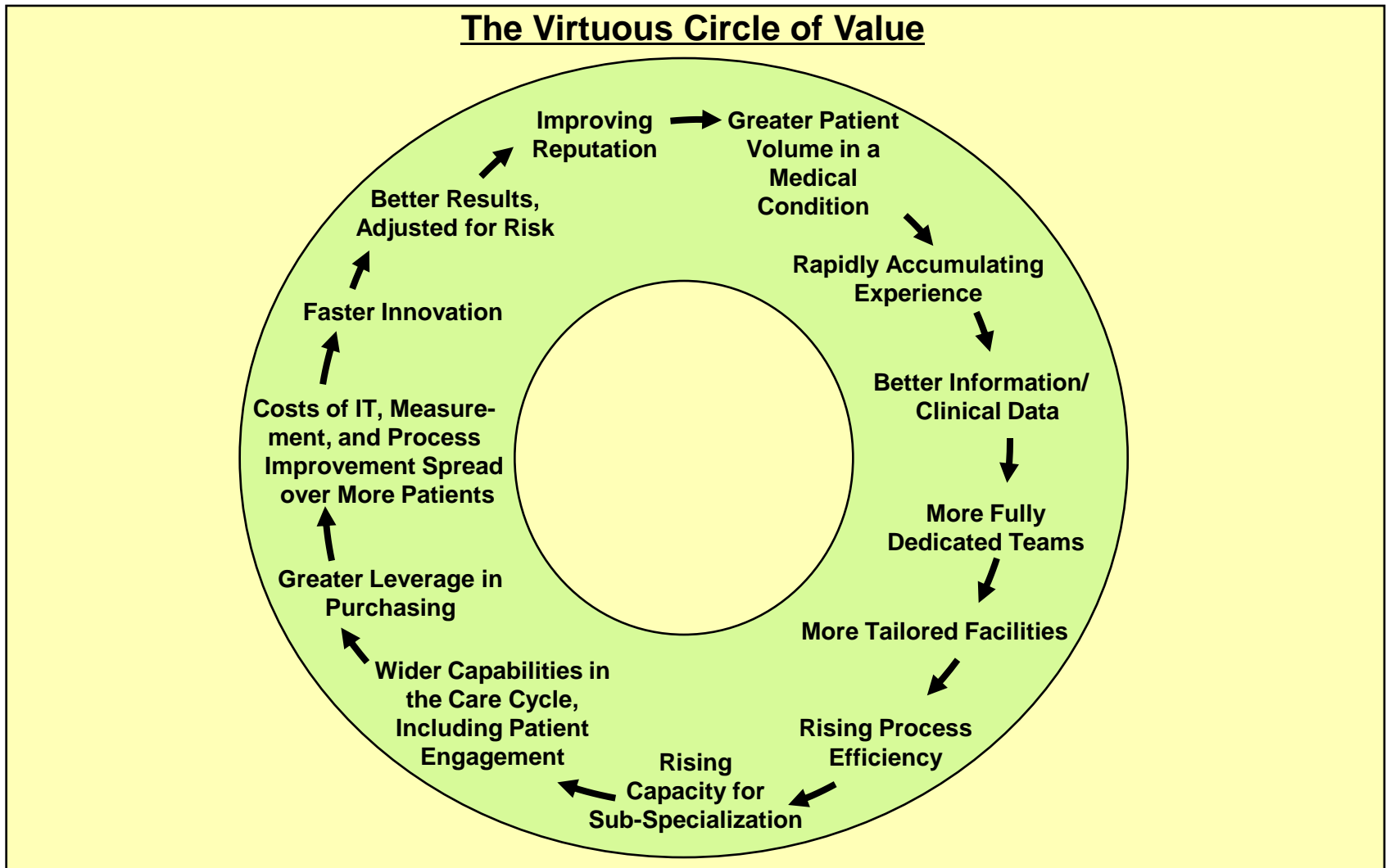
# Integrating Across the Cycle of Care

## 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, Blood chems, 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)
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

# Volume and Experience in a Medical Condition Drives Patient Value



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

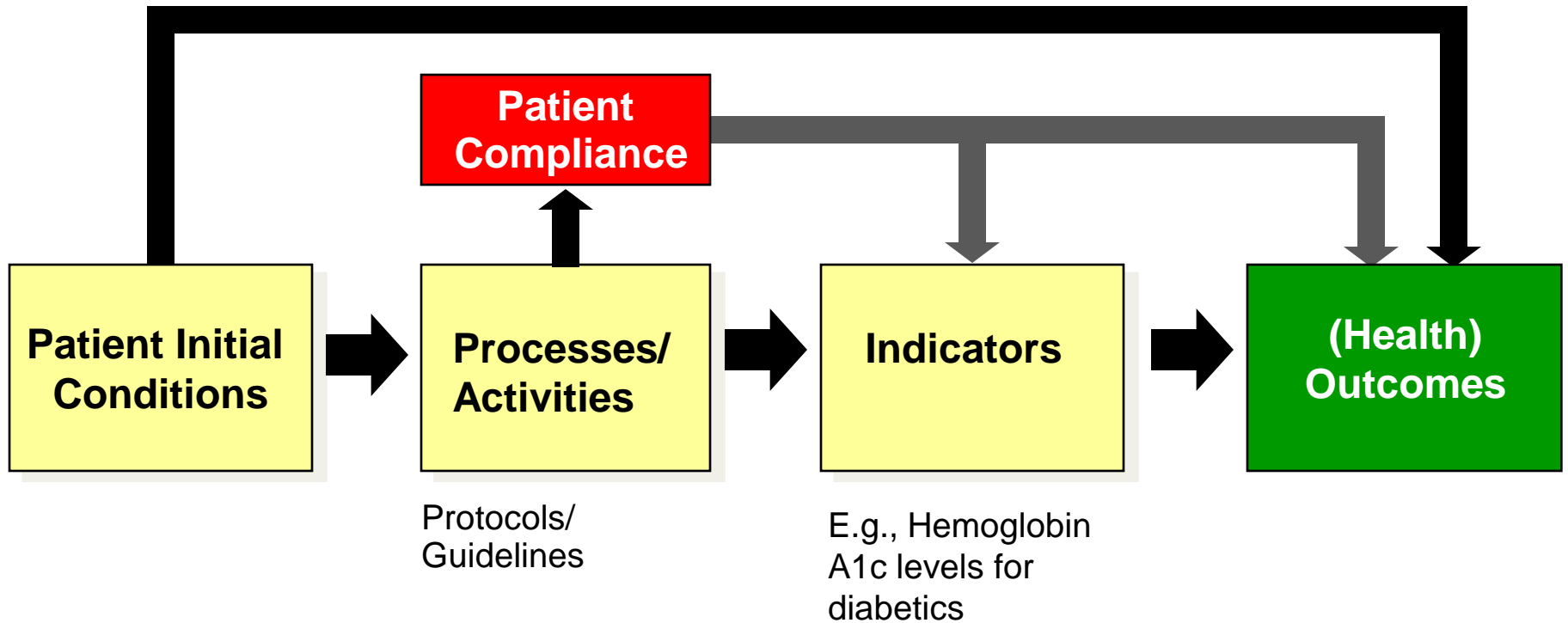
# Fragmentation of Hospital Services

## Sweden

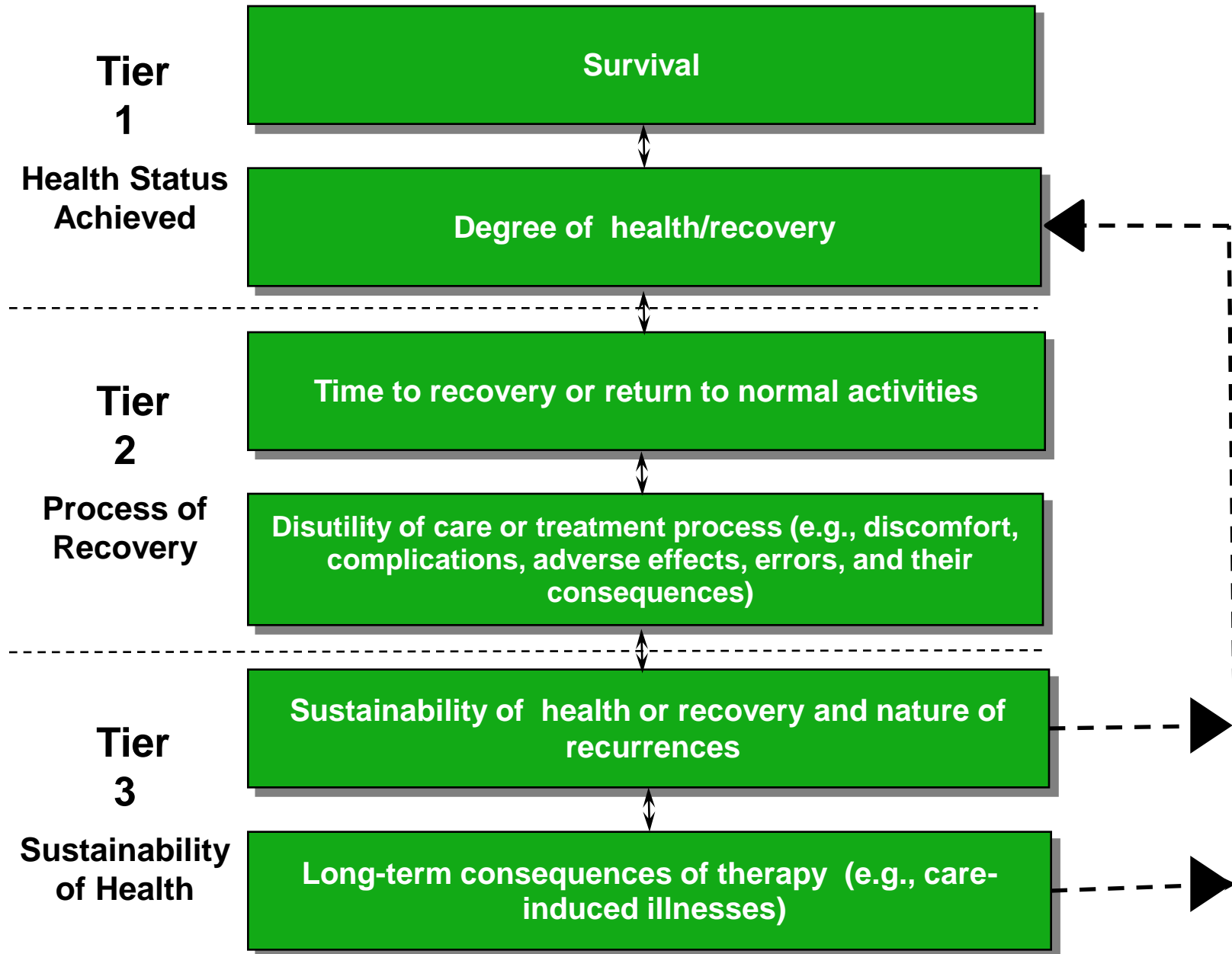
<b>DRG</b>	<b>Number of admitting providers</b>	<b>Average percent of total national admissions</b>	<b>Average admissions/ provider/ year</b>	<b>Average admissions/ provider/ week</b>
Knee Procedure	68	1.5%	55	1
Diabetes age > 35	80	1.3%	96	2
Kidney failure	80	1.3%	97	2
Multiple sclerosis and cerebellar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

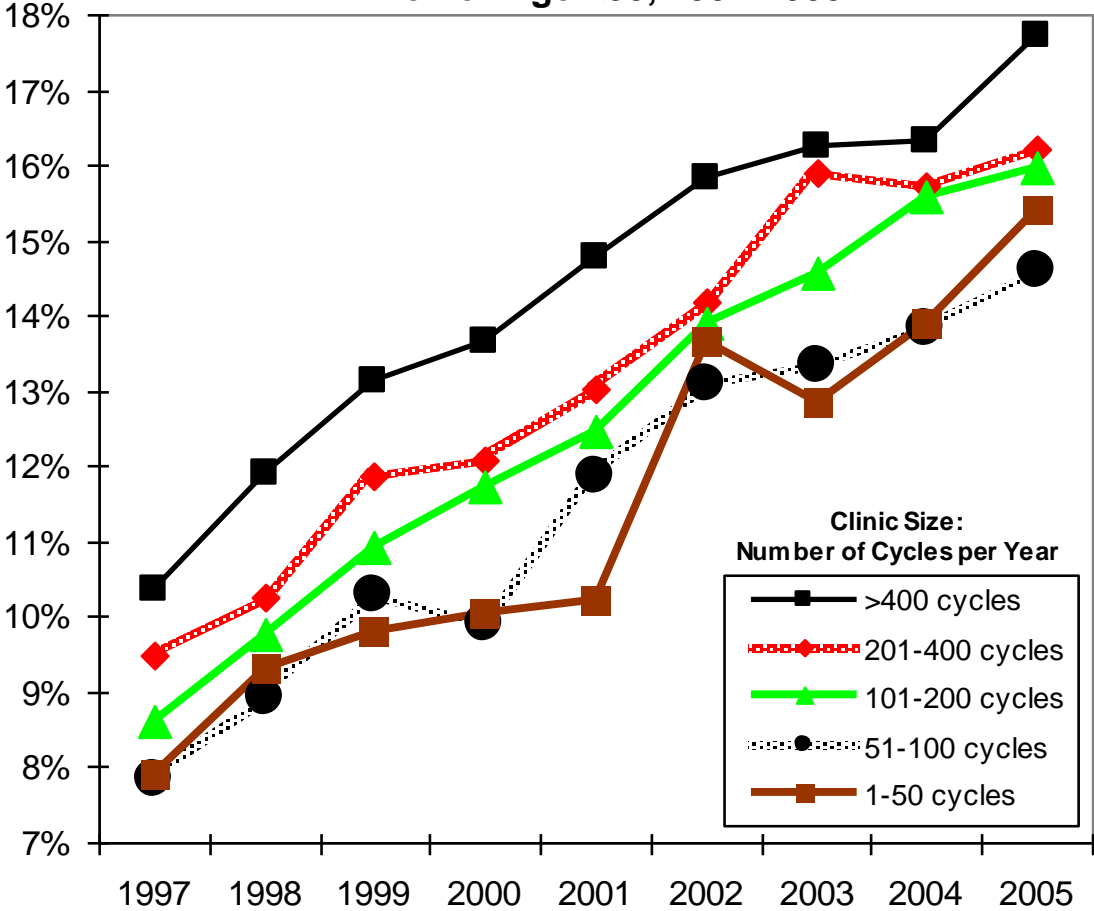
- Incidence of secondary cancers
- Brachial plexopathy
- Fertility/pregnancy complications
- Premature osteoporosis

### 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

# Improvement in In-vitro Fertilization Success Rates

Percent Live Births per Fresh, Non-Donor Embryo Transferred by Clinic Size  
Women Age <38, 1997-2005



Source: Michael Porter, Saquib Rahim, Benjamin Tsai, *In-vitro Fertilization: Outcomes Measurement*. Harvard Business School Press, 2008

# Measuring Cost

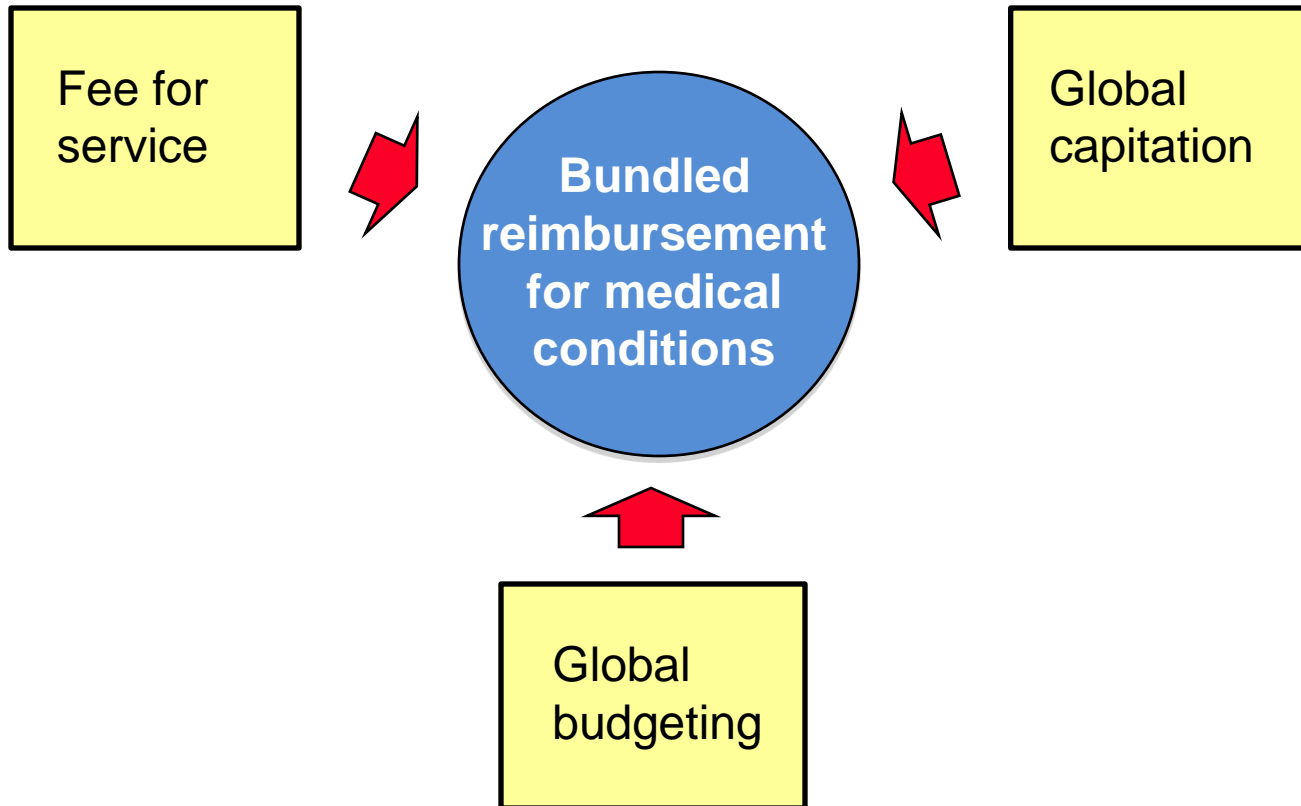
## Aspiration

- 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** allocation of shared resources, 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

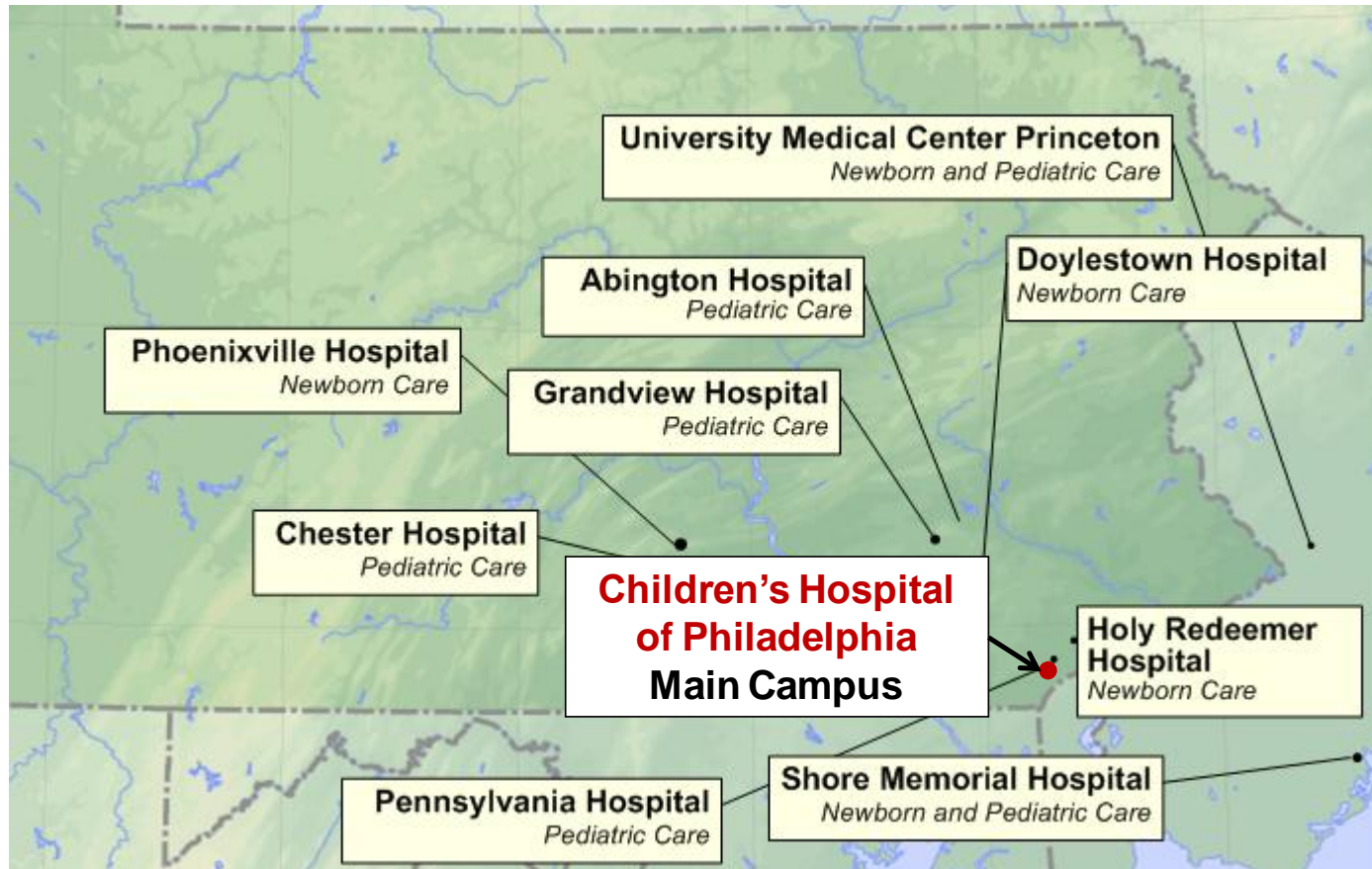
- Prices for **short** episodes (e.g. inpatient only, procedure only)
- **Separate** payments for physicians and facilities
- **Pay-for-performance** bonuses
- “**Medical Home**” payment for care coordination



- DRGs can be a **starting point** for bundled models

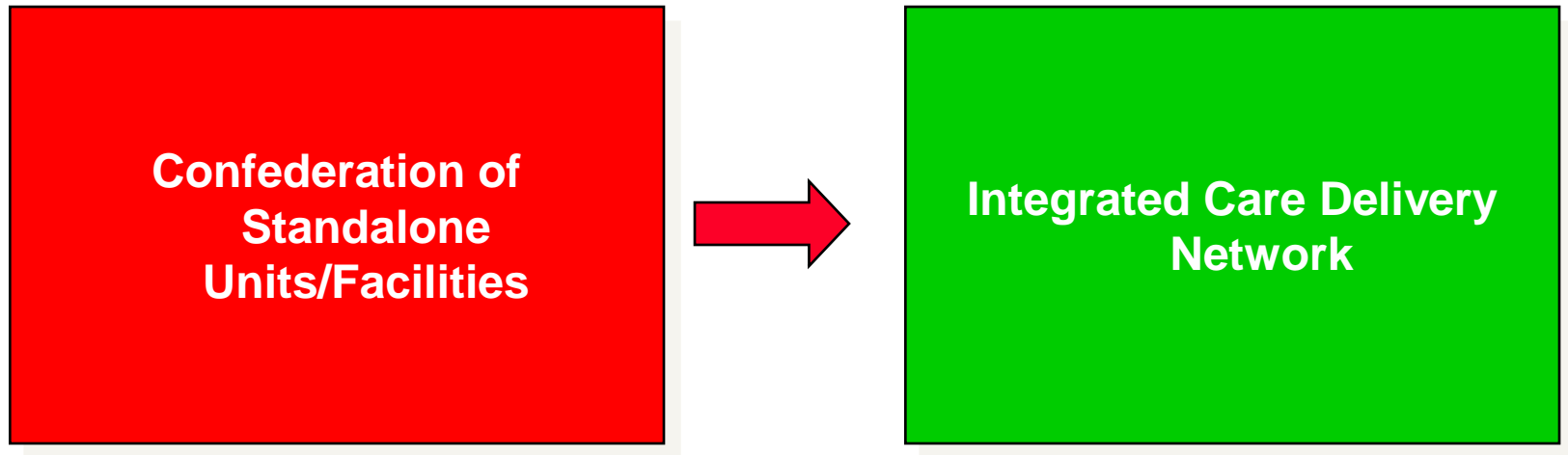
## 4. Integrate Care Delivery Across Separate Facilities

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



- Deliver services in the **appropriate** facility, not every facility
- Excellent providers can manage care delivery across **multiple facilities in multiple geographic areas**

# System Integration



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

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

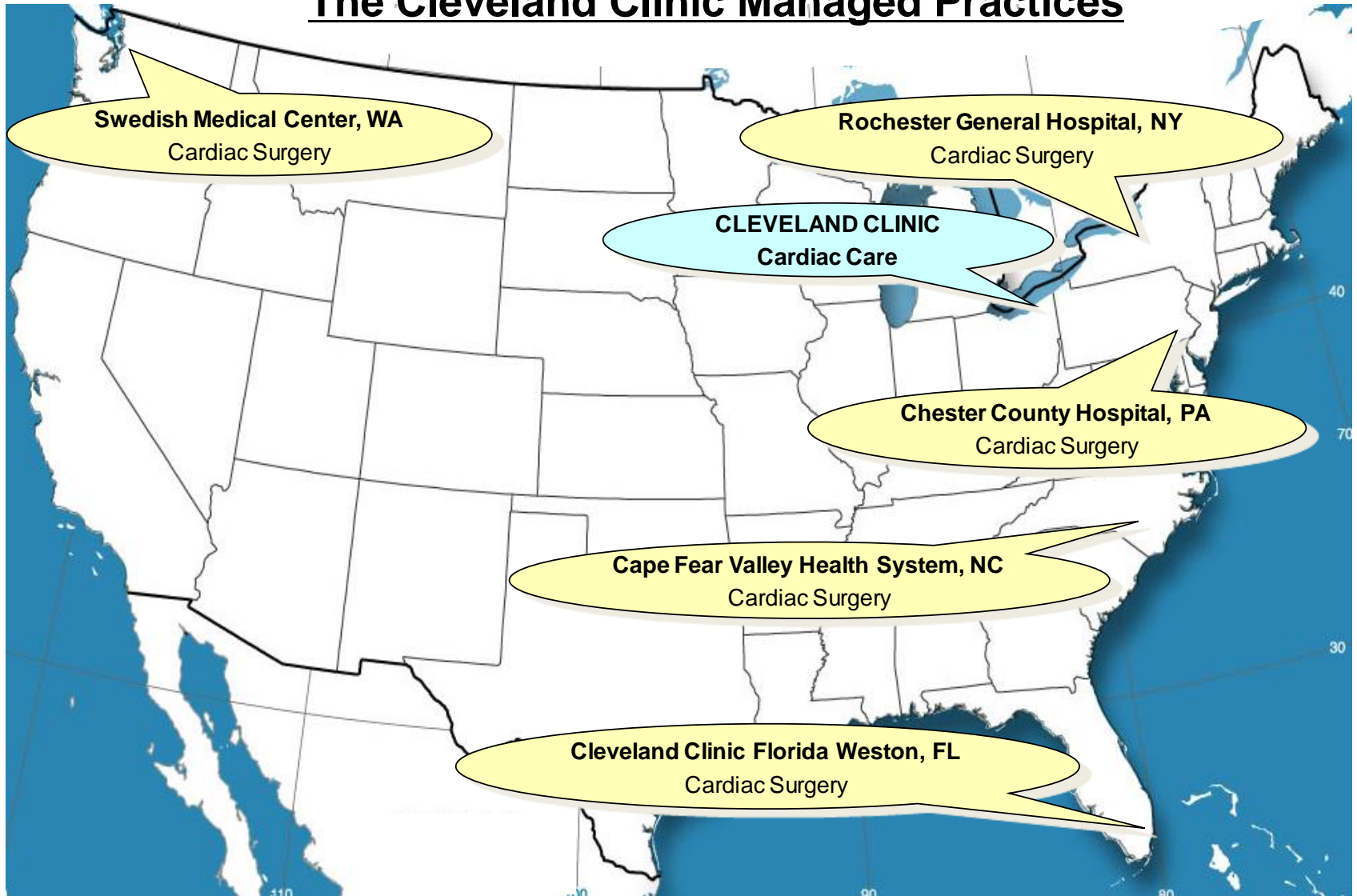
# Levels of System Integration

1. **Rationalize service lines/ IPU**s across facilities to improve volume, avoid duplication, play to strength, and concentrate excellence
2. Offer specific services at the **appropriate facility**
  - E.g. acuity level, cost level, need for convenience
  - Patient referrals across units
3. Clinically integrate care **across facilities**, within an IPU structure
  - Develop consistent protocols and provide access to experts by providers throughout the network
  - **Expand coverage** of the care cycle and **integrate care** across the cycle
  - Connecting **ancillary service** units to IPUs
    - E.g. home care, rehabilitation, behavioral health, social work, addiction treatment (organize within service units to align with IPUs)
  - Linking **preventive/primary care** units to 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  
Referral  
Hospitals in  
Additional  
Locations**

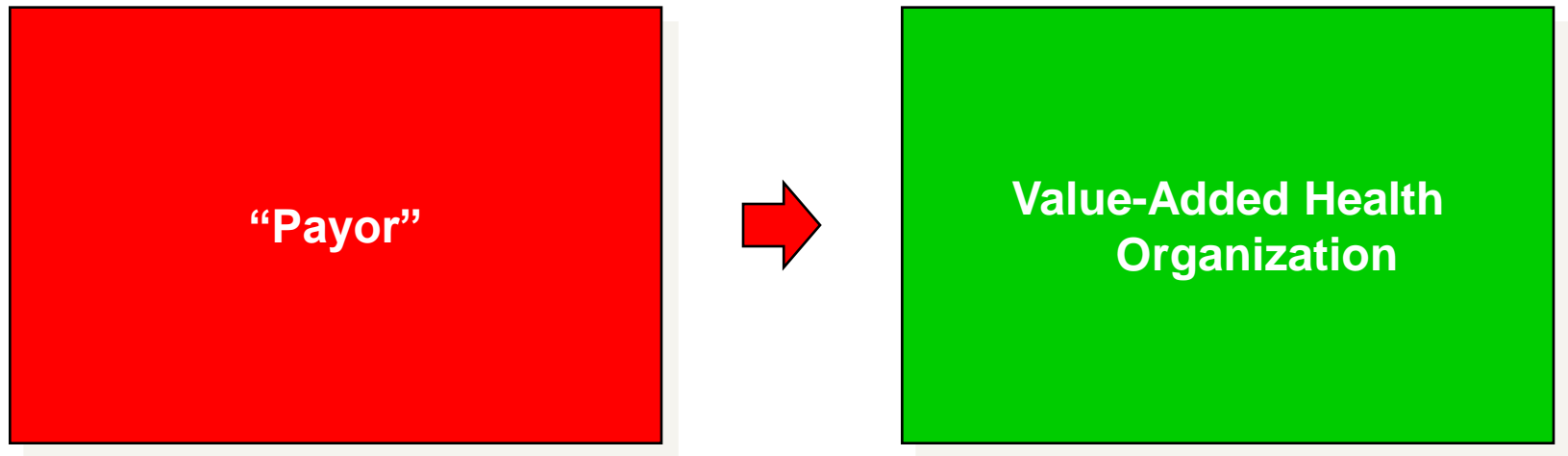
**Broader-Line  
Referral Hubs**

## 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**

# Value-Based Healthcare Delivery: Implications for 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
    - with arrow Providers should establish **direct relationships with employers** to enable value based approaches

# A Strategy for U.S. Health Care Reform

## Shift Insurance Market :

- Build on the current **employer based system**
- Shift **insurance market competition** by ending discrimination based on pre-existing conditions and re-pricing upon illness
- Create large statewide and multistate **insurance pools to** aggregate volume and buying power and provide a viable insurance option for **individuals and small groups**, coupled with a **reinsurance system** for high cost individuals
- Phase in **income-based subsidies** on a sliding scale for lower income individuals, at a pace that reflects progress of value improvements
- Once viable insurance options are established, **mandate the purchase of health insurance** for higher income and ultimately all Americans
- Give employers a choice of providing insurance or a payroll tax based on the proportion of employees **requiring public assistance**

# A Strategy for U.S. Health Care Reform

## Restructure Delivery:

- Establish a universal and mandatory **outcomes measurement and reporting system**
  - **Experience reporting** as an interim step
- Shift reimbursement systems to **bundled payments for cycles of care** instead of payments for discrete services
  - Including primary/preventive care bundles for patient segments
- **Remove obstacles to restructuring** of health care delivery around medical conditions
  - E. g. Stark Laws, Corporate Practice of Medicine, Anti-kickback, Malpractice
- **Open up value-based competition** for patients within and across state boundaries
  - E.g. Harmonize state licensing, insurance rules
  - **Minimum volume standards** as an interim step
- 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 rules that encourage **responsibility of individuals** for their health and health care through incentives for healthy behavior