

# Value-Based Health Care Delivery

Professor Michael E. Porter  
Harvard Business School  
Institute for Strategy and Competitiveness  
[www.isc.hbs.edu](http://www.isc.hbs.edu)

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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.

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# Challenge in Health Care Reform

## Past Goals

**Creating a universal and equitable health care system**

**Controlling the cost of health care**



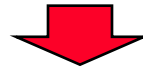
## Future Imperative

**Creating a high-value health care delivery system**

# Redefining Health Care Delivery

- Achieving 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

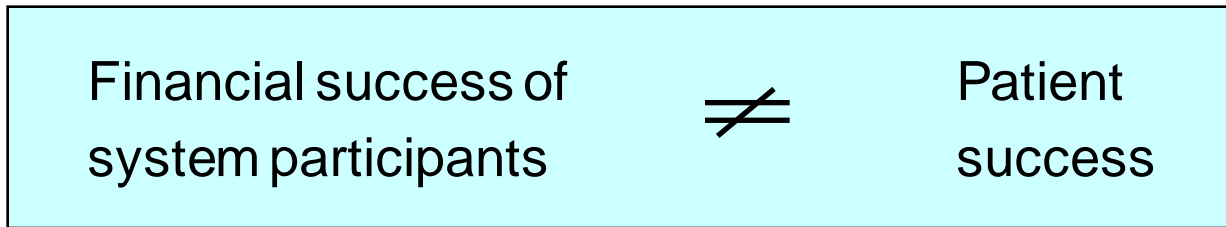
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

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

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

# Creating Competition on Value

- **Competition** and **choice** for patients/subscribers are powerful forces to encourage restructuring of care and continuous improvement in value
- Today's competition in health care **is often 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, volume, convenience, or cost containment

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

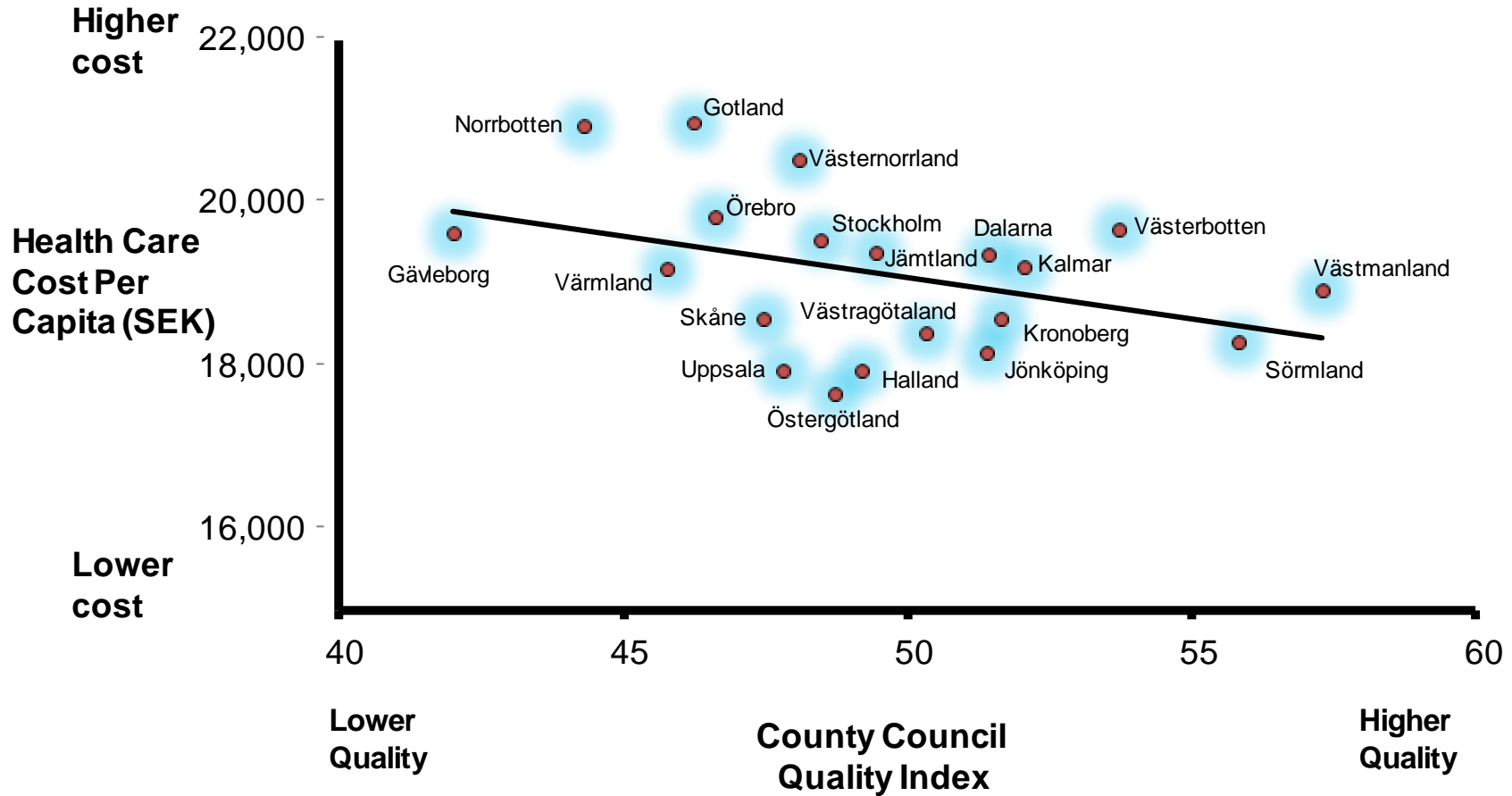
- Outcomes are the **full set of patient health outcomes** over the care cycle
- Costs are the **total costs of care for the patient's condition** over the care cycle



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

# 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

# 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 of illness
- 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 recurrences, relapses, flare ups, or acute episodes
- Slower disease progression
- Greater functionality and 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

# Creating a Value-Based Health Care Delivery System

## The Strategic Agenda

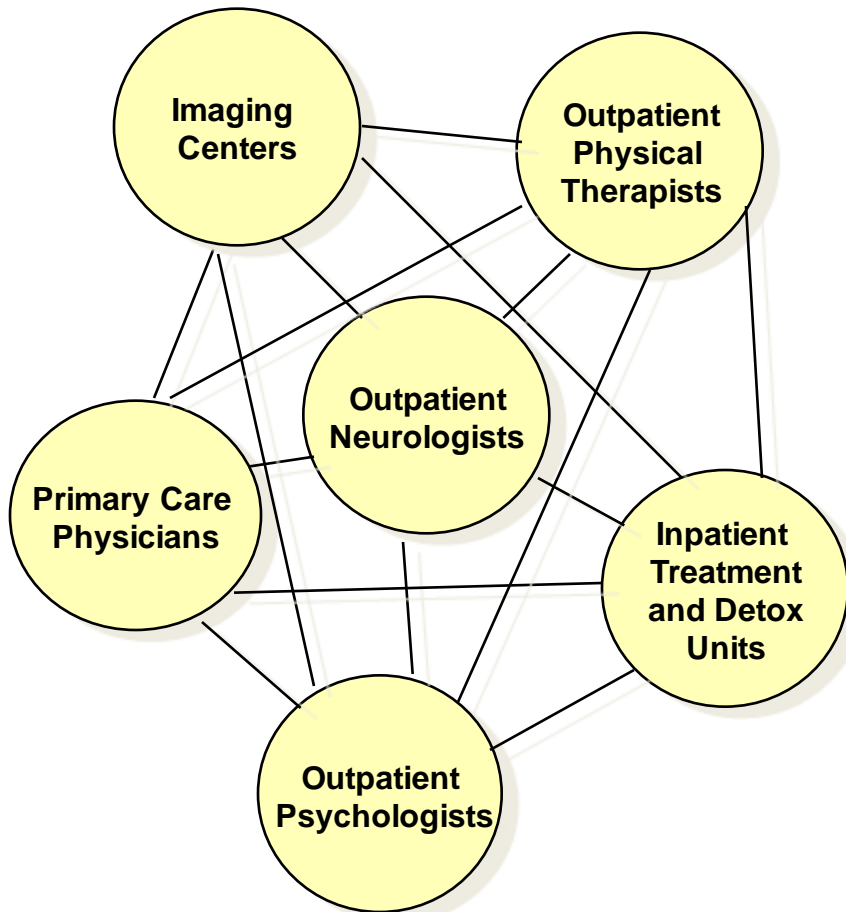
1. Organize into Integrated Practice Units (IPUs) Around Patient Medical Conditions
  - Organize primary and preventive care to serve **distinct patient populations**
2. Establish Universal Measurement of Outcomes and Cost for Every Patient
3. Move to Bundled Prices for Care Cycles
4. Integrate Care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

# 1. Organize Around Patient Medical Conditions

## Migraine Care in Germany

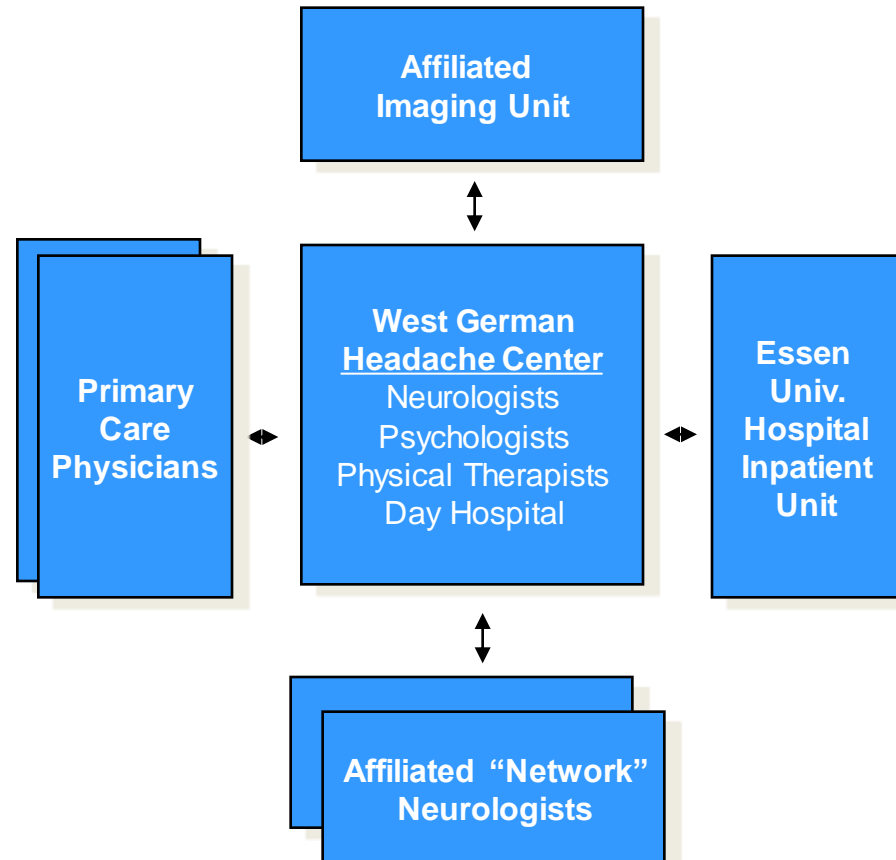
### Existing Model:

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

# 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>				
MONITORING/PREVENTING      DIAGNOSING      PREPARING      INTERVENING      RECOVERING/REHABING      MONITORING/MANAGING						
<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

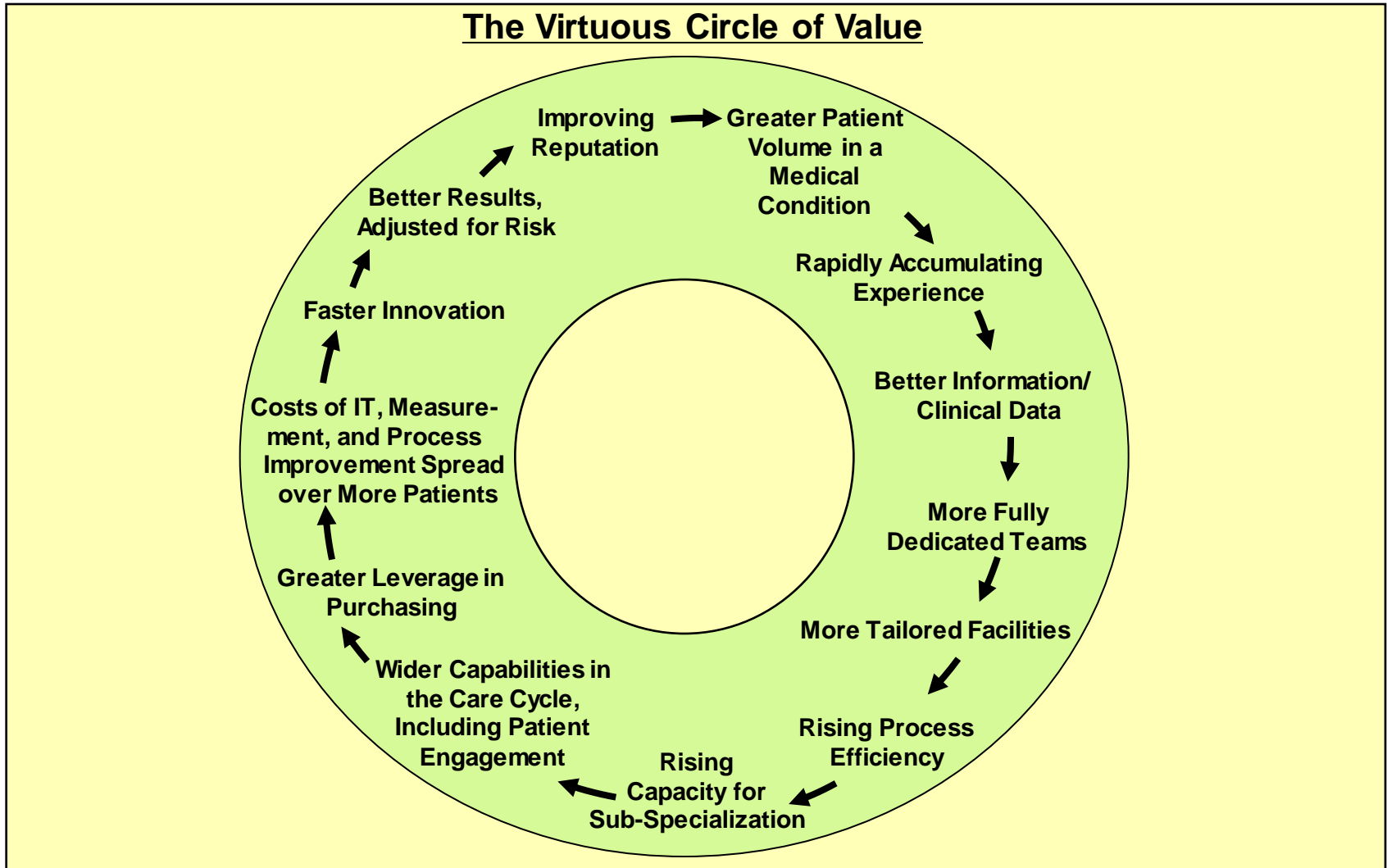
# Integrated Models of Primary Care

- Today's primary care is **fragmented** and attempts to address **overly broad needs** with limited resources



- Organize primary care around teams serving **specific patient populations** (e.g. healthy adults, frail elderly, type II diabetics) rather than attempting to be all things to all patients
- Deliver **defined service bundles** covering appropriate prevention, screening, diagnosis, wellness and health maintenance for the population.
- Provide services with **multidisciplinary teams**, including ancillary health professionals and support staff, in **dedicated facilities**
- Form **alliances with specialty IPUs** covering the prevalent medical conditions represented in the patient population
- Deliver services not only in traditional settings but at the **workplace, schools, community organizations**, and in **other locations** offering regular patient contact and the ability to develop a group culture of wellness

# 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

# Fragmentation of Hospital Services Sweden

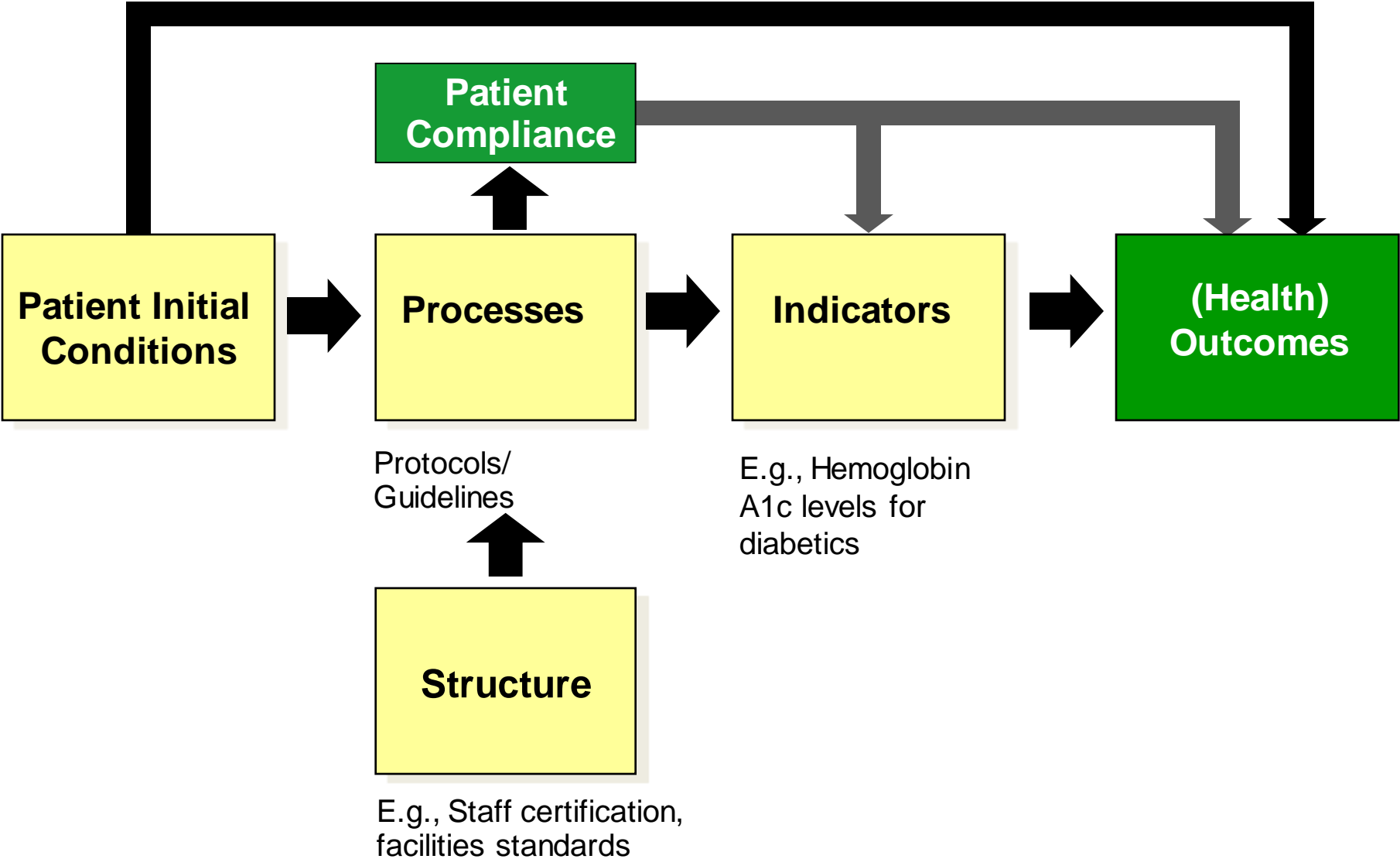
DRG	Number of admitting providers	Average percent of total national admissions	Average admissions/ provider/ year	Average admissions/ provider/ week
Knee Procedure	68	1.5%	55	1
Diabetes age > 35	80	1.3%	96	2
Kidney failure	80	1.3%	97	2
Multiple sclerosis and cerebellar ataxia	78	1.3%	28	1
Inflammatory 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.



- **Minimum volume standards** in lieu of compelling outcome information is an interim step to drive service consolidation

# 2. Measure Outcomes and Cost for Every Patient



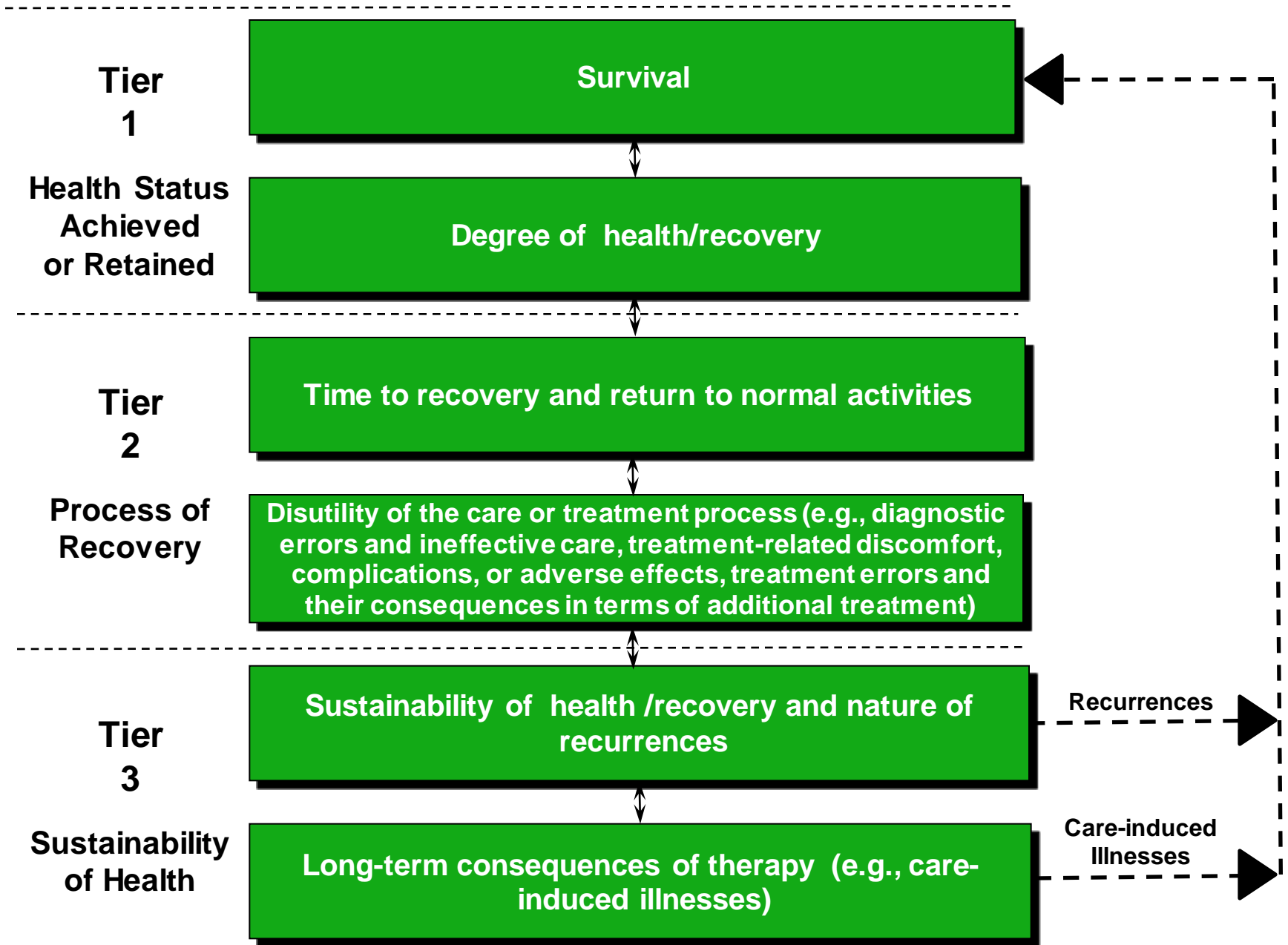
# Unit of Outcomes and Cost Measurement

- **For** medical conditions/primary care patient populations
- **Real time** and “**on-line**” in care delivery, not just retrospectively or in clinical studies
- **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



Measuring and reporting **volume** by medical condition

# 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

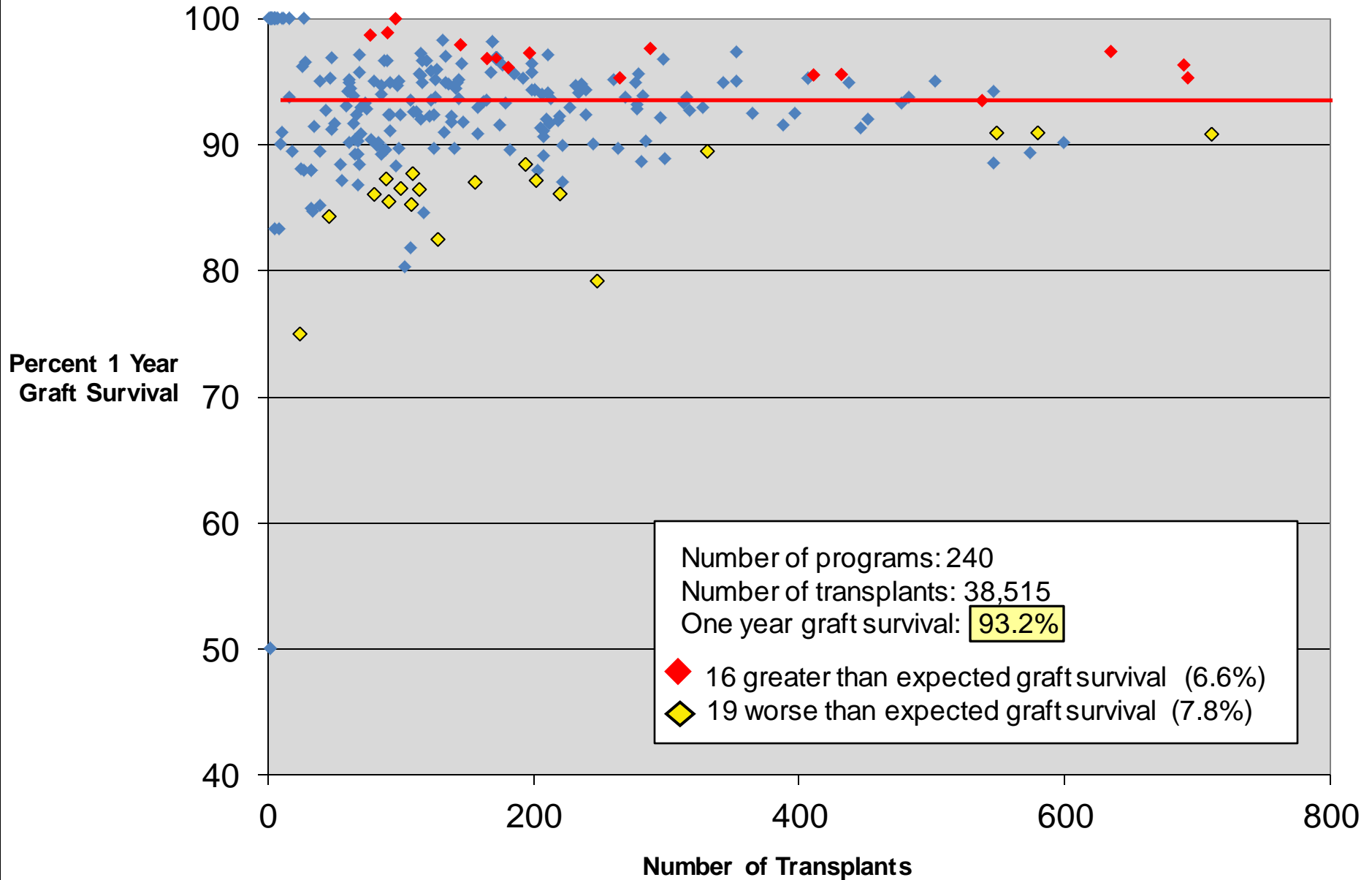
### Initial Conditions/Risk Factors

- 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. 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 Reduction in Health Care

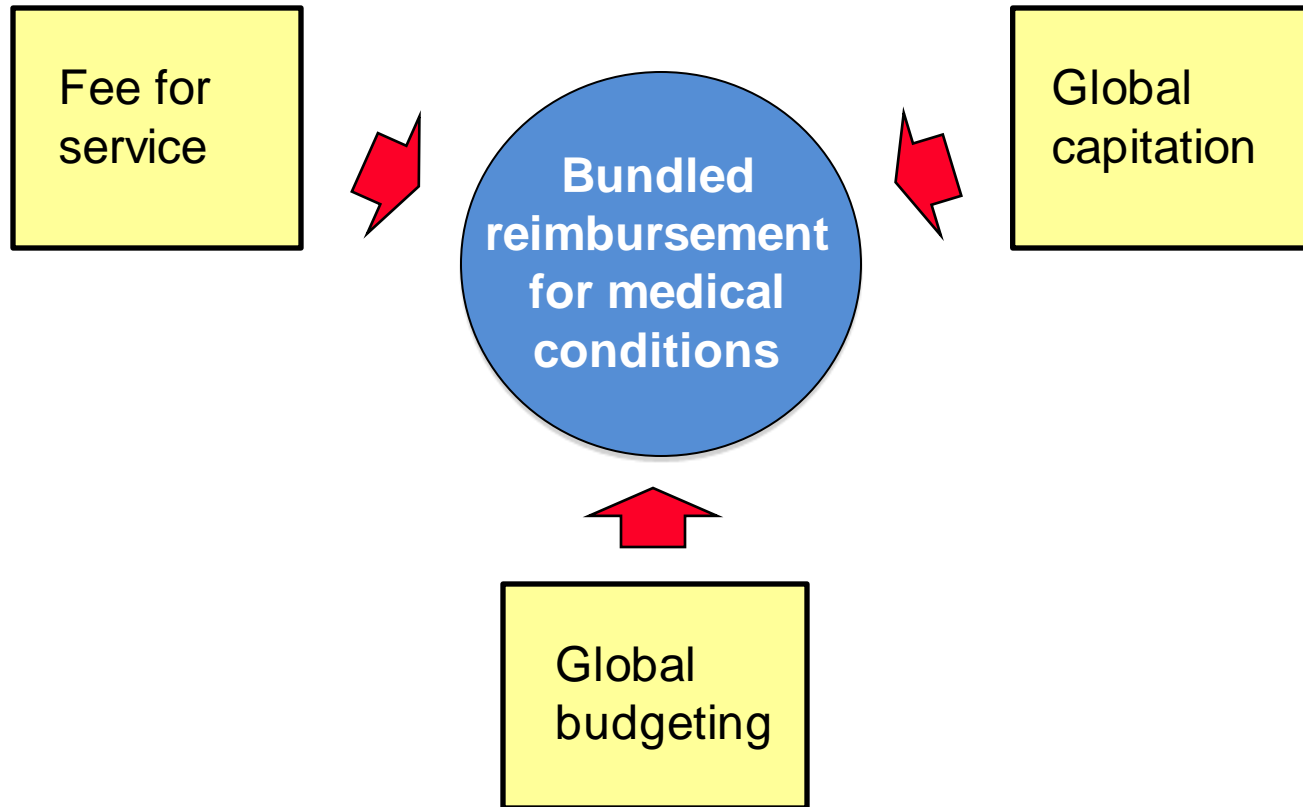
- Current organization structure and cost accounting practices in health care **obscure the understanding of actual costs** in care delivery
- There are major **opportunities for cost efficiencies**

- Over-resourced facilities
  - E.g. routine care delivered in expensive hospital settings
- Under-utilization of expensive clinical space, equipment, and facilities
- Poor utilization of highly skilled physicians and staff
- Redundant administrative and scheduling personnel
- Over-provision of low- or no-value testing and other services in order to justify billing/follow rigid protocols
- Long cycle times
- Missed opportunities for volume procurement
- Excess inventory and weak inventory management
- Lack of cost knowledge and awareness in clinical teams



- Such cost reduction opportunities **do not require outcome tradeoffs**, but may actually improve outcomes

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




- Bundled reimbursement covers the **full care cycle** for an acute medical condition, and **time-based reimbursement** for chronic conditions or primary/preventive care for a patient population

# Bundled Payment in Practice

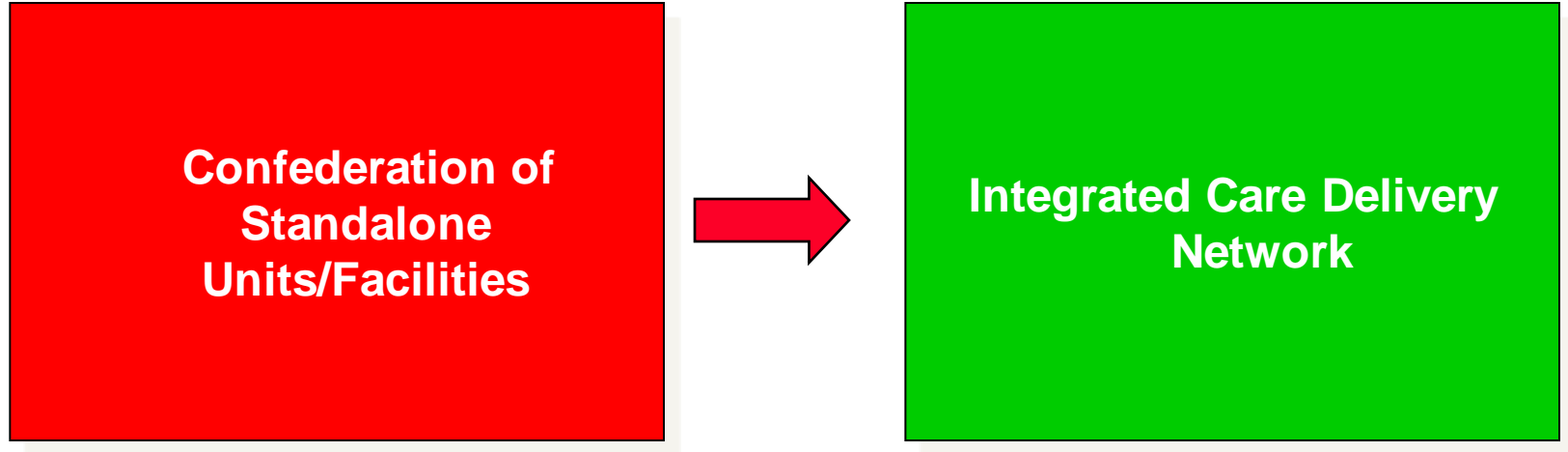
## Hip and Knee Replacement in Stockholm, Sweden

- **Components** of the bundle

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>- Pre-op evaluation</li><li>- Lab tests</li><li>- Radiology</li><li>- Surgery &amp; related admissions</li><li>- Prosthesis</li><li>- Drugs</li><li>- Inpatient rehab, up to 6 days</li></ul> | <ul style="list-style-type: none"><li>- All physician and staff costs</li><li>- 1 follow-up visit within 3 months</li><li>- Any additional surgery to the joint within 2 years</li><li>- If post-op infection requiring antibiotics occurs, guarantee extends to 5 years</li></ul> |
|---|--|

- 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
  - Provider participation is **voluntary** but all providers are involved
- 
- The bundled price for a knee or hip replacement is about **US \$8,000**

## 4. Integrate Care Delivery Across Separate Facilities



- Increase **volume**
- Capture flow of **patients**



- Benefits limited to **contracting** and **spreading limited fixed overhead**

- Increase **value**



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



## 5. Expand Excellent IPU's Across Geography

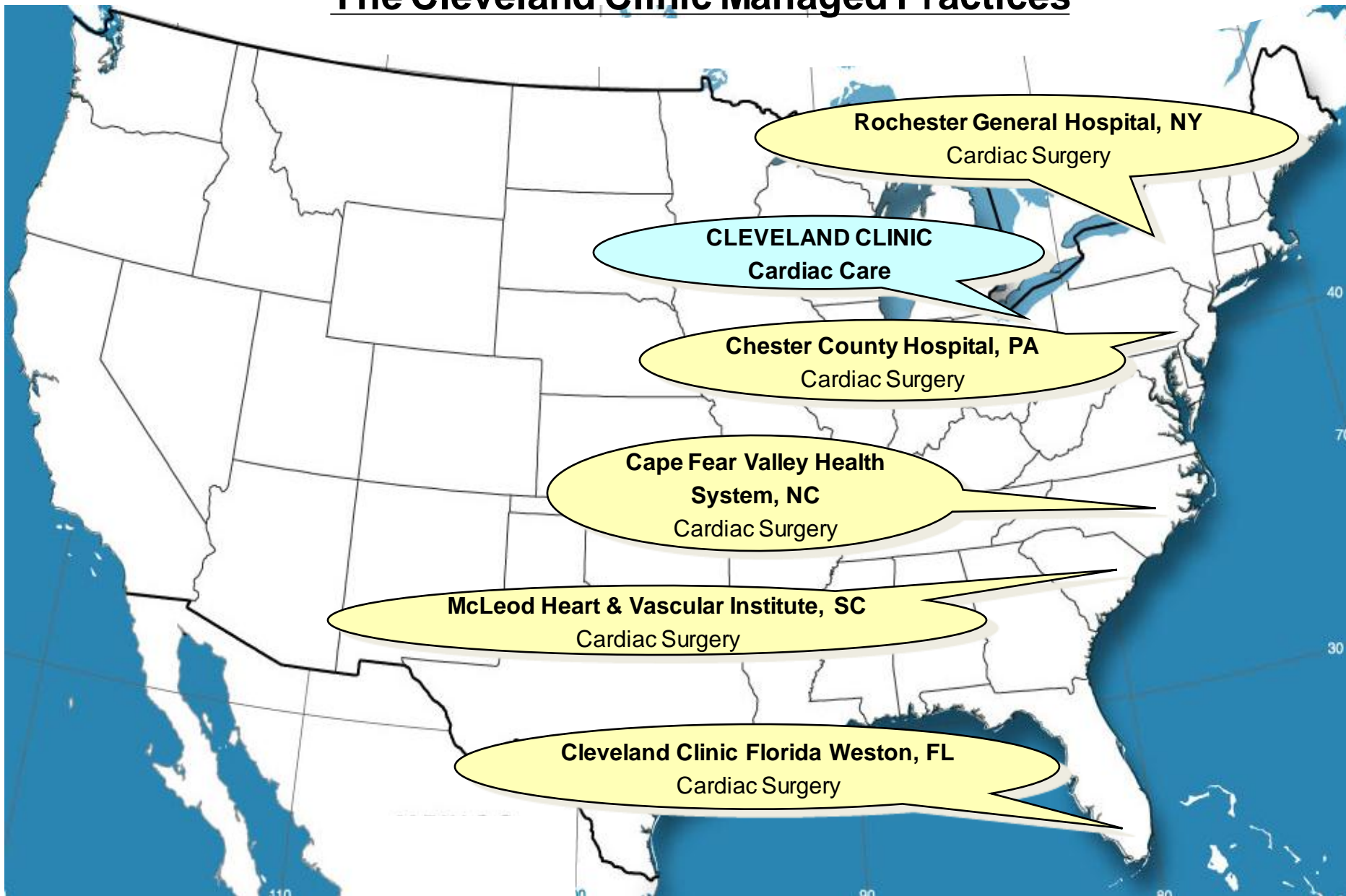
- Grow **areas of excellence** and **leverage across locations**, rather than:
  - adding services with no value advantage
  - establishing new broad line, stand-alone units



- **Affiliate with excellent providers** in medical conditions where there is insufficient volume or expertise to achieve superior value

# Expanding Excellent IPUs Across Geography

## The Cleveland Clinic Managed Practices

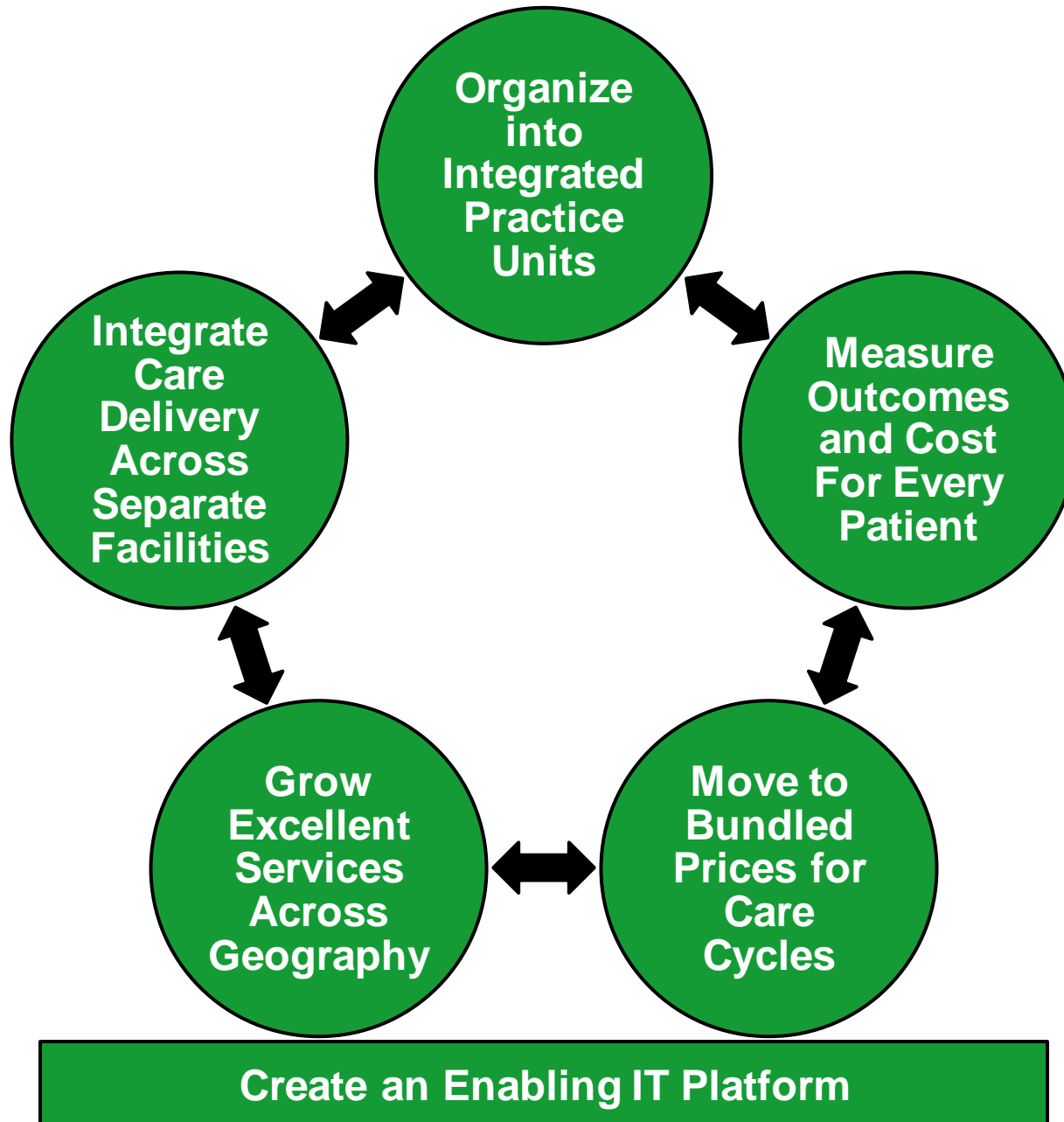


## 6. Create an Enabling Information Technology Platform

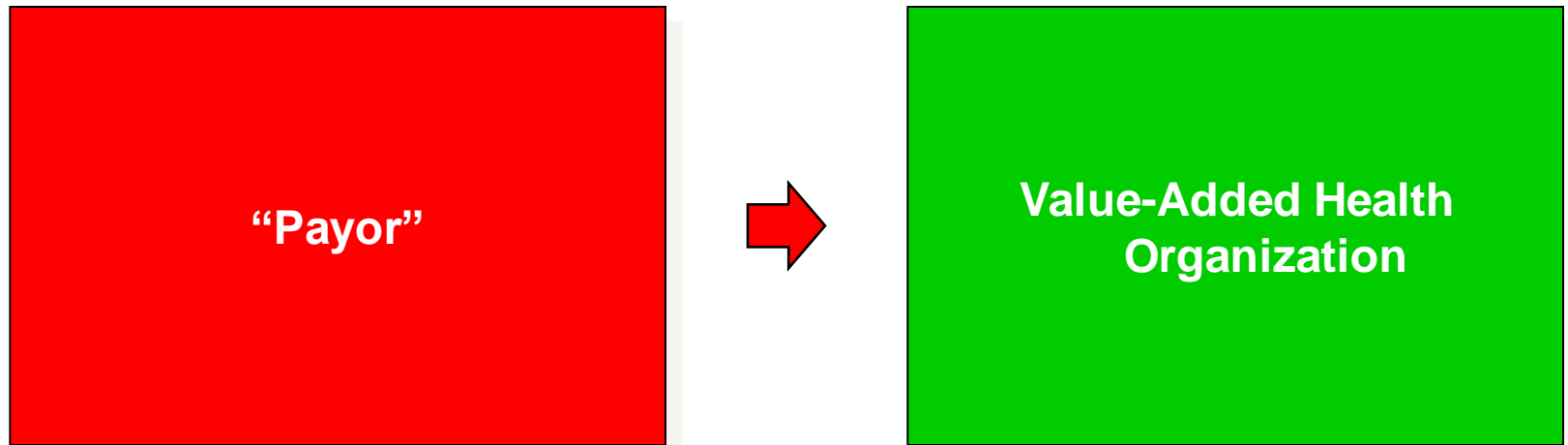
Utilize information technology to enable **restructuring of care delivery** and **measuring results**, rather than treating it as a solution itself

- 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
- Allows 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 measures, process measures, and activity based cost measures for each patient and medical condition**
- Interoperability standards enabling communication among **different provider systems**

# A Mutually Reinforcing Strategic Agenda



# Value-Based Health Care Delivery: Implications for Contracting Parties/Health Plans



- Providers can lead in developing new relationships with health plans through their role in **providing health benefits for their own employees**

# Value-Based Health Care Delivery: Implications for Government

- Establish **universal measurement** and **reporting** of **health outcomes**
- Shift reimbursement systems to **bundled prices for care cycles**
- Remove obstacles to **integrated care for medical conditions**
- **Open competition** and **choice** among providers and across geography
- Set policies to encourage greater **involvement** and **responsibility of individuals** for their health and their health care
- Set standards and mandate **EMR adoption** that supports integrated care and outcome measurement

For additional information on

**Value-Based Health Care Delivery:**

[www.isc.hbs.edu](http://www.isc.hbs.edu)