

FACULTY PERSPECTIVES ON  
**HEALTHCARE**

**MICHAEL PORTER**

March 7, 4:30–5:30pm, Burden Hall, Harvard Business School

Topic: “Value-Based Health Care Delivery.”

WELCOME BY **ROBERT HUCKMAN**,  
FACULTY CO-CHAIR OF HEALTHCARE INITIATIVE

INTRODUCTION BY **EMILY KLOEBLEN** AND **ZIHAN LIN**,  
MBA '12, CO-PRESIDENT OF HEALTHCARE CLUB



HARVARD | BUSINESS | SCHOOL

Healthcare Initiative



**Healthcare**



**Club**

Student Clubs  
of HBS, Inc.

# 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)

*HBS Healthcare Initiative & Healthcare Club*  
*March 7, 2012*

---

This presentation draws on Redefining Health Care: Creating Value-Based Competition on Results (with Elizabeth O. Teisberg), Harvard Business School Press, May 2006; “A Strategy for Health Care Reform—Toward a Value-Based System,” *New England Journal of Medicine*, June 3, 2009; “Value-Based Health Care Delivery,” *Annals of Surgery* 248: 4, October 2008; “Defining and Introducing Value in Healthcare,” *Institute of Medicine Annual Meeting*, 2007. Additional information about these ideas, as well as case studies, can be found the Institute for Strategy & Competitiveness Redefining Health Care website at <http://www.hbs.edu/rhc/index.html>. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means — electronic, mechanical, photocopying, recording, or otherwise — without the permission of Michael E. Porter and Elizabeth O. Teisberg.

---

# Redefining Health Care Delivery

- The core issue in health care is the **value of health care delivered**

Value: Patient health outcomes per dollar spent

- Value is the only goal that can **unite the interests** of all system participants



- How to design a health care delivery system that **dramatically improves patient value**
- How to construct a **dynamic system** that keeps rapidly improving

# Creating a Value-Based Health Care System

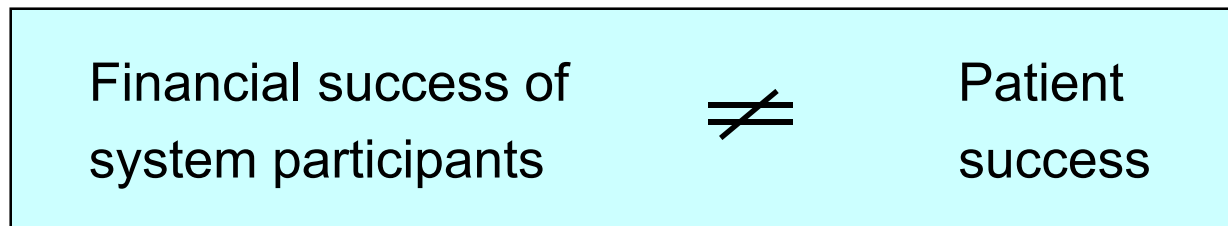
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

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

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

# Creating The Right Kind of Competition

- Patient **choice** and **competition** for patients are powerful forces to encourage continuous improvement in value and restructuring of care
- Today's competition in health care **is not aligned with value**



- Creating positive-sum **competition on value** is fundamental to health care reform in every country

# Principles of Value-Based Health Care Delivery

- The overarching goal in health care must be **value for patients**, not access, cost containment, convenience, or customer service

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

- Outcomes are the **health results that matter for a patient's condition** over the care cycle
- Costs are the **total costs of care for a patient's condition** over the care cycle

# Principles of Value-Based Health Care Delivery

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

- Prevention of illness
- Early detection
- Right diagnosis
- Right treatment to the right patient
- Rapid cycle time of diagnosis and treatment
- Treatment earlier in the causal chain of disease
- Less invasive treatment methods
- Fewer complications
- Fewer mistakes and repeats in treatment
- Faster recovery
- More complete recovery
- Greater functionality and less need for long term care
- Fewer recurrences, relapses, flare ups, or acute episodes
- Reduced need for ER visits
- Slower disease progression
- Less care induced illness



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

# Creating a Value-Based Health Care Delivery System

## The Strategic Agenda

1. Organize Care into **Integrated Practice Units (IPUs)** around Patient Medical Conditions
  - Organize primary and preventive care to serve **distinct patient segments**
2. Measure **Outcomes** and **Cost** for Every Patient
3. Reimburse through **Bundled Prices** for Care Cycles
4. Integrate Care Delivery Across **Separate Facilities**
5. Expand **Areas of Excellence** Across Geography
6. Build an Enabling **Information Technology Platform**

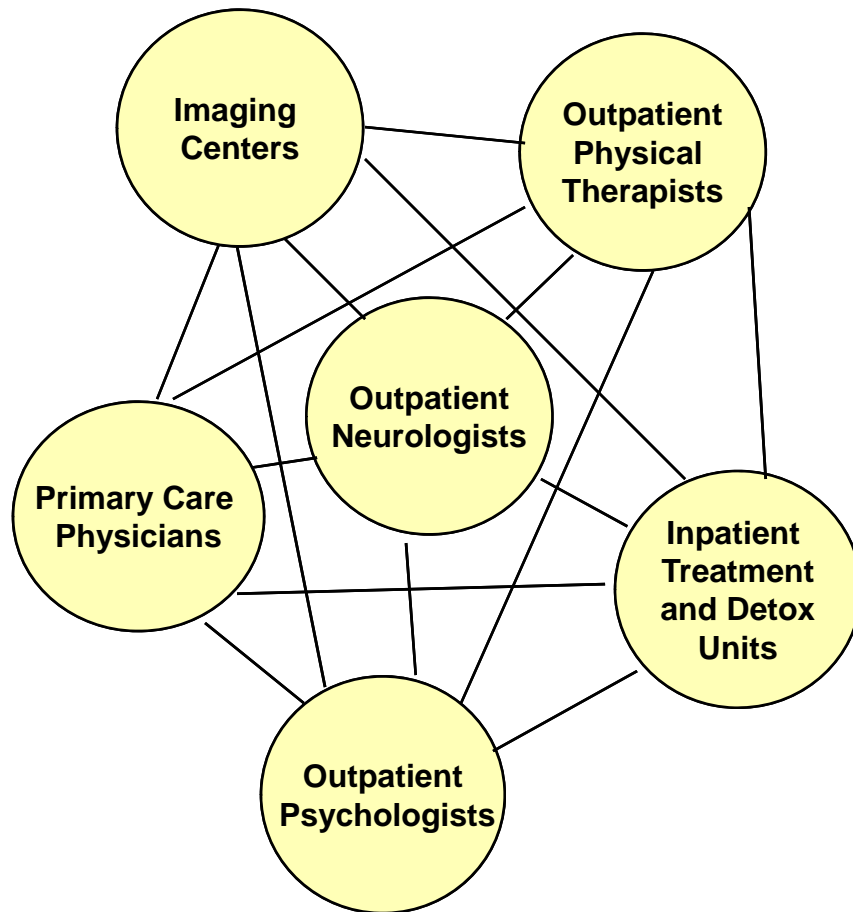


# 1. Organizing Care Around Patient Medical Conditions

## Migraine Care in Germany

### Existing Model:

Organize by Specialty and Discrete Services



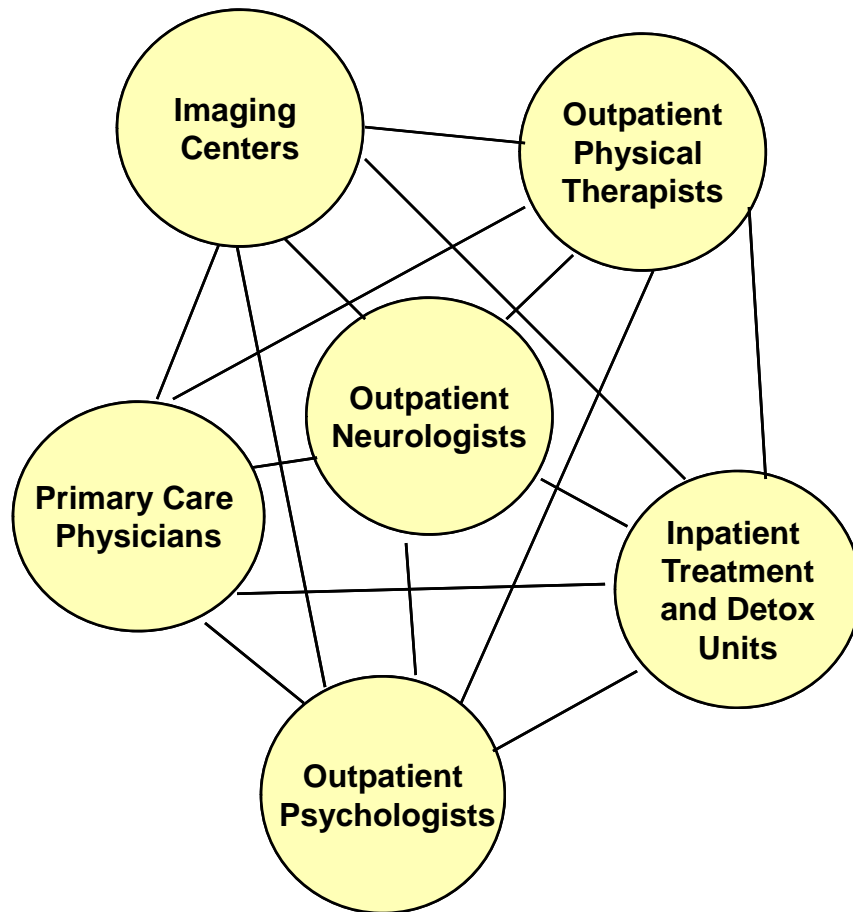
Source: Porter, Michael E., Clemens Guth, and Elisa Dannemiller, *The West German Headache Center: Integrated Migraine Care*, Harvard Business School Case 9-707-559, September 13, 2007

# 1. Organizing Care Around Patient Medical Conditions

## Migraine Care in Germany

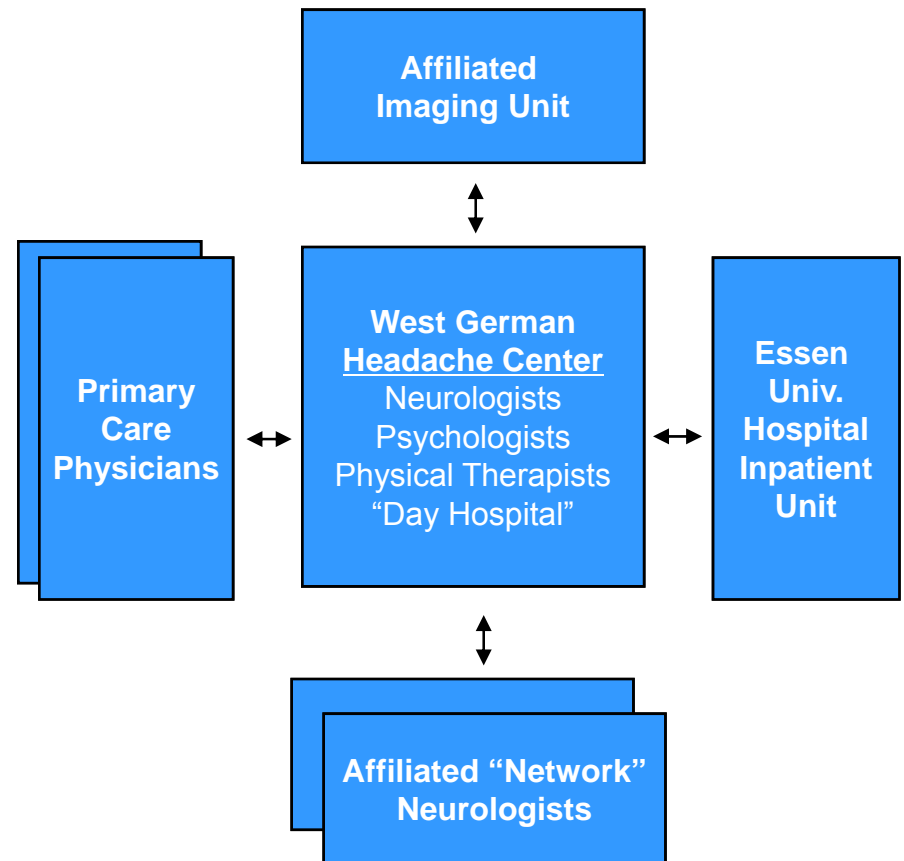
### Existing Model:

Organize by Specialty and Discrete Services



### New Model:

Organize into Integrated Practice Units (IPUs)



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

## What is a Medical Condition?

- A medical condition is **an interrelated set of patient medical circumstances best addressed in an integrated way**
  - Defined from the **patient's** perspective
  - Involving **multiple** specialties and services
  - **Including** common co-occurring conditions and complications
- In primary / preventive care, the **unit of value creation** is **defined patient segments** with similar preventive, diagnostic, and primary treatment needs (e.g. healthy adults, frail elderly)



- The medical condition / patient segment is the proper **unit of value creation** and the **unit of value measurement** in health care delivery


# Integrating Across the Cycle of Care Breast Cancer

<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> <li>• Patient and family psychological counseling</li> </ul>	<ul style="list-style-type: none"> <li>• Counseling on the treatment process</li> <li>• Education on managing side effects and avoiding complications</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>
	<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, 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>
<b>ACCESSING THE PATIENT</b>	<ul style="list-style-type: none"> <li>• Office visits</li> <li>• Mammography unit</li> <li>• Lab visits</li> </ul>	<ul style="list-style-type: none"> <li>• Office visits</li> <li>• Lab visits</li> <li>• High risk clinic visits</li> </ul>	<ul style="list-style-type: none"> <li>• Office visits</li> <li>• Hospital visits</li> <li>• Lab visits</li> </ul>	<ul style="list-style-type: none"> <li>• Hospital stays</li> <li>• Visits to outpatient radiation or chemotherapy units</li> <li>• Pharmacy visits</li> </ul>	<ul style="list-style-type: none"> <li>• Office visits</li> <li>• Rehabilitation facility visits</li> <li>• Pharmacy visits</li> </ul>	<ul style="list-style-type: none"> <li>• Office visits</li> <li>• Lab visits</li> <li>• Mammographic labs and imaging center 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 oncologic 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>

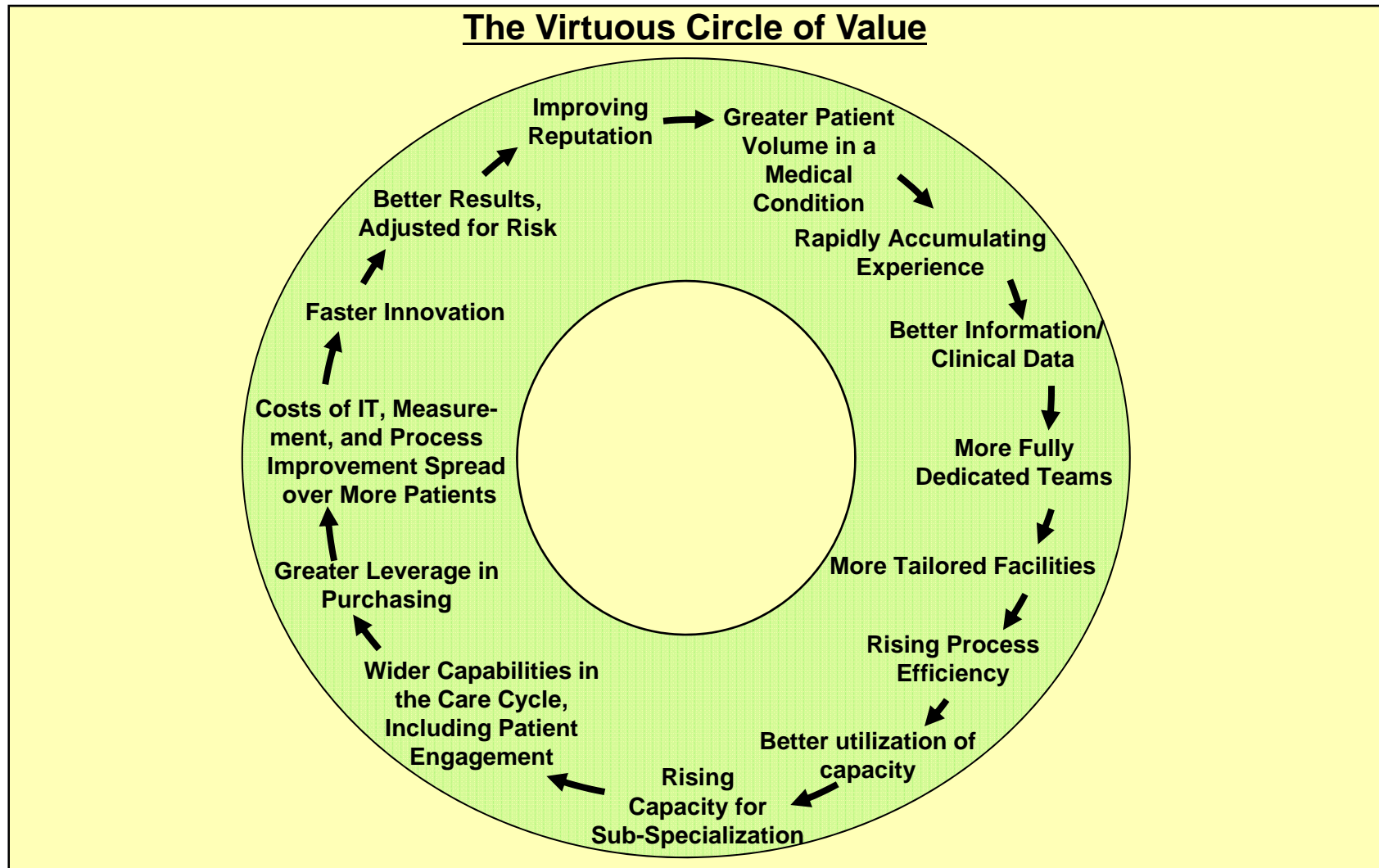
# Attributes of an Integrated Practice Unit (IPU)

1. Organized around the **patient medical condition** or set of closely related conditions (or patient segment in primary care)
2. Involves a **dedicated, multidisciplinary team** who devotes a significant portion of their time to the condition
3. Providers involved are members of or affiliated with a **common organizational unit**
4. Provides the **full cycle of care** for the condition
  - Encompassing **outpatient, inpatient, and rehabilitative** care as well as **supporting services** (e.g. nutrition, social work, behavioral health)
5. Includes **patient education, engagement, and follow-up**
6. Utilizes a **single administrative and scheduling structure**
7. **Co-located** in **dedicated facilities**
8. Care is led by a **physician team captain** and a **care manager** who oversee each patient's care process
9. **Measures** outcomes, costs, and processes for each patient using a common **information platform**
10. **Meets formally and informally** on a regular basis to discuss patients, processes and results
11. Accepts **joint accountability** for outcomes and costs

# Integrating Mental Health and Physical Health

- More than a **quarter of adults** with physical health problems **also suffer from mental illness**
    - E.g., depression is 2 to 3 times more common following a heart attack or stroke and leads to worse clinical outcomes
  - Mental illness is common in primary care, yet **underrecognized** and **undertreated**
    - 25% of primary care patients have depression or anxiety
    - Primary care providers **recognize only half of all mental illnesses**
    - Among patients with **recognized** illness, **only half** are offered medication
  - Patients with mental illness frequently present to primary care with **physical health symptoms** (e.g. fatigue, insomnia, palpitations)
  - Primary care providers, focusing on physical ailments, can overlook **underlying psychological causes**
  - Physical health IPUs should include **dedicated mental health providers** who understand the mental health needs of the patients they treat, detect developing mental illness, and intervene early
    - Social workers or other mid-level providers can occupy such roles, referring out complex cases to psychologists or psychiatrists
- 
- Incorporating **mental health clinicians** into primary care will improve patient value

# Volume in a Medical Condition Enables Value



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

# Role of Volume in Value Creation

## Fragmentation of Hospital Services in Sweden

DRG	Number of admitting providers	Average percent of total national admissions	Average admissions/ provider/ year	Average admissions/ provider/ week
Knee Procedure	68	1.5%	55	1
Diabetes age > 35	80	1.3%	96	2
Kidney failure	80	1.3%	97	2
Multiple sclerosis and cerebellar ataxia	78	1.3%	28	1
Inflammatory bowel disease	73	1.4%	66	1
Implantation of cardiac pacemaker	51	2.0%	124	2
Splenectomy age > 17	37	2.6%	3	<1
Cleft lip & palate repair	7	14.2%	83	2
Heart transplant	6	16.6%	12	<1

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

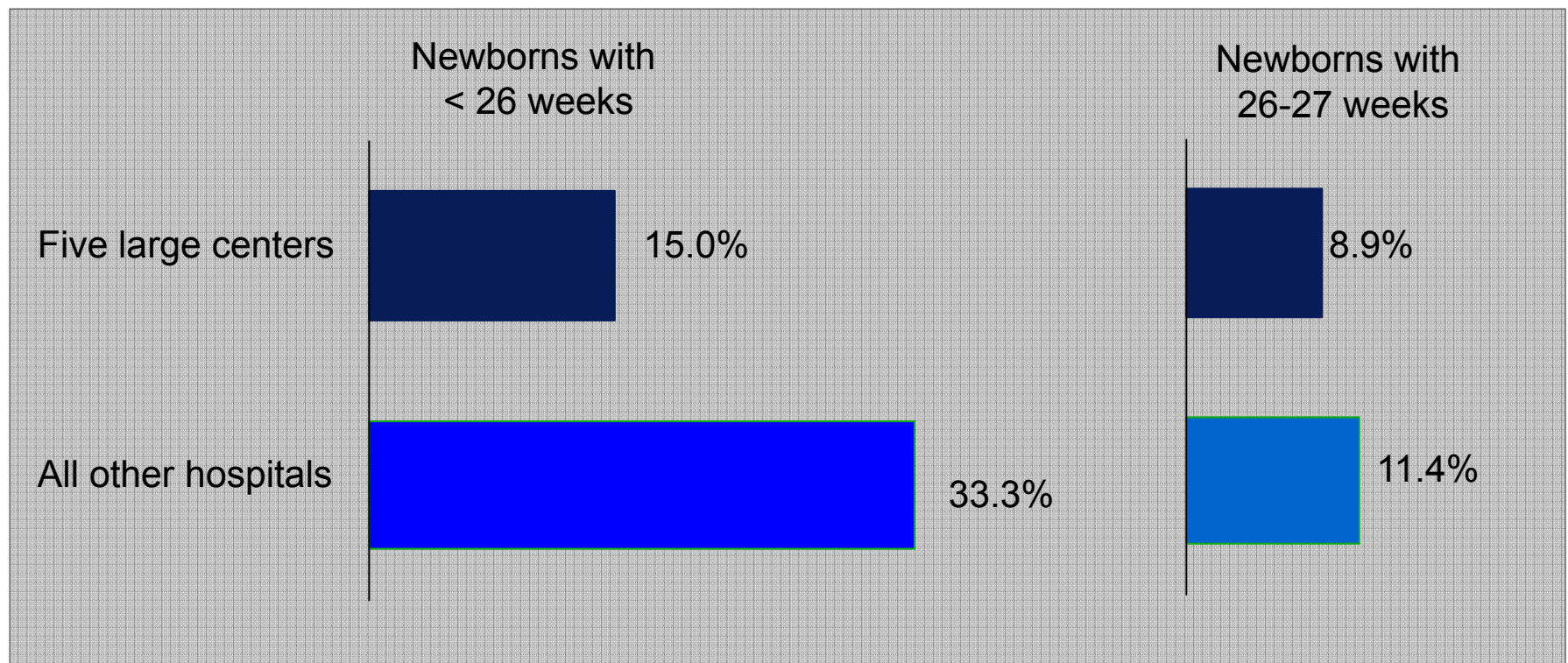


- **Minimum volume standards**, in the absence of rigorous outcome information, are an interim step to drive value and service consolidation



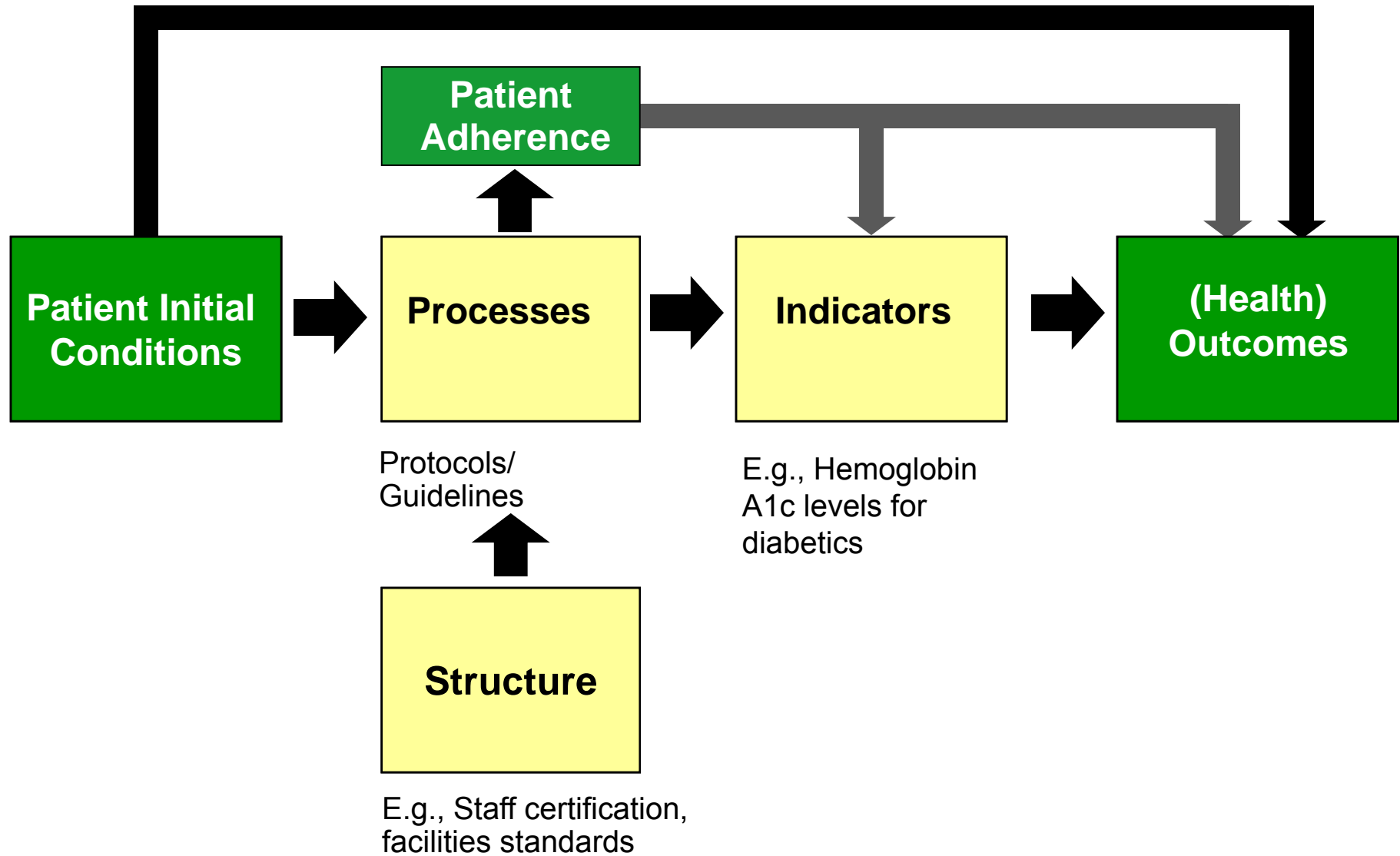
# Low Volume Undermines Value: Germany

## Mortality of low-birth weight infants in Baden-Württemberg

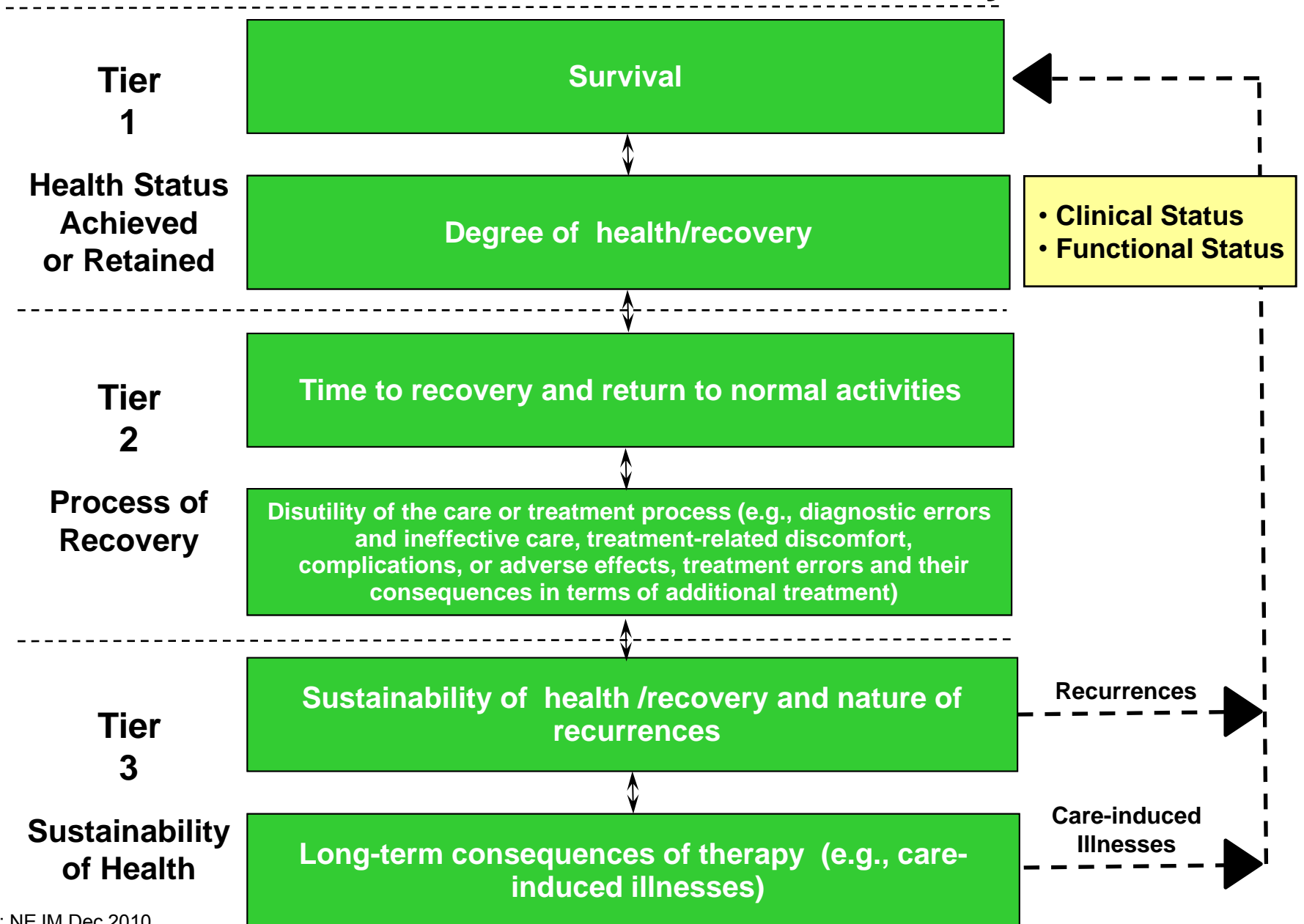


Source: Hummer et al, Zeitschrift für Geburtshilfe und Neonatologie, 2006; Results duplicated in AOK study: Heller G, Gibt es einen Volumen-Outcome-Zusammenhang bei der Versorgung von Neugeborenen mit sehr niedrigem Geburtsgewicht in Deutschland – Eine Analyse mit Routinedaten, Wissenschaftliches Institut der AOK (WIdO)

## 2. Measuring Outcomes and Cost for Every Patient

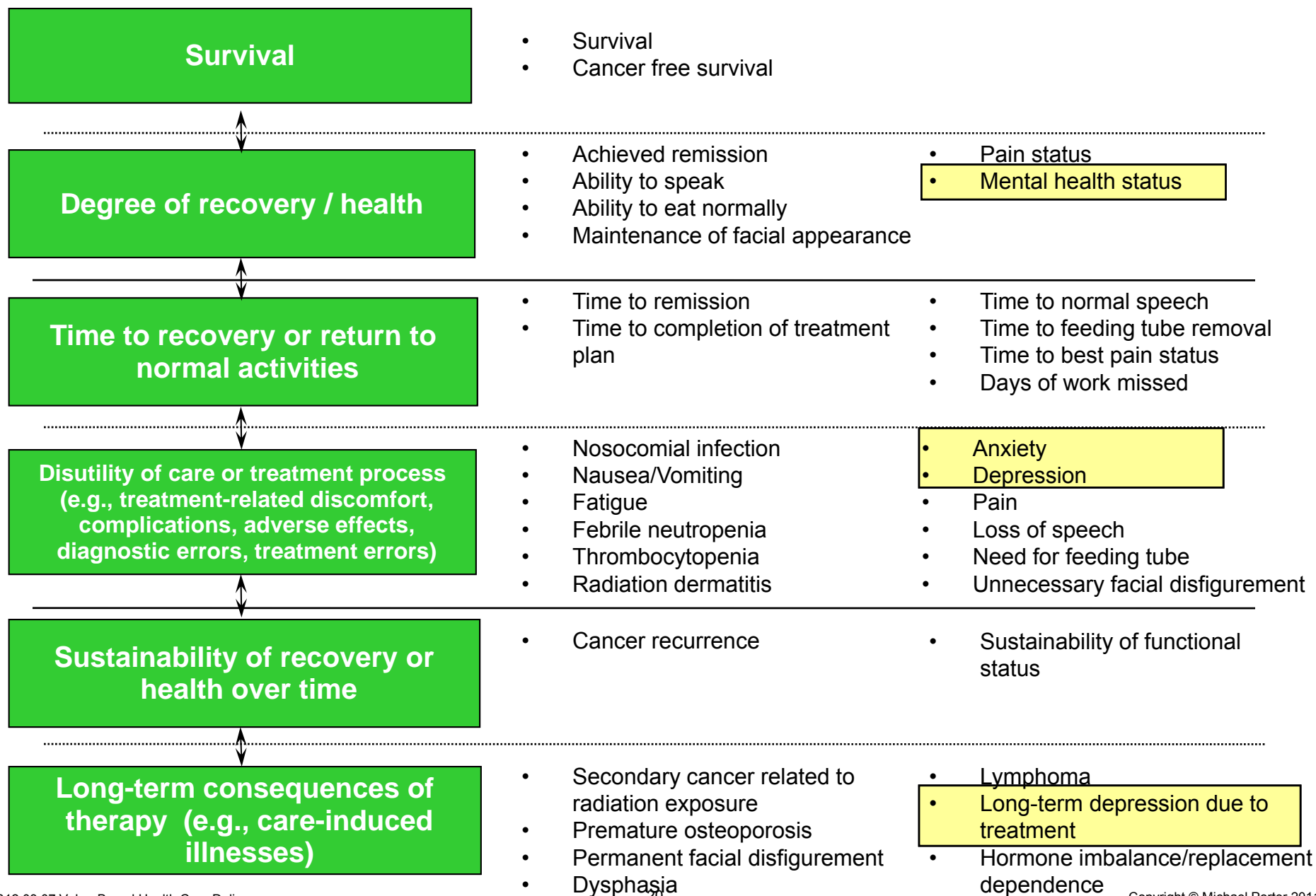


# The Outcome Measures Hierarchy



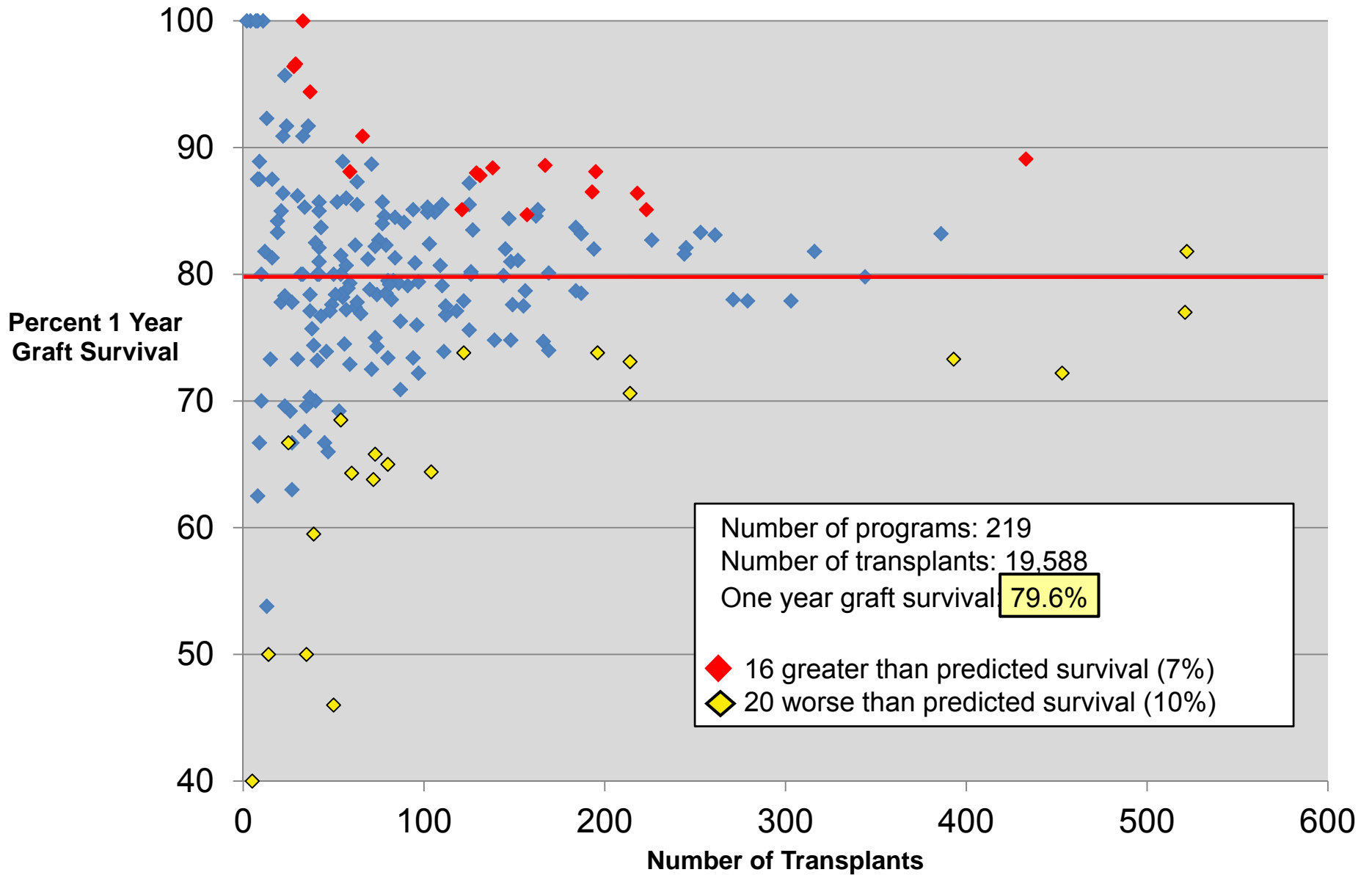
# The Outcome Measures Hierarchy

## Head and Neck Cancer



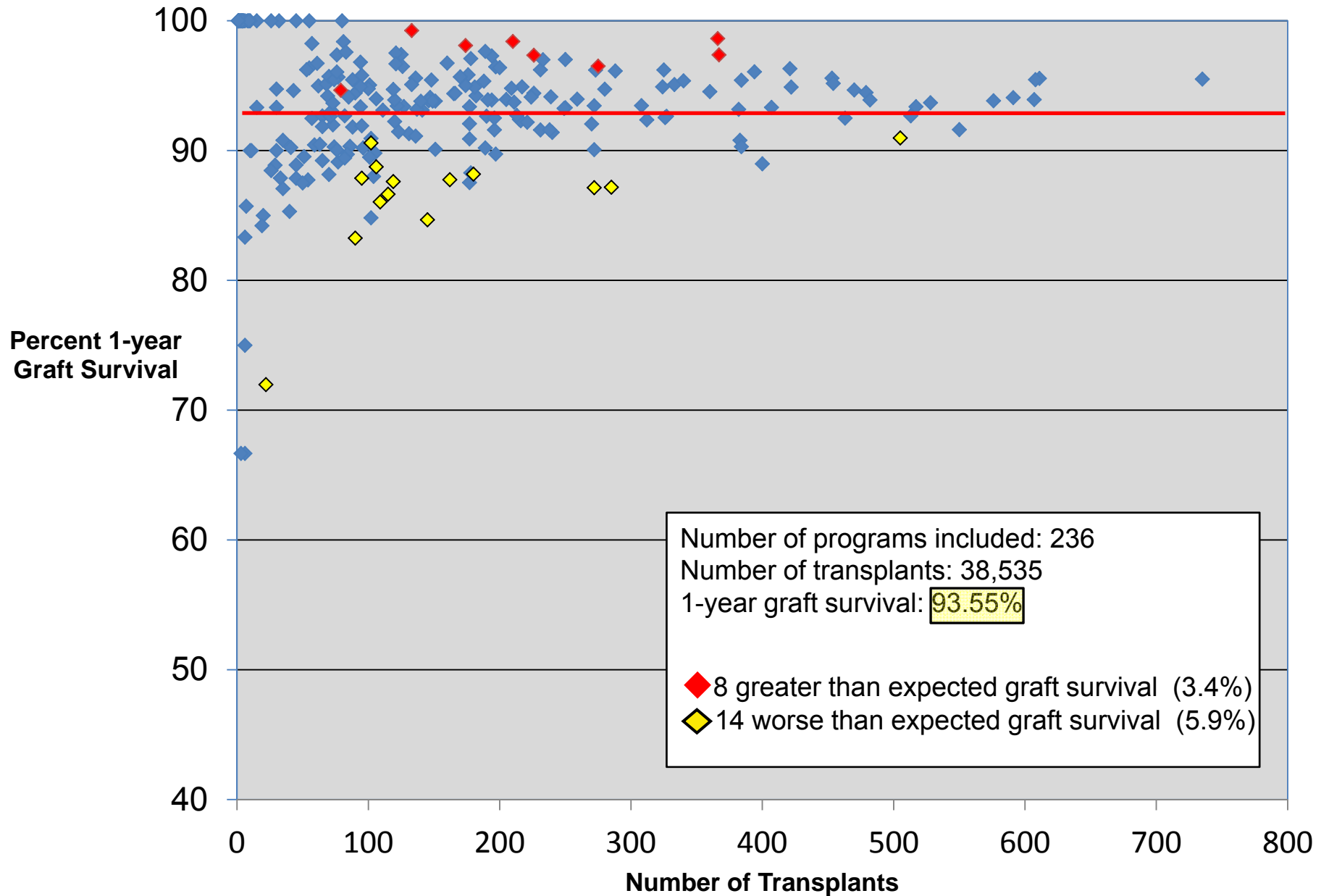
# Adult Kidney Transplant Outcomes

## U.S. Centers, 1987-1989



# Adult Kidney Transplant Outcomes

## U.S. Center Results, **2008-2010**

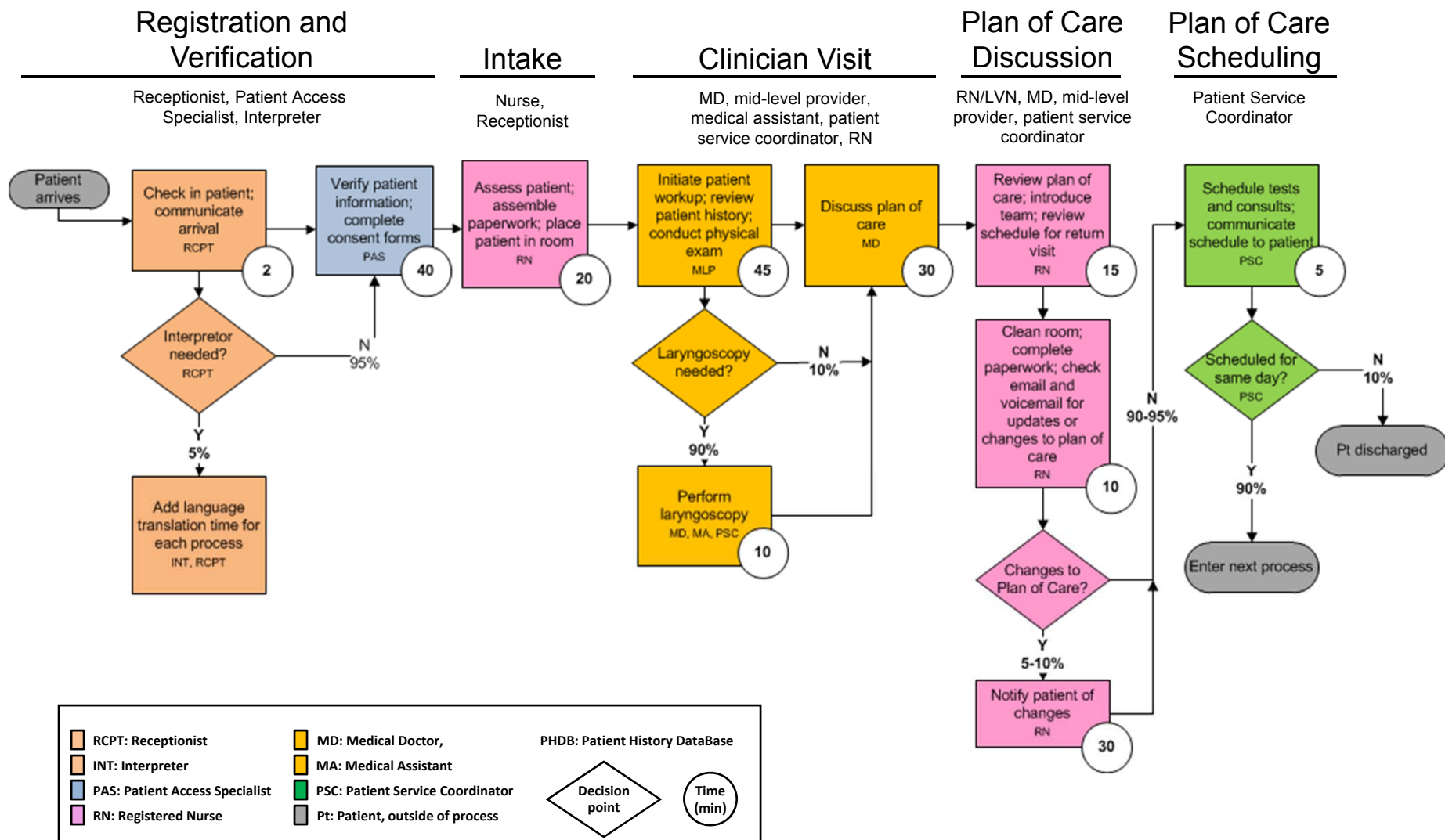


# Measuring the Cost of Care Delivery: Principles

- Cost is the **actual expense** of patient care, not the **charges** billed or collected
- Cost should be measured around the **patient**
- Cost should be aggregated over the **full cycle of care for the patient's medical condition**, not for departments, services, or line items
- Cost depends on the **actual use of resources** involved in a patient's care process (personnel, facilities, supplies)
  - The **time** devoted to each patient by these resources
  - The **capacity cost** of each resource
  - The **support costs** required for each patient facing a resource


# Mapping Resource Utilization

## MD Anderson Cancer Center – New Patient Visit

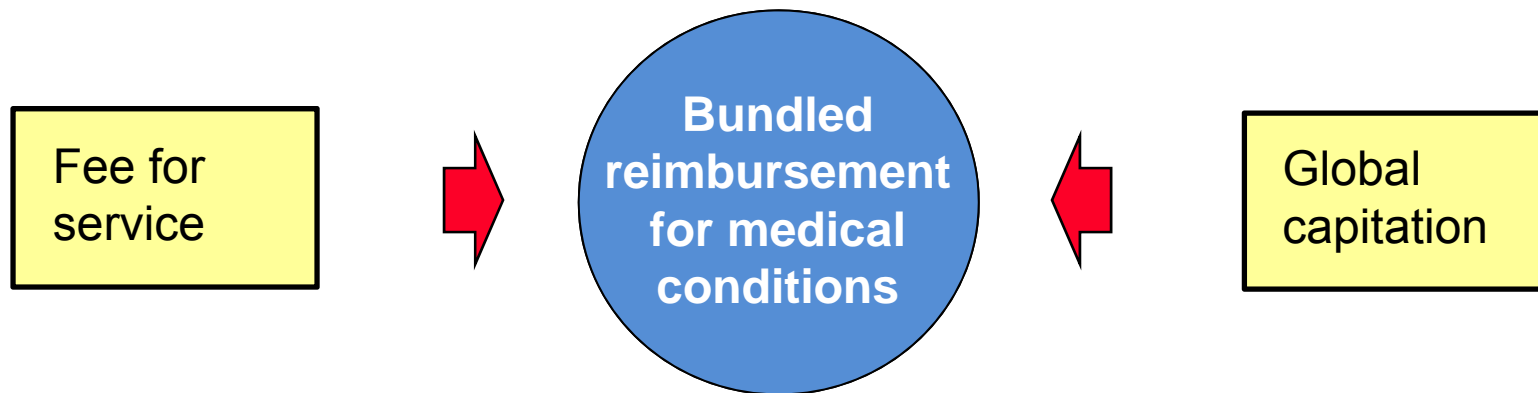




# Selected Cost Reduction Opportunities in Health Care

- **Process variation** that reduces efficiency without improving outcomes
  - Over-provision of **low-** or **non-value adding** services or tests
    - Sometimes to follow rigid protocols or justify billing
  - Redundant **administrative** and **scheduling** units
  - **Low utilization** of expensive physicians, staff, clinical space and equipment, partly due to duplication and service fragmentation
  - Use of **physicians and skilled staff** for less skilled activities
  - Delivering care in **over-resourced** facilities
    - E.g. routine care delivered in expensive hospital settings
  - **Long cycle times** and unnecessary delays
  - Excess **inventory** and weak inventory management
  - Focus on minimizing the costs of discrete services rather than **optimizing the total cost** of the care cycle
  - Lack of **cost awareness** in clinical teams
- 
- There are numerous cost reduction opportunities that do not require outcome **tradeoffs**, but will actually **improve outcomes**

### 3. Reimbursing through Bundled Prices for Care Cycles



#### Bundled Price

- A single price covering the **full care cycle for an acute medical condition**
- Time-based reimbursement for overall care of a **chronic condition**
- Time-based reimbursement for **primary/preventive care** for a **defined patient segment**

# Bundled Payment in Practice

## Hip and Knee Replacement in Stockholm, Sweden

- **Components** of the bundle

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

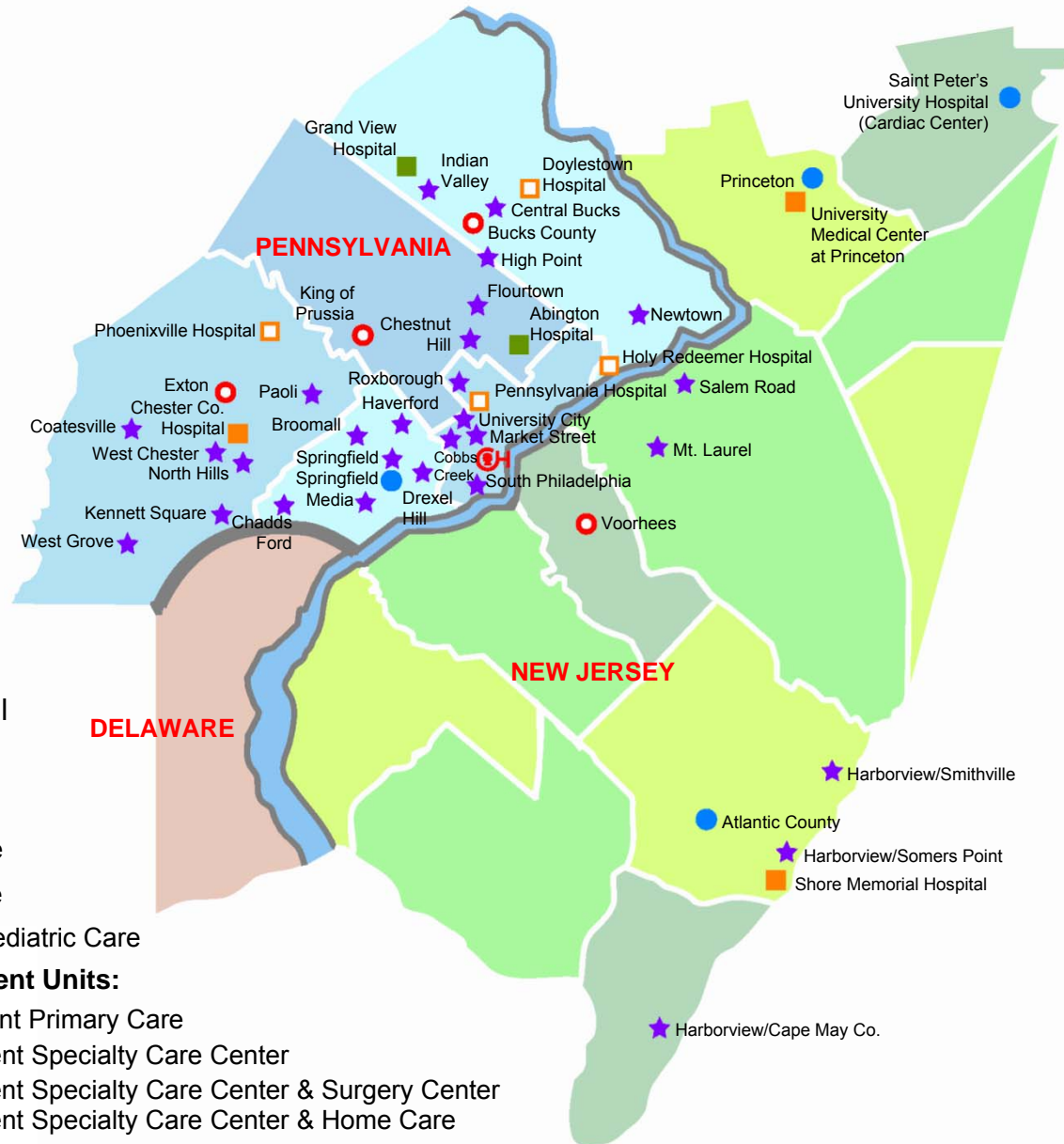
- Currently applies to all **relatively healthy patients** (i.e. ASA scores of 1 or 2)
- The same **referral process** from PCPs is utilized as the traditional system
- **Mandatory reporting** by providers to the joint registry plus supplementary reporting
- Applies to **all** qualifying patients. Provider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




- The Stockholm bundled price for a knee or hip replacement is about **US \$8,000**




# 4. Integrating Care Delivery Across Separate Facilities

## Children's Hospital of Philadelphia Care Network







 The Children's Hospital of Philadelphia®

**Network Hospitals:**

-  CHOP Newborn Care
-  CHOP Pediatric Care
-  CHOP Newborn & Pediatric Care

**Wholly-Owned Outpatient Units:**

-  Pediatric & Adolescent Primary Care
-  Pediatric & Adolescent Specialty Care Center
-  Pediatric & Adolescent Specialty Care Center & Surgery Center
-  Pediatric & Adolescent Specialty Care Center & Home Care

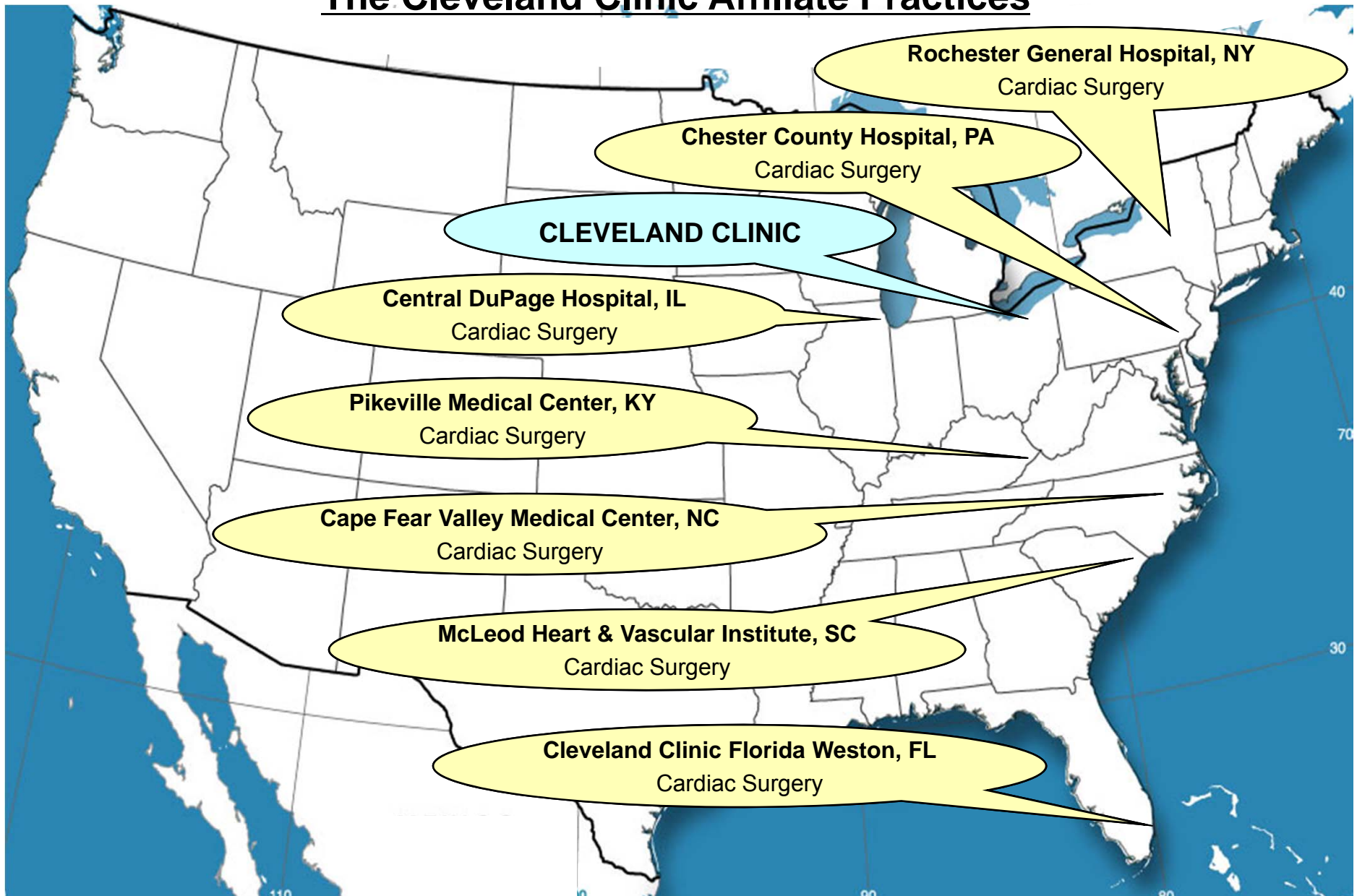
# Four Levels of Provider System Integration

1. Choose an **overall scope of services** where the provider system can achieve excellence in value
2. **Rationalize service lines / IPUs across facilities** to improve volume, better utilize resources, and deepen teams
3. Offer specific services at the **appropriate facility**
  - E.g. acuity level, resource intensity, cost level, need for convenience
4. Clinically integrate care **across units and facilities** using an IPU structure
  - Integrate services across the care cycle
  - Integrate preventive/primary care units with specialty IPUs



- There are major value improvements available from **concentrating volume** by medical condition and moving care **out of heavily resourced** hospital, tertiary and quaternary facilities

## 5. Expanding Across Geography The Cleveland Clinic Affiliate Practices

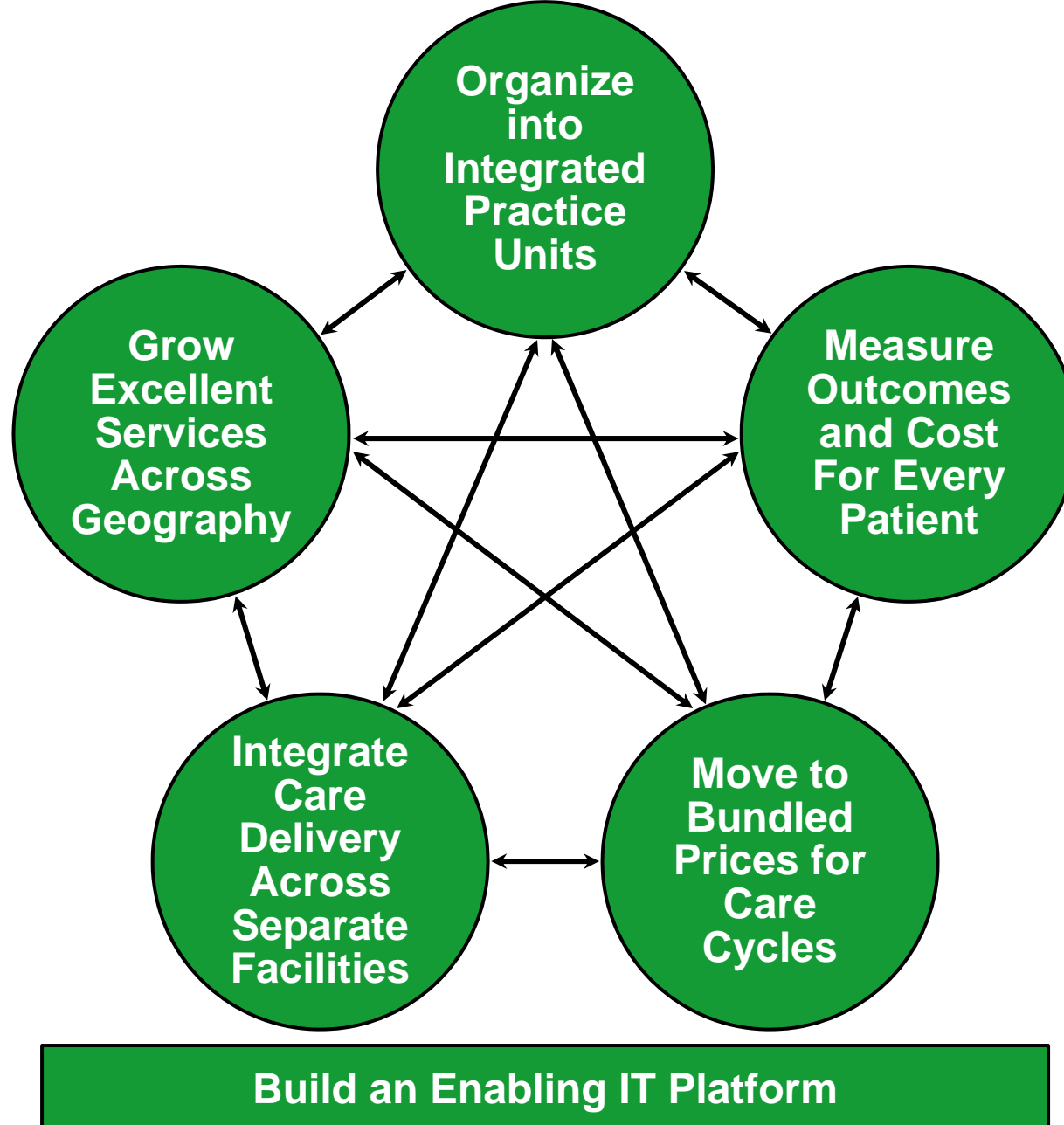


## 6. Building an Enabling Information Technology Platform

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

- Common **data definitions**
- Combine **all types of data** (e.g. notes, images) for each patient
- Data encompasses the **full care cycle**, including care by referring entities
- Allow access and communication among **all involved parties**, including with patients
- **Templates** for medical conditions to enhance the user interface
- “**Structured**” data vs. free text
- Architecture that allows easy extraction of **outcome measures**, **process measures**, and **activity-based cost measures** for each patient and medical condition
- Interoperability standards enabling communication among **different provider** (and payor) **organizations**

# A Mutually Reinforcing Strategic Agenda





# Creating a Value-Based Health Care Delivery System

## Implications for Government

1. Organise Care into Integrated Practice Units (IPUs) Around Patient Medical Conditions
  - Reduce **regulatory obstacles** to care integration
  - Introduce **certification standards** that include multidisciplinary teams, care cycle coverage, unified patient scheduling, and care management
2. Measure Outcomes and Cost for Every Patient
  - Create a **national framework of medical condition outcome registries** and a path to universal measurement
  - Tie reimbursement to outcome **reporting** (e.g., through registries)
  - Introduce **cost accounting standards** that measure actual resource use by patient condition
3. Reimburse through Bundled Prices for Care Cycles
  - Create a **bundled pricing framework** and support local roll out across specialty conditions and primary care segments

# Creating a Value-Based Health Care Delivery System

## Implications for Government

4. Integrate Care Delivery Across Separate Facilities
  - Introduce **minimum volume standards** by medical condition to enable consolidation of services to support excellence
5. Expand Excellent IPUs Across Geography
  - Encourage **affiliations** between providers who fall below minimum volume standards and qualifying centers of excellence for more complex care
6. Build an Enabling Information Technology Platform
  - Set **standards** for common data definitions, interoperability, and the ability to easily extract outcome, process, and costing measures for qualifying HIT systems
  - Promote **transparency** and patient ownership of information