

# Value-Based Health Care Delivery

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*January 7, 2013*

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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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# Creating a Value-Based Health Care Delivery System

## The Strategic Agenda

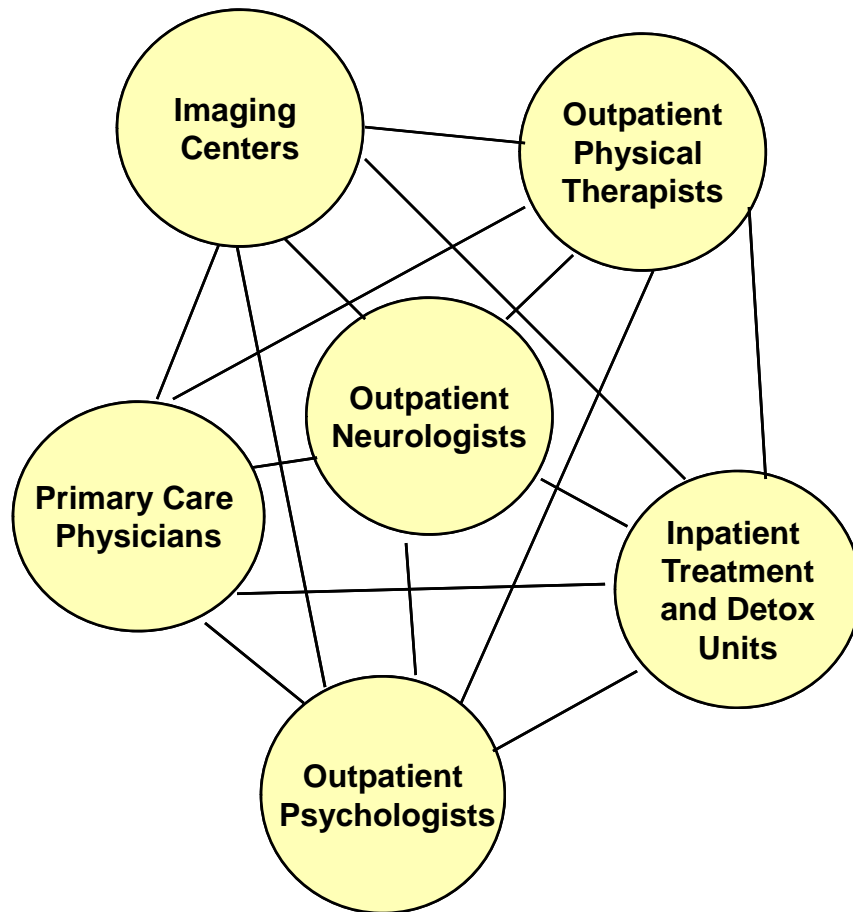
1. Organize Care into **Integrated Practice Units (IPUs)** around Patient Medical Conditions
  - Organize primary and preventive care to serve **distinct patient segments**
2. Measure **Outcomes** and **Cost** for Every Patient
3. Reimburse through **Bundled Prices** for Care Cycles
4. Integrate Care Delivery Across **Separate Facilities**
5. Expand Geographic Coverage by **Excellent Providers**
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



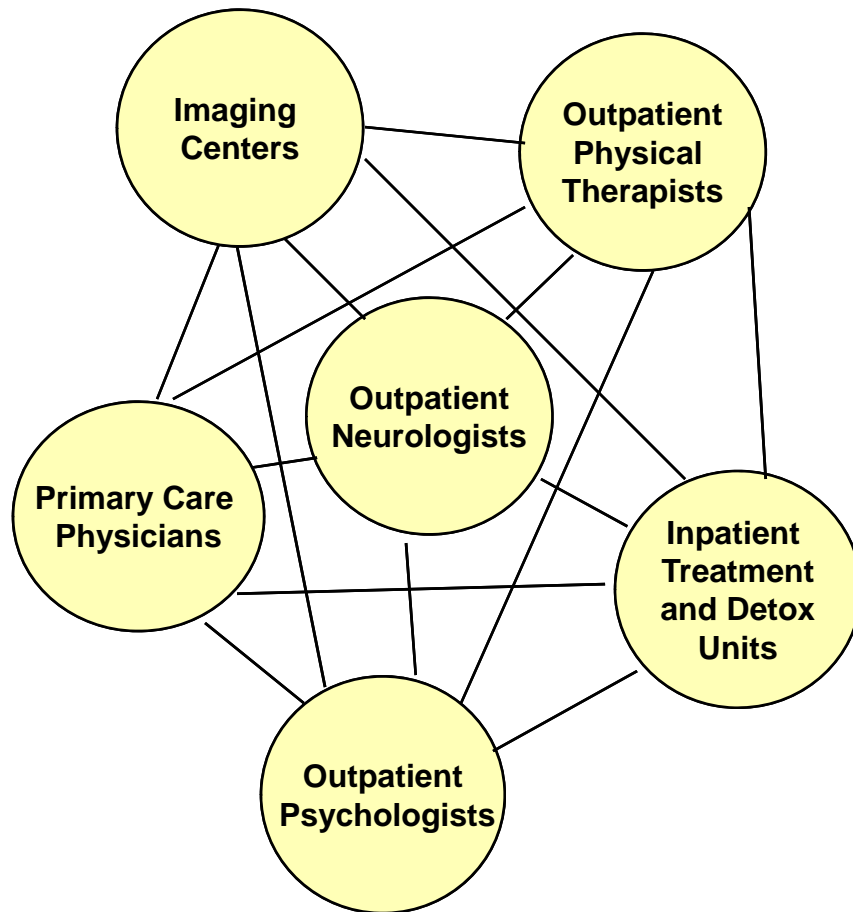
Source: Porter, Michael E., Clemens Guth, and Elisa Dannemiller, *The West German Headache Center: Integrated Migraine Care*, Harvard Business School Case 9-707-559, September 13, 2007

# 1. Organizing Care Around Patient Medical Conditions

## Migraine Care in Germany

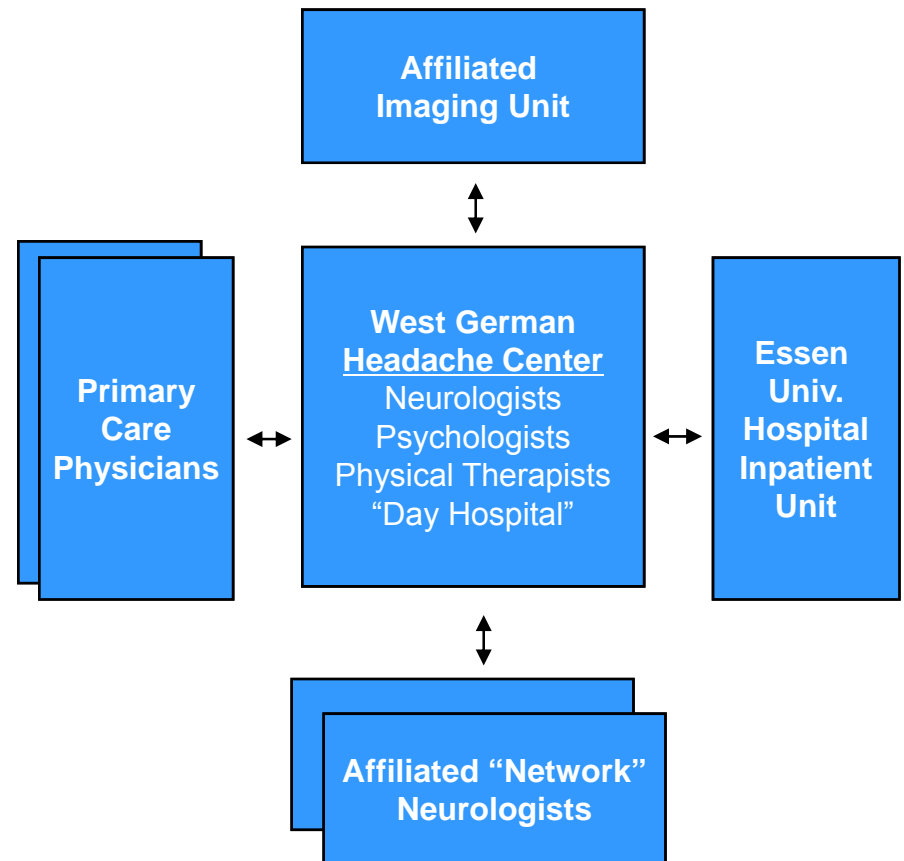
### Existing Model:

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
  - E.g., diabetes, breast cancer, knee osteoarthritis
- 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>	<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 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>

# Value-Based Primary Care

Organize primary care **around patient segments** with similar health circumstances and care needs:

## Illustrative Segments

- Healthy adults
- Mothers and young children
- Adults at risk of developing chronic or acute disease
  - E.g. family history, environmental exposures, lifestyle
- Chronically ill adults with one or more complex chronic conditions
  - E.g. diabetes, COPD, heart failure
- Adults with rare conditions
- Frail elderly or disabled

## Tailor the Care Delivery Team and Facilities to Each Segment

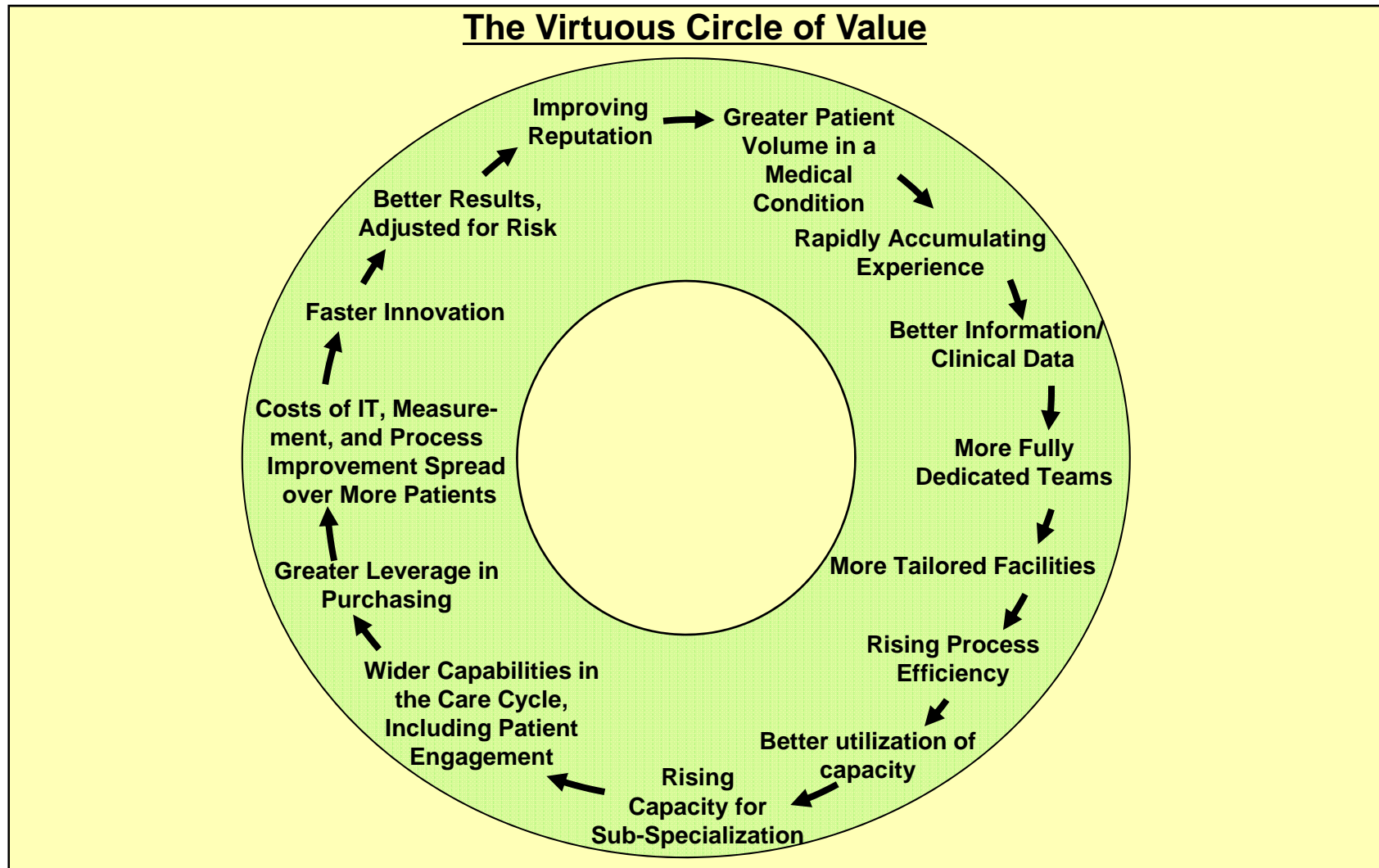
- The set of physicians, nurses, educators, and other staff best equipped to meet the medical and non-medical needs of the segment
- Care delivered in locations reflecting patient circumstances

# 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. Takes responsibility for 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. Incorporates **patient education, engagement, and follow-up** as integral to care
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. Providers function as a team, **meeting formally and informally** on a regular basis to discuss patients, processes and results
11. Accepts **joint accountability** for outcomes and costs



# 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**

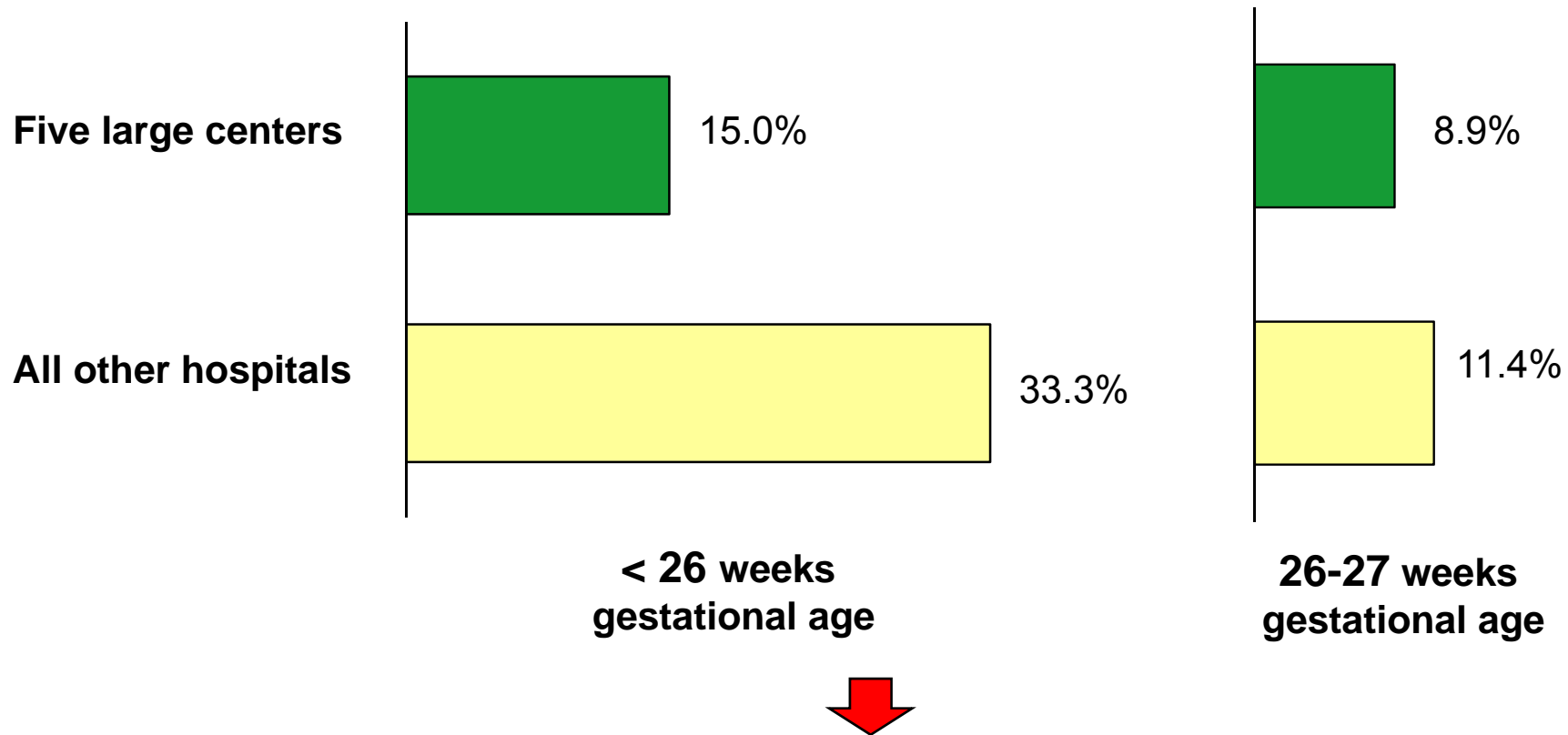
### **Fragmentation of Hospital Services in Sweden**

<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.

# Low Volume Undermines Value

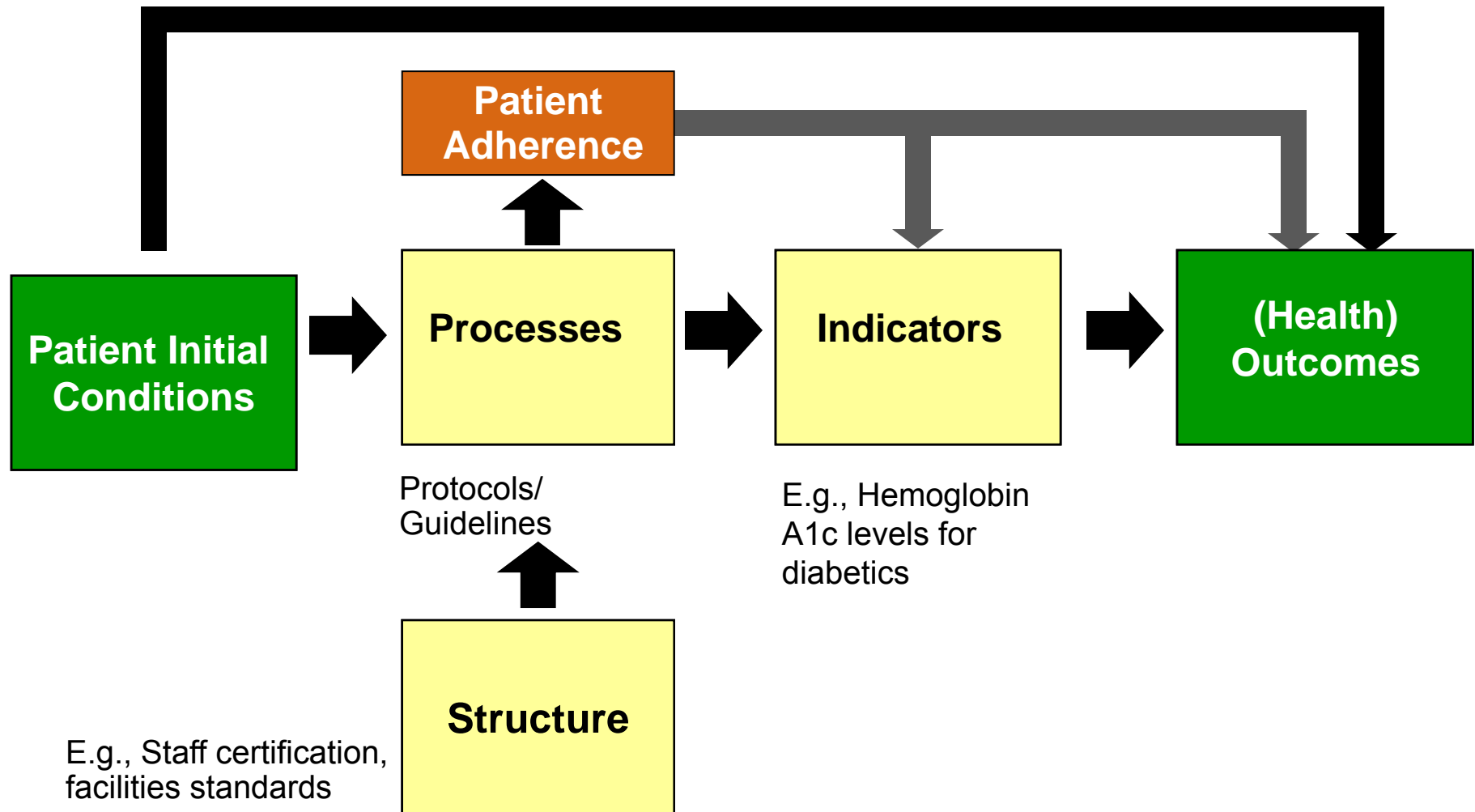
## Mortality of Low-birth Weight Infants in Baden-Württemberg, Germany



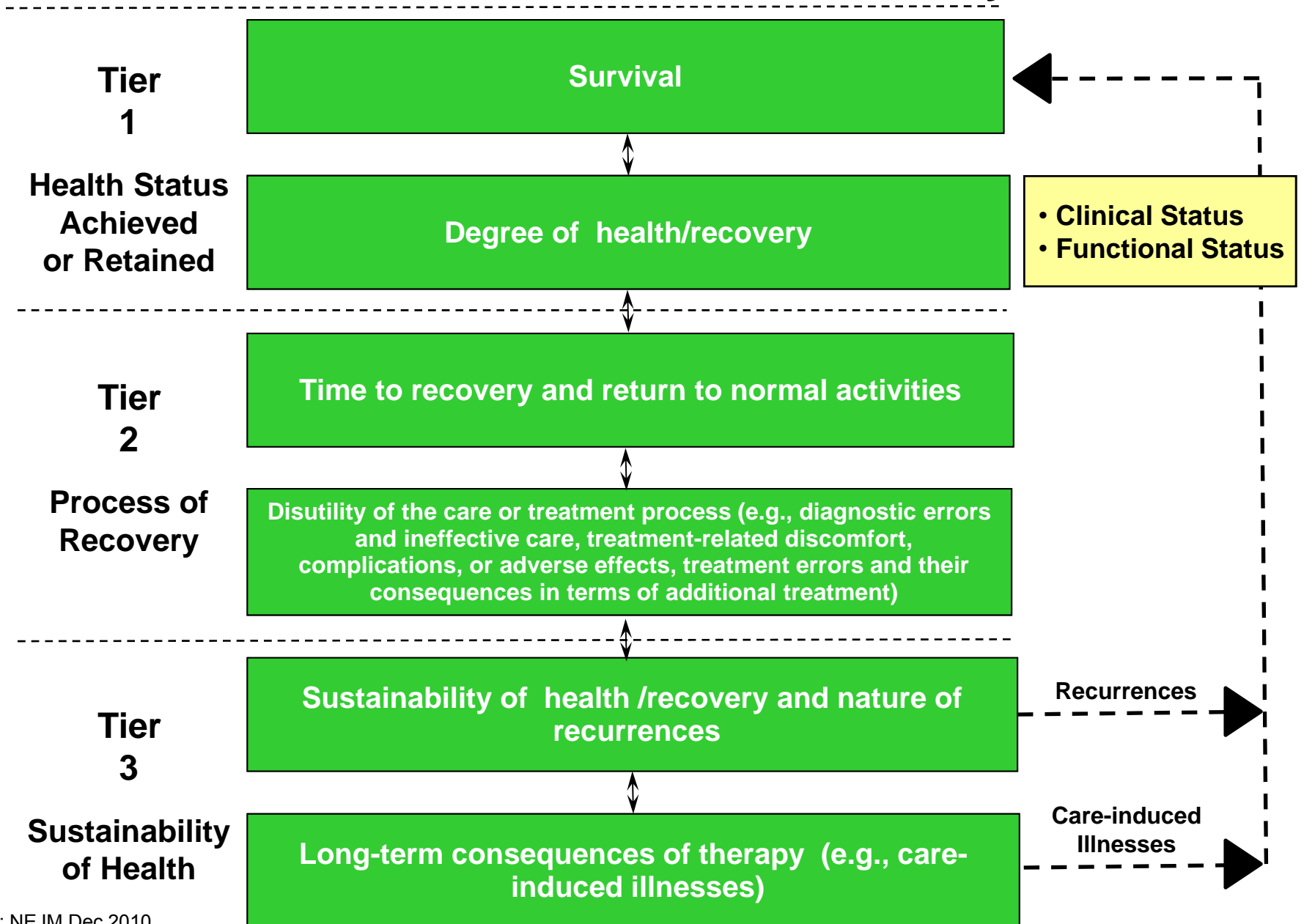
- **Minimum volume standards** are an interim step to drive value and service consolidation in the absence of rigorous outcome information

## 2. Measuring Outcomes and Cost for Every Patient

### The Measurement Landscape

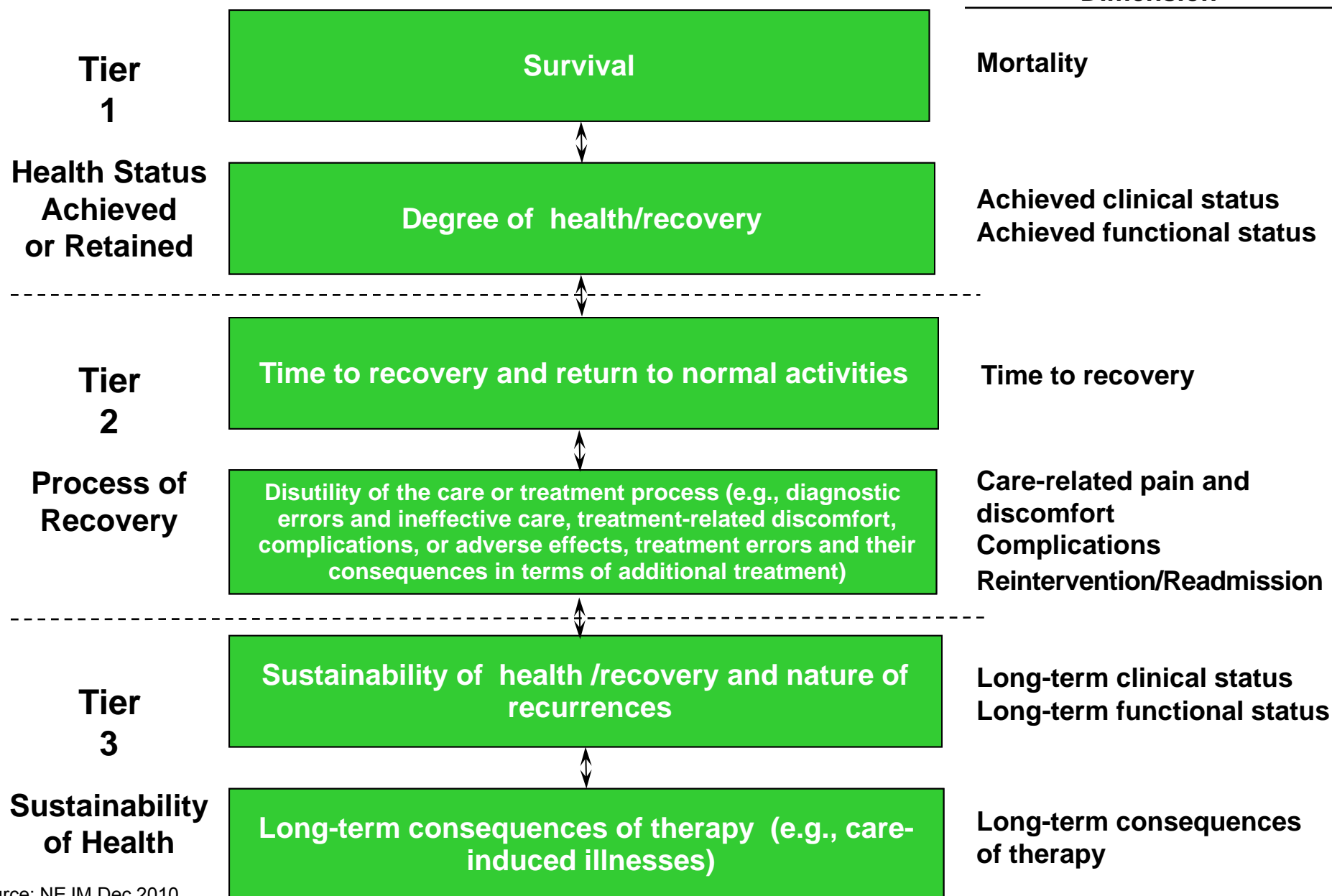


# The Outcome Measures Hierarchy



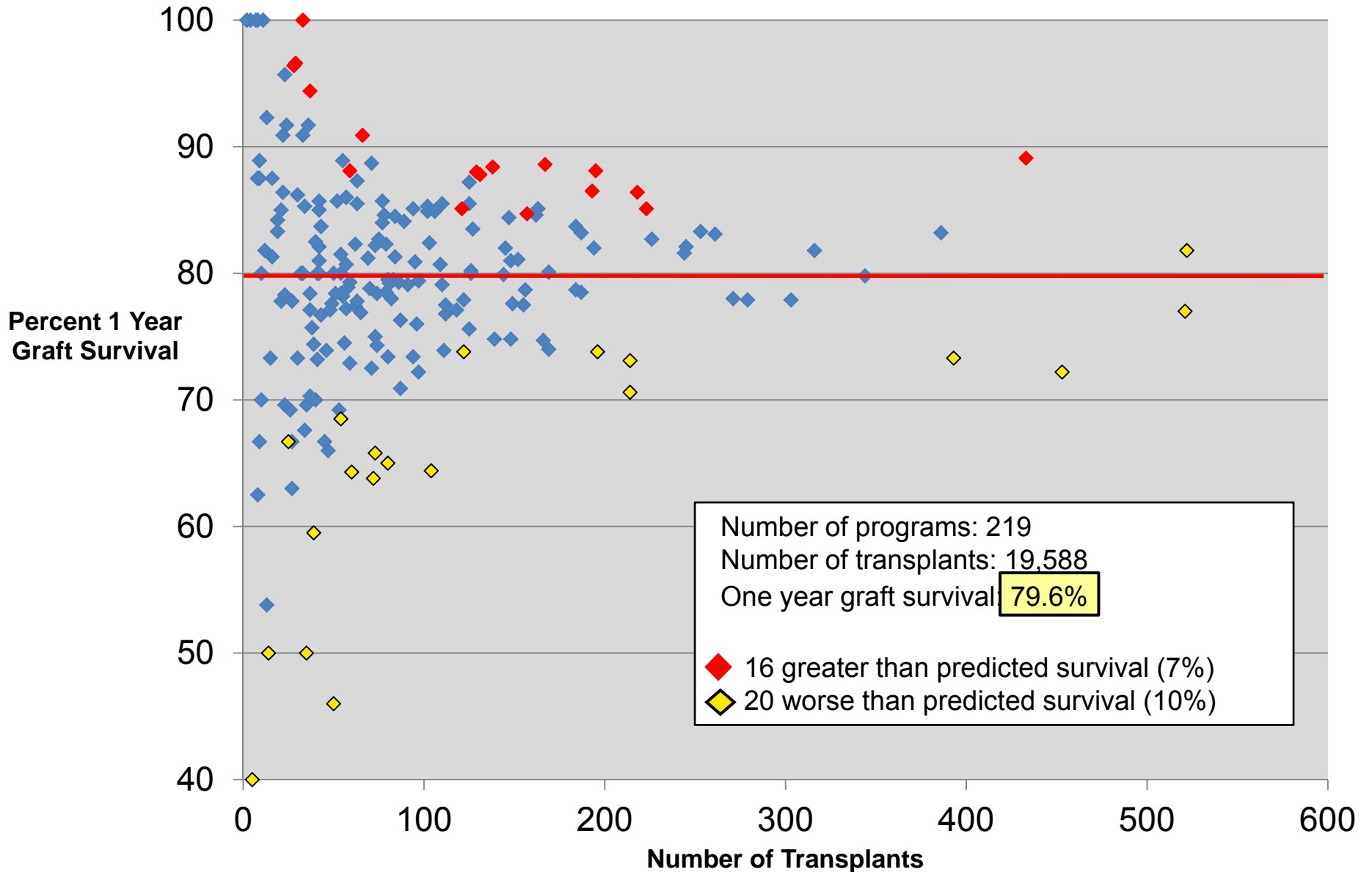
# The Outcome Measures Hierarchy

Dimension



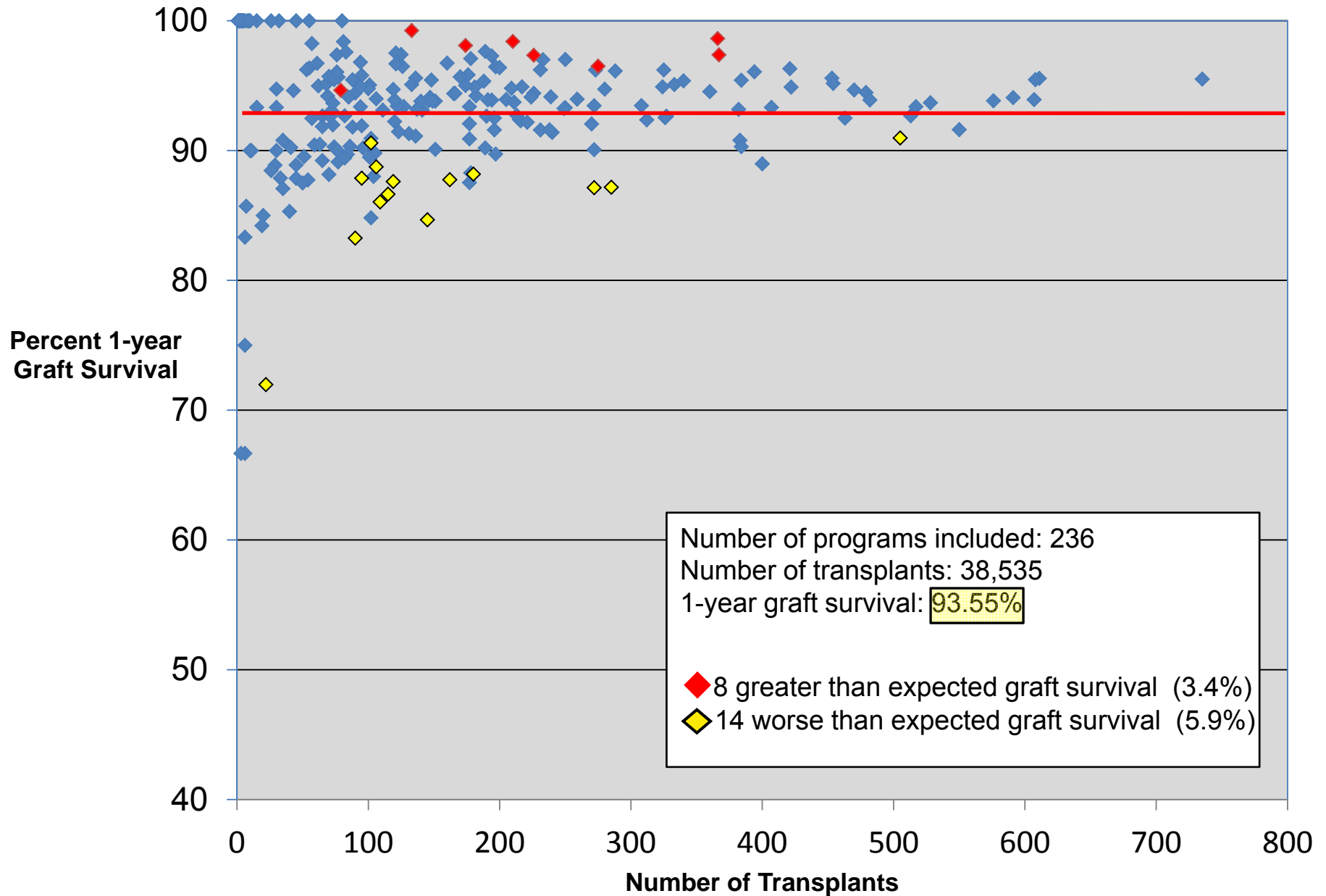
# Adult Kidney Transplant Outcomes

## U.S. Centers, 1987-1989



# Adult Kidney Transplant Outcomes

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



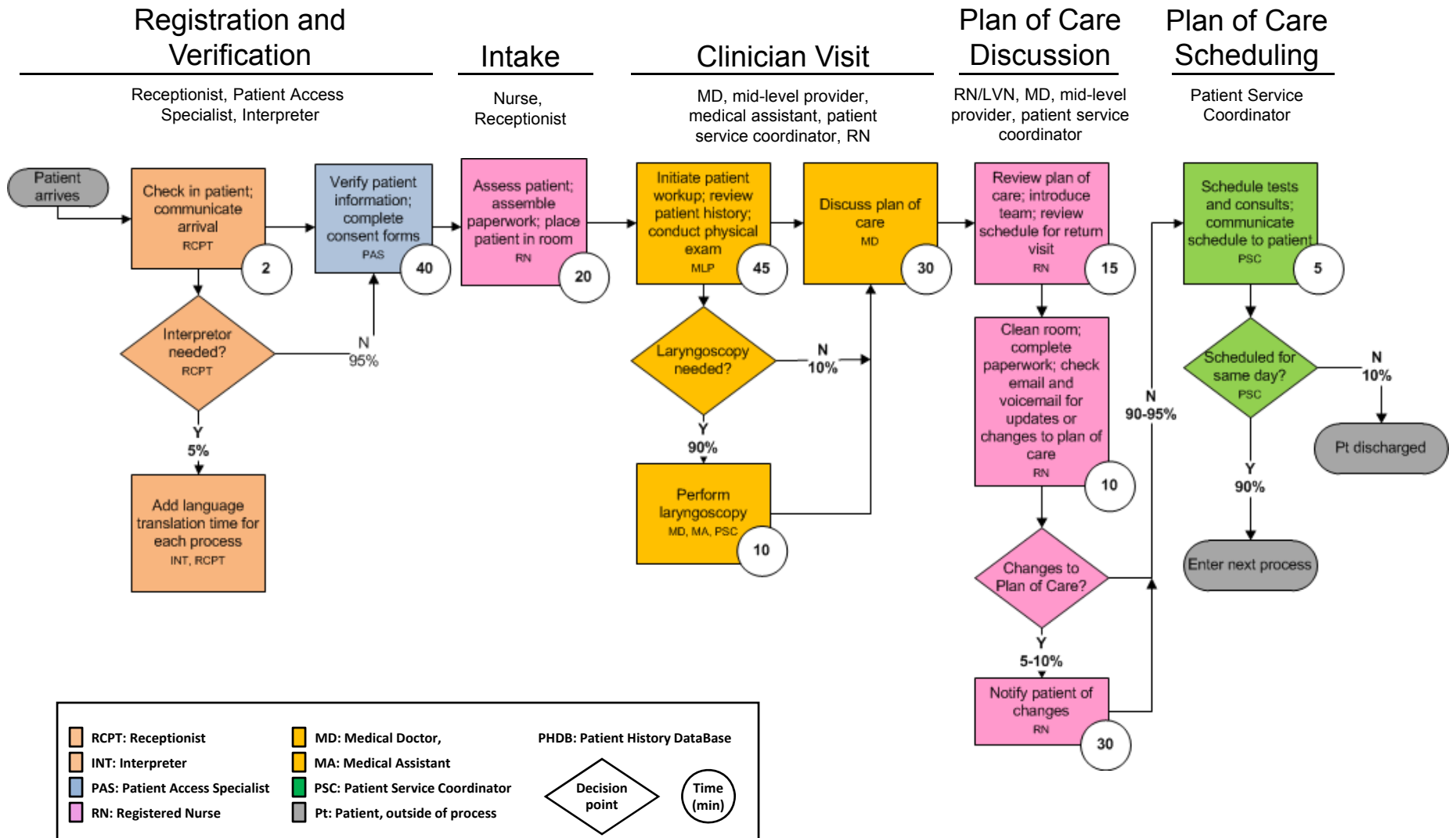


# Measuring the Cost of Care Delivery: Principles

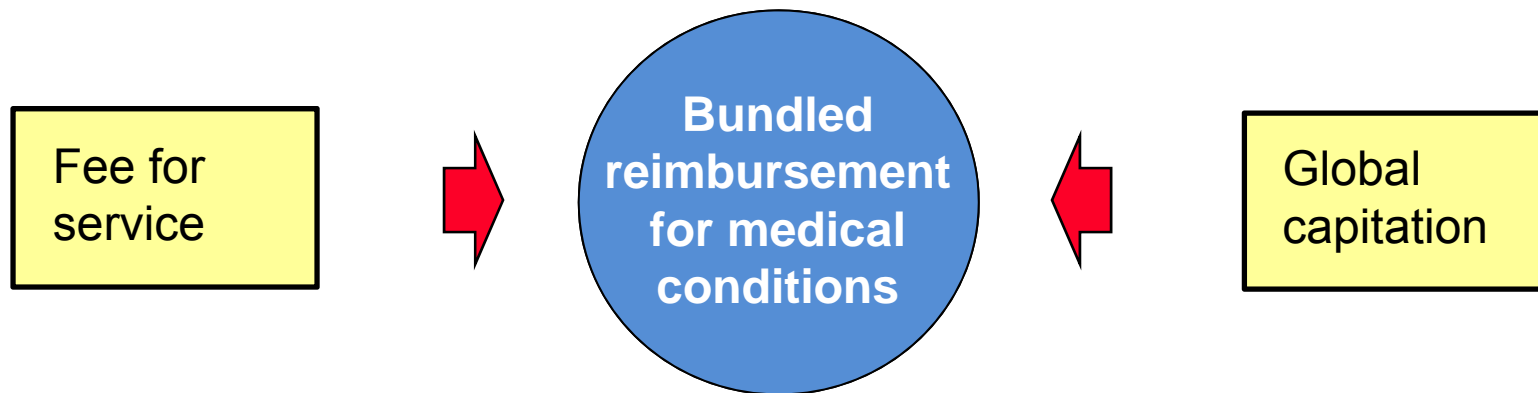
- Cost is the **actual expense** of patient care, not the **charges** billed or collected
- Cost should be measured around the **patient**
- Cost should be aggregated over the **full cycle of care for the patient's medical condition**, not for departments, services, or line items
- Cost depends on the **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 resource

# Mapping Resource Utilization

## MD Anderson Cancer Center – New Patient Visit



### 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	

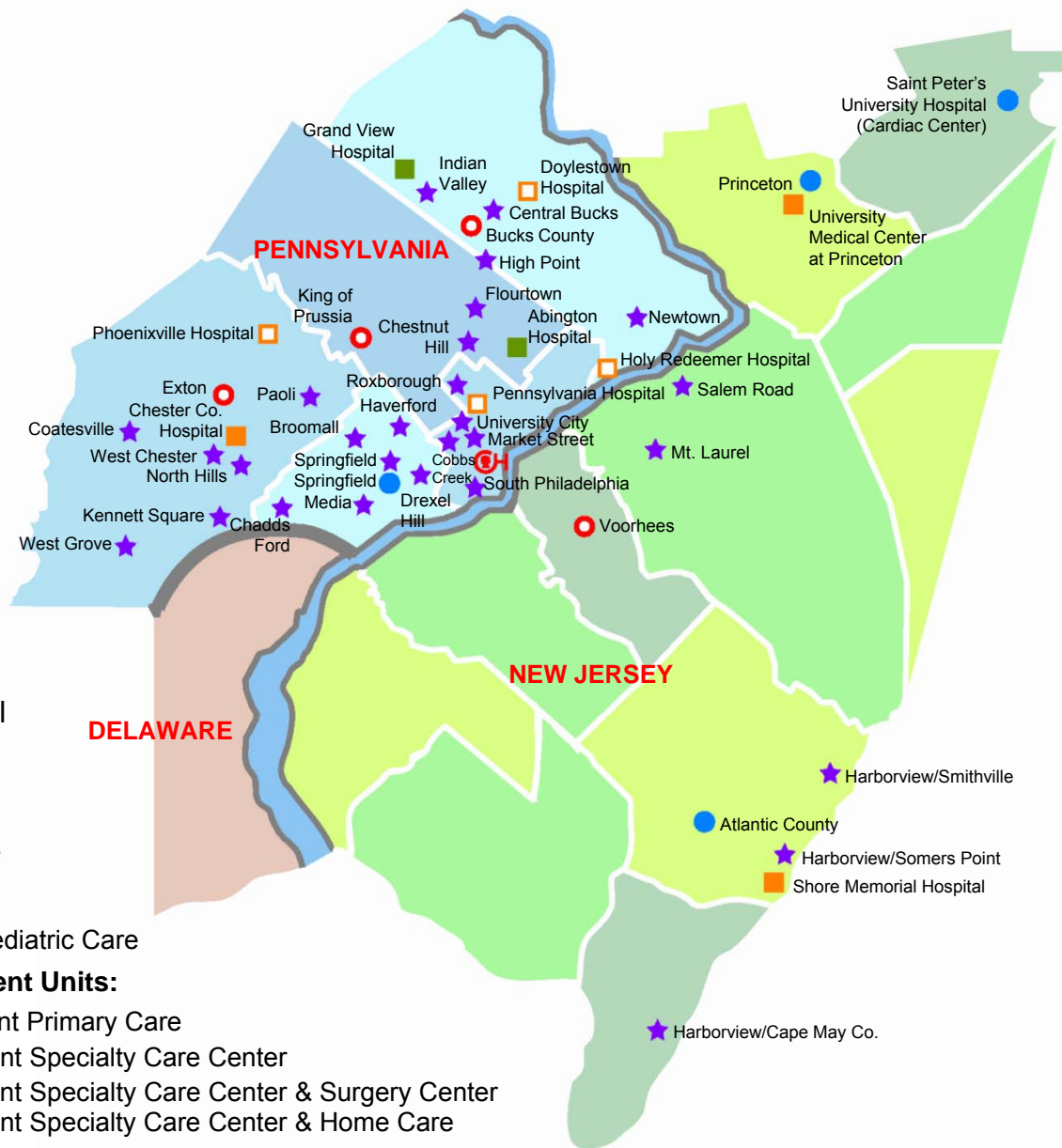
- Currently applies to all **relatively healthy patients** (i.e. ASA scores of 1 or 2)
- The same **referral process** from PCPs is utilized as the traditional system
- **Mandatory reporting** by providers to the joint registry plus supplementary reporting
- Applies to **all** qualifying patients. Provider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



# 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**
  - Based on medical condition, acuity level, resource intensity, cost level, need for convenience
  - E.g., shifting routine surgeries to smaller, more specialized facilities
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 Geographic Coverage by Excellent Providers

### Leading Providers

- Grow **areas of excellence across geography**:
  - **Hub and spoke** expansion of less complex or satellite pre- and post-acute services
  - **Affiliations** with community providers to extend the reach of IPUs
- Increase the **volume of patients** in medical conditions or primary care segments vs. **widening** service lines locally, or adding new **broad line** units

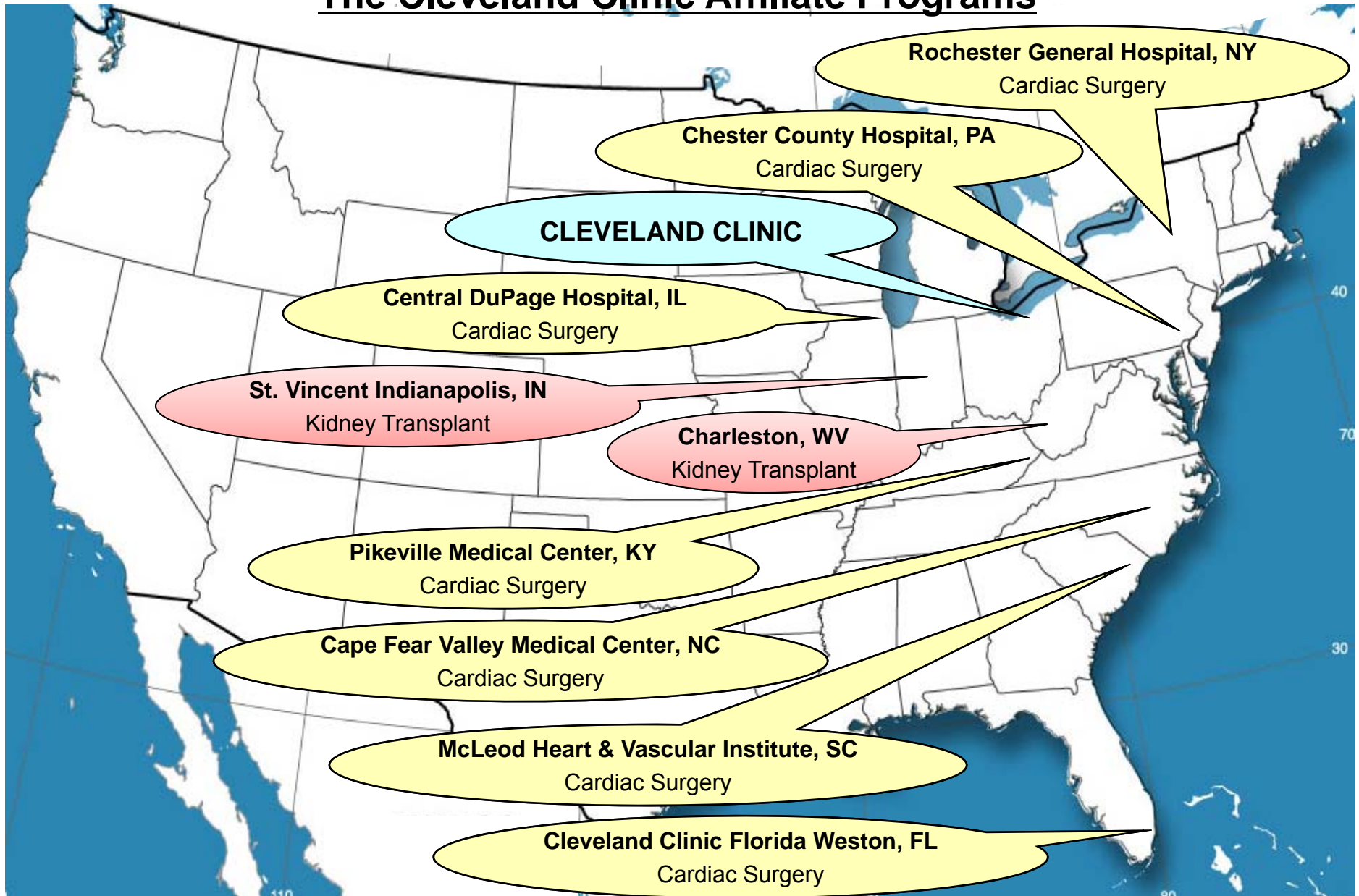


### Community Providers

- **Affiliate with excellent providers** in more complex medical conditions and patient segments in order to access expertise, facilities and services to enable high value care
  - New roles for **rural** and **community** hospitals

# Expanding Geographic Coverage by Excellent Providers

## The Cleveland Clinic Affiliate Programs



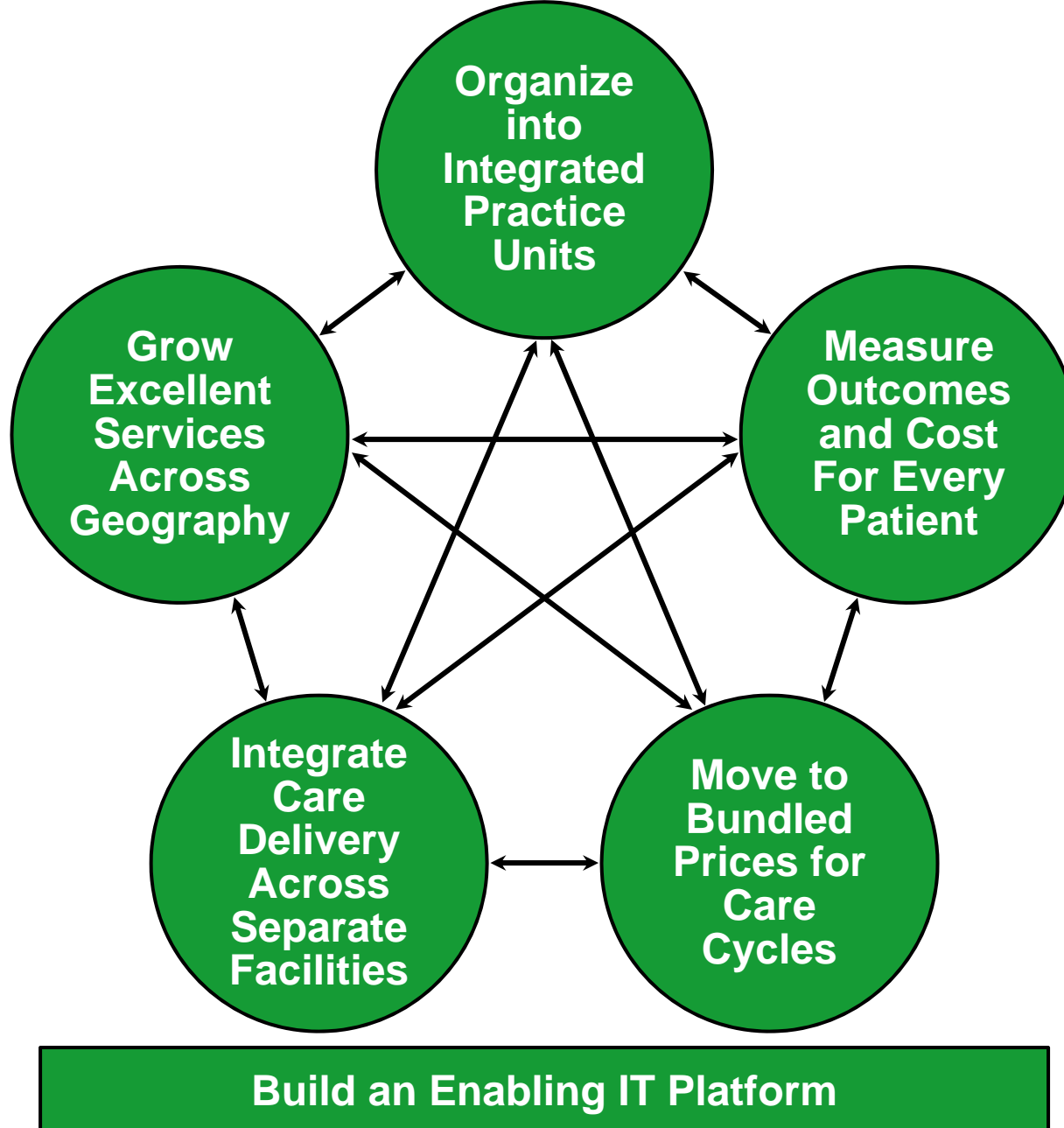


## 6. Building an Enabling Information Technology Platform

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 Physician Leaders

1. Integrated Practice Units (IPUs)

- Lead **multidisciplinary teams**, not specialty silos

2. Measure Cost and Outcomes

- Become an expert in **measurement** and **process improvement**

3. Move to Bundled Prices

- Proactively develop new **bundled reimbursement options** and **care guarantees**

4. Integrate Across Separate Facilities

- Champion **value enhancing rationalization, relocation, and integration** with sister hospitals, as well as between inpatient and outpatient units, instead of protecting turf

5. Expand Excellence Across Geography

- Create networks and affiliations to expand high-value care **outside the local area**

6. Enabling IT Platform

- Become a **champion for the right EMR** systems, not an obstacle to their adoption and use