

FACULTY PERSPECTIVES ON HEALTHCARE

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

Topic: “Value-Based Health Care Delivery.”

WELCOME BY **ROBERT HUCKMAN**,
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Value-Based Health Care Delivery

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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

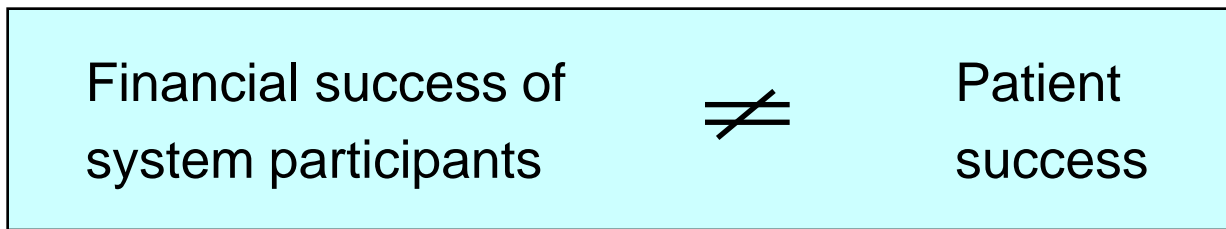
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

Today, 21st century medical technology is often delivered with 19th 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 | - Fewer complications |
| - Early detection | - Fewer mistakes and repeats in treatment |
| - Right diagnosis | - Faster recovery |
| - Right treatment to the right patient | - More complete recovery |
| - Rapid cycle time of diagnosis and treatment | - Greater functionality and less need for long term care |
| - Treatment earlier in the causal chain of disease | - Fewer recurrences, relapses, flare ups, or acute episodes |
| - Less invasive treatment methods | - 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

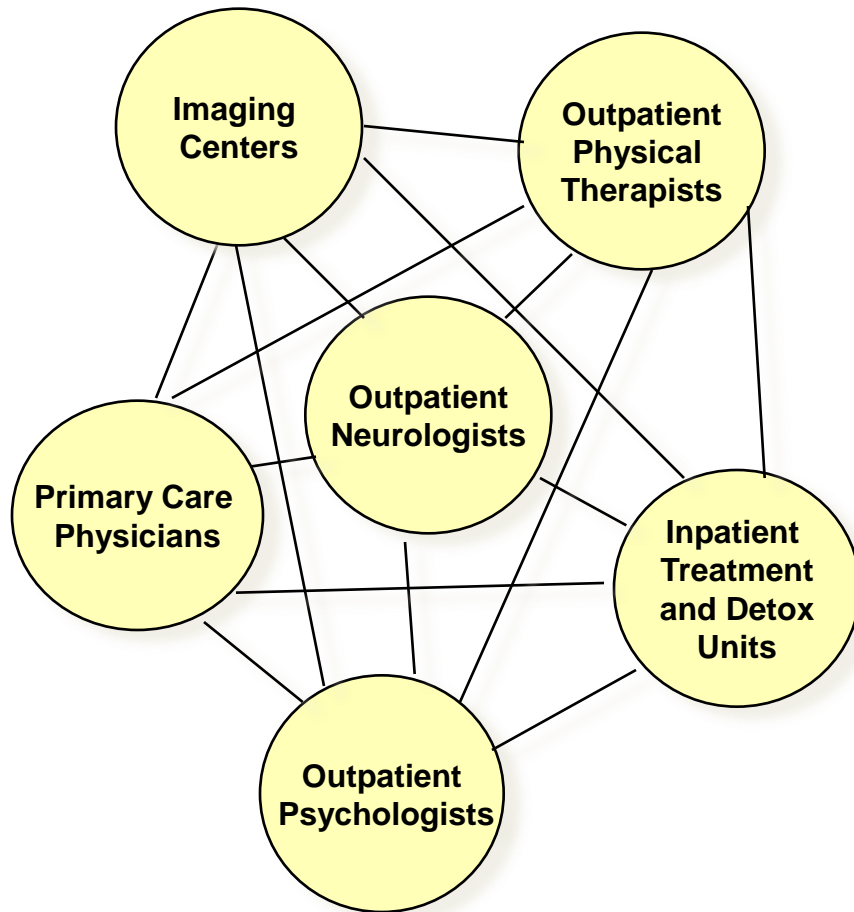
1. Organize Care into **Integrated Practice Units (IPUs)** around Patient Medical Conditions
 - Organize primary and preventive care to serve **distinct patient segments**
2. Measure **Outcomes** and **Cost** for Every Patient
3. Reimburse through **Bundled Prices** for Care Cycles
4. Integrate Care 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



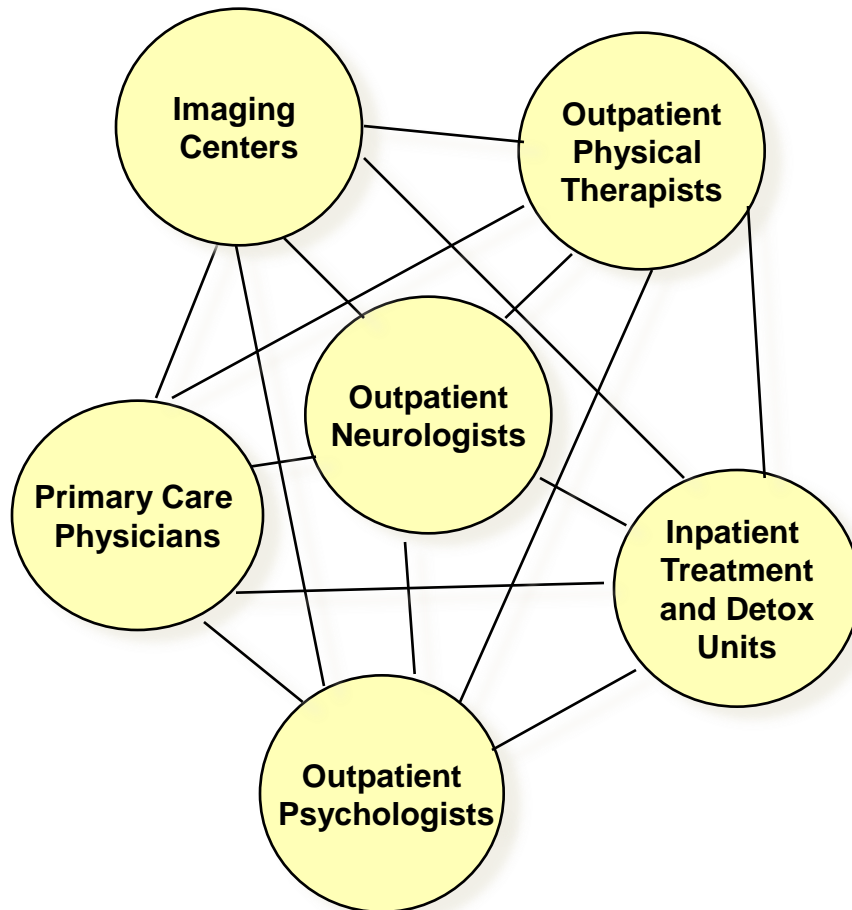
Source: Porter, Michael E., Clemens Guth, and Elisa Dannemiller, *The West German Headache Center: Integrated Migraine Care*, Harvard Business School Case 9-707-559, September 13, 2007

1. Organizing Care Around Patient Medical Conditions

Migraine Care in Germany

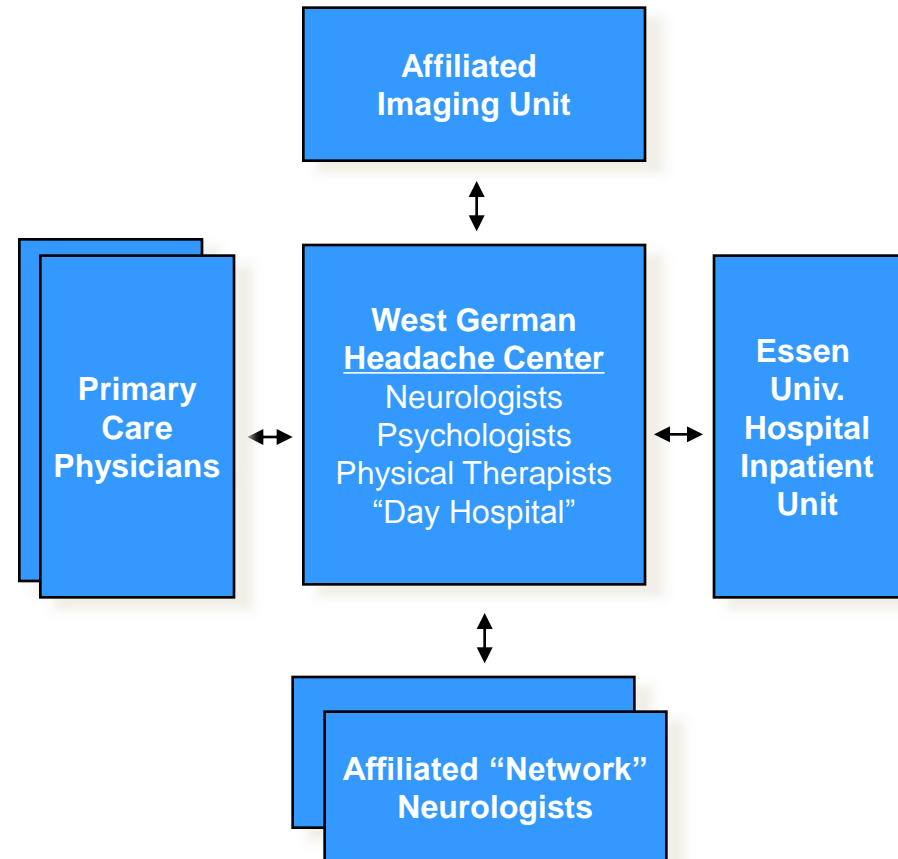
Existing Model:

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

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

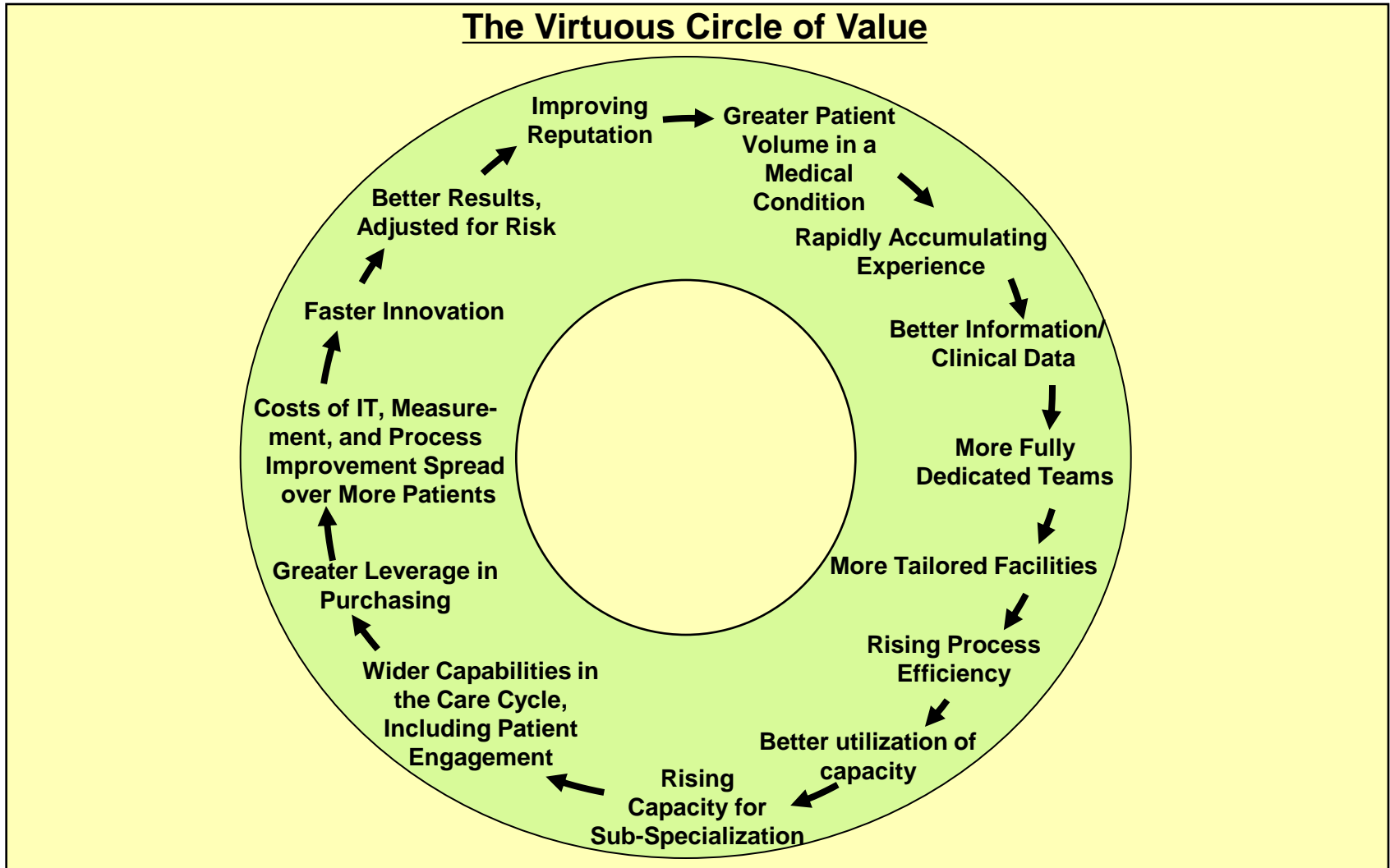
Attributes of an Integrated Practice Unit (IPU)

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 IPU 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

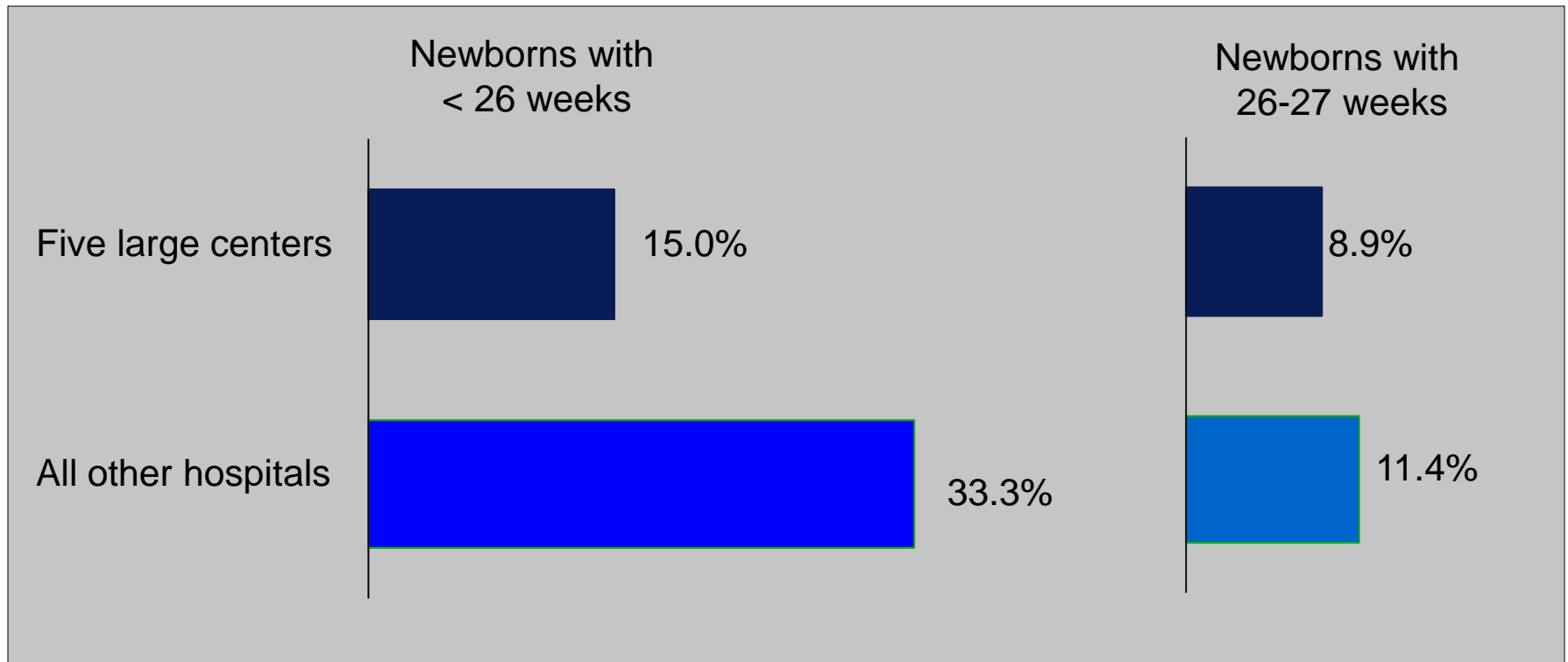
Source: Compiled from The National Board of Health and Welfare Statistical Databases – DRG Statistics, Accessed April 2, 2009.



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

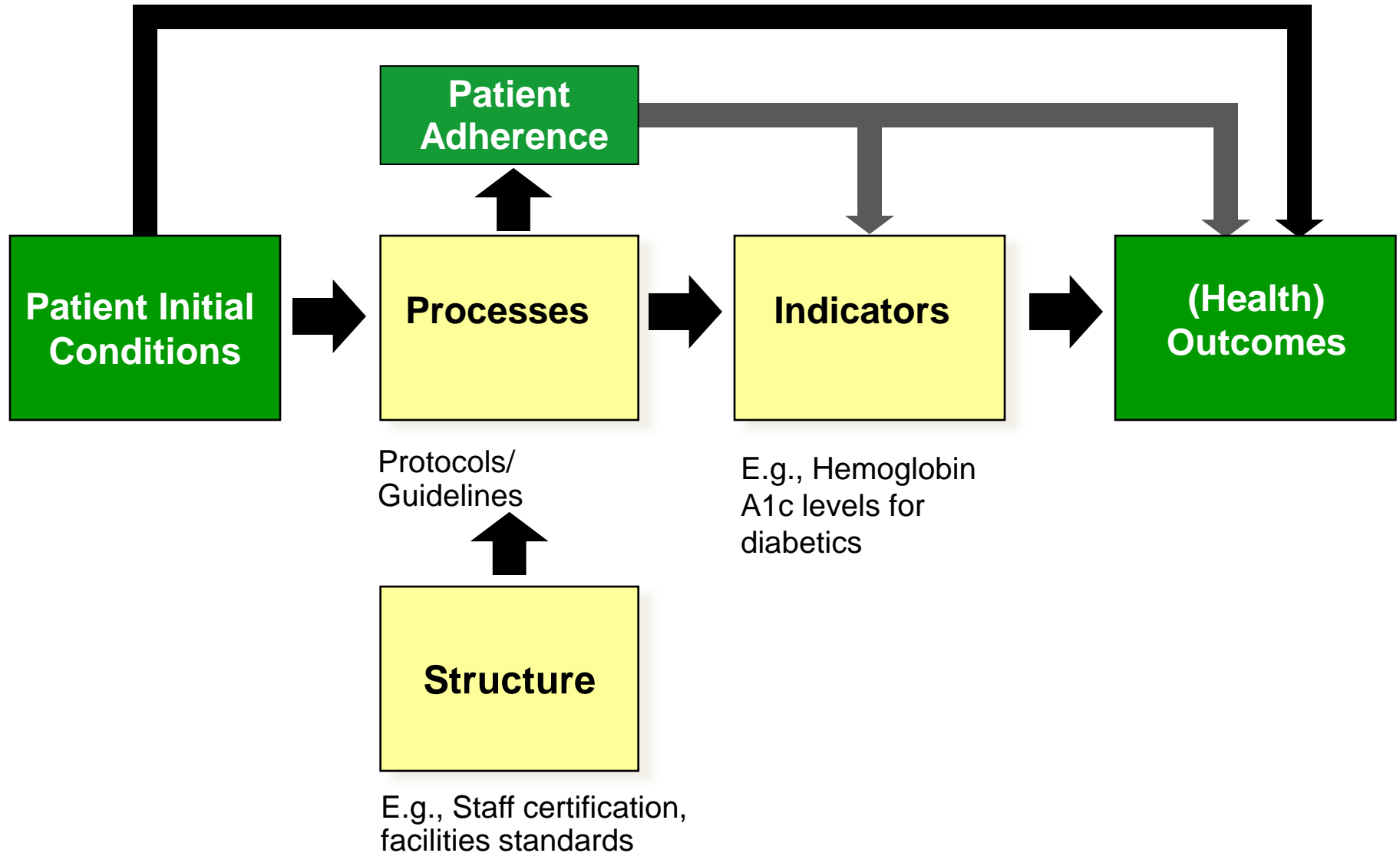
Low Volume Undermines Value: Germany

Mortality of low-birth weight infants in Baden-Württemberg

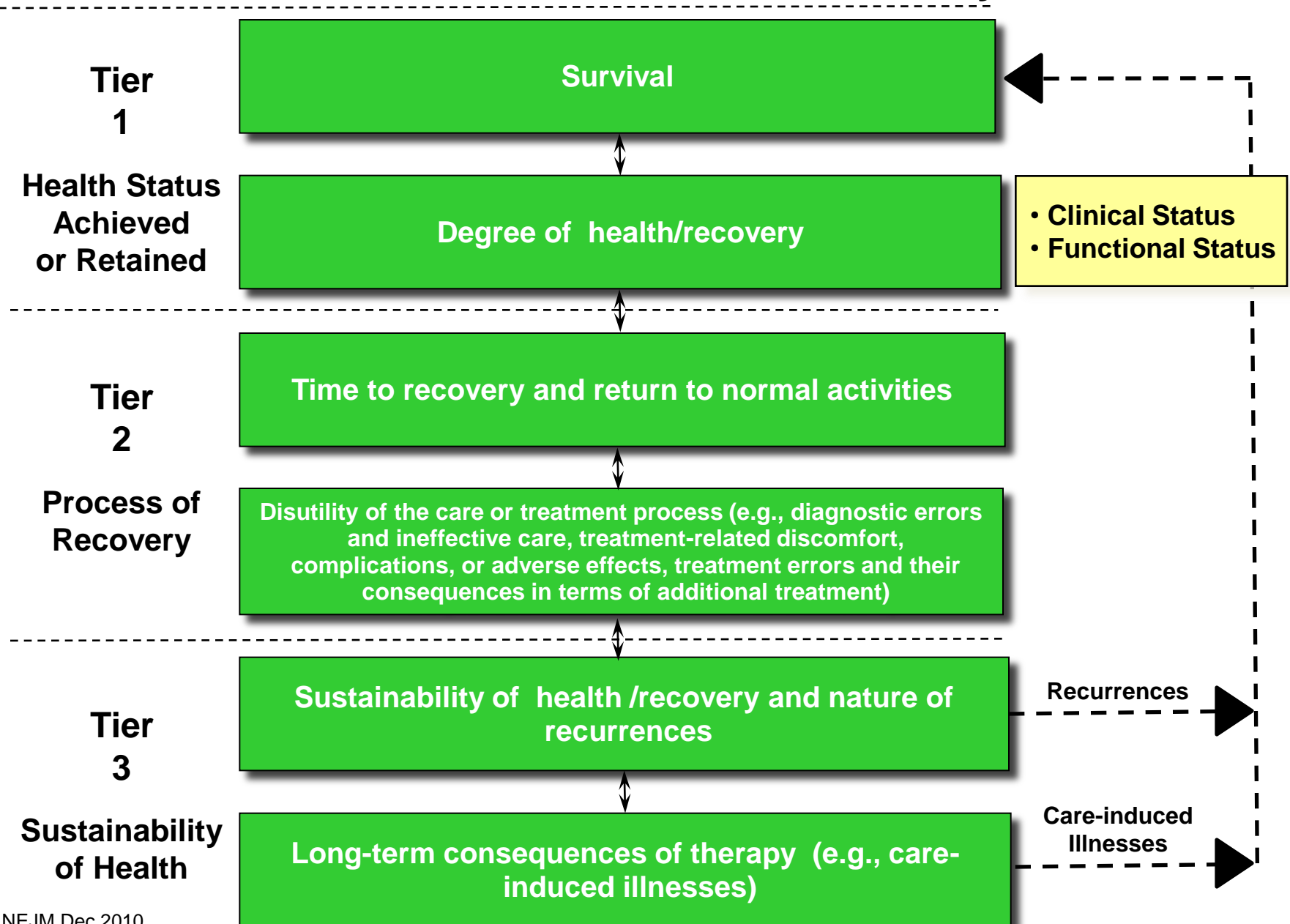


Source: Hummer et al, Zeitschrift für Geburtshilfe und Neonatologie, 2006; Results duplicated in AOK study: Heller G, Gibt es einen Volumen-Outcome-Zusammenhang bei der Versorgung von Neugeborenen mit sehr niedrigem Geburtsgewicht in Deutschland – Eine Analyse mit Routinedaten, Wissenschaftliches Institut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

2. Measuring Outcomes and Cost for Every Patient



The Outcome Measures Hierarchy



The Outcome Measures Hierarchy

Head and Neck Cancer

Survival

- Survival
- Cancer free survival

Degree of recovery / health

- Achieved remission
- Ability to speak
- Ability to eat normally
- Maintenance of facial appearance

- Pain status
- Mental health status

Time to recovery or return to normal activities

- Time to remission
- Time to completion of treatment plan

- Time to normal speech
- Time to feeding tube removal
- Time to best pain status
- Days of work missed

Disutility of care or treatment process (e.g., treatment-related discomfort, complications, adverse effects, diagnostic errors, treatment errors)

- Nosocomial infection
- Nausea/Vomiting
- Fatigue
- Febrile neutropenia
- Thrombocytopenia
- Radiation dermatitis

- Anxiety
- Depression
- Pain
- Loss of speech
- Need for feeding tube
- Unnecessary facial disfigurement

Sustainability of recovery or health over time

- Cancer recurrence

- Sustainability of functional status

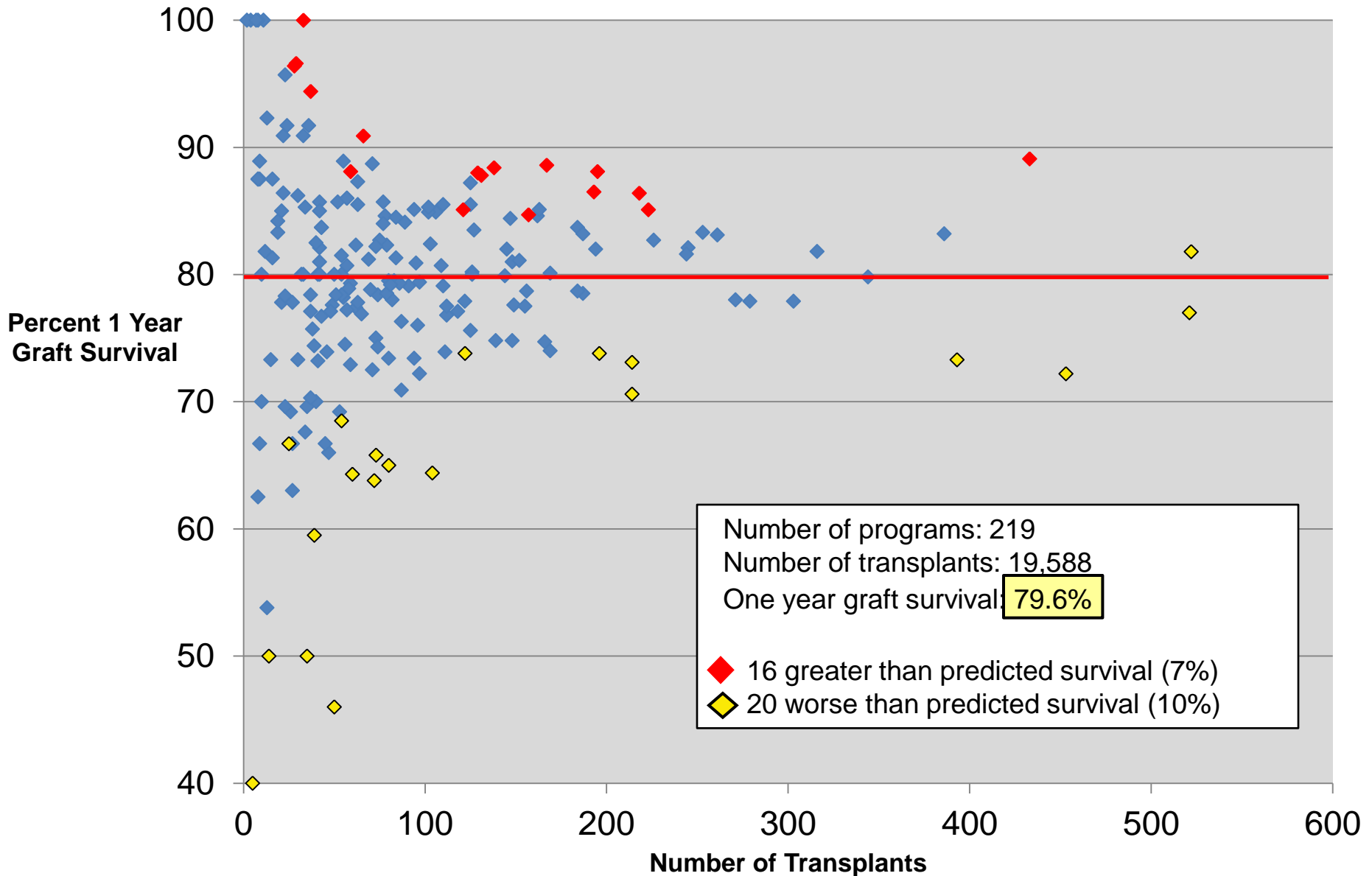
Long-term consequences of therapy (e.g., care-induced illnesses)

- Secondary cancer related to radiation exposure
- Premature osteoporosis
- Permanent facial disfigurement
- Dysphasia

- Lymphoma
- Long-term depression due to treatment
- Hormone imbalance/replacement dependence

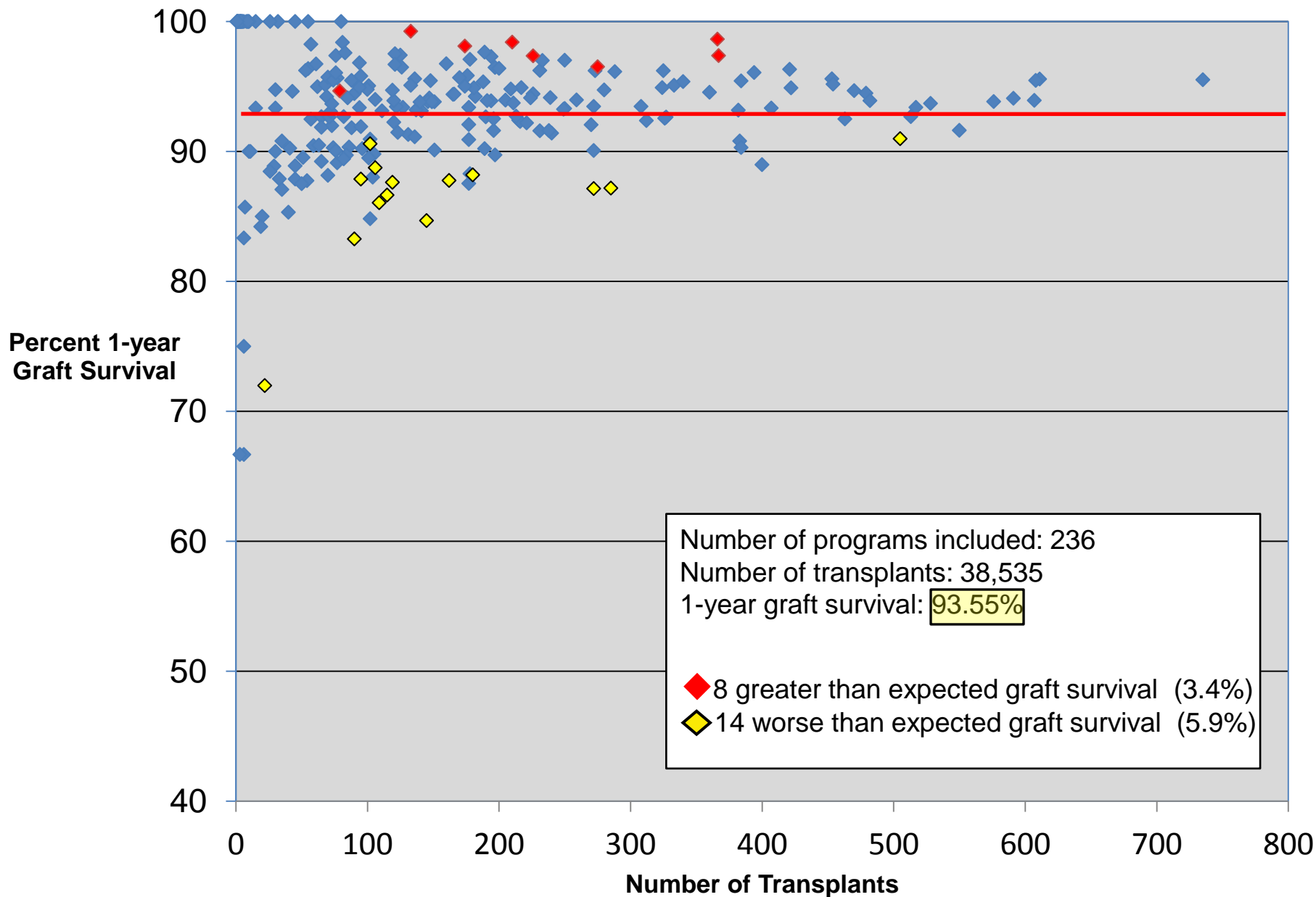
Adult Kidney Transplant Outcomes

U.S. Centers, 1987-1989



Adult Kidney Transplant Outcomes

U.S. Center Results, 2008-2010

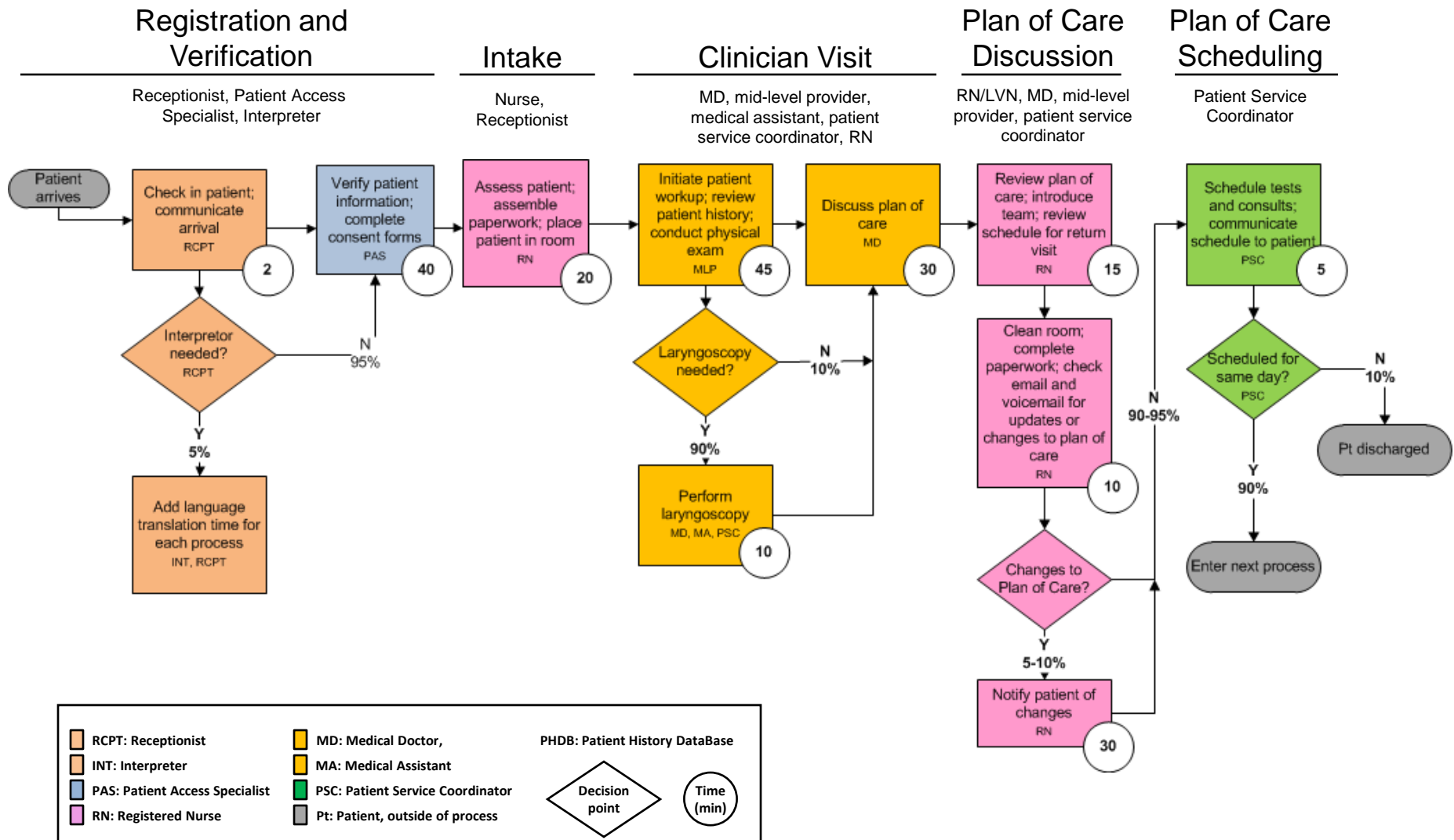


Measuring the Cost of Care Delivery: Principles


- 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

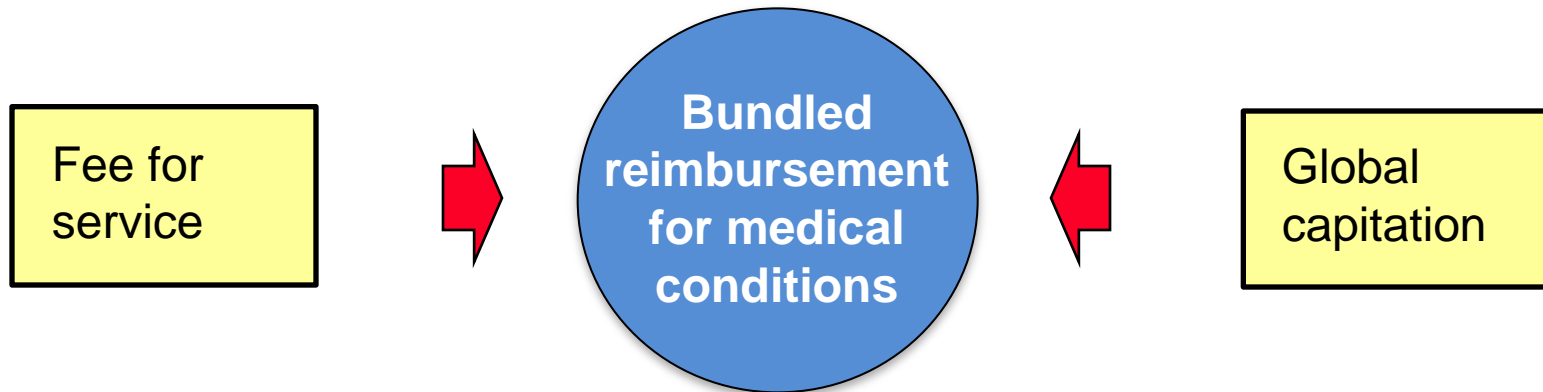
MD Anderson Cancer Center – New Patient Visit



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

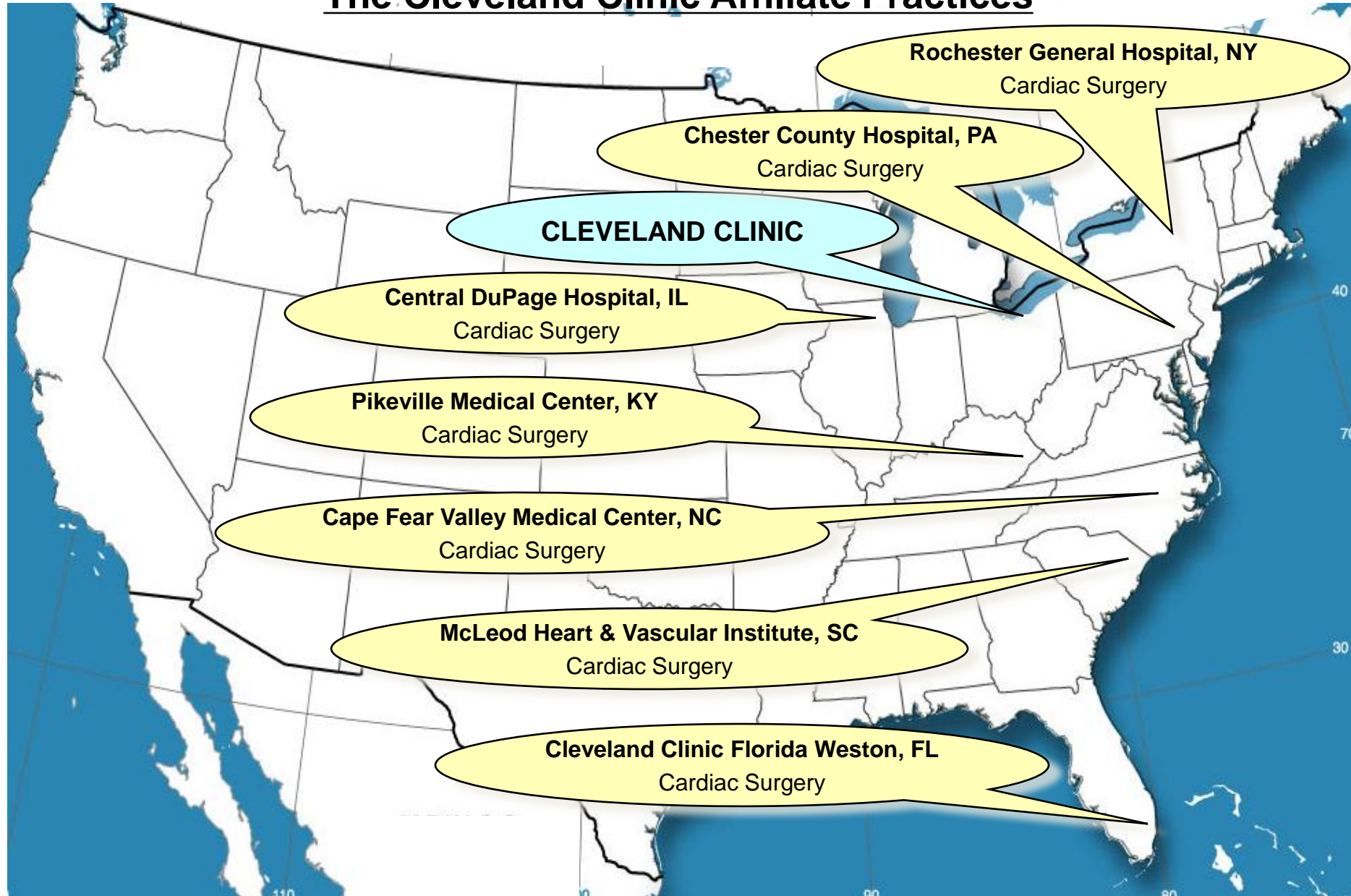
1. Choose an **overall scope of services** where the provider system can achieve excellence in value
2. **Rationalize service lines / IPU across facilities** to improve volume, better utilize resources, and deepen teams
3. Offer specific services at the **appropriate facility**
 - E.g. acuity level, 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

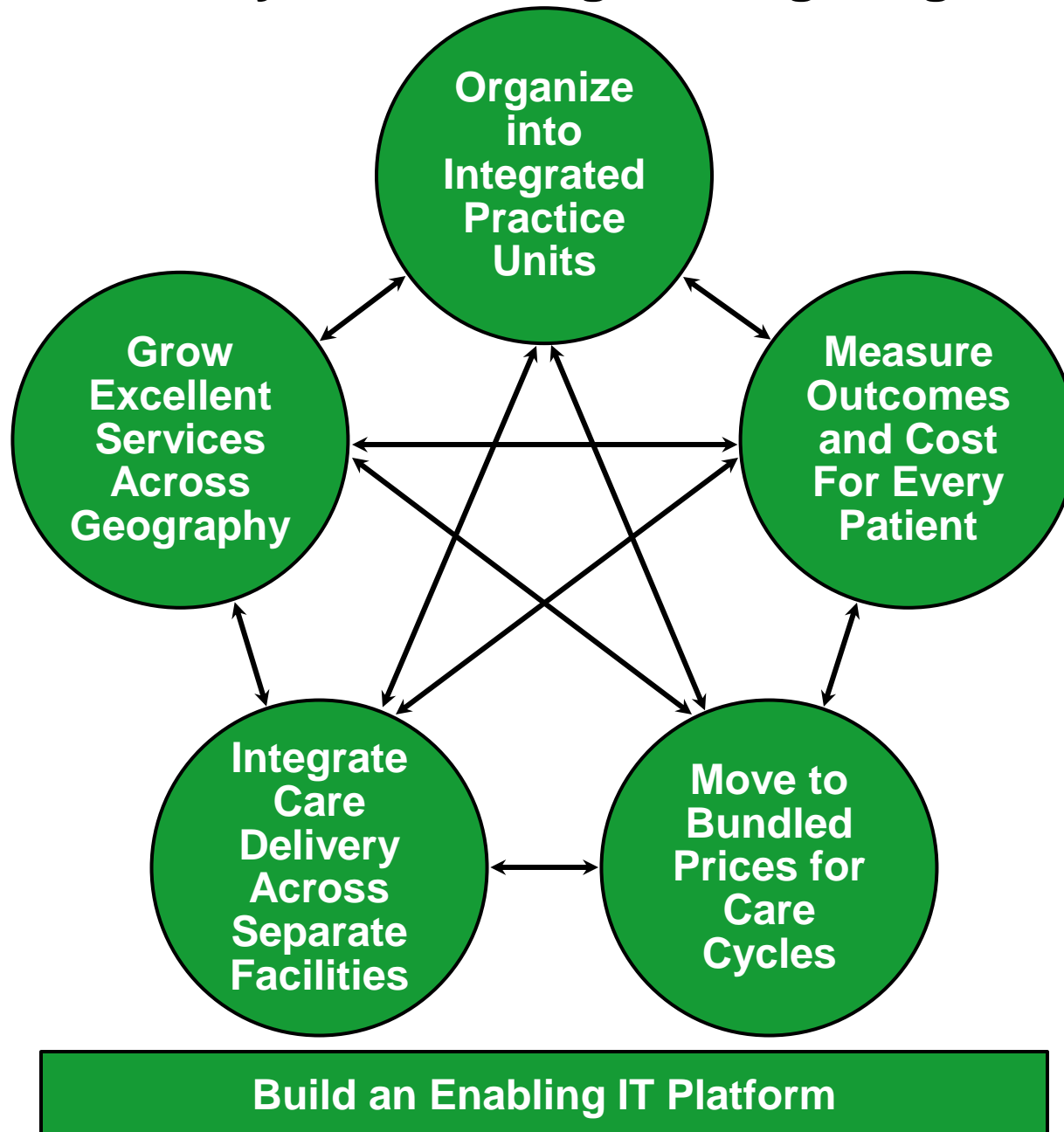


6. Building an Enabling Information Technology Platform

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