

Value-Based Health Care Delivery

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BWH Orthopaedic Grand Rounds
March 31, 2010

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>.

Principles of Value-Based Health Care Delivery

The fundamental issue in health care is **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**, not just the cost of a single provider or a single service



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

Principles of Value-Based Health Care Delivery

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

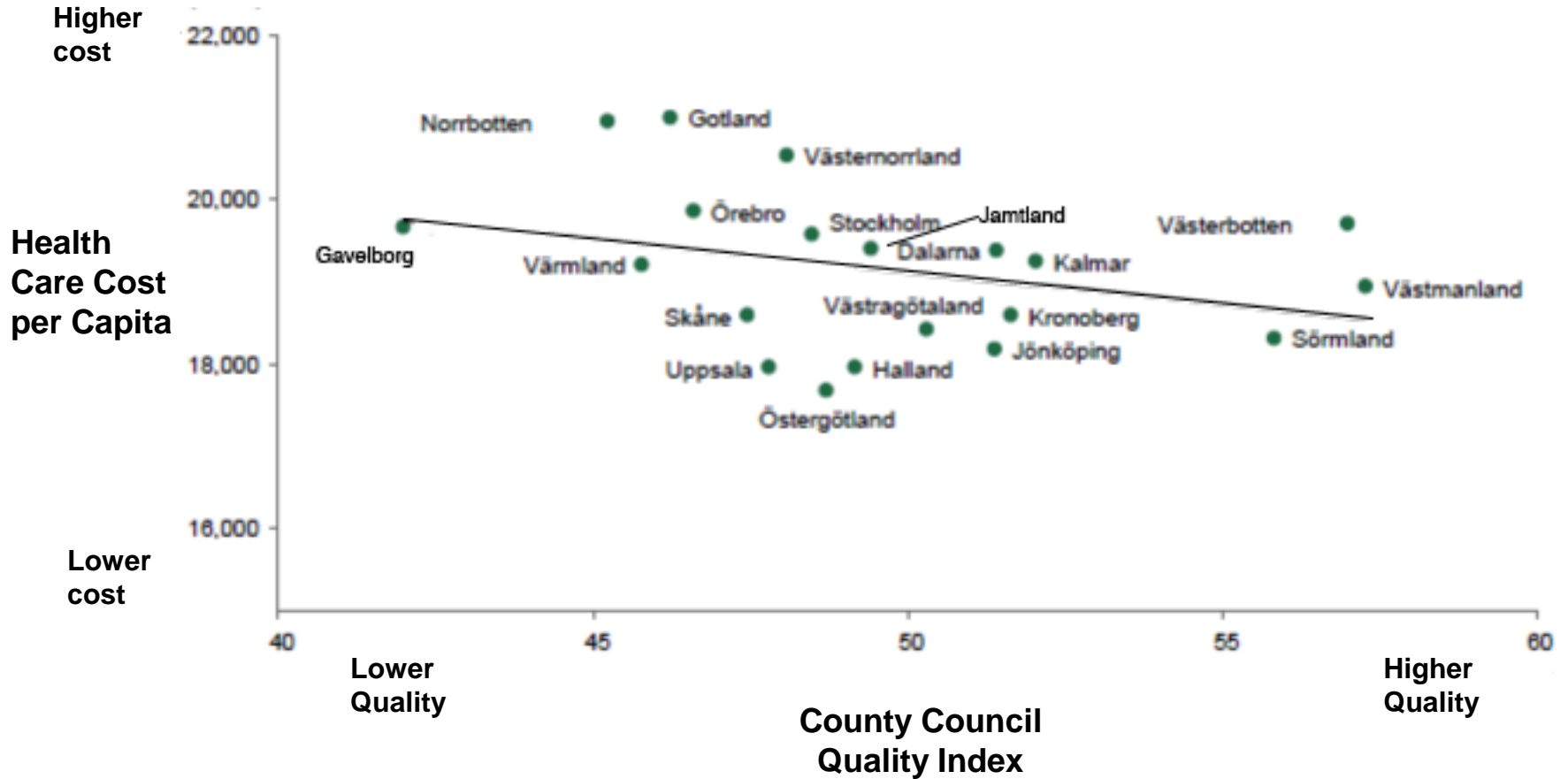
- Prevention
- Early detection
- Right diagnosis
- Right treatment to the right patient
- Early and timely treatment
- Treatment earlier in the causal chain of disease
- Rapid cycle time of diagnosis and treatment
- Less invasive treatment methods
- Fewer complications
- Fewer mistakes and repeats in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

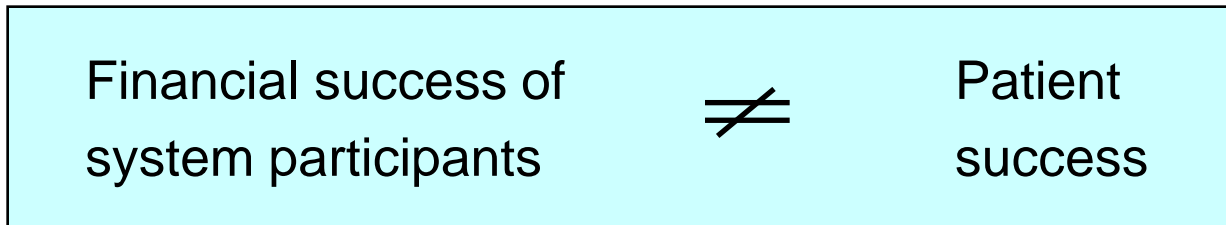
Health Care Spending by County, 2008



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

Aligning Competition with 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

Value-Based Health Care Delivery

The Strategic Agenda

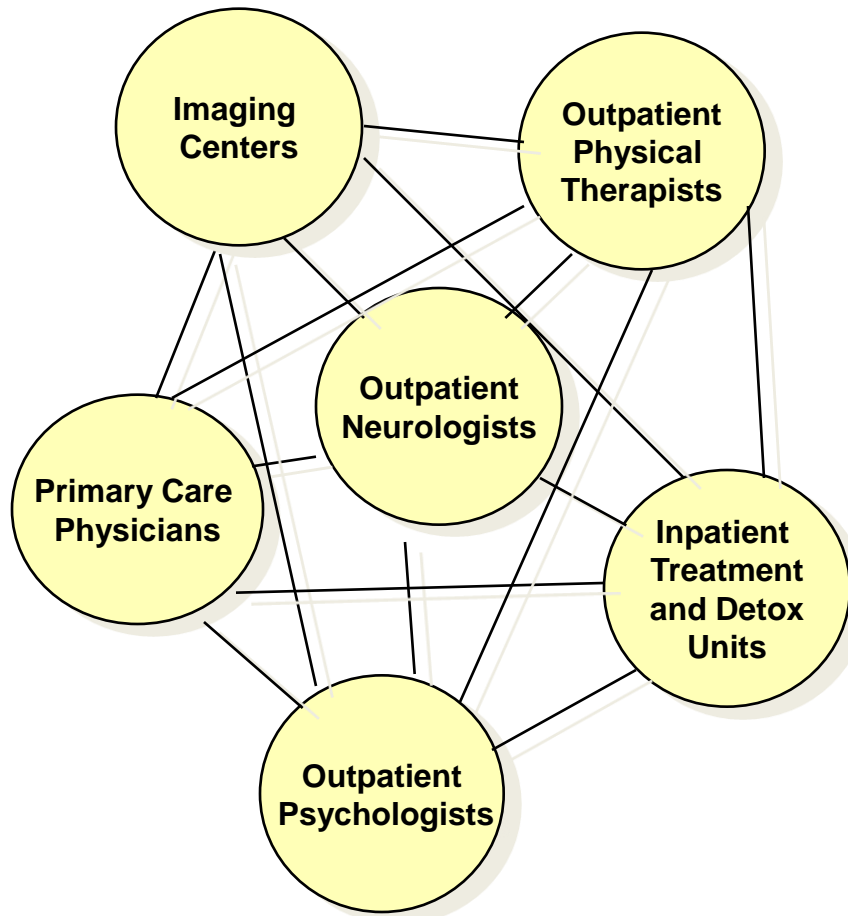
1. **Organize into Integrated Practice Units around the Patient's Medical Condition (IPUs)**
 - Including primary and preventive care for **distinct patient populations**
2. **Measure Outcomes and Cost for Every Patient**
3. **Move to Bundled Prices for Care Cycles**
4. **Integrate Care Delivery Across 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

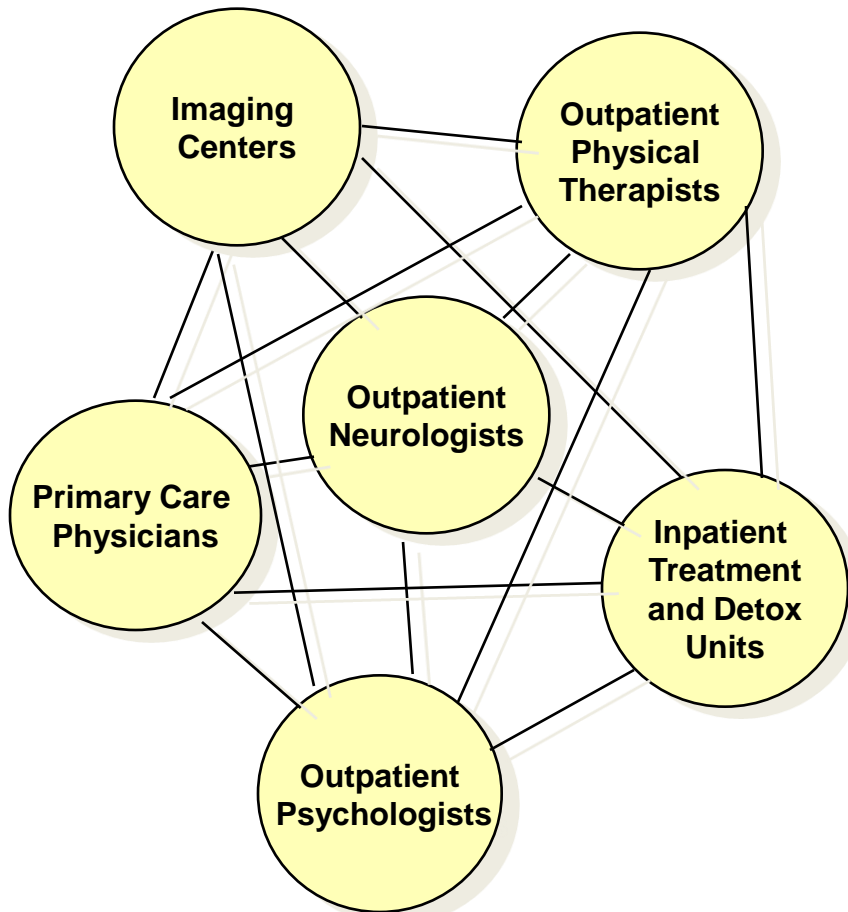


1. Organize into Integrated Practice Units

Migraine Care in Germany

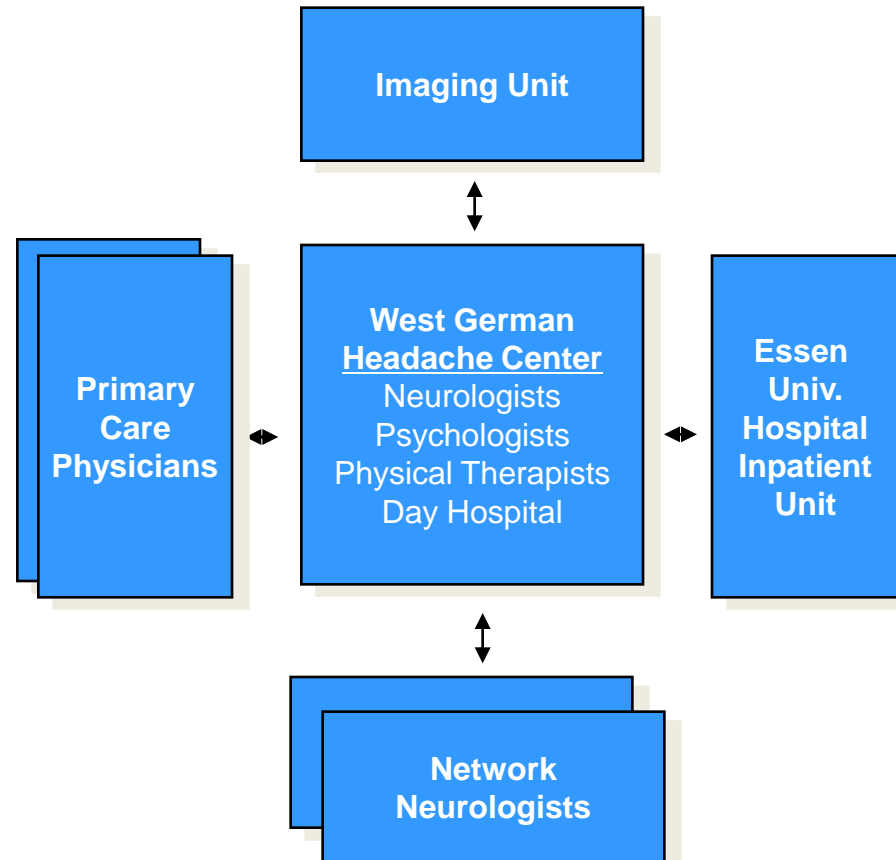
Existing Model:

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

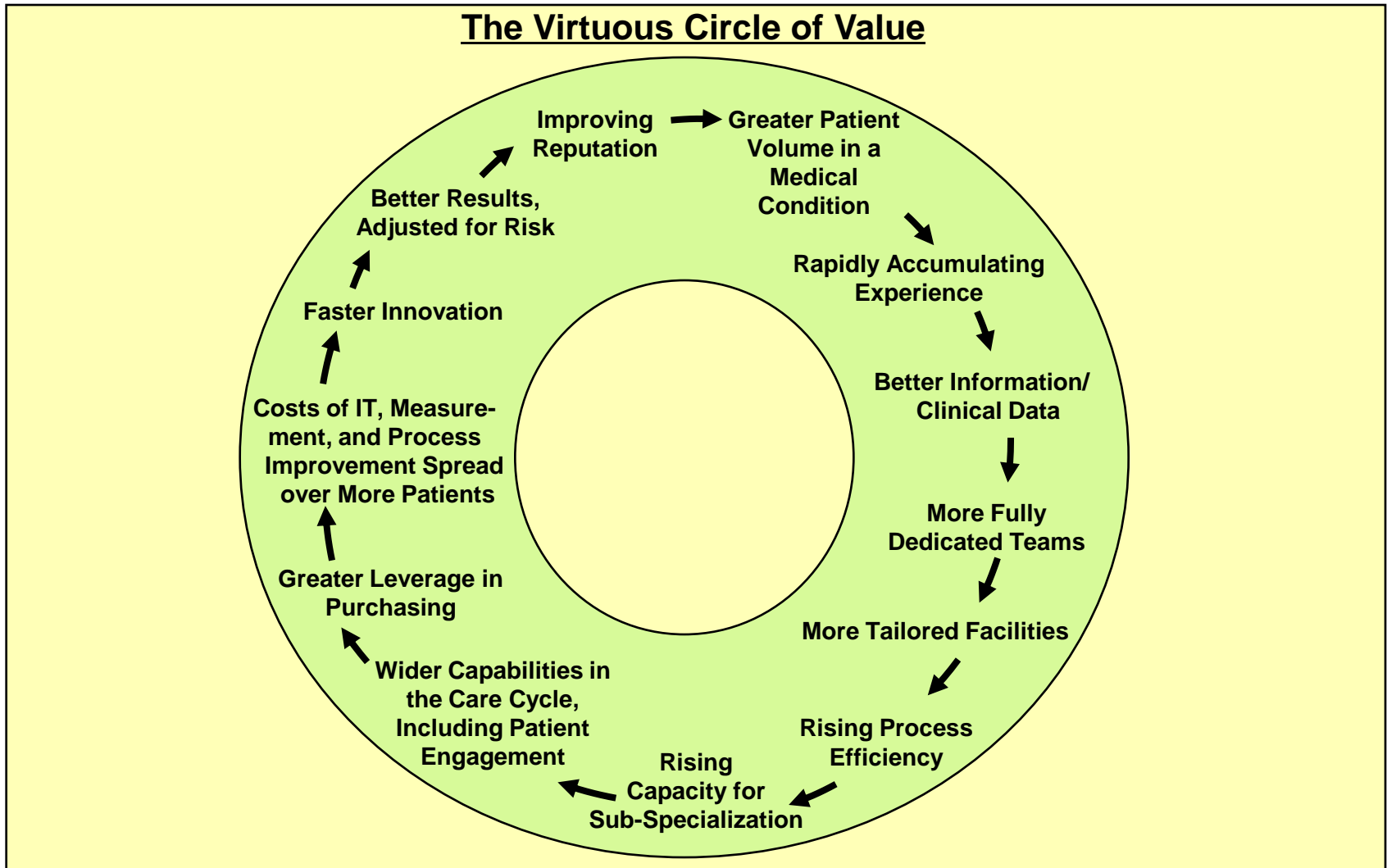
The Care Delivery Value Chain

Acute Knee-Osteoarthritis Requiring Replacement

INFORMING AND ENGAGING	<ul style="list-style-type: none"> Education and promotion of exercise, weight reduction, proper nutrition 	<ul style="list-style-type: none"> Education on meaning of diagnosis and prognosis of disease – short and long term outcomes Expectation setting 	<ul style="list-style-type: none"> Counseling on benefits/drawbacks of surgery Shared Decision Making Weight loss, nutrition, vaccination counsel Home preparation Calibrating expectations Rehab considerations Communicating timeline/location for recovery 	<ul style="list-style-type: none"> Set expectations for surgery recovery and immediate steps Maintenance and reassurance of expectations and the importance of rehab Assuring team consistency 	<ul style="list-style-type: none"> Counseling on necessity of rehab, rehab exercises, and compliance Monitoring compliance 	<ul style="list-style-type: none"> Counsel to maintain exercise and healthy weight 	
	MEASURING	<ul style="list-style-type: none"> Self reported loss of function Pain WOMAC, SF-36 	<ul style="list-style-type: none"> MRI, X-Ray results <ul style="list-style-type: none"> Kellgran Lawrence scale- level of osteoarthritis Assess loss of cartilage/ alterations in subchondral bone Pain level WOMAC, SF-36 Mental state(Gestalt) 	<ul style="list-style-type: none"> Range of motion Pain level WOMAC, SF 36 Blood pressure Blood labs 	<ul style="list-style-type: none"> Heart rate Temperature Blood pressure Blood loss Complications 	<ul style="list-style-type: none"> Infections (i.e. UTI) Post-op X-ray Range of motion Pain level WOMAC, SF-36 Ability to live independently Return to work Weight gain/loss Mental state (gestalt) 	<ul style="list-style-type: none"> Range of motion Pain level WOMAC, SF-36 Activities Missed work Mental state
	ACCESSING	<ul style="list-style-type: none"> PCP office visits Health club Physical therapy office 	<ul style="list-style-type: none"> Specialty office Imaging facility 	<ul style="list-style-type: none"> Specialty office Pre-operative area (hospital of surgical center) 	<ul style="list-style-type: none"> Operating room, recovery, orthopedic floor (arthroplasty specific ward) at hospital or specialty surgery center 	<ul style="list-style-type: none"> Home, Skilled Nursing Facility, or Rehab Facility PT at home or at PT office Operating Room 	<ul style="list-style-type: none"> Specialty office Primary care office Health club
	MONITORING/ PREVENTING	DIAGNOSING	PREPARING	INTERVENING	RECOVERING/ REHABING	MONITORING/ MANAGING	
	<p>Monitor</p> <ul style="list-style-type: none"> PCP medical exam Referral to specialist if problem persists <p>Prevent</p> <ul style="list-style-type: none"> Prescription of anti-inflammatory medicines* Exercise Weight loss 	<ul style="list-style-type: none"> Review MRI, X-Ray results <ul style="list-style-type: none"> Assess loss of cartilage Assess alterations in subchondral bone Orthopedic/Rheumatologic Evaluation 	<p>Overall Prep</p> <ul style="list-style-type: none"> Home assessment Weight-loss Exercise/Strength building <p>Surgical Prep</p> <ul style="list-style-type: none"> Cardiology, pulmonary consults Blood labs Preoperative physical examination 	<p>Anesthesia Options</p> <ul style="list-style-type: none"> -General -Epidural -Regional blocks -1 or 2 day <p>Surgical Procedure Options</p> <ul style="list-style-type: none"> -Device -Cement -Minimally Invasive -Computer assisted <p>Pain Management</p> <ul style="list-style-type: none"> -Multimodal -Preemptive 	<p>Surgical</p> <ul style="list-style-type: none"> Immediate return to OR for manipulation (1% of cases) <p>Medical</p> <ul style="list-style-type: none"> Coagulation monitoring <p>Living</p> <ul style="list-style-type: none"> Daily living support (e.g. showering, dressing) Contact provider for specific set of risk indicators (e.g. fever, increased swelling, increased pain, breathing difficulties, other) <p>Physical Therapy</p> <ul style="list-style-type: none"> Extensive daily or twice daily PT sessions to build up lost muscle and assure range of motion Education on exercises to perform between PT sessions Continuous motion machine 	<ul style="list-style-type: none"> Regular consultations with orthopedic specialist (6 weeks, 6 months, 1 year, 3-4 years as needed (MORE?)) Long term exercise Prophylactic antibiotics Revision if necessary 	

Orthopedic 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

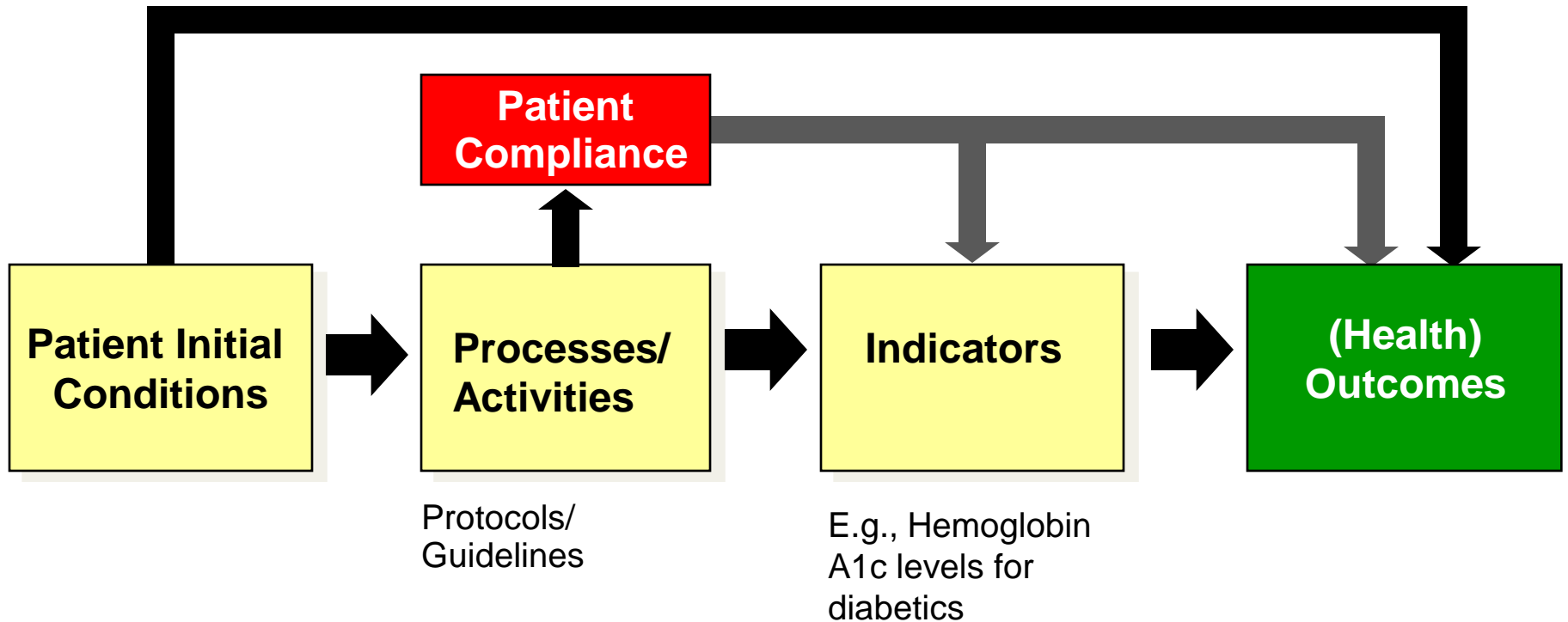
Fragmentation of Hospital Services

Sweden

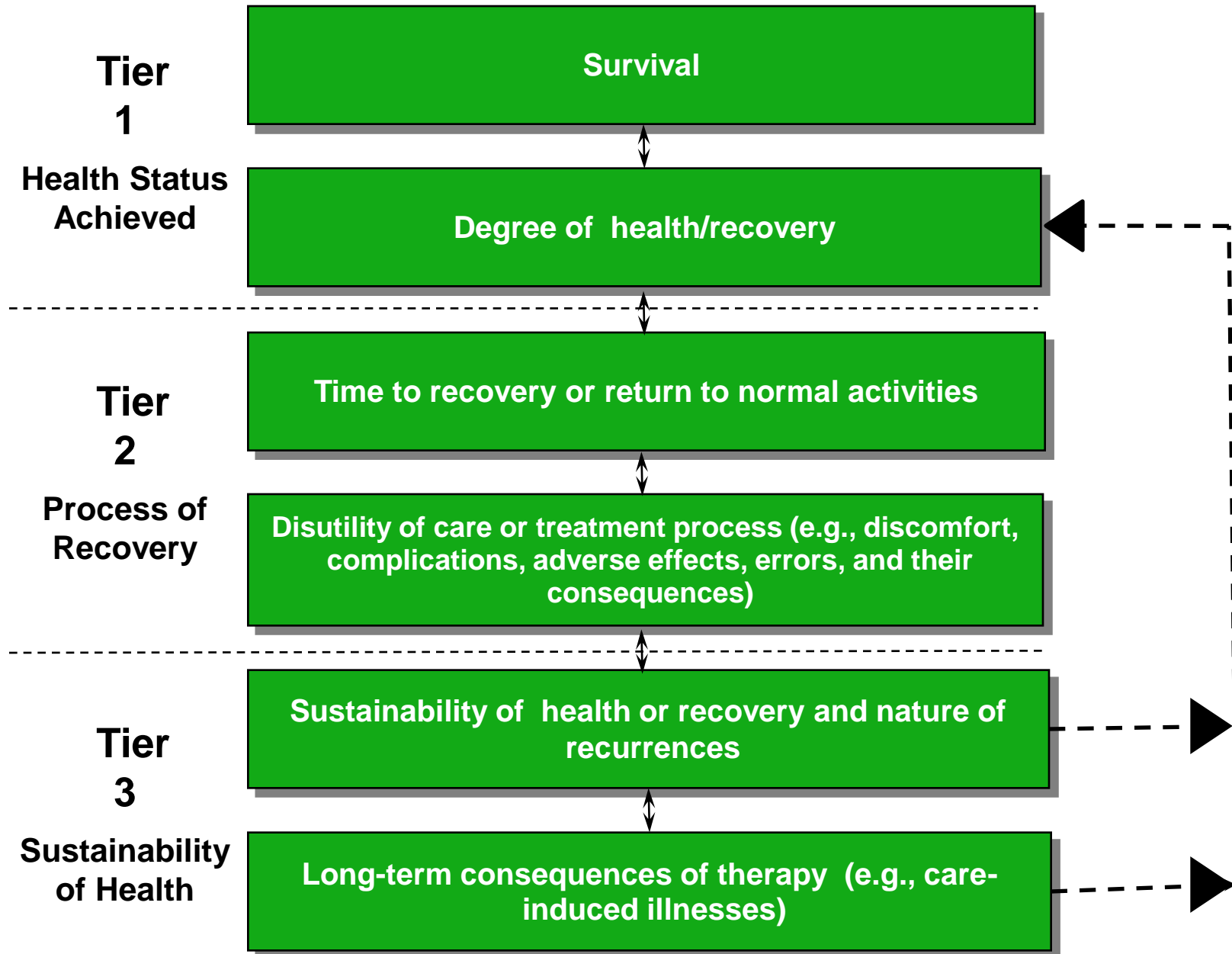
DRG	Number of admitting providers	Average percent of total national admissions	Average admissions/ provider/ year	Average admissions/ provider/ week
Knee Procedure	68	1.5%	55	1
Diabetes age > 35	80	1.3%	96	2
Kidney failure	80	1.3%	97	2
Multiple sclerosis and cerebellar ataxia	78	1.3%	28	<1
Inflammatory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

2. Measure Outcomes and Cost For Every Patient

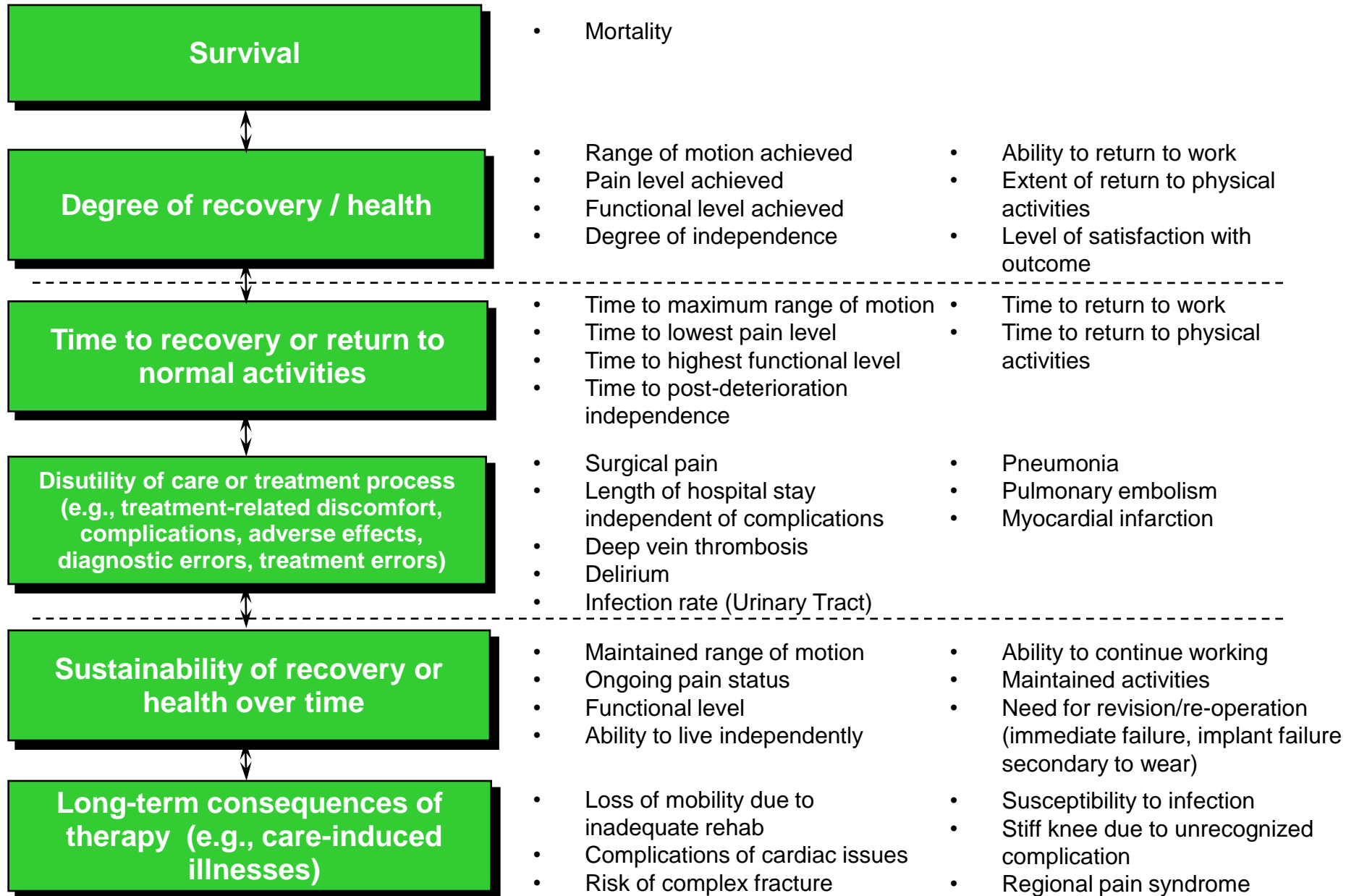


The Outcome Measures Hierarchy



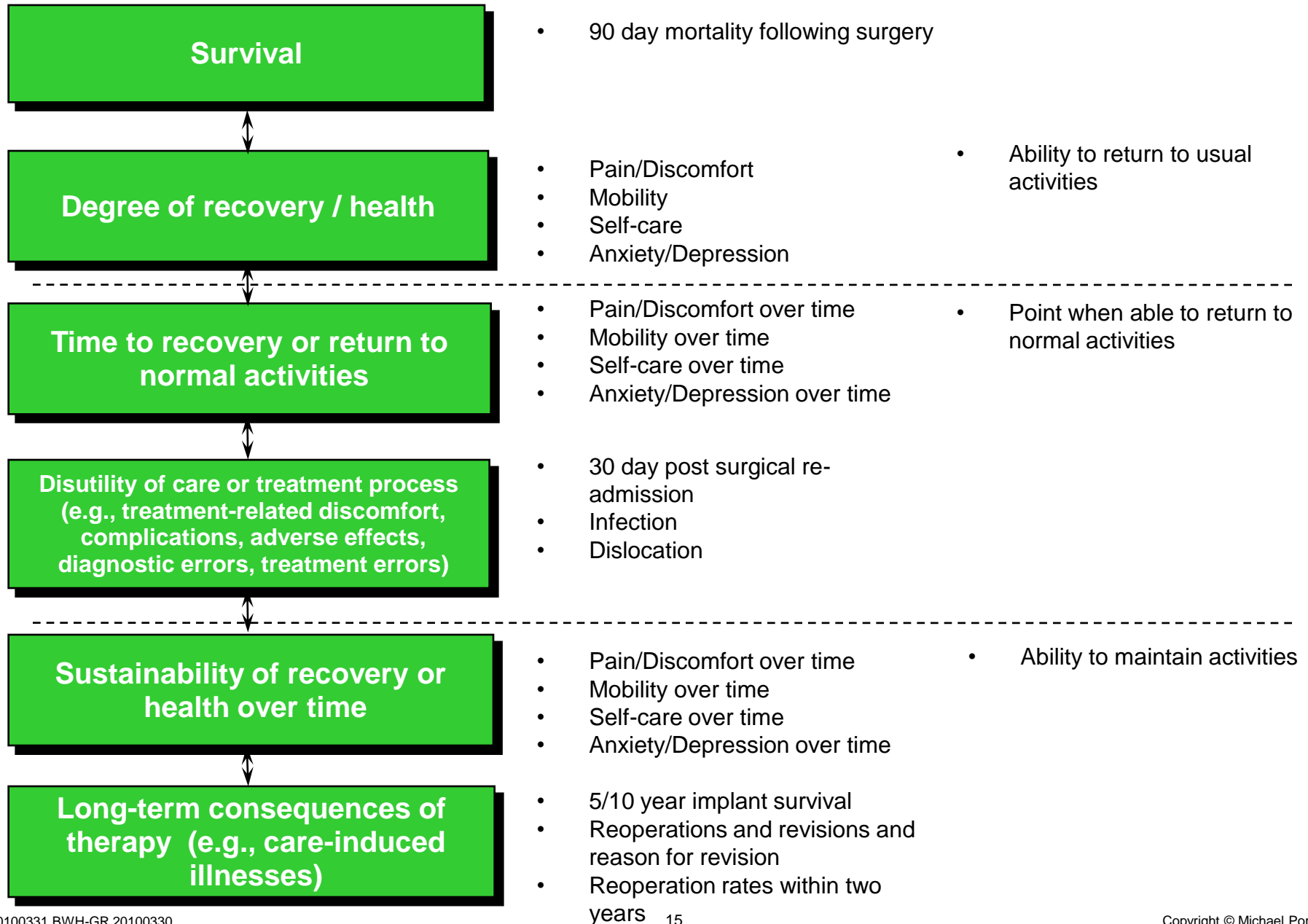
The Outcomes Measures Hierarchy

Acute Knee-Osteoarthritis Requiring Replacement

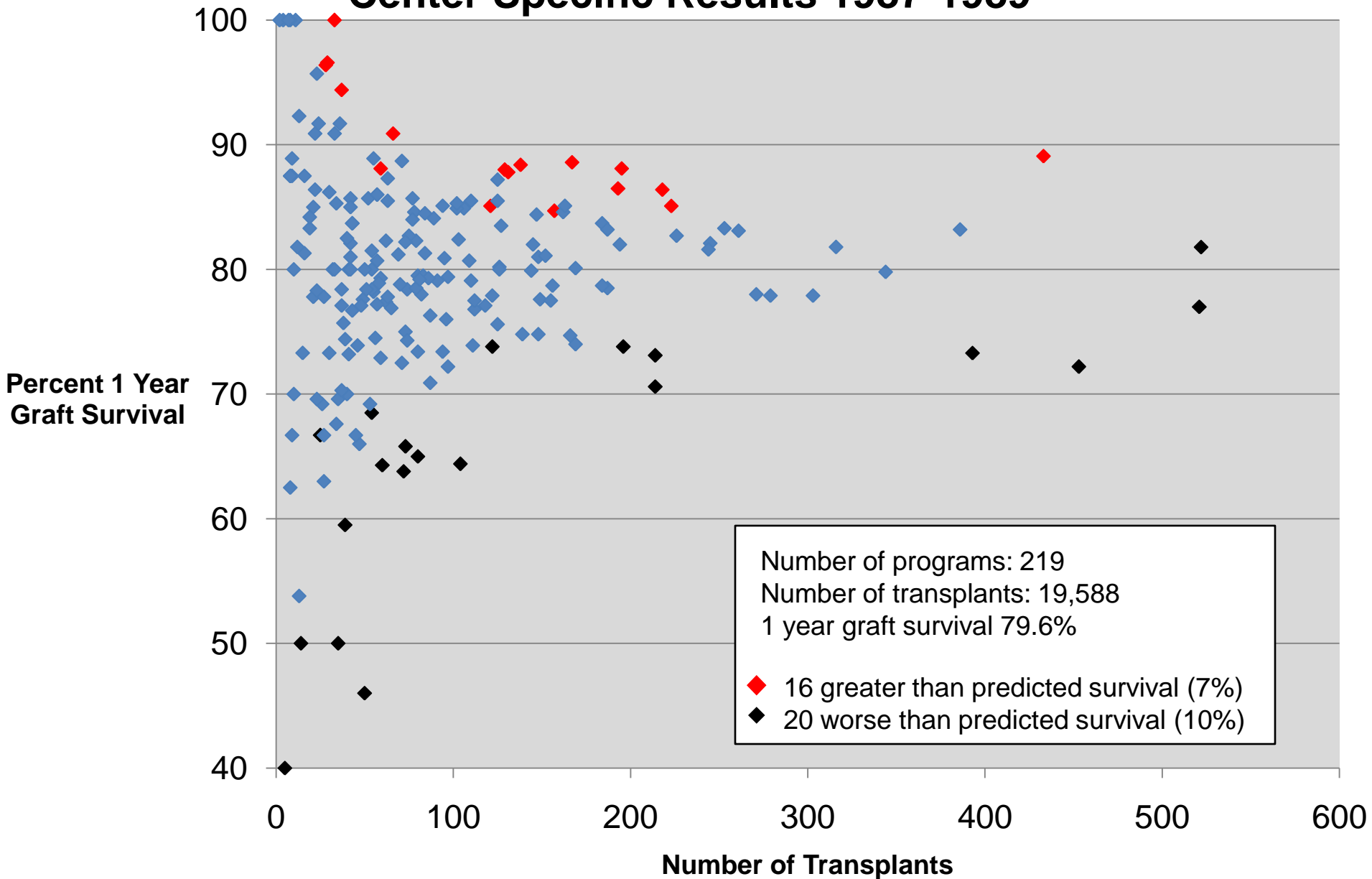


The Outcomes Measures Hierarchy

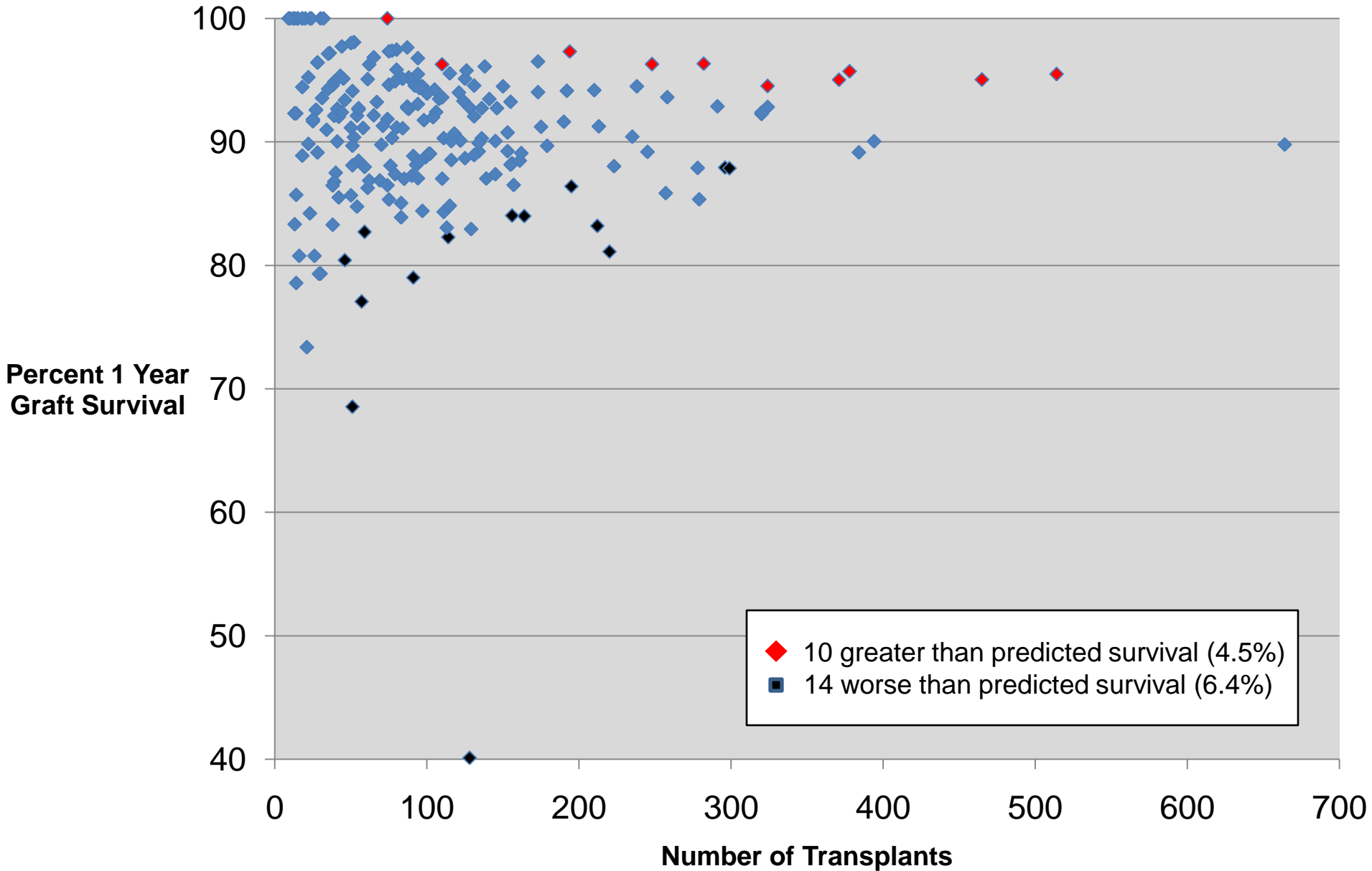
Hip Arthroplasty Register, Sweden



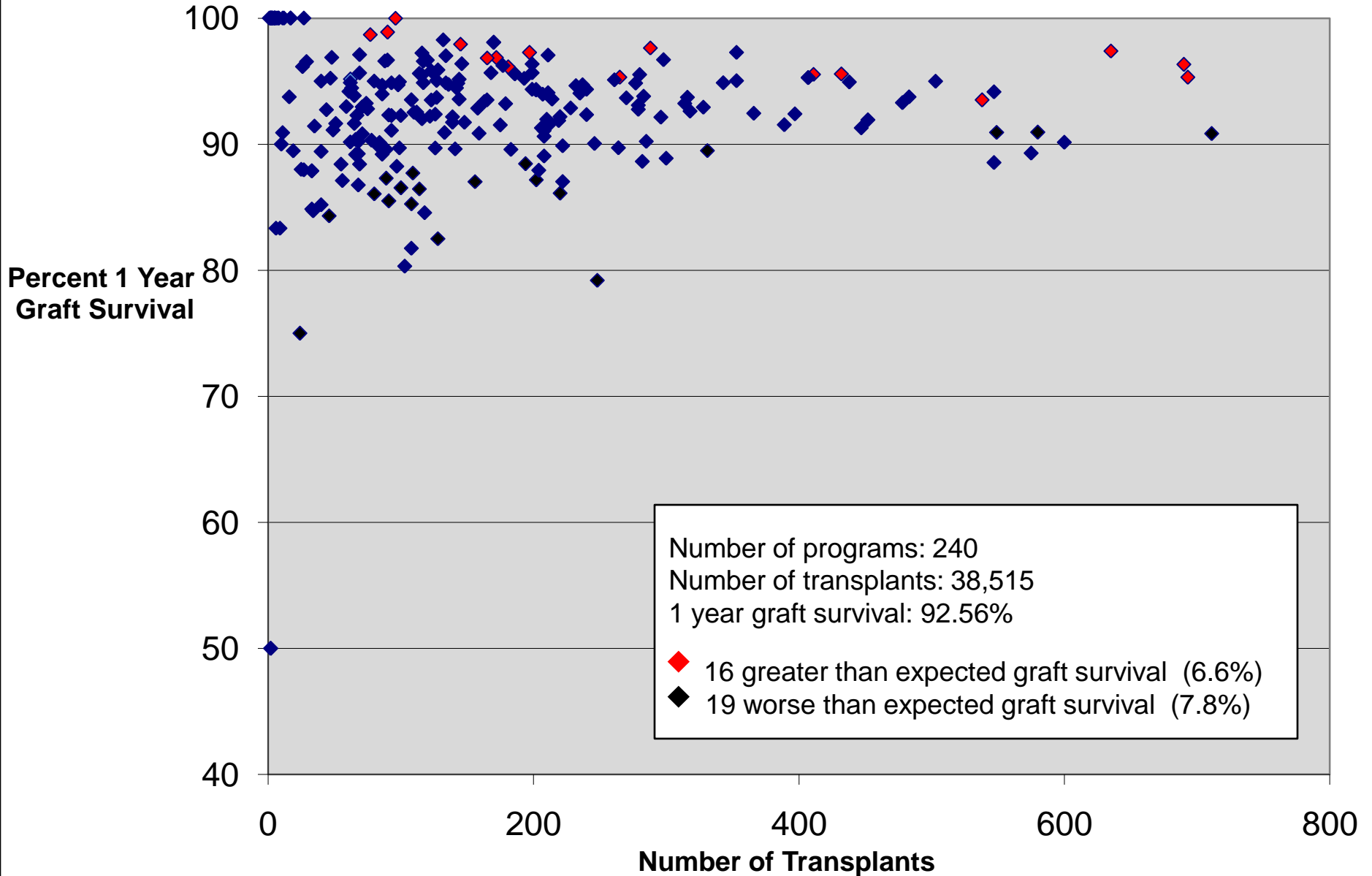
Adult Kidney Transplant Outcomes, U.S. Center Specific Results 1987-1989



Adult Kidney Transplant Outcomes, U.S. Center Specific Results 1998-2000



Adult Kidney Transplant Outcomes, U.S. Center Specific Results 2005-2007



Measuring Cost

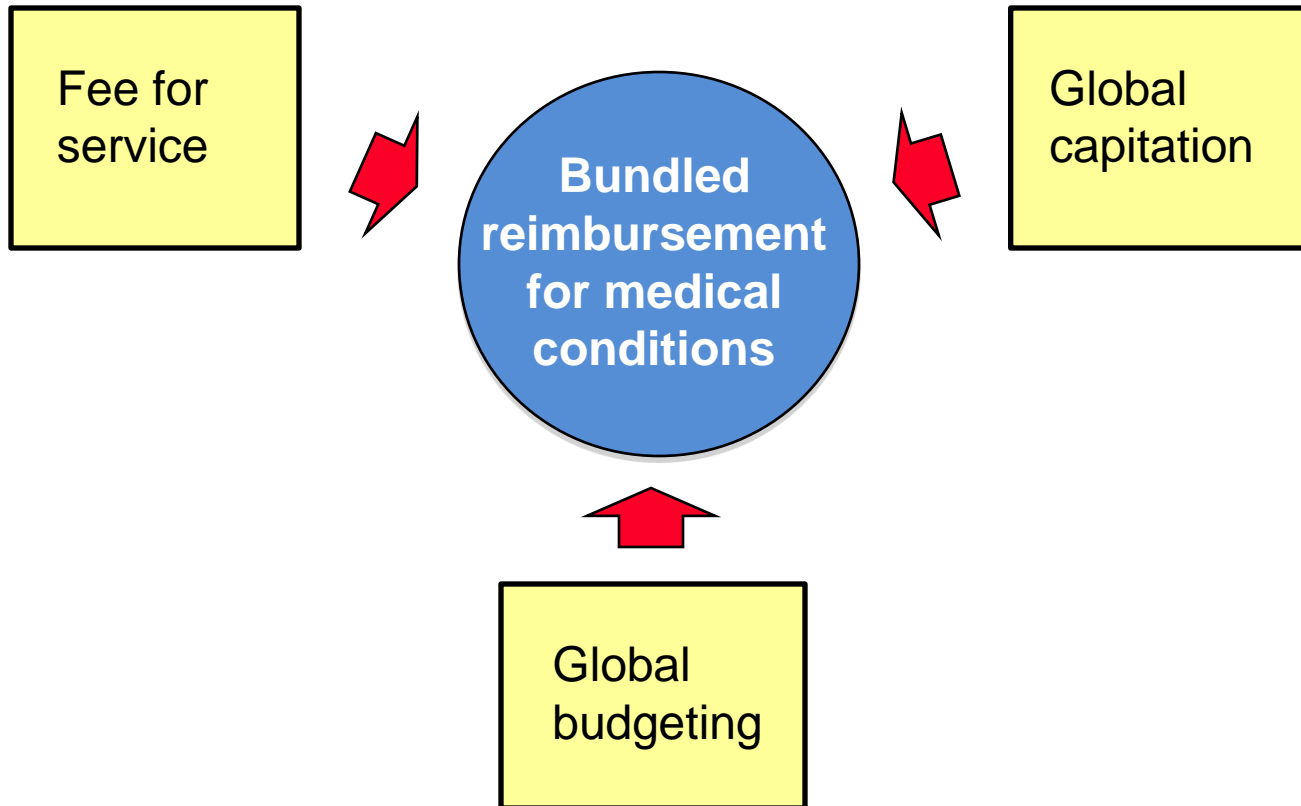
Aspiration

- 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

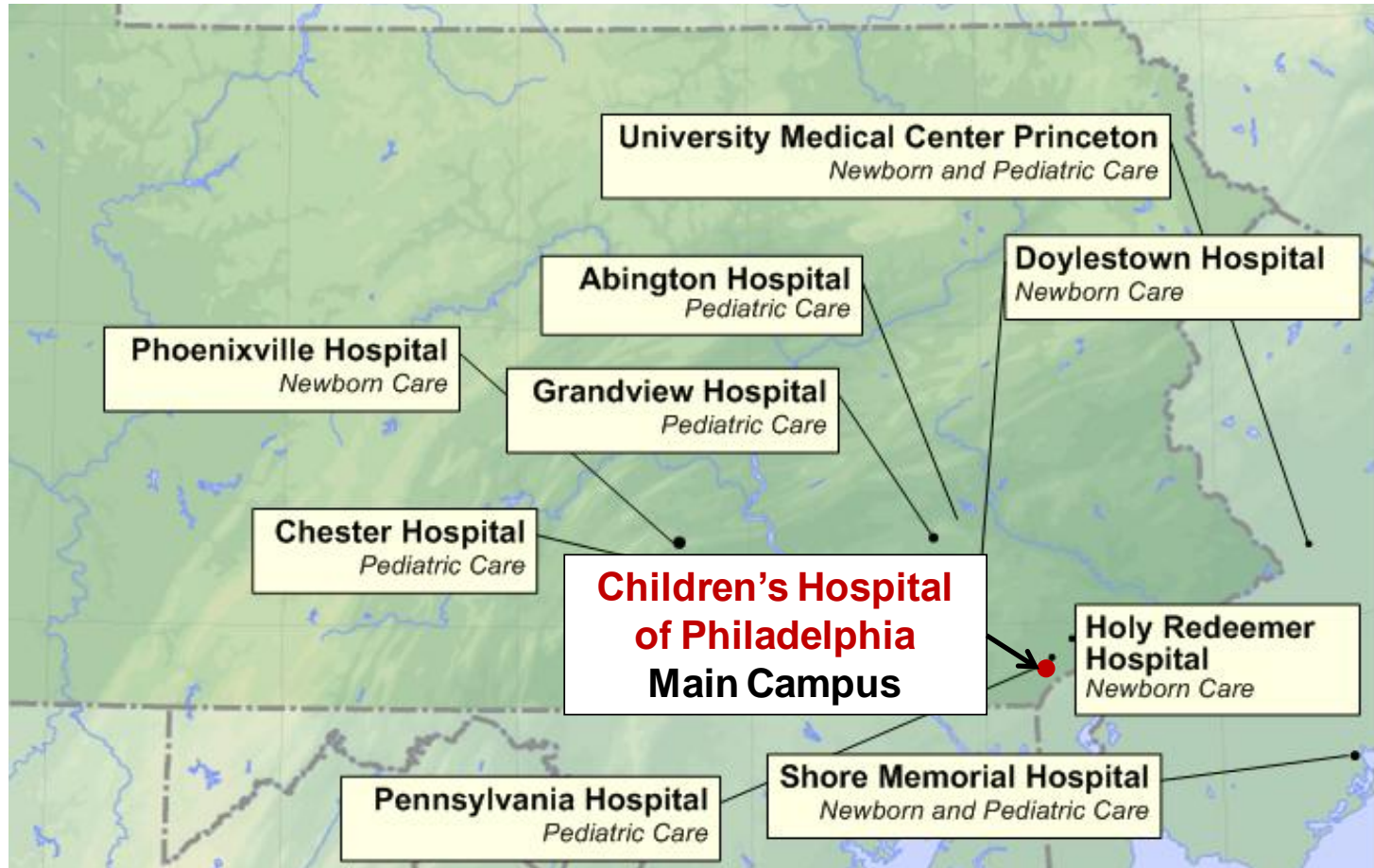
Bundled Payment for Orthopedic Care

Hip and Knee Replacement in Sweden

- In 2009, Stockholm County Council began to offer a **bundled price for joint replacement** (hip and knee), that includes:
 - Pre-op evaluation
 - Lab tests
 - Radiology
 - Surgery & related admission
 - Prosthesis
 - Drugs
 - Inpatient rehab, up to 6 days
 - 1 follow-up visit within 3 months
 - Any additional surgery to the joint within 2 years
 - If post-op infection requiring antibiotics occurs, guarantee extended to 5 years
- The bundled price for a knee or hip replacement is about \$8,000
- Provider participation is **voluntary** and **universal**
 - 6 public hospitals
 - 4 private providers (up from 1 in 2008)
- Eligibility is restricted to otherwise relatively healthy patients (i.e. ASA scores of 1 or 2)

4. Integrate Care Delivery Across Separate Facilities

Children's Hospital of Philadelphia (CHOP) Hospital Affiliates

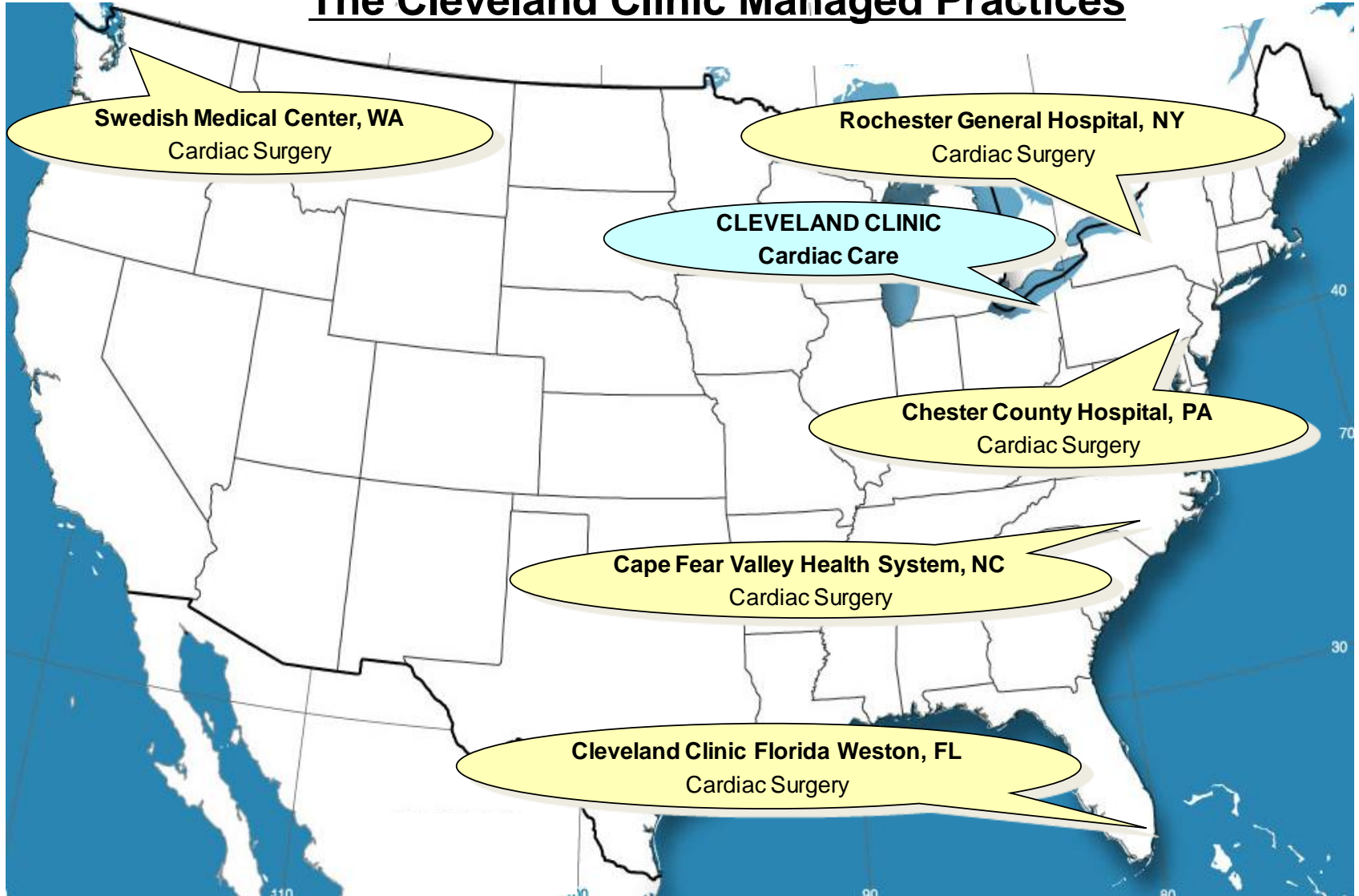


Levels of System Integration

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

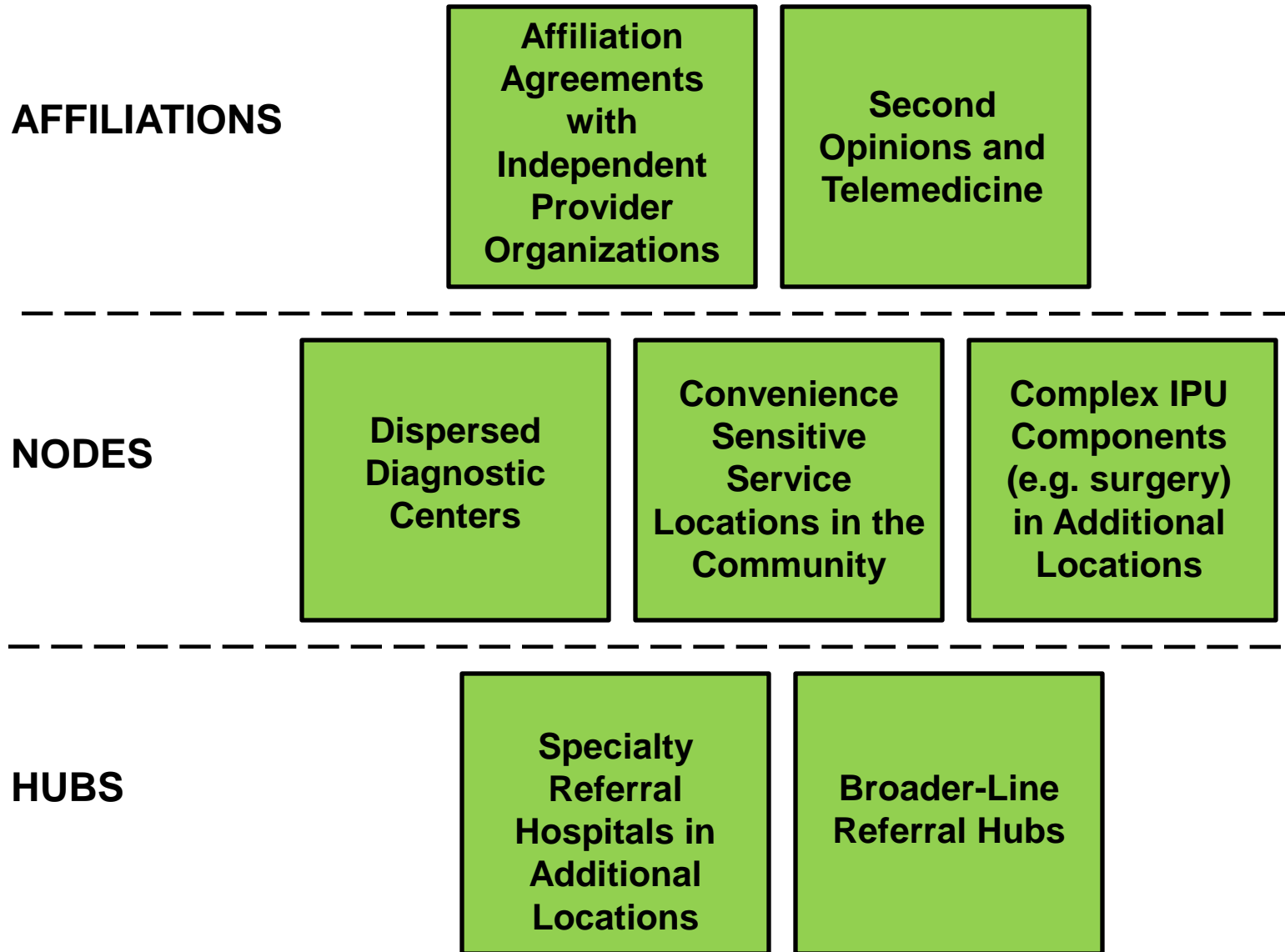
5. Grow by Expanding Excellent IPU's Across Geography

The Cleveland Clinic Managed Practices



- Grow in ways that improve **value**, not just volume

Models of Geographic Expansion



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**

A Mutually Reinforcing Strategic Agenda

