Future of Healthcare Delivery

Professor Michael E. Porter
Harvard Business School
www.isc.hbs.edu

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This presentation draws on Porter, Michael E. and Thomas H. Lee. "The Strategy that Will Fix Health Care," *Harvard Business Review*, October 2013; Porter, Michael E. with Thomas H. Lee and Erika A. Pabo. "Redesigning Primary Care: A Strategic Vision to Improve Value by Organizing Around Patients' Needs," *Health Affairs*, March 2013; Porter, Michael E. and Robert Kaplan. "How to Solve the Cost Crisis in Health Care," *Harvard Business Review*, September 2011; Porter, Michael E. "What is Value in Health Care" and supplementary papers, *New England Journal of Medicine*, December 2010; Porter, Michael E. "A Strategy for Health Care Reform—Toward a Value-Based System," *New England Journal of Medicine*, June 2009; Porter, Michael E. and Elizabeth Olmsted Teisberg. Redefining Health Care: Creating Value-Based Competition on Results. (2006) Additional information about these ideas, as well as case studies, can be found at the Institute for Strategy and Competitiveness Redefining Health Care website at http://www.hbs.edu/rhc/index.html.

Creating a High Value Delivery Organization

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

> Value: Patient health outcomes per dollar spent

- Delivering high and improving value is the **fundamental purpose** of health care
- Value is the only goal that can **unite the interests** of all system participants
- Improving value is the only **real solution** versus cost shifting or restricting services
- What does a value-based delivery system **look like**?
- What is the **role of suppliers** in high value care?

Creating a Value-Based Health Care System

- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements
- Today's delivery approaches reflect **legacy**, medical science, organizational structures, management practices, and payment models that are obsolete.

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

Principles of Value-Based Health Care Delivery

$$\text{Value} = \frac{\text{Health outcomes that matter to patients}}{\text{Costs of delivering the outcomes}}$$

- Value is measured for the **care of a patient's medical condition** over the full cycle of care
  - Outcomes are the **full set of health results 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

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**

Financial success of system participants	≠	Patient success

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

Creating a Value-Based Health Care Delivery System

The Strategic Agenda

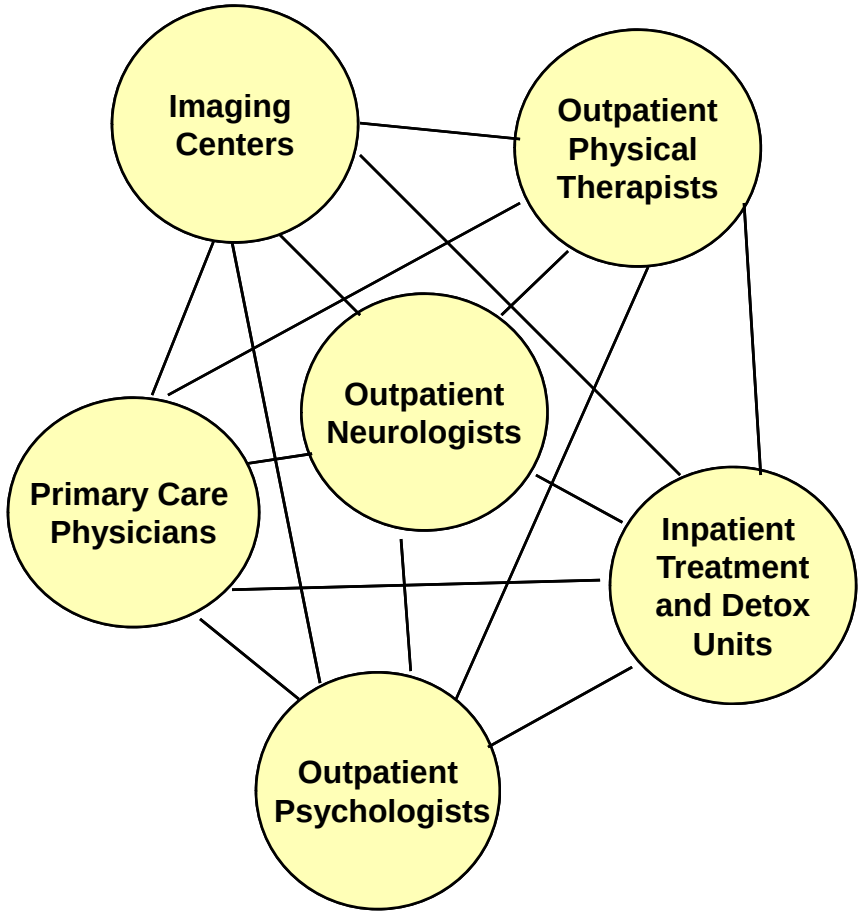
1. Organize Care into Integrated Practice Units (IPUs) around Patient Medical Conditions
   - Organize primary and preventive care to serve distinct patient segments
2. Measure Outcomes and Costs for Every Patient
3. Move to Bundled Payments for Care Cycles
4. Integrate Care Delivery Systems
5. Expand Geographic Reach
6. Build an Enabling Information Technology Platform

1. Organize Care Around Patient Medical Conditions

Migraine Care in Germany

Existing Model:

Organize by Specialty and Discrete Service



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

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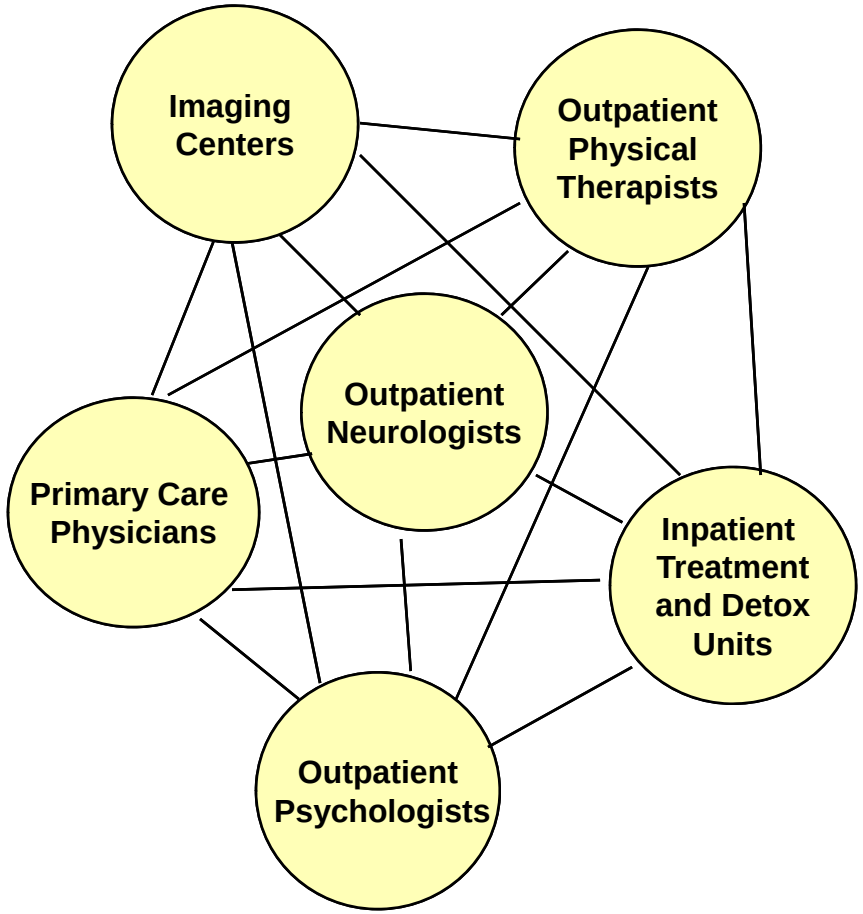
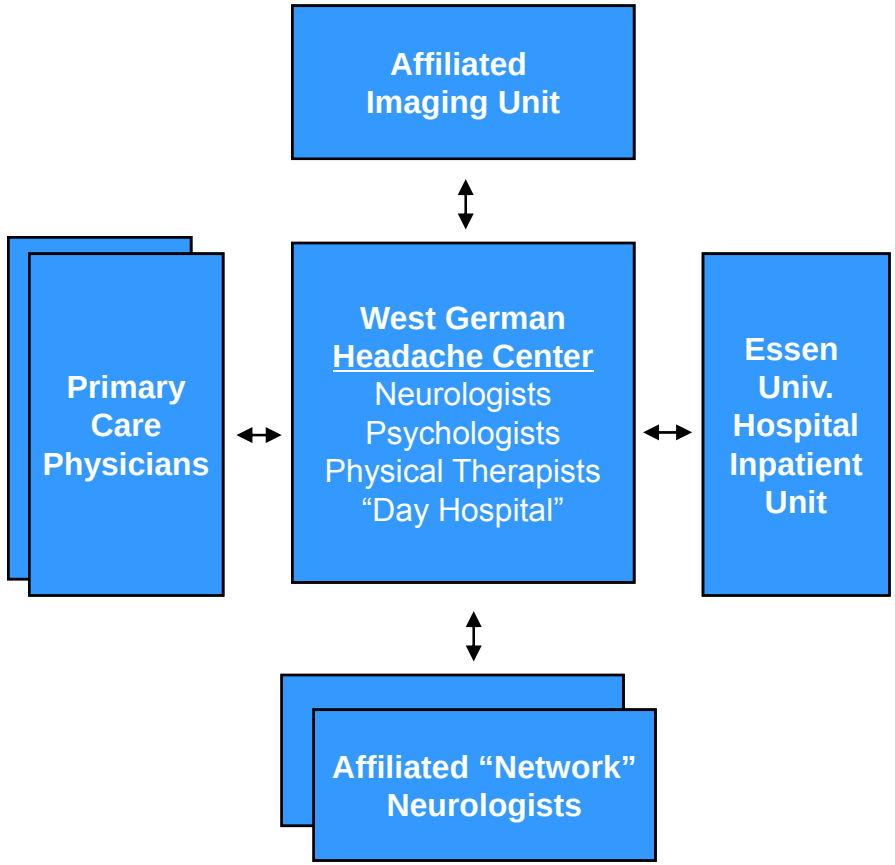


New Model:
Organize into Integrated Practice Units (IPUs)



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

  Examples: 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 value measurement** in health care delivery

Source: Porter, Michael E. with Thomas H. Lee and Erika A. Pabo. "Redesigning Primary Care: A Strategic Vision to Improve Value by Organizing Around Patients' Needs," *Health Affairs*, Mar, 2013

The Care Delivery Value Chain

Acute Knee-Osteoarthritis Requiring Replacement

	MONITORING/ PREVENTING	DIAGNOSING	PREPARING	INTERVENING	RECOVERING/ REHABBING	MONITORING/ MANAGING
INFORMING AND ENGAGING	• Importance of exercise, weight reduction, proper nutrition	• Meaning of diagnosis • Prognosis (short- and long-term outcomes) • Drawbacks and benefits of surgery	• Setting expectations • Importance of nutrition, weight loss, vaccinations • Home preparation	• Expectations for recovery • Importance of rehab • Post-surgery risk factors	• Importance of rehab adherence • Longitudinal care plan	• Importance of exercise, maintaining healthy weight
MEASURING	• Joint-specific symptoms and function (e.g., WOMAC scale) • Overall health (e.g., SF-12 scale)	• Loss of cartilage • Change in subchondral bone • Joint-specific symptoms and function • Overall health	• Baseline health status • Fitness for surgery (e.g., ASA score)	• Blood loss • Operative time • Complications	• Infections • Joint-specific symptoms and function • Inpatient length of stay • Ability to return to normal activities	• Joint-specific symptoms and function • Weight gain or loss • Missed work • Overall health
ACCESSING	• PCP office • Health club • Physical therapy clinic	• Specialty office • Imaging facility	• Specialty office • Pre-op evaluation center	• Operating room • Recovery room • Orthopedic floor at hospital or specialty surgery center	• Nursing facility • Rehab facility • PT clinic • Home	• Specialty office • Primary care office • Health club
CARE DELIVERY	**MONITOR** • Conduct PCP exam • Refer to specialists, if necessary **PREVENT** • Prescribe anti-inflammatory medicines • Recommend exercise regimen • Set weight loss targets	**IMAGING** • Perform and evaluate MRI and x-ray -Assess cartilage loss -Assess bone alterations **CLINICAL EVALUATION** • Review history and imaging • Perform physical exam • Recommend treatment plan (surgery or other options)	**OVERALL PREP** • Conduct home assessment • Monitor weight loss **SURGICAL PREP** • Perform cardiology, pulmonary evaluations • Run blood labs • Conduct pre-op physical exam	**ANESTHESIA** • Administer anesthesia (general, epidural, or regional) **SURGICAL PROCEDURE** • Determine approach (e.g., minimally invasive) • Insert device • Cement joint **PAIN MANAGEMENT** • Prescribe preemptive multimodal pain meds	**SURGICAL** • Immediate return to OR for manipulation, if necessary **MEDICAL** • Monitor coagulation **LIVING** • Provide daily living support (showering, dressing) • Track risk indicators (fever, swelling, other) **PHYSICAL THERAPY** • Daily or twice daily PT sessions	**MONITOR** • Consult regularly with patient **MANAGE** • Prescribe prophylactic antibiotics when needed • Set long-term exercise plan • Revise joint, if necessary

Orthopedic Specialist

Other Provider Entities

Attributes of an Integrated Practice Unit (IPU)

1. Organized around a **medical condition** or set of **closely related conditions** (or around defined patient segments for primary care)
2. Care is delivered by a **dedicated**, **multidisciplinary team** who devote a significant portion of their time to the medical condition
3. Providers see themselves as part of a **common organizational unit**
4. The team takes responsibility for the **full cycle of care** for the condition
   - Encompassing **outpatient**, **inpatient**, and **rehabilitative** care, as well as **supporting services** (such as nutrition, social work, and behavioral health)
5. **Patient education**, **engagement**, and **follow-up are integrated** into care
6. The unit has a **single administrative** and **scheduling structure**
7. To a large extent, **care is co-located** in **dedicated facilities**
8. A **physician team captain** or a **clinical care manager** (or both) oversees each patient's care process
9. The **team measures** outcomes, costs, and processes for each patient using a **common measurement platform**
10. The providers on the team meet **formally and informally** on a regular basis to discuss patients, processes, and results
11. **Joint accountability** is accepted for outcomes and costs

The Role of Volume in Value Creation

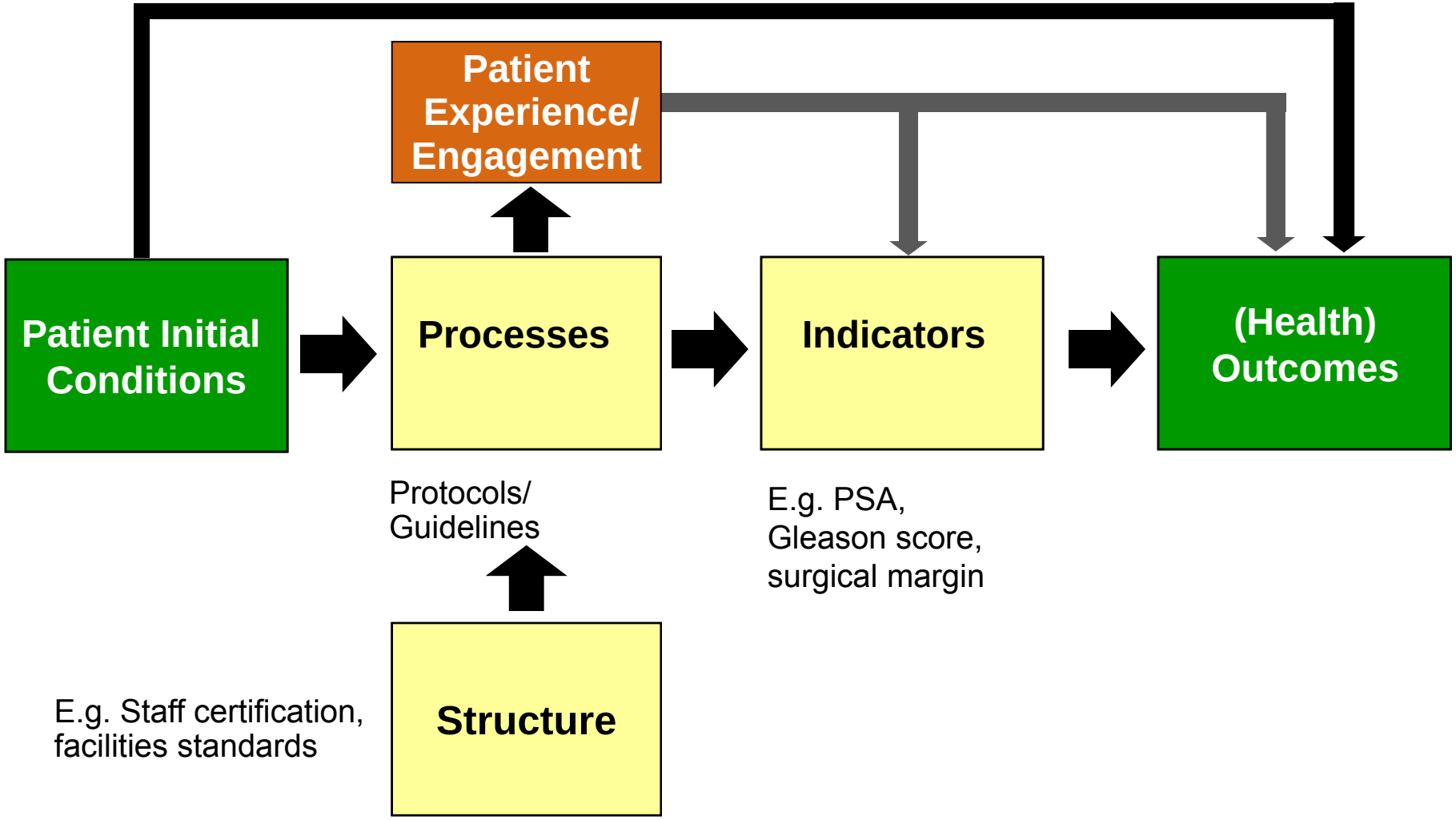
Fragmentation of Hospital Services in Sweden

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

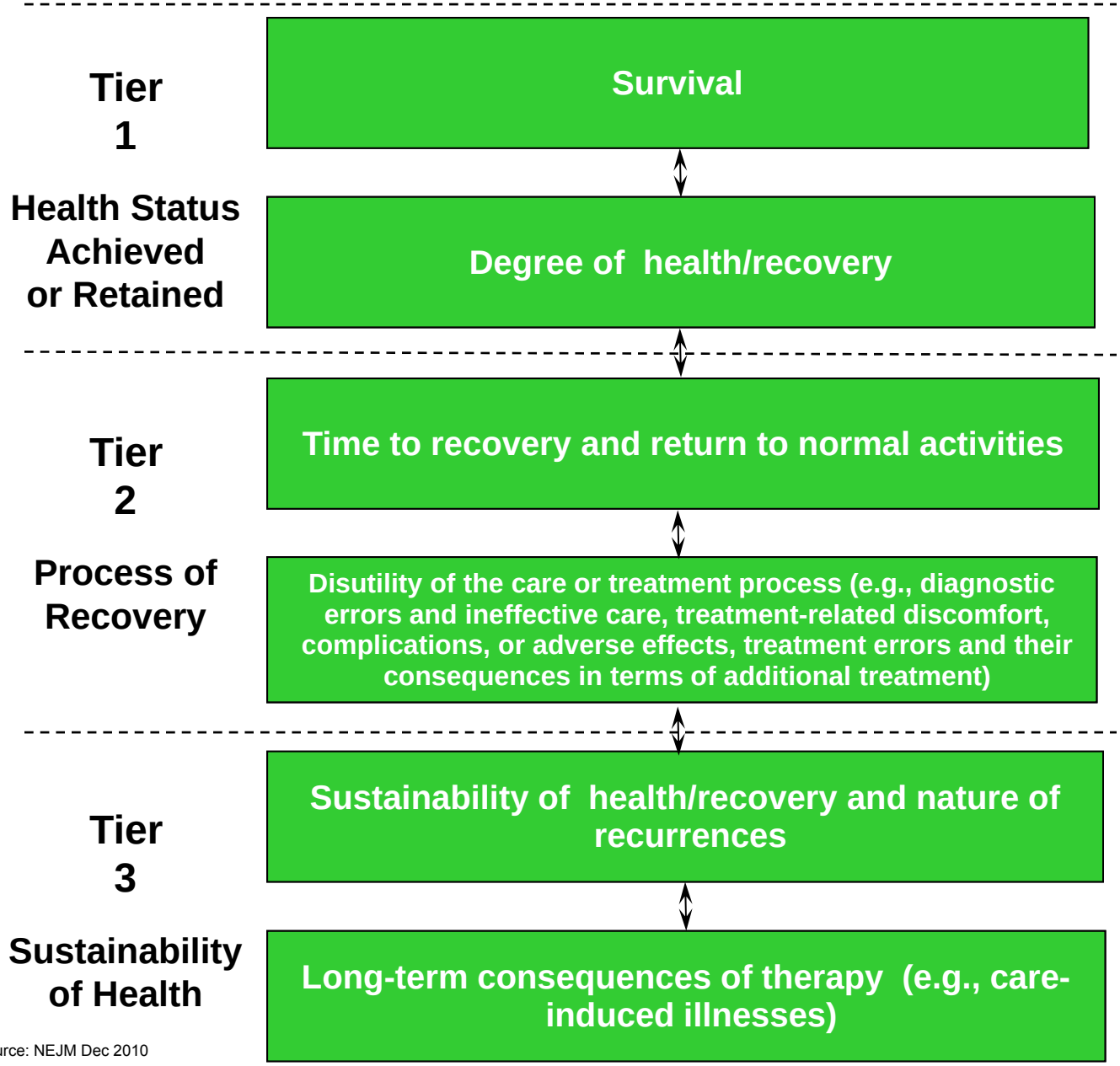
Source: Compiled from The National Board of Health and Welfare Statistical Databases – DRG Statistics, Accessed April 2, 2009.

2. Measure Outcomes and Costs for Every Patient

The Measurement Landscape

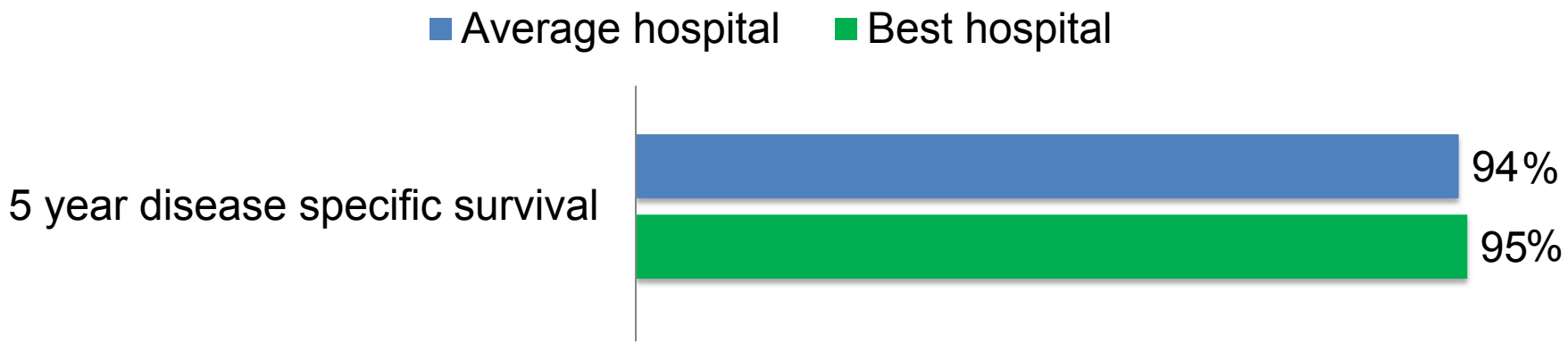


The Outcome Measures Hierarchy



Source: NEJM Dec 2010

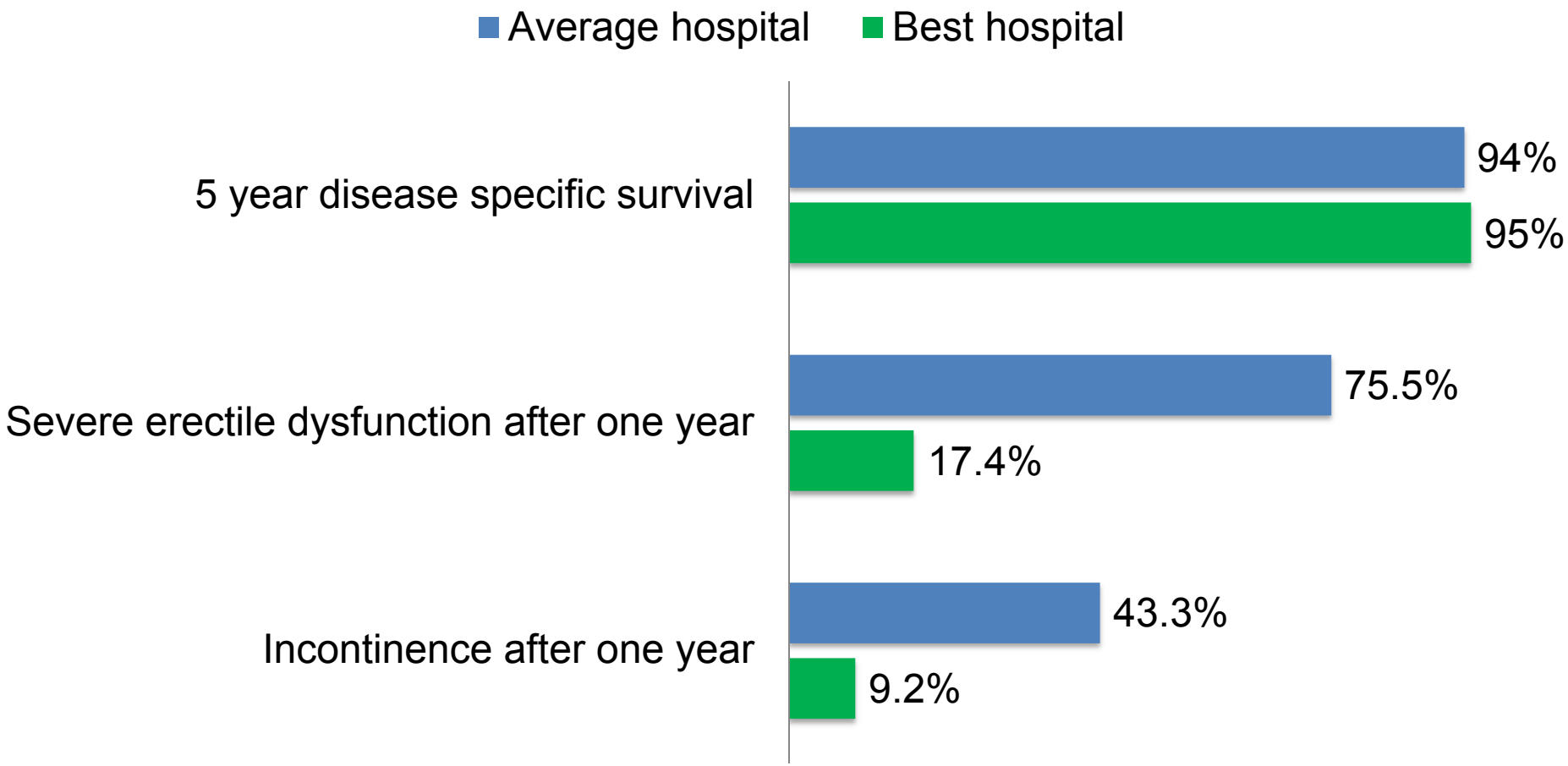
Measuring Multiple Outcomes
Prostate Cancer Care in Germany



Source: ICHOM

Measuring Multiple Outcomes -- Continued

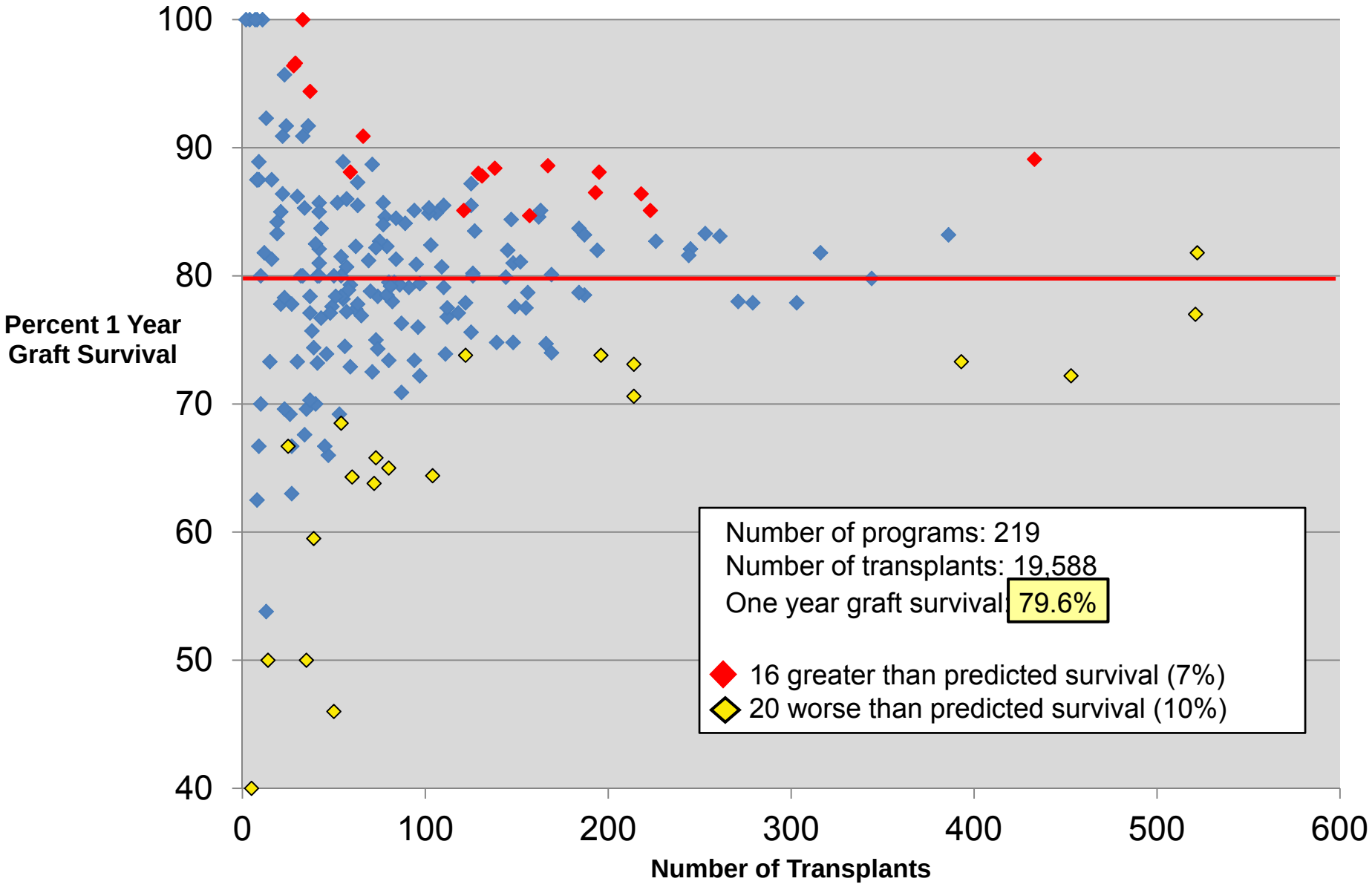
Prostate Cancer Care in Germany



Source: ICHOM

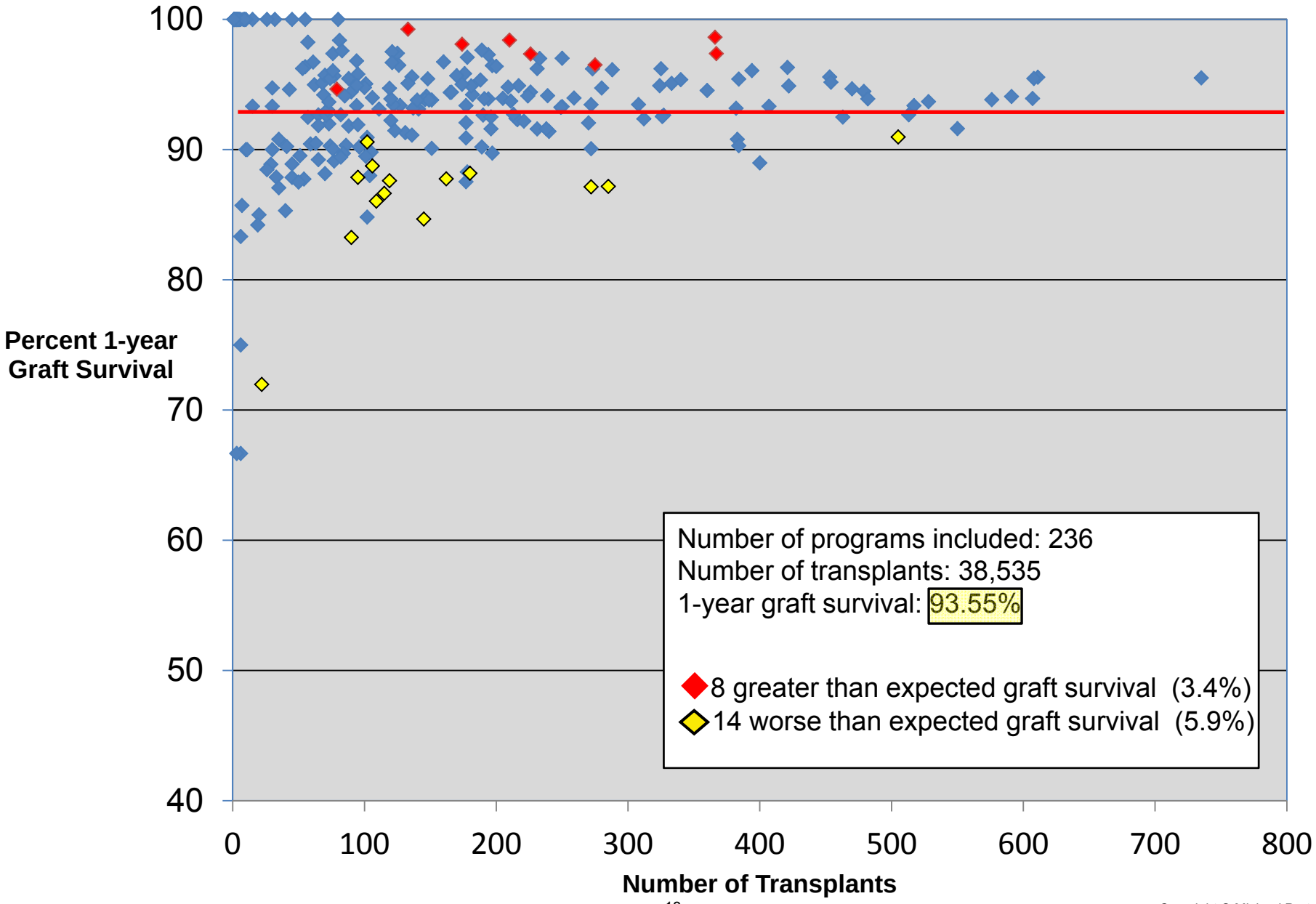
Adult Kidney Transplant Outcomes

U.S. Centers, 1987-1989



Adult Kidney Transplant Outcomes

U.S. Center Results, 2008-2010



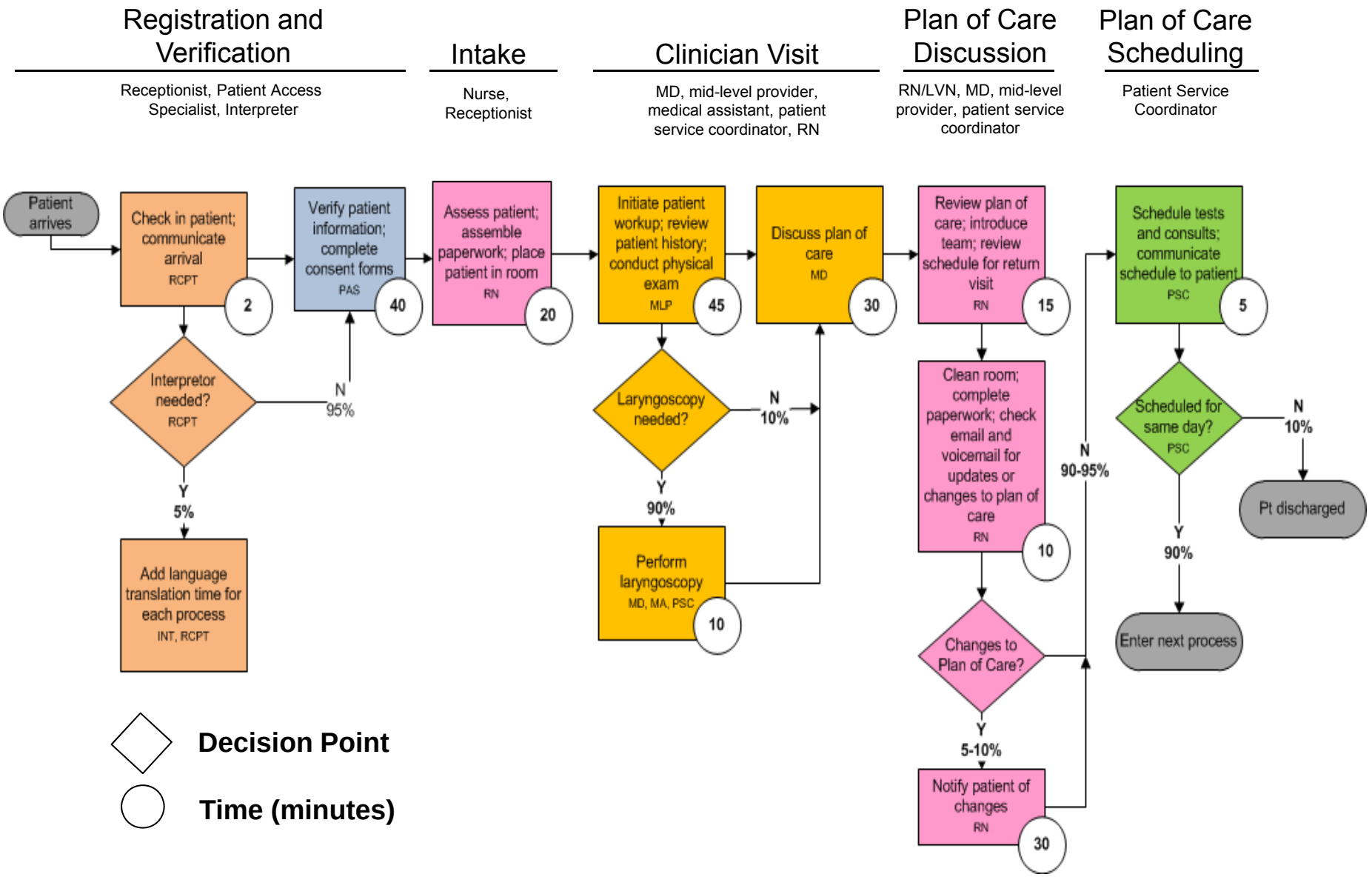
Measuring the Cost of Care Delivery: Principles

- Cost is the **actual expense** of patient care, not the **charges** billed or collected
- Cost should be measured around the **patient**, not just the department
- Cost should be aggregated over the **full cycle of care for the patient's medical condition**
- 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

Source: Kaplan, Robert and Michael E. Porter, "The Big Idea: How to Solve the Cost Crisis in Health Care", *Harvard Business Review*, September 1. 2011

Mapping Resource Utilization

MD Anderson Cancer Center – New Patient Visit

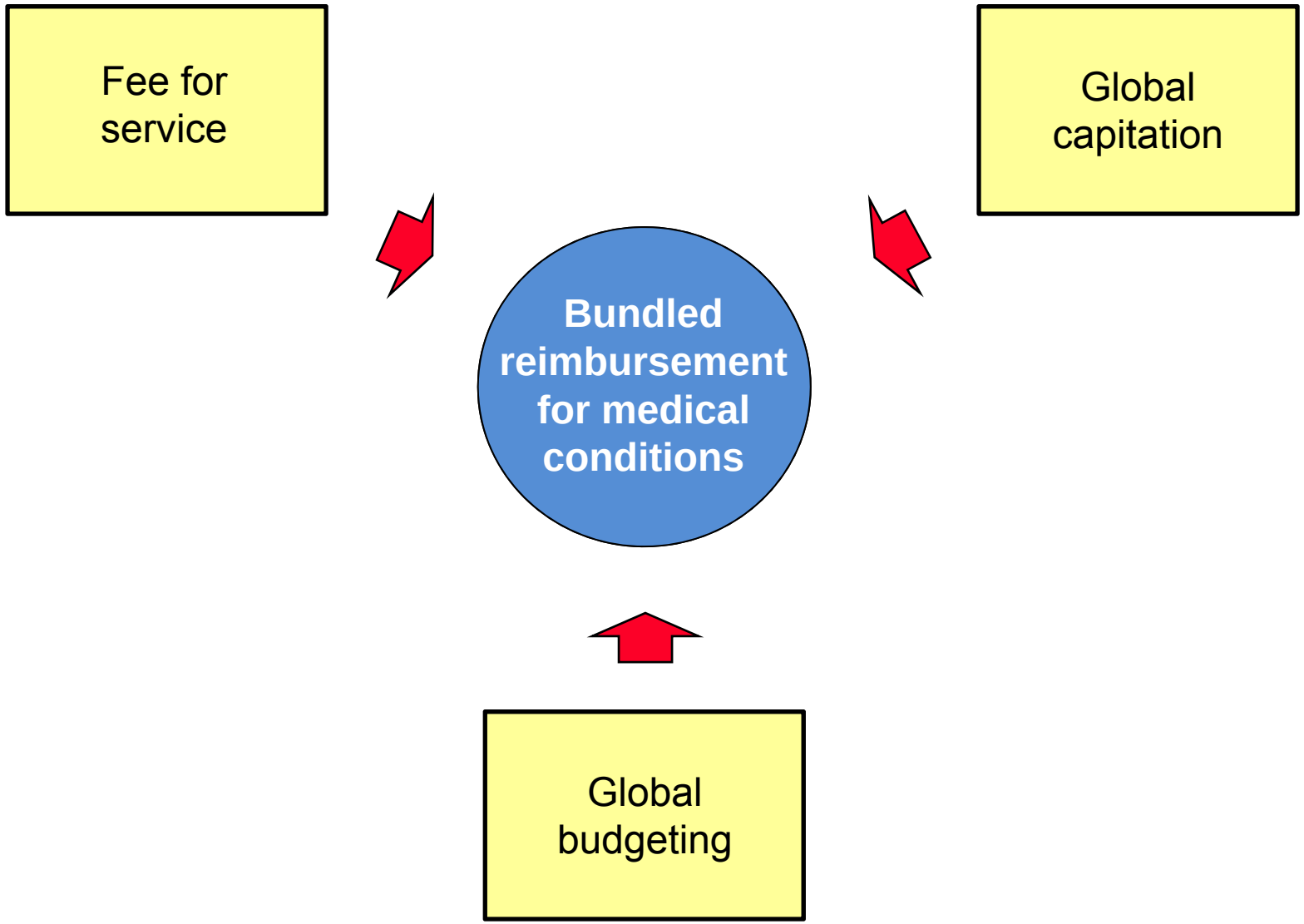


Major Cost Reduction Opportunities in Health Care

- Reduce **process variation** that lowers efficiency and raises inventory without improving outcomes
- Eliminate **low-** or **non-value added** services or tests
  - Sometimes driven by protocols or to justify billing
- Rationalize redundant **administrative** and **scheduling** units
- **Improve utilization** of expensive physicians, staff, clinical space, inventory, and equipment by reducing duplication and service fragmentation
- Minimize use of **physician and skilled staff** time for less skilled activities
- Reduce the provision of routine or uncomplicated services in **highly-resourced** facilities
- **Reduce cycle times** across the care cycle
- **Optimize total care cycle cost** versus minimizing cost of individual service
- Increase **cost awareness** in clinical teams

- Many cost reduction opportunities will actually **improve outcomes**

3. Reimburse through Bundled Prices for Care Cycles



Bundled Payment in Practice
Hip and Knee Replacement in Stockholm, Sweden

- **Components** of the bundle

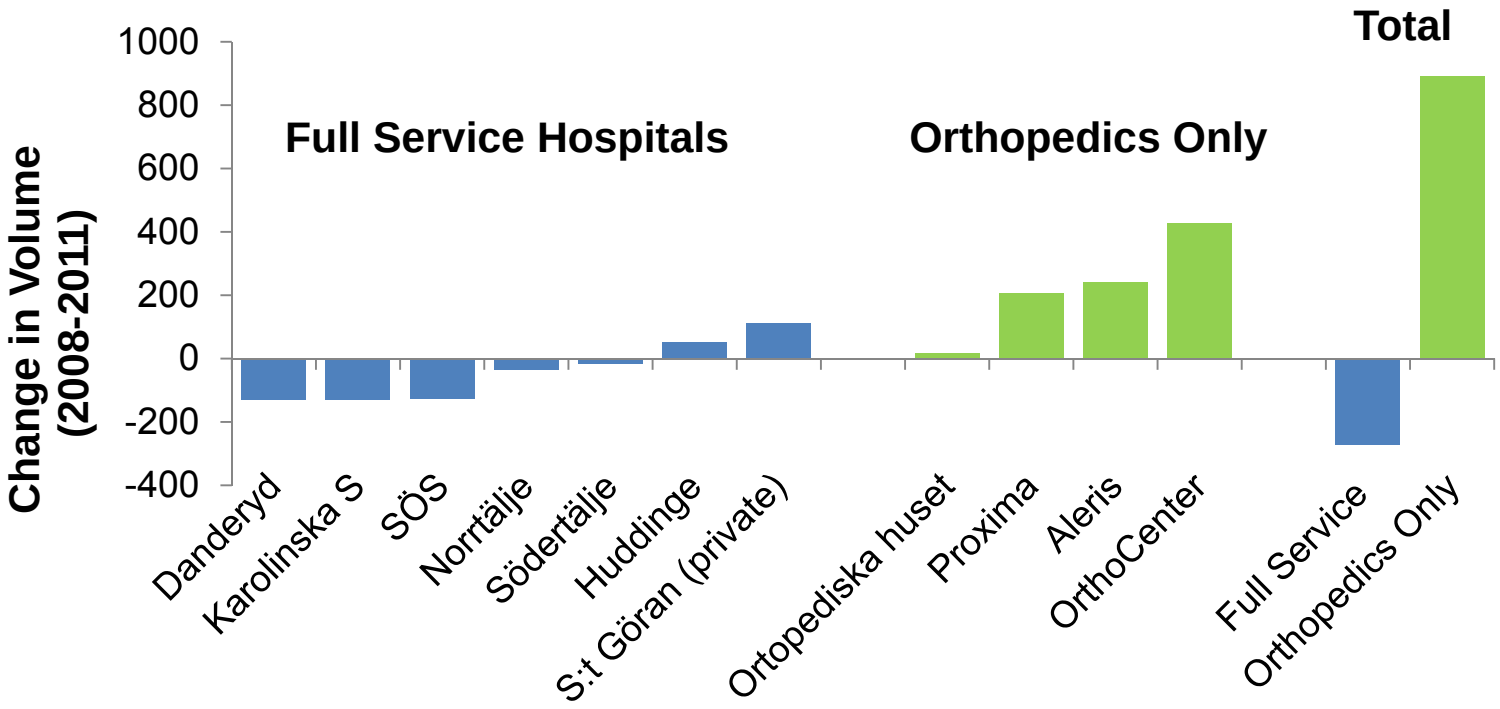
- Pre-op evaluation - Lab tests - Radiology - Surgery & related admissions - Prosthesis - Drugs - Inpatient rehab, up to 6 days	- All physician and staff fees and costs - 1 follow-up visit within 3 months - Any additional surgery to the joint within 2 years - If post-op infection requiring antibiotics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

- 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**

Hip and Knee Replacement in Stockholm, Sweden

Provider Response

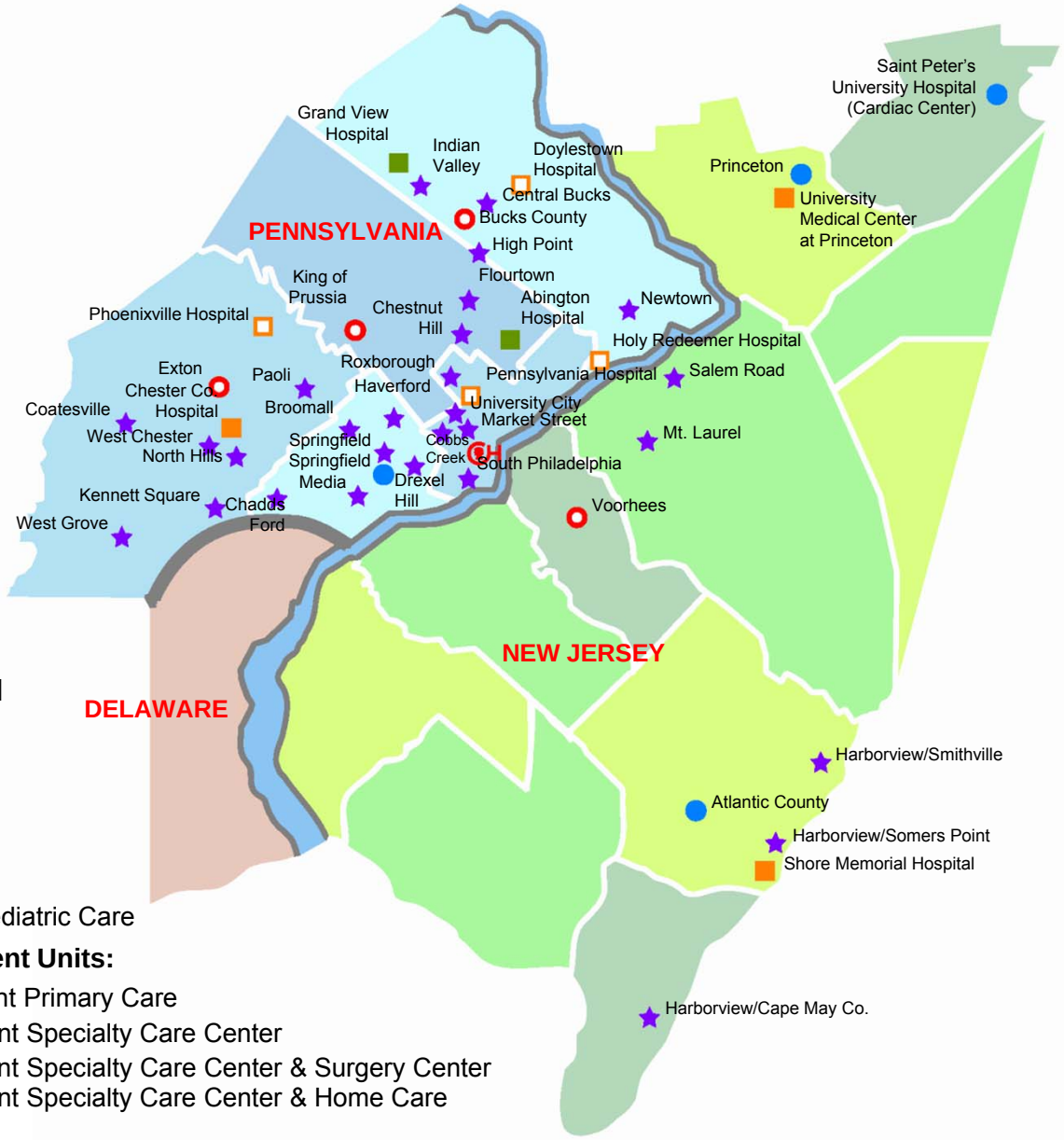


- Under bundled payment, volumes shifted from full-service hospitals to **specialized orthopedic hospitals**
- Interviews with specialized providers revealed the following **delivery innovations**:

– Explicit care pathways	– More patient education
– Standardized treatment processes	– More training and specialization of staff
– Checklists	– Increased procedures per day
– New post-discharge visit to check wound healing	– Decreased length of stay

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:

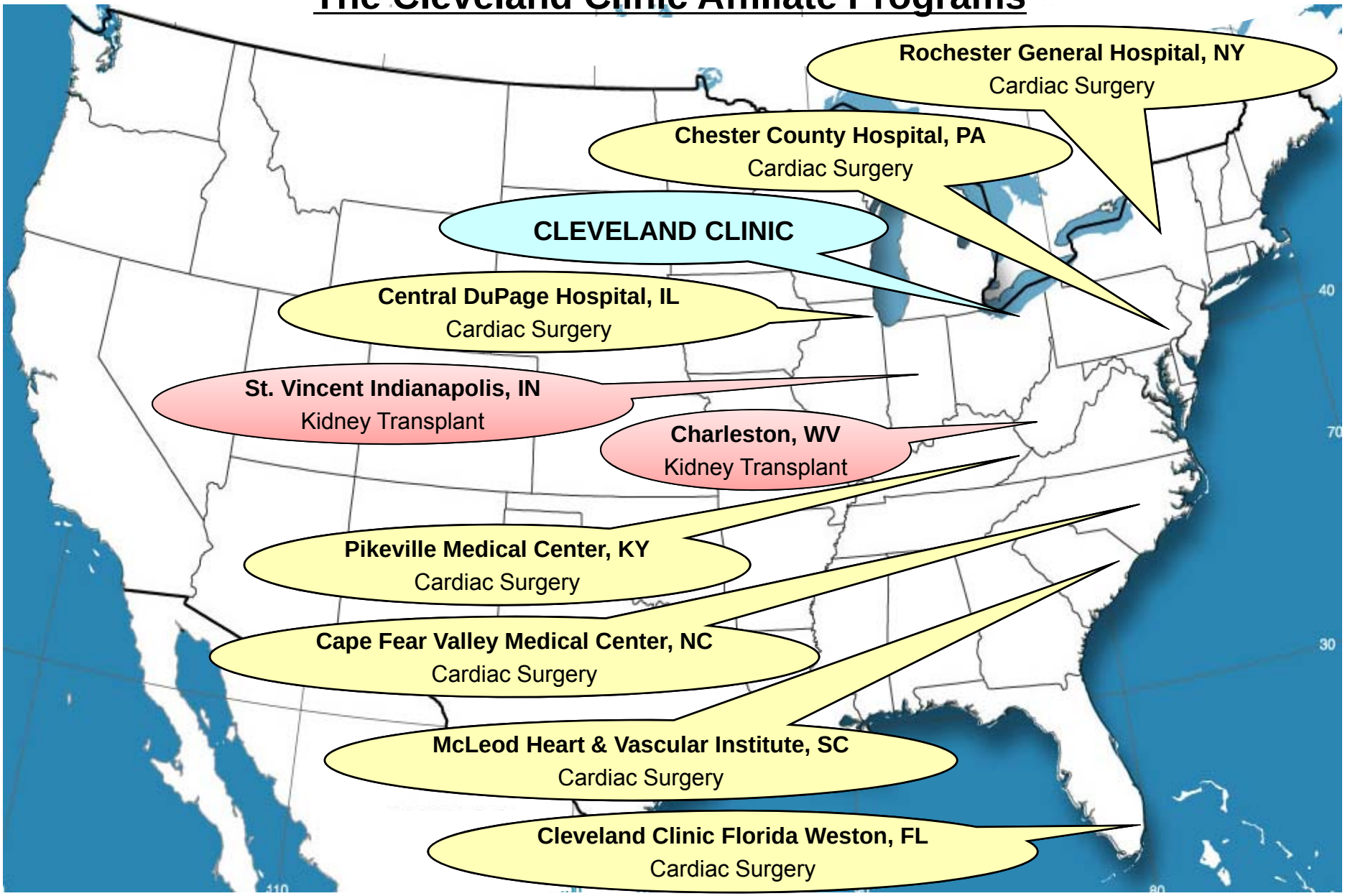
- Pediatric & Adolescent Primary Care
- Pediatric & Adolescent Specialty Care Center
- Pediatric & Adolescent Specialty Care Center & Surgery Center
- Pediatric & Adolescent Specialty Care Center & Home Care

Four Levels of Provider System Integration

1. **Define overall scope of services** where the provider can achieve high value
2. **Concentrate volume in fewer locations** in the conditions that providers treat
3. Choose the **right location** for each service based on medical condition, acuity level, resource intensity, cost level and need for convenience
   - E.g., shift routine surgeries out of tertiary hospitals to smaller, more specialized facilities
4. Integrate care **across locations through an IPU structure**

5. Expand Geographic Reach

The Cleveland Clinic Affiliate Programs

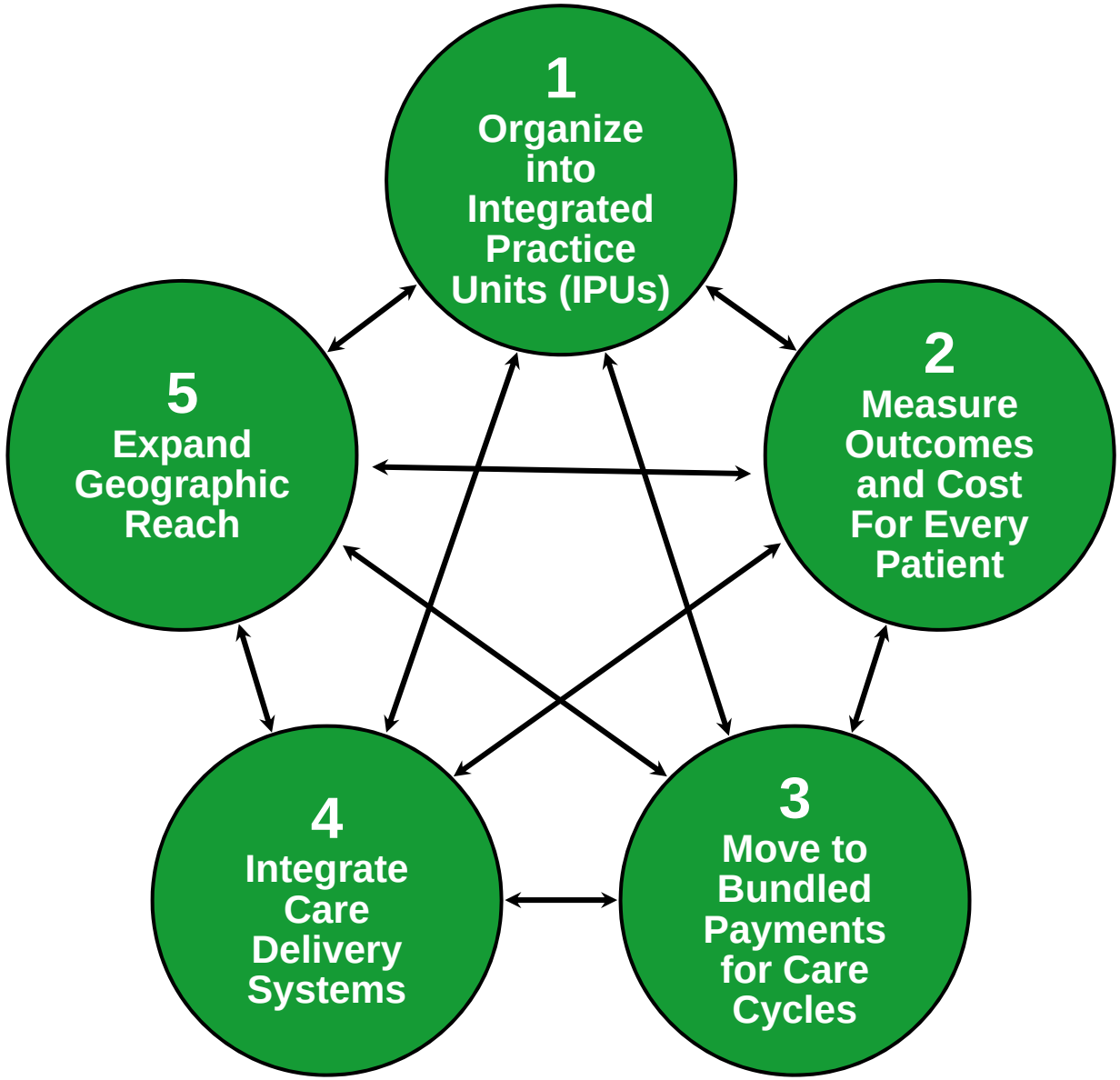


6. Build an Enabling Information Technology Platform

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

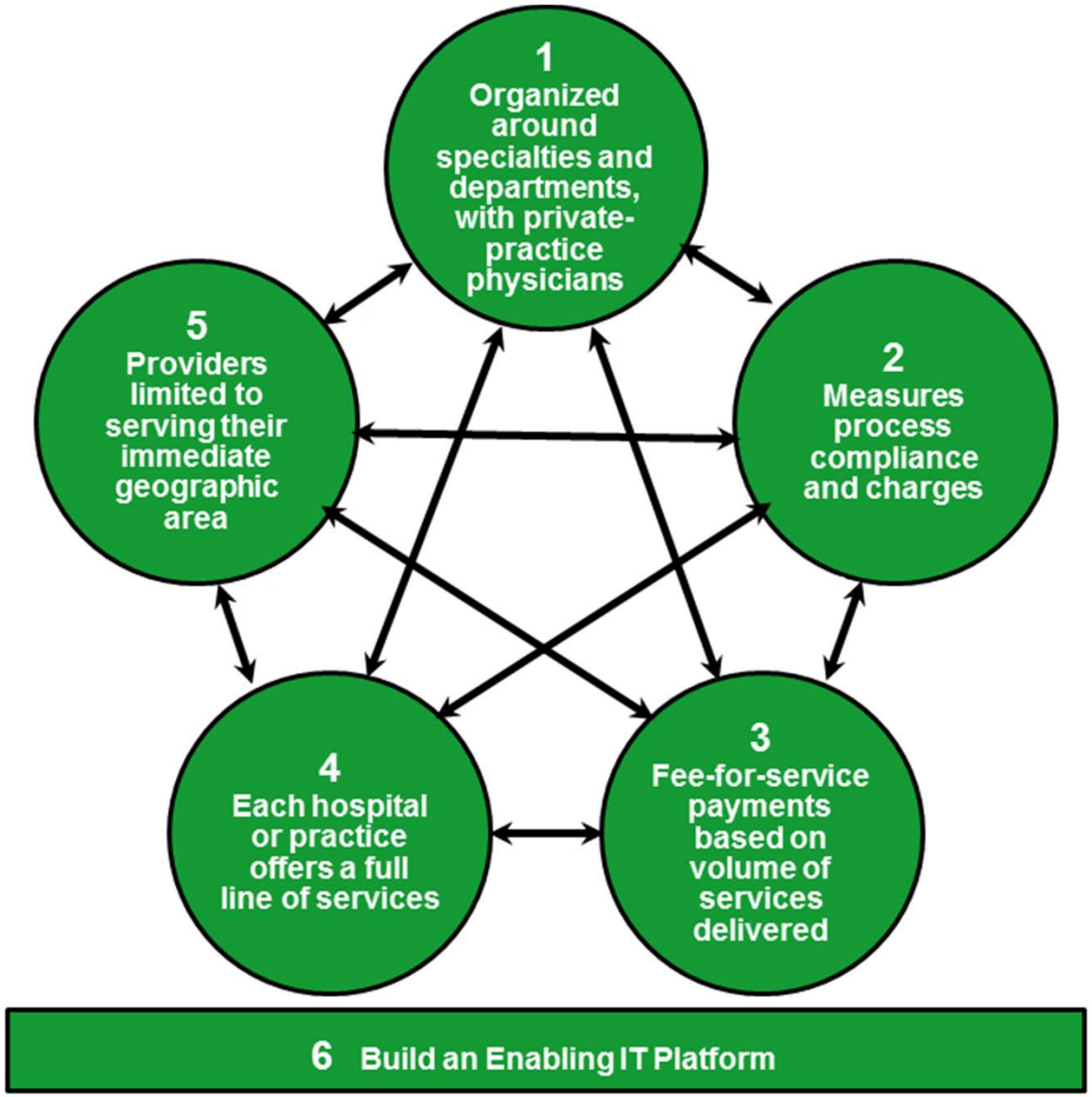
- Common **data definitions**
- Combine **all types of data** (e.g. notes, images) for each patient
- Data encompasses the **full care cycle**, including care by referring entities
- Allow access and communication among **all involved parties**, including with patients
- **Templates** for medical conditions 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



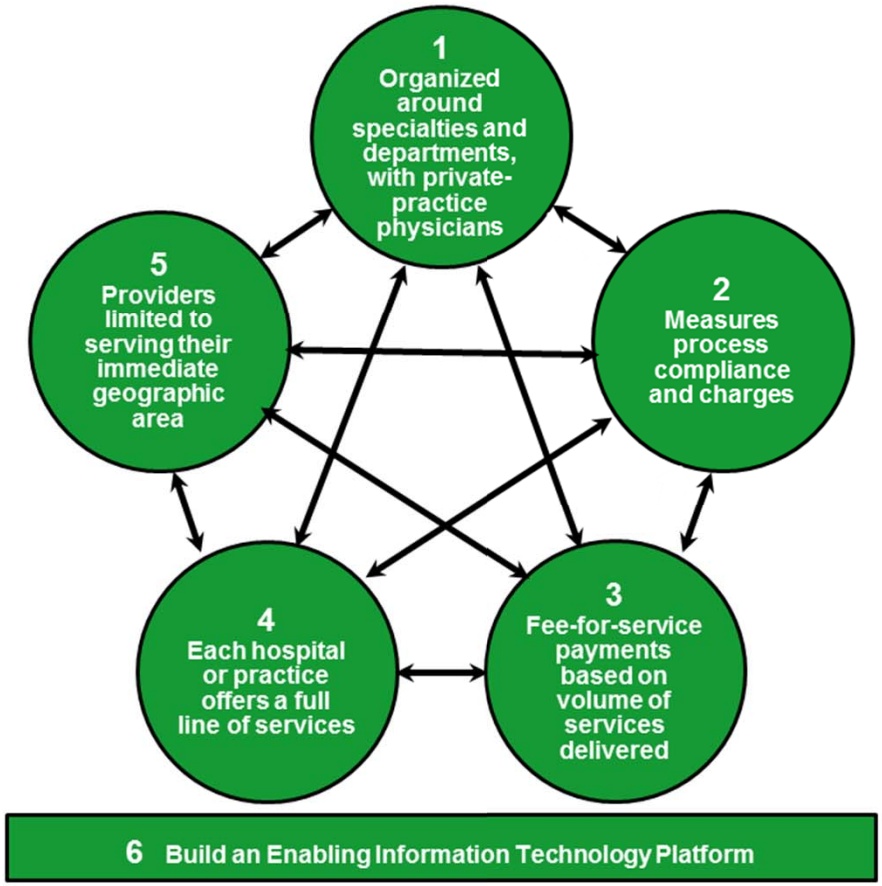
Why We Are Stuck

Legacy System



Getting Unstuck

Legacy System



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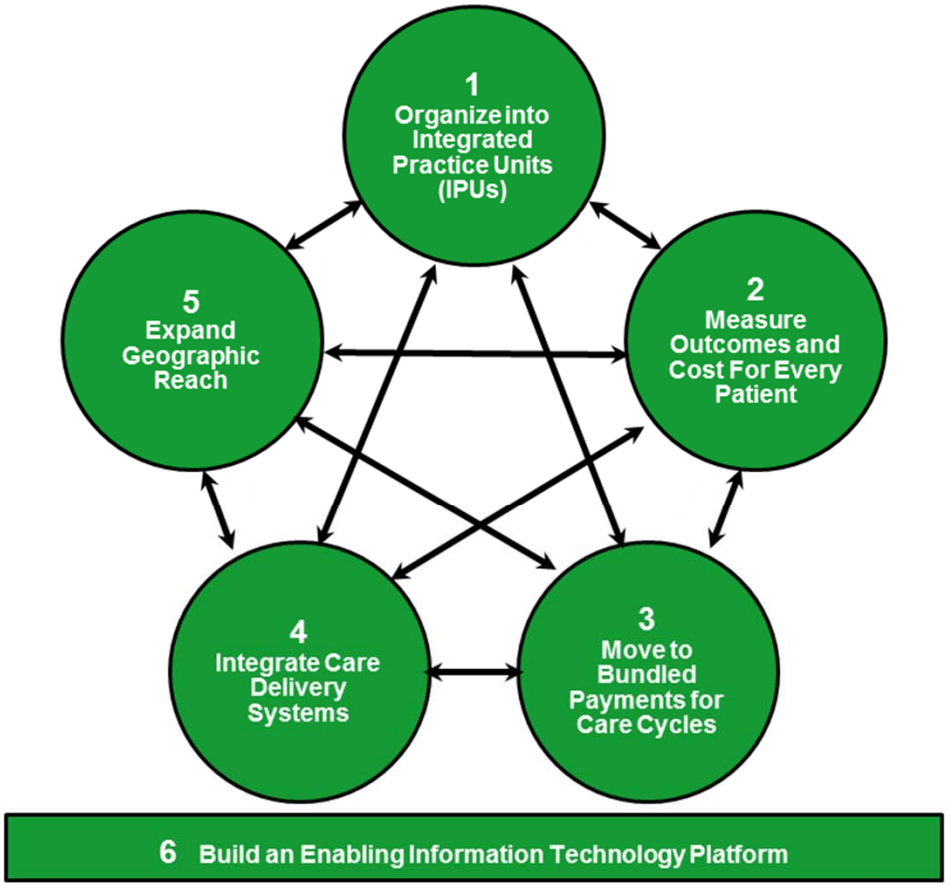

Moving to a High-Value Health Care System

1. Make **patient value** the central goal of all reforms
2. Move towards reorganizing care into **Integrated Practice Units** around patient medical conditions
   - Certification standards should require **multidisciplinary teams**, integrated scheduling, and coordinated case management
   - Primary and preventive care should be tailored to serving **distinct patient segments**
3. Eliminate the **separation** between inpatient, outpatient, and rehabilitation care
   - Integrate care across the care cycle, with more care shifting to the **outpatient setting**
   - Reduce **cost-shifting** between care settings by eliminating the different models of reimbursement for inpatient and outpatient care
   - Harness the **power of IT** to enable integrated care delivery

Moving to a High-Value Health Care System

4. Mandate a path to measurement and reporting of **outcomes** for every patient condition
   - Create a **national body** to oversee the development of outcome measures
   - Mandate **publication** of risk-adjusted outcomes
   - Until outcome data is widely available, expand **minimum volume standards**
5. Introduce new cost-accounting standards to measure **costs** at the level of patients and their medical conditions
   - Establish a **national body** to develop common costing standards that provide accurate cost data across providers and allows costs to be measured around the patient
   - Pilot patient-level costing **across care settings** to inform bundled payment design

Moving to a High-Value Health Care System

6. Shift reimbursement to **bundled payments** for the full care cycle
   - Introduce a universal **reimbursement catalog** based on accurate patient-level costing
7. Encourage consolidation of **providers** and provider **service lines**
   - Expand **minimum volume standards** to support excellent outcomes and efficient capacity utilization
8. Develop a strategic plan **by medical condition** and **primary care segment** to foster care integration, introduce outcome measures, pilot patient-level costing, and shift to bundled payments
9. Engage **clinicians** in the value agenda and accept joint responsibility for its success

Zero-Sum Competition in U.S. Health Care

Bad Competition

- Competition to **shift costs** or **capture greater revenue**
- Competition to **capture patients** and **restrict choice**
- Competition to **increase bargaining power** to secure discounts or price premiums
- Competition to **exclude less healthy individuals**

Zero or Negative Sum Competition

Good Competition

- Competition to **increase value for patients**

Positive Sum Competition

Value-Based Health Care Delivery

Implications for Suppliers

- Compete on delivering **unique value** measured over the **full care cycle**
- **Demonstrate value** based on careful study of long term outcomes and costs versus alternative approaches
- Ensure that the products are **used by the right patients**
- Work to embed drugs/devices in the **right care delivery processes**
- Market products based on **value**, **information**, **provider** support and **patient** support
- Offer services that **contribute to value** rather than reinforce cost shifting
- Move to **value-based pricing** approaches
  - e.g. price for success, guarantees; participate in bundles for devices and follow up services
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Creating a Value-Based Health Care Delivery System

Implications for Suppliers

1. Integrated Practice Units (IPUs)	• **Work to embed drugs/devices in the right care delivery processes**
2. Measure Cost and Outcomes	• **Demonstrate value based on careful study of long-term outcomes and costs versus alternative approaches** • **Ensure that products are used by the right patients**
3. Move to Bundled Prices	• **Move to value-based pricing approaches (e.g. price for success, guarantees) and participate in bundles**
5. Expand Excellence Across Geography	• **Support providers with knowledge of best practices in the organization and delivery of care**
6. Enabling IT Platform	• **Develop informatics systems that facilitate integrated, team-based care delivery, real-time outcome measurement, and activity-based costing for each patient and medical condition**