

Value-Based Health Care Delivery: Implications for Neurosurgeons

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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>. 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.

Challenges Facing Neurosurgery

- Anticipated U.S. **shortage** of neurosurgeons
- Scrutiny of **spine surgery**
- Justifying the cost of **technological advancements**
- **High cost** of care for many less common conditions

Solving the Health Care Problem

- The core issue in health care is **value for patients**

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

- 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 further cost shifting, restricting services, or dramatically reducing the compensation of health care professionals

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

Creating a Value-Based Health Care Delivery System

The Strategic Agenda

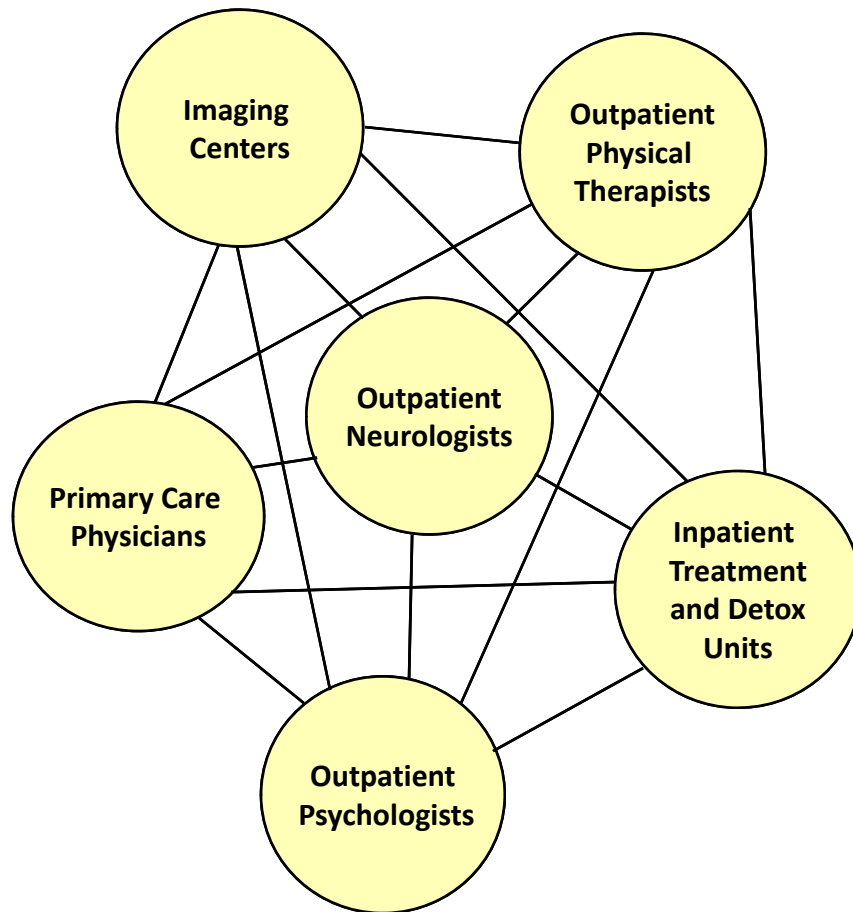
1. Organize care into **Integrated Practice Units (IPUs)** around patient medical conditions
 - For primary and preventive care, organize to serve **distinct patient segments**
2. Measure **outcomes** and **costs** for every patient
3. Move to **bundled payments** for care cycles
4. Integrate care delivery **systems**
5. Expand **geographic reach** and serve **populations**
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

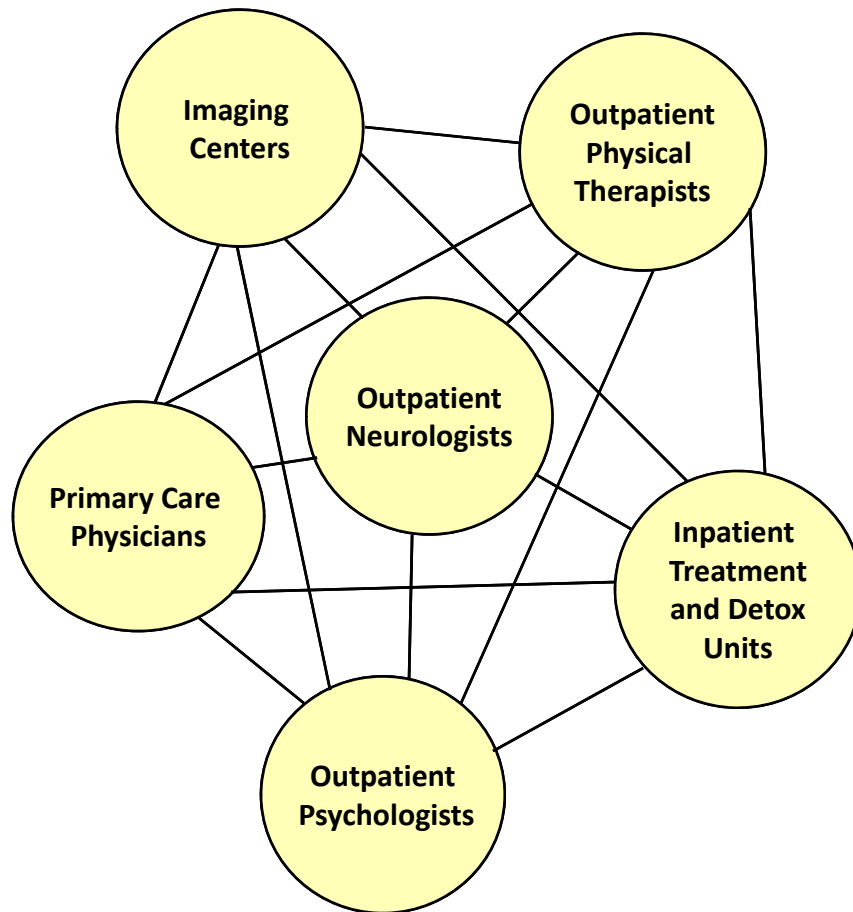


1. Organize Care Around Patient Medical Conditions

Migraine Care in Germany

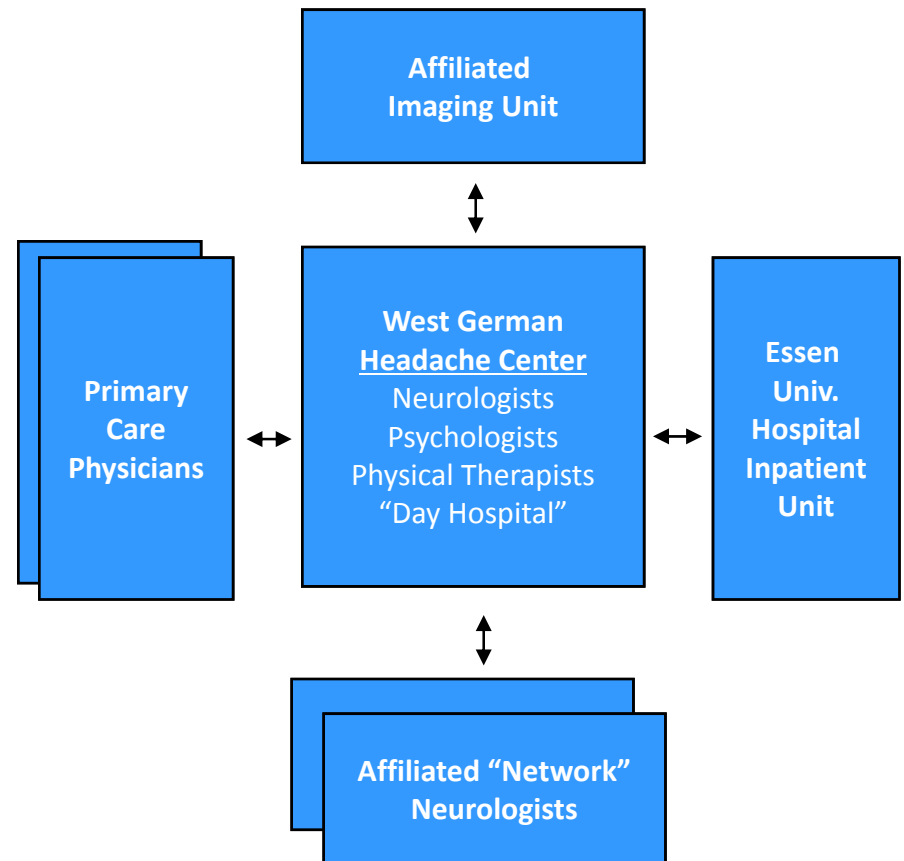
Existing Model:

Organize by Specialty and Discrete Service



New Model:

Organize into Integrated Practice Units (IPUs)




What is a Medical Condition?

Specialty Care

- 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

Primary/Preventive Care

- The corresponding unit of value creation is **defined patient segments** with similar preventive, diagnostic, and primary treatment needs (e.g. healthy adults, patients with complex chronic conditions, frail elderly)
- 
- The medical condition / patient segment is the proper **unit of value creation and value measurement** in health care delivery

The Care Delivery Value Chain

Acute Knee-Osteoarthritis Requiring Replacement

INFORMING AND ENGAGING	<ul style="list-style-type: none"> Importance of exercise, weight reduction, proper nutrition 	<ul style="list-style-type: none"> Meaning of diagnosis Prognosis (short- and long-term outcomes) Drawbacks and benefits of surgery 	<ul style="list-style-type: none"> Setting expectations Importance of nutrition, weight loss, vaccinations Home preparation 	<ul style="list-style-type: none"> Expectations for recovery Importance of rehab Post-surgery risk factors 	<ul style="list-style-type: none"> Importance of rehab adherence Longitudinal care plan 	<ul style="list-style-type: none"> Importance of exercise, maintaining healthy weight
	<ul style="list-style-type: none"> Joint-specific symptoms and function (e.g., WOMAC scale) Overall health (e.g., SF-12 scale) 	<ul style="list-style-type: none"> Loss of cartilage Change in subchondral bone Joint-specific symptoms and function Overall health 	<ul style="list-style-type: none"> Baseline health status Fitness for surgery (e.g., ASA score) 	<ul style="list-style-type: none"> Blood loss Operative time Complications 	<ul style="list-style-type: none"> Infections Joint-specific symptoms and function Inpatient length of stay Ability to return to normal activities 	<ul style="list-style-type: none"> Joint-specific symptoms and function Weight gain or loss Missed work Overall health
MEASURING	<ul style="list-style-type: none"> PCP office Health club Physical therapy clinic 	<ul style="list-style-type: none"> Specialty office Imaging facility 	<ul style="list-style-type: none"> Specialty office Pre-op evaluation center 	<ul style="list-style-type: none"> Operating room Recovery room Orthopedic floor at hospital or specialty surgery center 	<ul style="list-style-type: none"> Nursing facility Rehab facility PT clinic Home 	<ul style="list-style-type: none"> Specialty office Primary care office Health club
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CARE DELIVERY	<p>MONITORING/PREVENTING</p> <p>MONITOR</p> <ul style="list-style-type: none"> Conduct PCP exam Refer to specialists, if necessary <p>PREVENT</p> <ul style="list-style-type: none"> Prescribe anti-inflammatory medicines Recommend exercise regimen Set weight loss targets 	<p>DIAGNOSING</p> <p>IMAGING</p> <ul style="list-style-type: none"> Perform and evaluate MRI and x-ray <ul style="list-style-type: none"> -Assess cartilage loss -Assess bone alterations <p>CLINICAL EVALUATION</p> <ul style="list-style-type: none"> Review history and imaging Perform physical exam Recommend treatment plan (surgery or other options) 	<p>PREPARING</p> <p>OVERALL PREP</p> <ul style="list-style-type: none"> Conduct home assessment Monitor weight loss <p>SURGICAL PREP</p> <ul style="list-style-type: none"> Perform cardiology, pulmonary evaluations Run blood labs Conduct pre-op physical exam 	<p>INTERVENING</p> <p>ANESTHESIA</p> <ul style="list-style-type: none"> Administer anesthesia (general, epidural, or regional) <p>SURGICAL PROCEDURE</p> <ul style="list-style-type: none"> Determine approach (e.g., minimally invasive) Insert device Cement joint <p>PAIN MANAGEMENT</p> <ul style="list-style-type: none"> Prescribe preemptive multimodal pain meds 	<p>RECOVERING/REHABBING</p> <p>SURGICAL</p> <ul style="list-style-type: none"> Immediate return to OR for manipulation, if necessary <p>MEDICAL</p> <ul style="list-style-type: none"> Monitor coagulation <p>LIVING</p> <ul style="list-style-type: none"> Provide daily living support (showering, dressing) Track risk indicators (fever, swelling, other) <p>PHYSICAL THERAPY</p> <ul style="list-style-type: none"> Daily or twice daily PT sessions 	<p>MONITORING/MANAGING</p> <p>MONITOR</p> <ul style="list-style-type: none"> Consult regularly with patient <p>MANAGE</p> <ul style="list-style-type: none"> Prescribe prophylactic antibiotics when needed Set long-term exercise plan Revise joint, if necessary
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Orthopedic Specialist
 Other Provider Entities

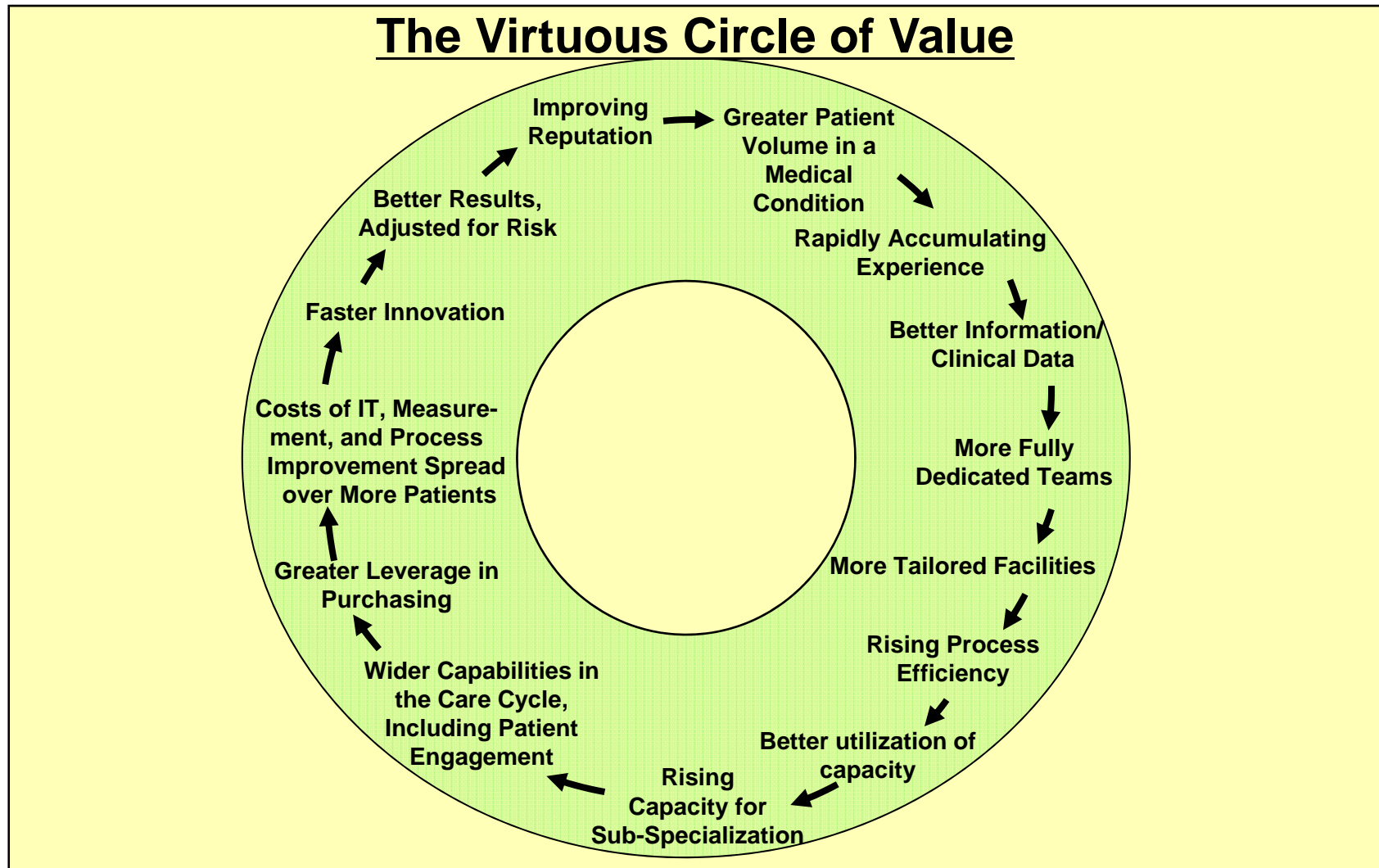
Integrating Across the Care Cycle **An Orthopedic Surgeon Teaches A Course to Physical Therapists** **About Rehabilitation After Shoulder Surgery**



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 on the team 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, follow-up, and secondary prevention **are Integrated into care**
6. The IPU has a **single administrative** and **scheduling structure**
7. Much of care **is co-located** in one or more **dedicated sites**
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

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

The Role of Volume in Value Creation

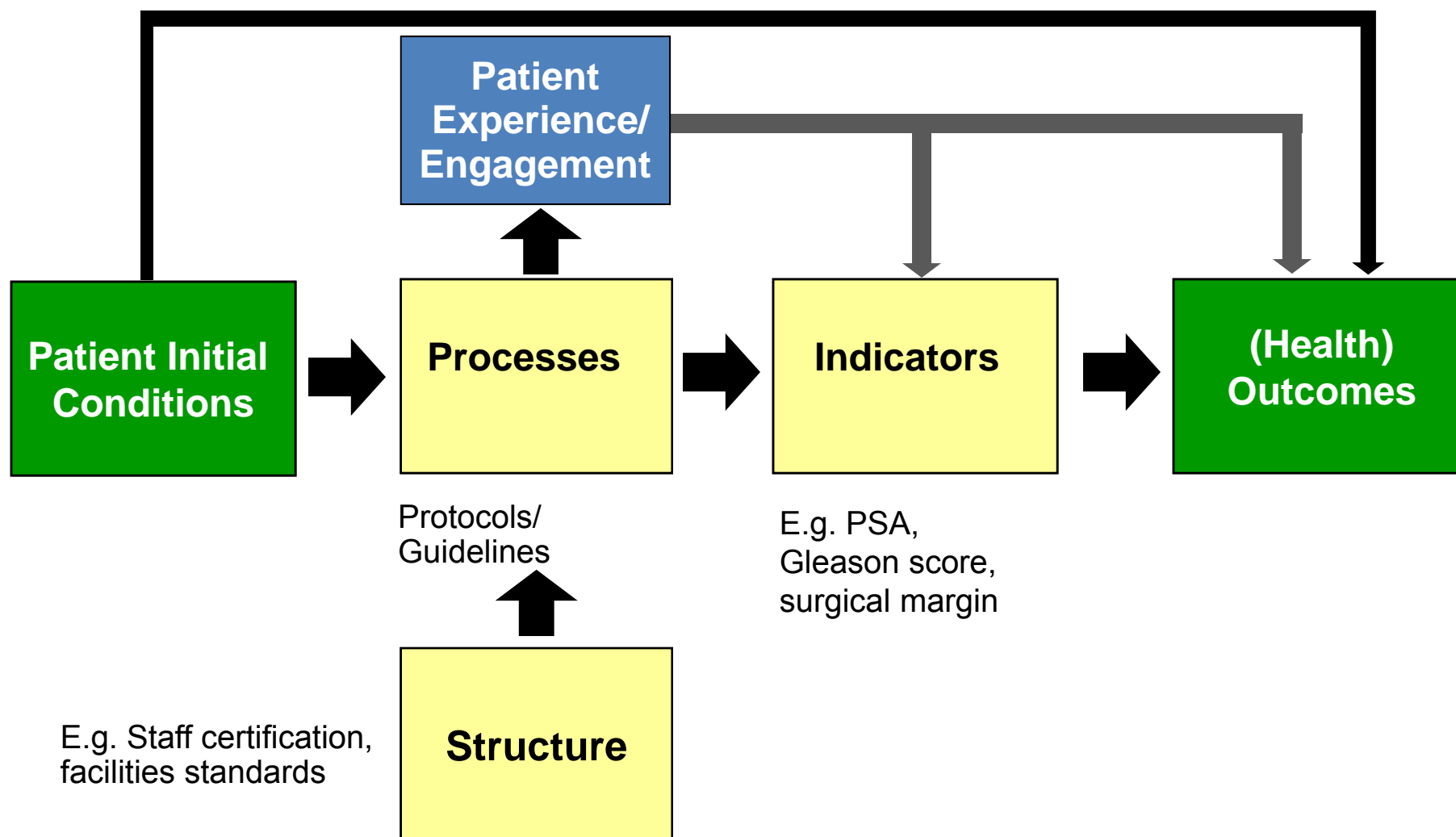
Fragmentation of Hospital Services in Sweden

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

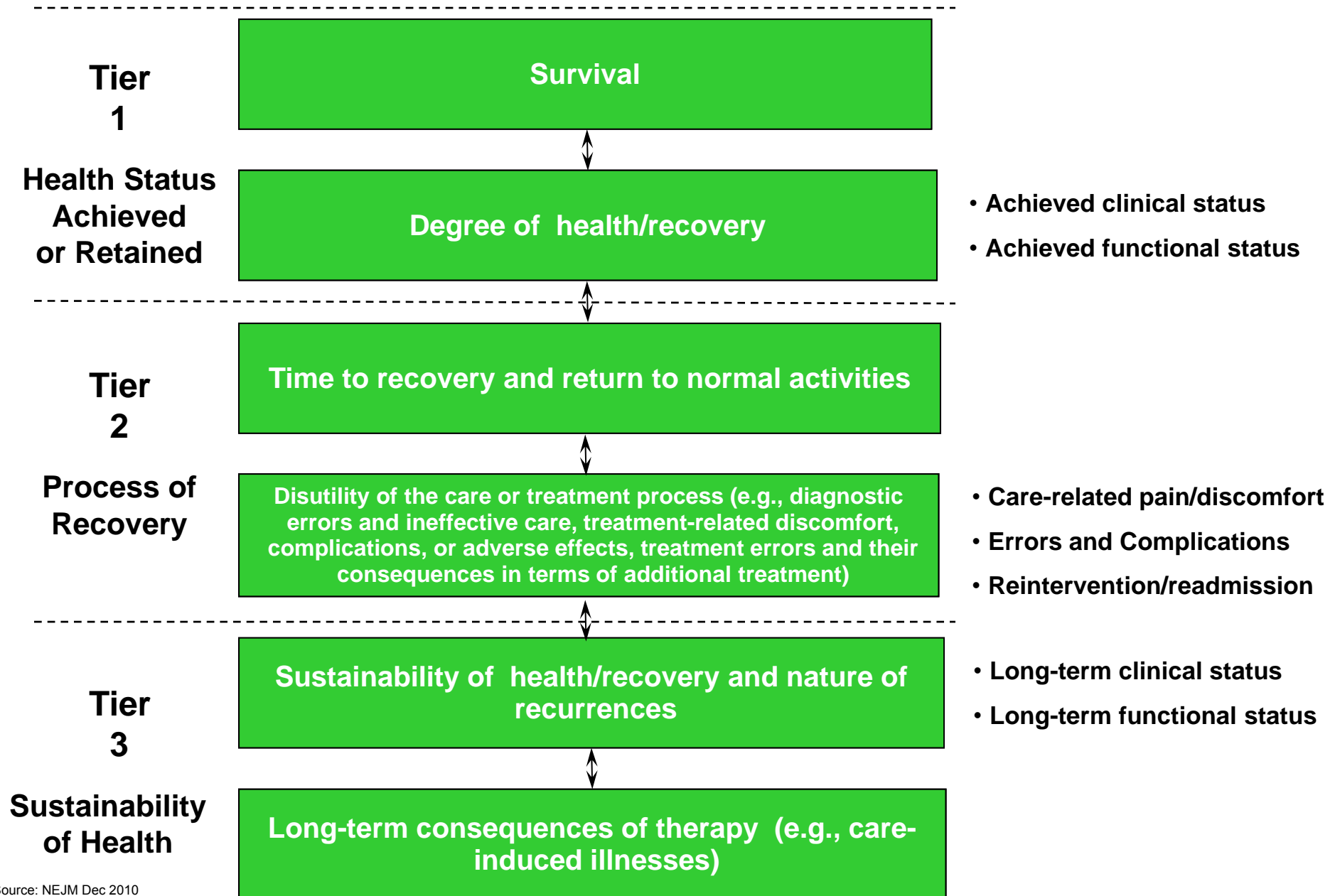
The Measurement Landscape



Principles of Outcome Measurement

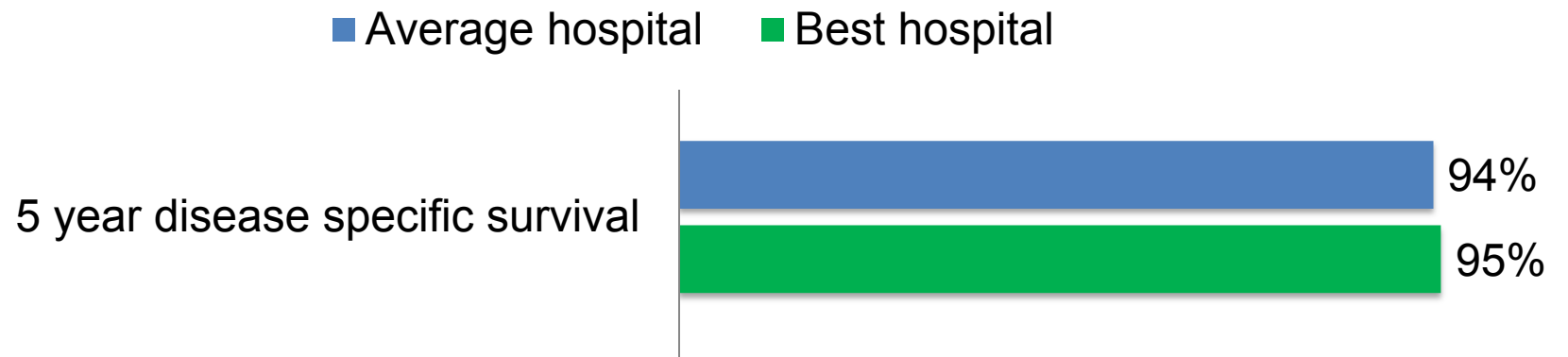
1. Outcomes should be measured by **medical condition** or **primary care patient segment**
 - **Not** by **specialty, procedure** or **intervention**
2. Outcomes should reflect the **full cycle of care** for the condition
3. Outcomes are **always multi-dimensional** and should include the health results **most relevant to patients**
4. Measurement must include **initial conditions/risk factors** to assess improvement and allow for risk adjustment
5. Outcome measures should be **standardized** to enable comparison and learning

The Outcome Measures Hierarchy



Measuring Multiple Outcomes

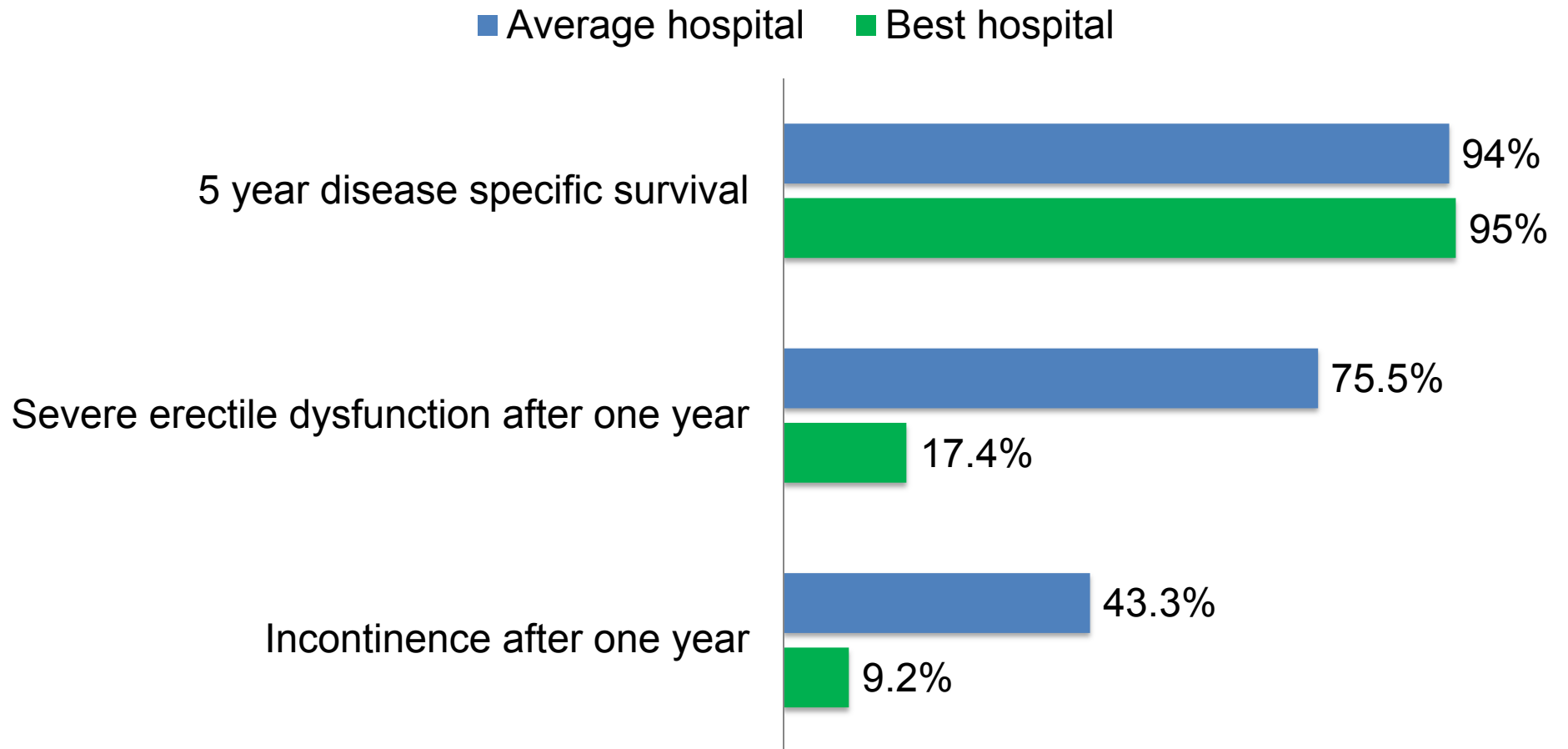
Prostate Cancer Care in Germany



Source: ICHOM

Measuring Multiple Outcomes

Prostate Cancer Care in Germany



Source: ICHOM



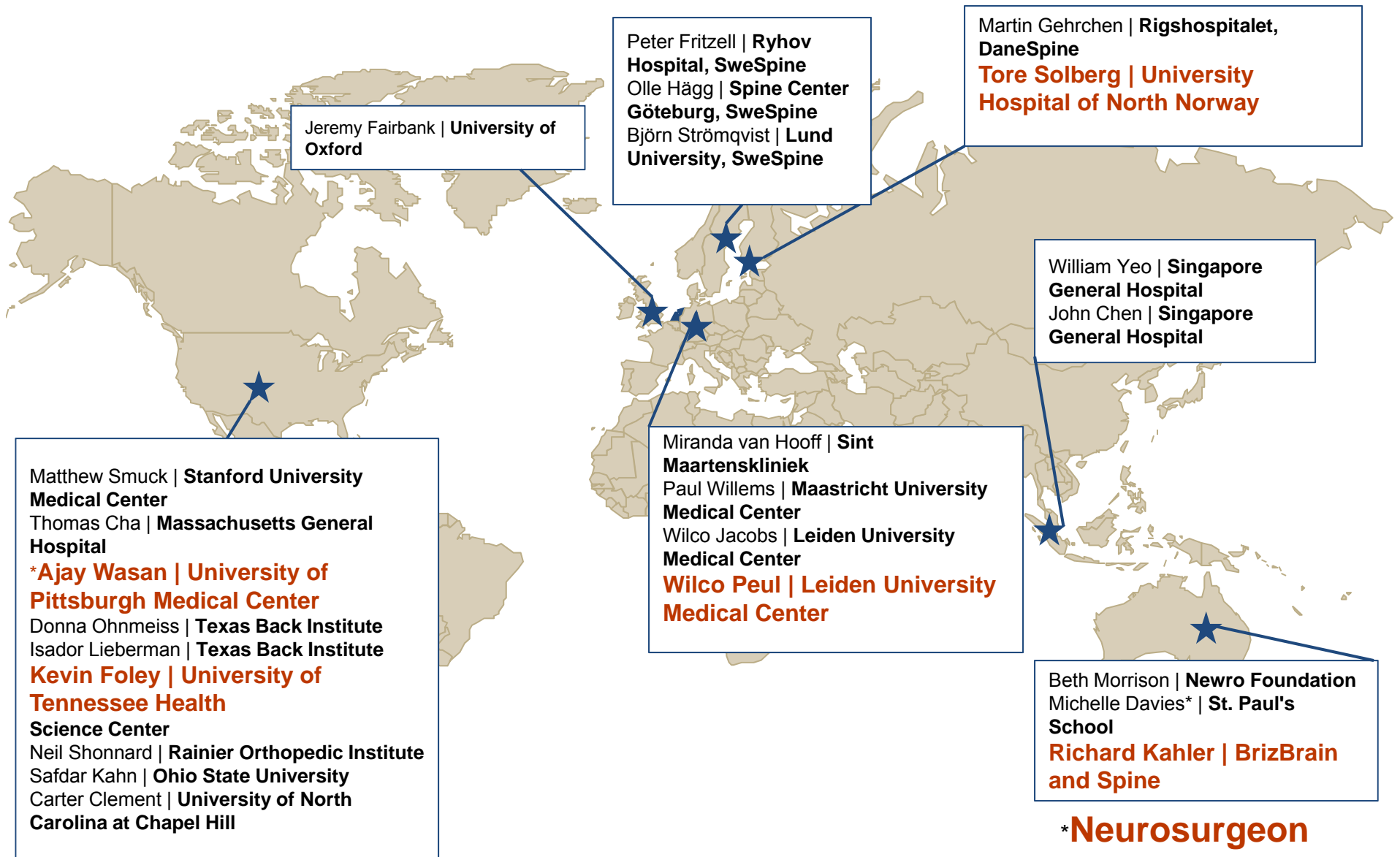
ICHOM Strategic Agenda

- Define internationally recognized **Standard Sets of outcomes** and risk factors for the most burdensome medical conditions
- Drive adoption of Standard Sets by sharing **data collection best practices** and certifying supporting technologies
- Create **global communities** for each medical condition focused on outcome comparison, learning, and improvement

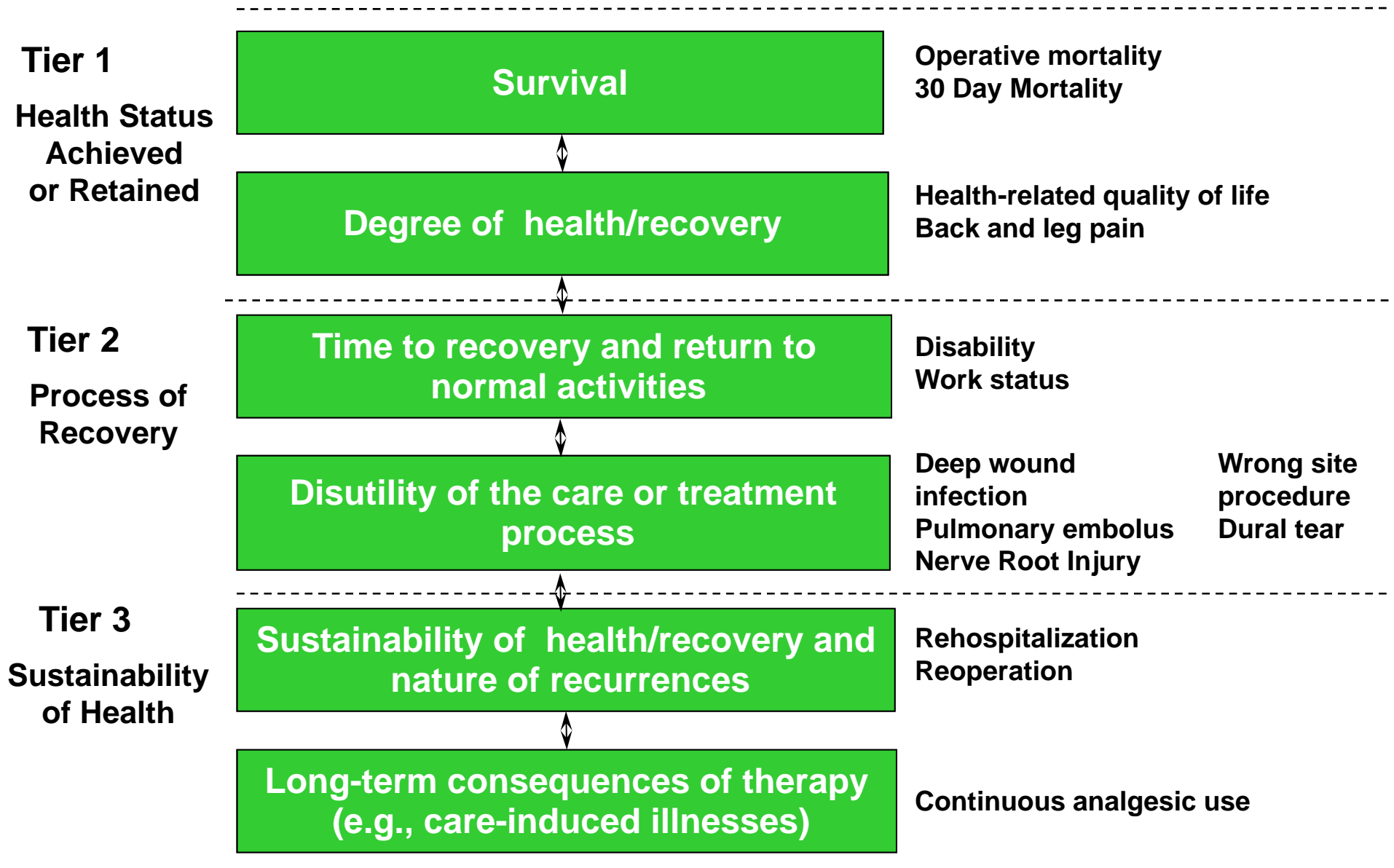
Mission:

To transform health care by empowering clinicians worldwide to measure and compare their patients' outcomes and to learn from each other how to improve.

ICHOM Low Back Pain Working Group



ICHOM Low Back Pain Standard Outcome Set

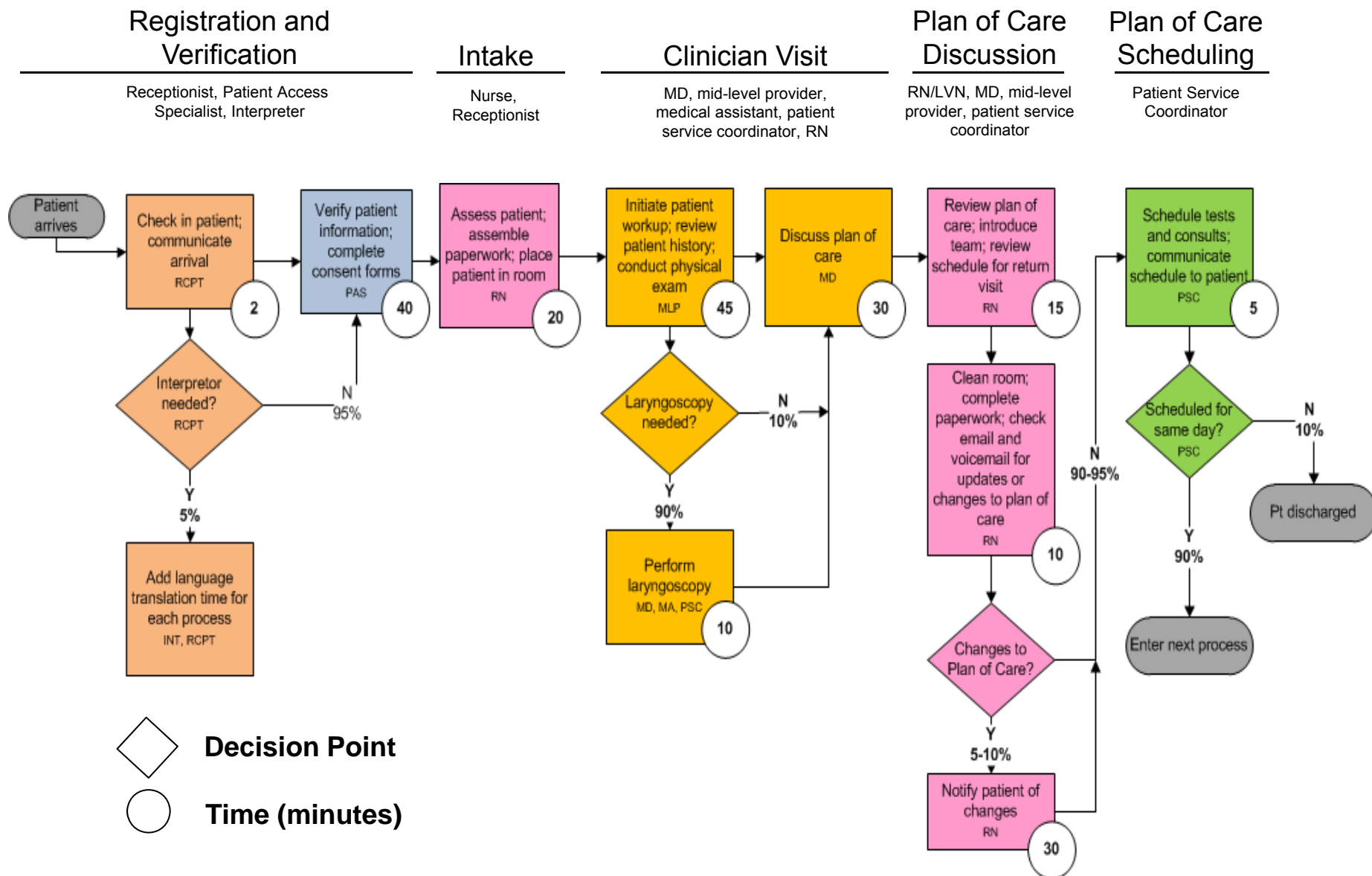


Measuring the Cost of Care Delivery: Principles


- Cost is the **actual expense** of patient care, not the **charge** billed or collected
- Cost should be measured around the **patient**, not just the department or provider organization
- 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)
- **“Overhead”** costs should be associated with the patient facing resources which drive their usage

Mapping Resource Utilization

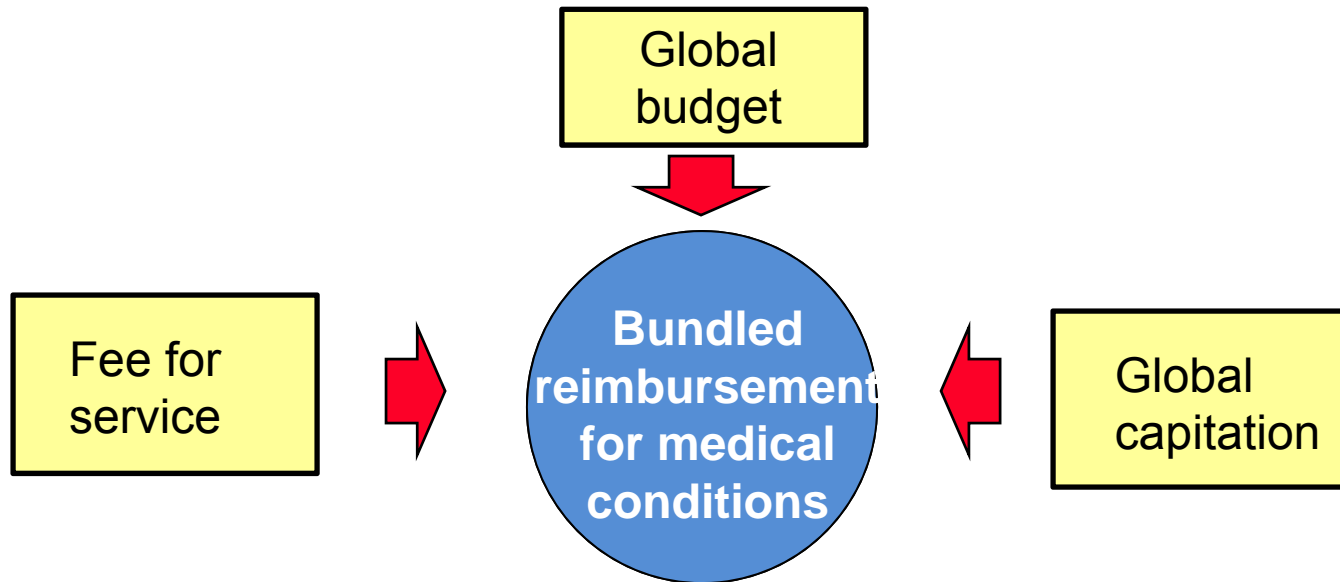
MD Anderson Cancer Center – New Patient Visit



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, and facilities by reducing duplication and service fragmentation
 - Minimize use of **physician and skilled staff** time for less skilled activities
 - Move routine or uncomplicated services out of **highly-resourced** facilities
 - **Reduce cycle times** across the care cycle
 - Process steps that **optimize total care cycle cost** versus minimizing investments in the costs of individual services
 - Increase **cost awareness** in clinical teams
- 
- Many cost reduction opportunities will actually **improve outcomes**

3. Move to Bundled Payments 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 OrthoChoice bundle

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

- Initially applied 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
- Bundle applies to **all** qualifying patients. Provider participation is **voluntary**, but all providers opted in



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

Elements of a Value-Based Bundle

- **Condition** based, not specialty, procedure or episode based
- **Risk** adjusted, or covering a **defined patient group** in terms of complexity
 - 80/20 rule
- Contingent on **outcomes**, including care guarantees
- Payment based on the **cost of efficient and effective care**, not past charges
- Specified **limits of responsibility** for unrelated care needs, and **stop loss** provisions to mitigate against outliers
- A level of **price stability**

Spine Surgery Bundle in Sweden

**BASE
BUNDLE**

+

**PERFORMANCE
PAYMENT**
(10% of base)

Adjustments

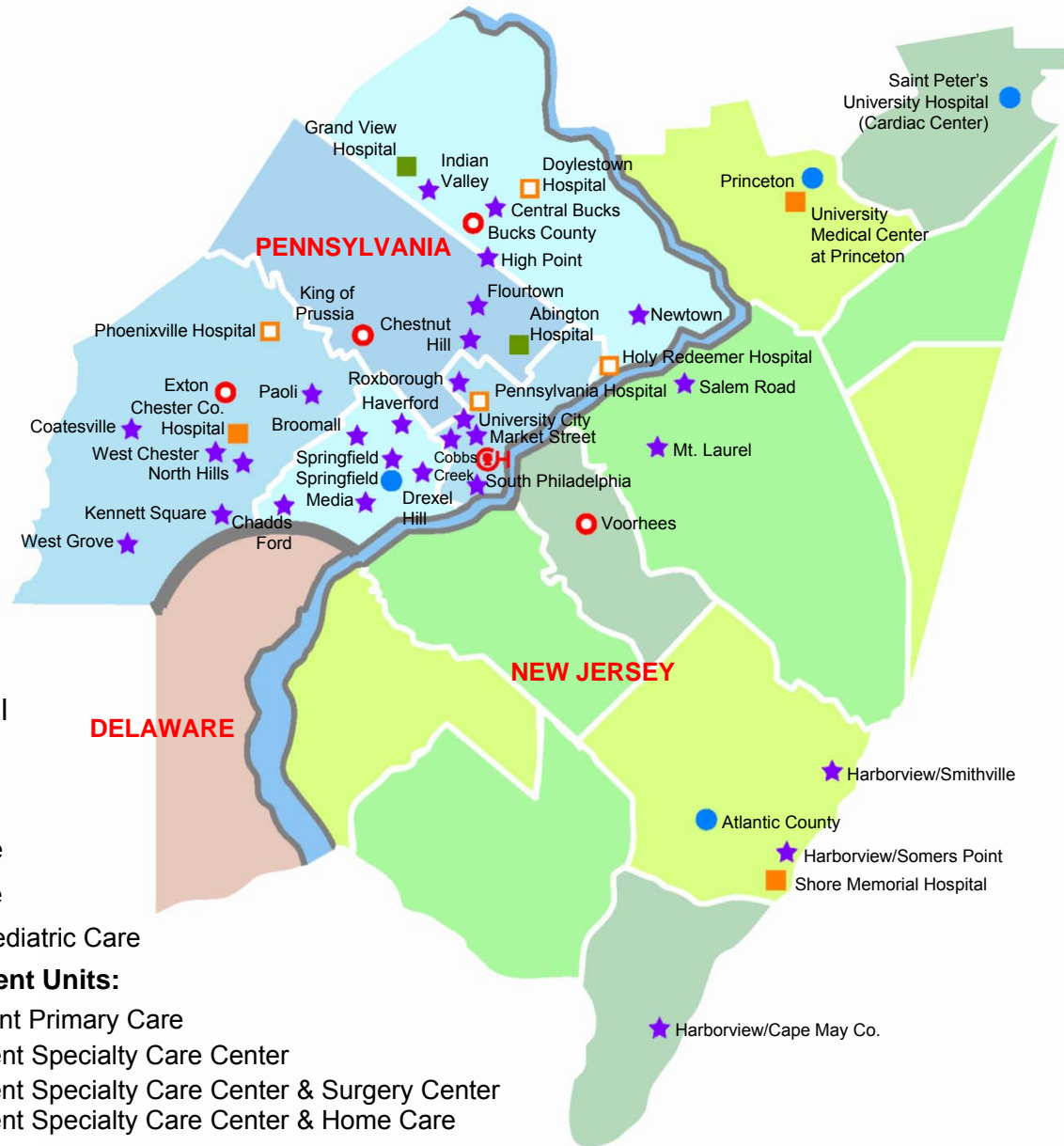
- Age
- Gender

Criteria

- Patient reported change in pain (VAS) one year after surgery
- 10 year average predicted change in pain as measured in *Swespine*, The National Swedish Spine Register

4. Integrate Care Delivery Systems

Children's Hospital of Philadelphia Care Network



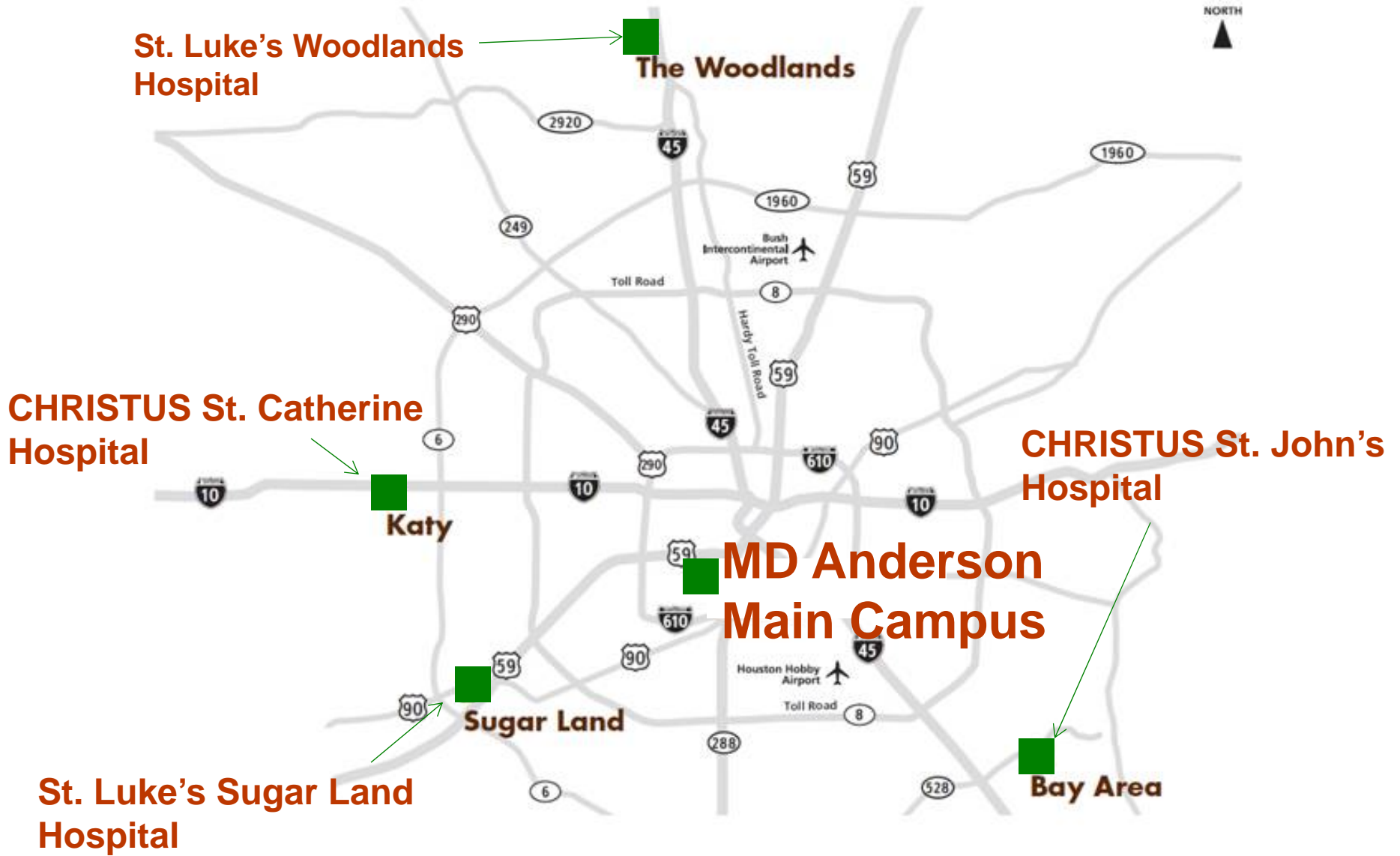
Four Levels of Provider System Integration

1. **Define the overall scope of services** where the provider organization can achieve high value
2. **Concentrate volume by condition** in fewer locations
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 appropriate locations** through IPUs

5. Expand Geographic Reach

MD Anderson Regional Cancer Care Centers



6. Build an Enabling Integrated IT Platform

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

- Combine **all types of data** (e.g. notes, images) for each patient
- Common **data definitions**
- 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**

Eight Questions for Neurosurgeons in a Value Based System

1. What **medical conditions** are you involved in?
2. What is **your role(s)** in the cycle of care?
3. Are you part of an **IPU**? Who else should be on the team?
4. How can you better **integrate** yourself into the care cycle and team?
5. What are the **outcomes** that matter to patients for each condition (not just for the surgery)?
6. What is the **actual cost of the care cycle** for each condition, including equipment and technology? Can you justify the cost in terms of outcomes?
7. How can you focus your practice and **consolidate volume** in condition(s) where you participate?
8. How could you **affiliate** with other organizations or providers to expand your reach and volume in your areas of expertise?