Value-Based Health Care Delivery: Core Concepts

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Harvard Business School

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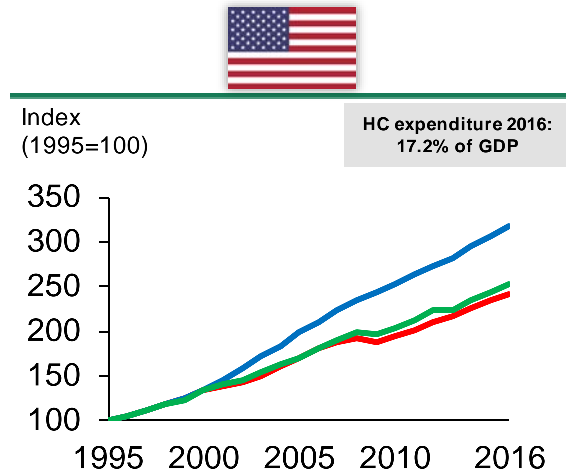
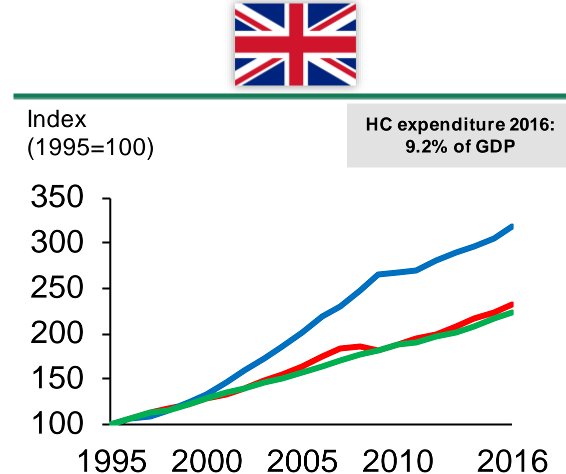
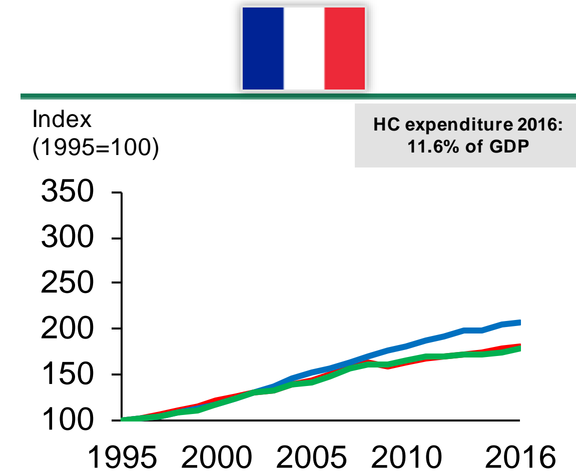
This presentation draws heavily on Professor Porter's research in health care delivery including Redefining Health Care (with Elizabeth Teisberg), What is Value in Health Care, NEJM, and The Strategy That Will Fix Health Care, HBR (with Thomas Lee). A fuller bibliography is attached. No part of this 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. For further background and references on value-based health care, see the website of the Institute for Strategy and Competitiveness.

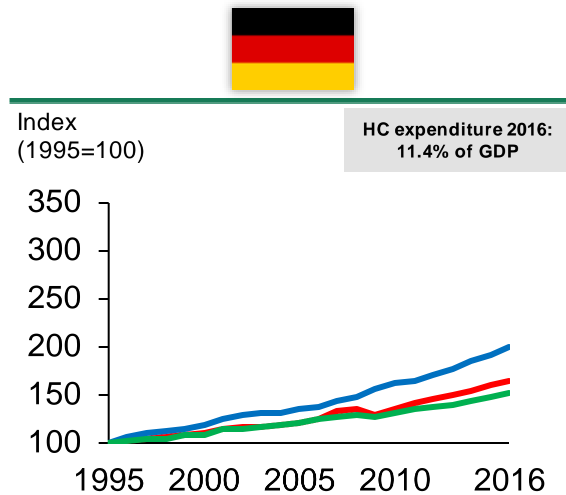
The Health Care Problem Remains a Global Issue

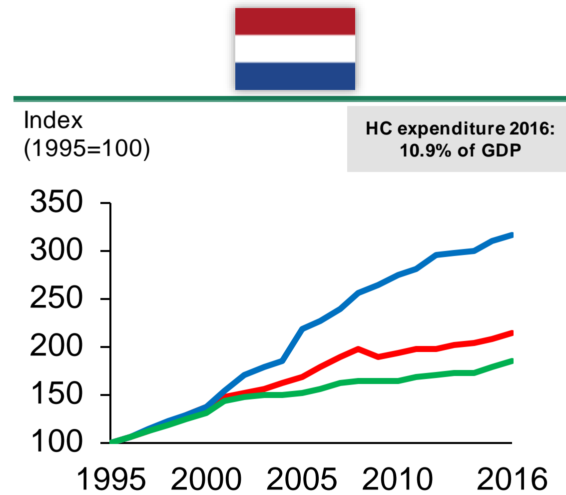
Health Care Spending vs GDP and Income

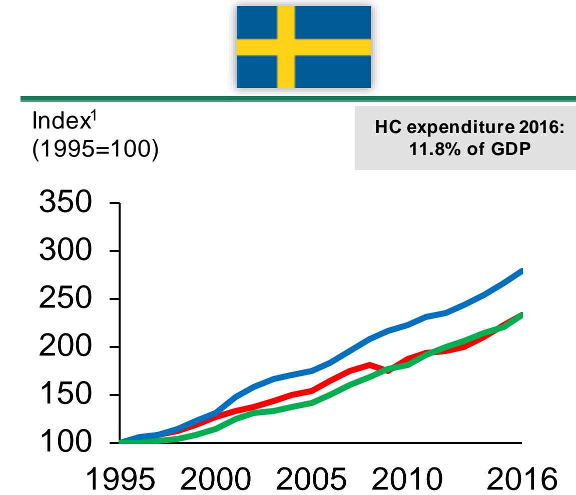












1. Sweden changed reporting methodology and included long-term care spending in 2011, but not prior to 2011; thus HC spend for Sweden is indexed 1995-2010 and 2011-2016 with GDP growth 2010-11. Notes: All indexes based on local currencies; Income = Personal Disposable Income

Source: WHO, EIU (May 2017), BCG analysis

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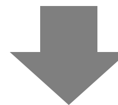
Creating a Value-Based Health Care System

- Today's care delivery approaches reflect **legacy organizational structures**, **management practices**, and **payment models** based on historical medical science and delivery practices

- There have been **significant advances medical science** yet service delivery practices have not evolved.

- Health care has gotten lost in the **complexity of the system** and the pursuit of **multiple goals** including patient experience, safety, efficacy, access, research and training, etc.



- In order to transform the system, we need a **single**, **unifying goal** that aligns all interests

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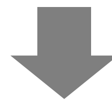
Incremental "Solutions" Have Had Limited Impact

- Evidence-based medicine
- Safety/eliminating errors
- Prior authorization
- Patients as paying customers
- Electronic medical records
- "Lean" process improvements
- Care coordinators
- Retail clinics / urgent care
- Programs to address high cost areas (e.g. readmissions, post acute)
- Mergers and consolidation
- Analytics and big data
- Personalized medicine
- Population health



- **Restructuring health care delivery** is needed, not incremental improvements

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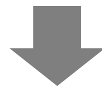
Solving the Health Care Problem

- The fundamental **goal and purpose** of health care is to deliver high and improving **value for patients**

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

- Delivering high value health care is the **definition of success**
- Value is the only goal that can **unite the interests** of all system participants
- Improving value is the **only real solution** to reducing the burden of health care on citizens



- The questions are how to design a health care delivery system that **substantially improves patient value**, and shift competition to **competing on value**

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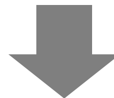
Principles of Value-Based Health Care Delivery

- Value **cannot be understood** at the level of a hospital, a care site, a specialty, an intervention, a primary care practice or a broad patient population

- Value is created in caring for a patient's **medical condition(s)** (acute, chronic) over the **full cycle of care**

$$\text{Value} = \frac{\text{The } \textbf{set} \text{ of outcomes that matter } \textbf{for the condition}}{\text{The } \textbf{total costs} \text{ of delivering these outcomes over the full care cycle}}$$

- In **primary and preventive care**, value is created in serving **segments of patients** with similar primary and preventive needs



- The medical condition is the fundamental unit of **value creation** and **value measurement** in health care delivery

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Creating Value-Based Health Care Delivery

The Strategic Agenda

1. Re-organize care around **patient conditions**, into **integrated practice units (IPUs)**
   - For primary and preventive care, IPUs serve **distinct patient segments**
2. Measure **outcomes** and **costs** for every patient
3. Move to value-based reimbursement models, and ultimately **bundled payments** for conditions and primary care segments
4. Integrate multi-site care delivery **systems**
5. Integrate care **across geography** to improve value
6. Build an enabling **information technology platform**

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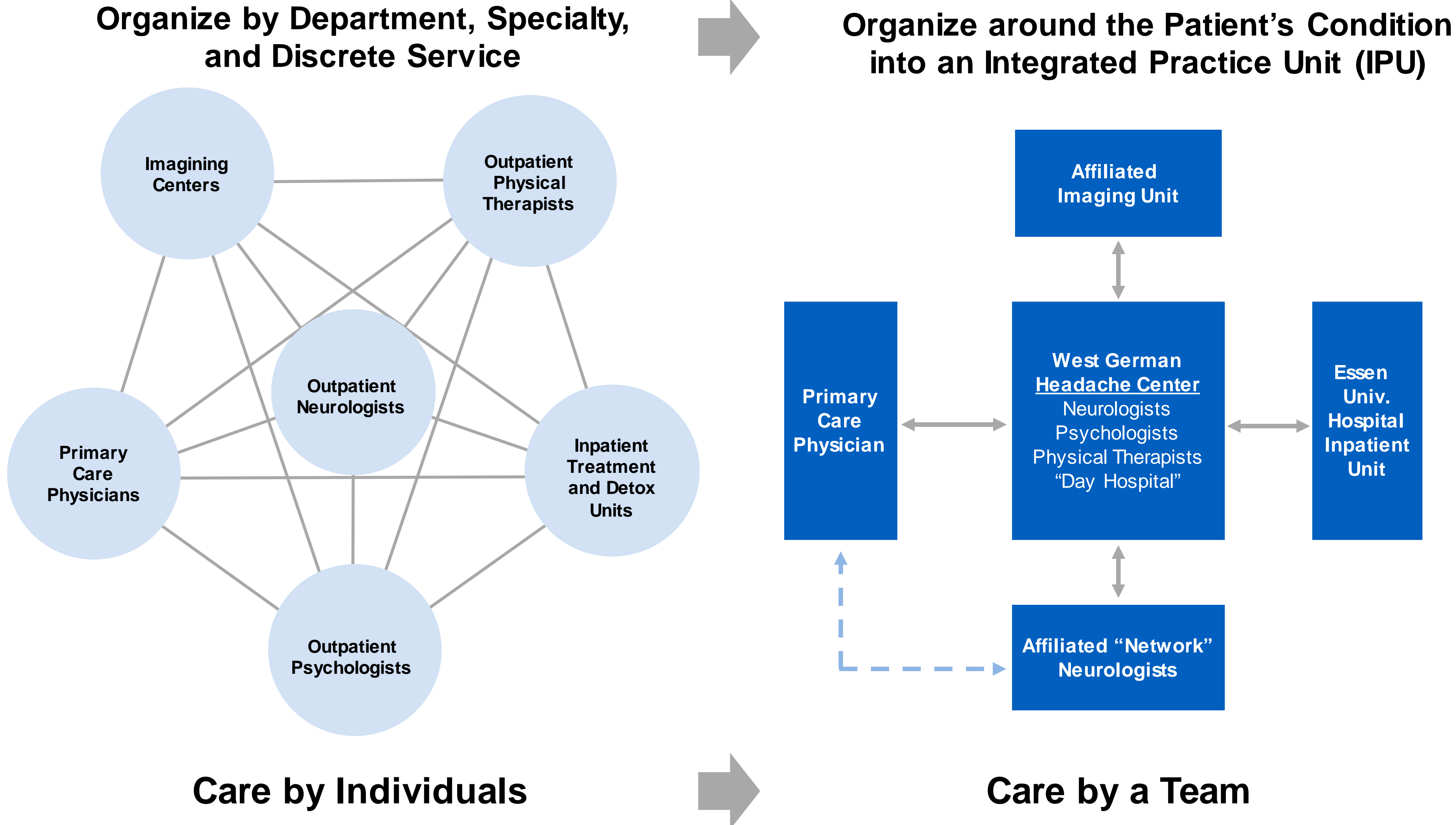
Re-organize Care Around Patient Medical Conditions

Headache Care in Germany



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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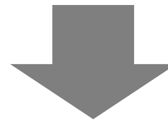
Defining the Medical Condition

- 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** caring for common **co-occurring conditions and complications**
  - E.g., diabetes, breast cancer, knee osteoarthritis



- IPUs should be organized around **conditions** or **groups of related conditions** involving a similar team and care process
  - E.g., head and neck cancers, joint replacement

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Integrating Over The Cycle of Care

Acute Hip and Knee-Osteoarthritis

	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) • Draw backs and benefits of surgery	• Setting expectations • Importance of nutrition, w eight 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 w eight
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 w ork • 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 • Physical therapy 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 w eight 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 w eight 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 (show ering, dressing) • Track risk indicators (fever, sw elling, other) **PHYSICAL THERAPY** • Daily or tw ice daily PT sessions	**MONITOR** • Consult regularly w ith patient **MANAGE** • Prescribe prophylactic antibiotics w hen needed • Set long-term exercise plan • Revise joint, if necessary

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The Playbook for Integrated Practice Units (IPUs)

1. Organized around a **medical condition**, or **group of closely related conditions** over the full cycle of care.
   - Defined patient segments for **primary care**
2. Care includes **common co-occurring conditions** and **complications**
3. Care is delivered by a **dedicated**, **multidisciplinary team** devoting a significant portion of their time to the condition
   - **IPUs** can involve affiliated staff and integration with partner services
4. **Co-located** in **dedicated facilities**. A **hub and spoke** structure connecting multiple or affiliated sites, incorporating telemedicine where appropriate
5. Optimize the **location of care** across services
6. **Patient education**, **engagement**, **adherence**, **follow-up**, and **prevention** are integrated into the care process
7. A **physician team captain**, **clinical care manager** or both oversees each patient's care
8. IPUs have a clear **clinical leader**, a common **scheduling and intake process**, and unified **financial structure** (single P + L)
9. IPUs **routinely measure** outcomes, costs, care processes, and patient experience using a **common platform**, and **accept joint accountability** for results
10. The team **regularly meets formally and informally** to discuss individual patient care plans, process improvements, and how to improve results

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Mechanisms for Care Integration

The Software of IPUs

Design

- IPU **leadership** team
- Co-location and **shared** work areas
- Patient **team captain**
- Integrated clinician **scheduling**
- Care **coordinators/managers**
- Patient **liaisons**
- Recruit **trainees** who embrace the model

Care Processes

- Process **mapping**/**protocols**
  - Including **location** for specific services
- **Handoffs**/**rituals**
- Clear **timelines**
- Multidisciplinary **rounds**
- Repeated relationships with **outside specialists** with condition specific expertise
- Cultural **norms** around collaboration and learning

Role of Meetings

- **Case management** meetings (agree on treatment plan)
- **Multidisciplinary** rounds
- **Difficult case** reviews
- **Outcomes** reviews and improvement processes
- **Literature** workshops

Finance and Incentives

- **Single P+L**
- Compensation reflecting team goals on **value**, not volume

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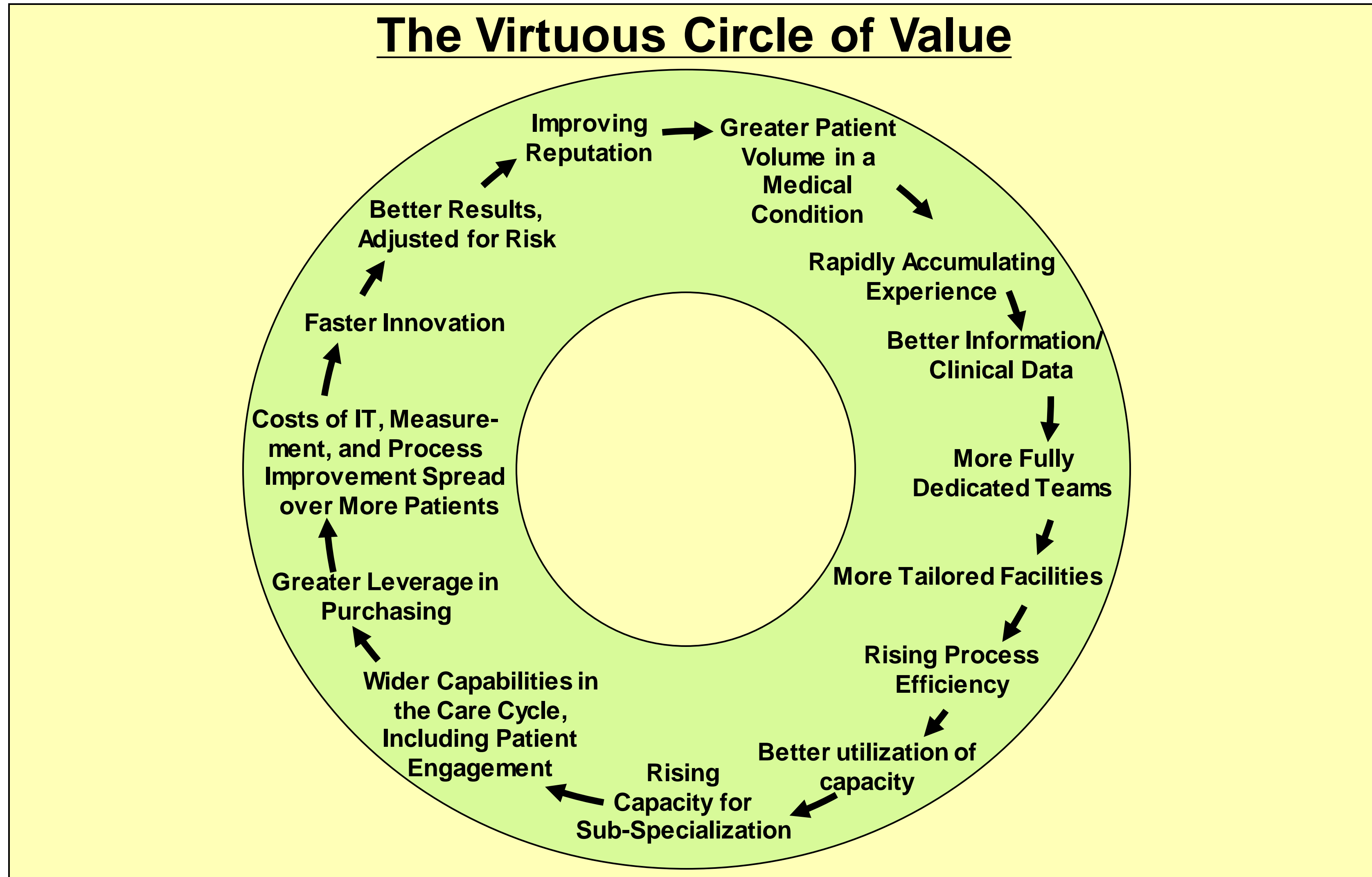
IPU Volume Enhances Value

- **More patients** with the same condition



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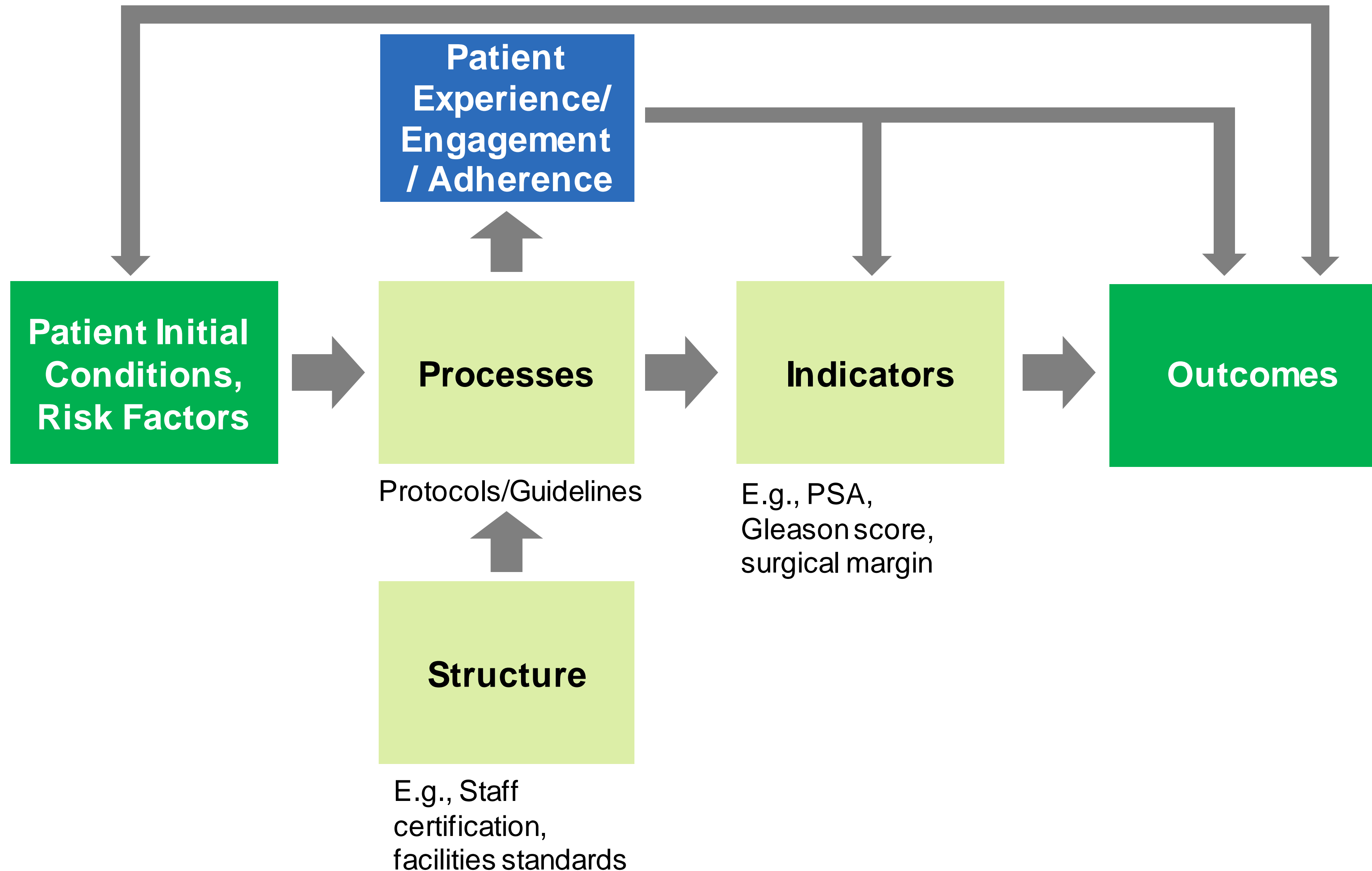
Measure Outcomes for Every Patient

The Quality Measurement Landscape



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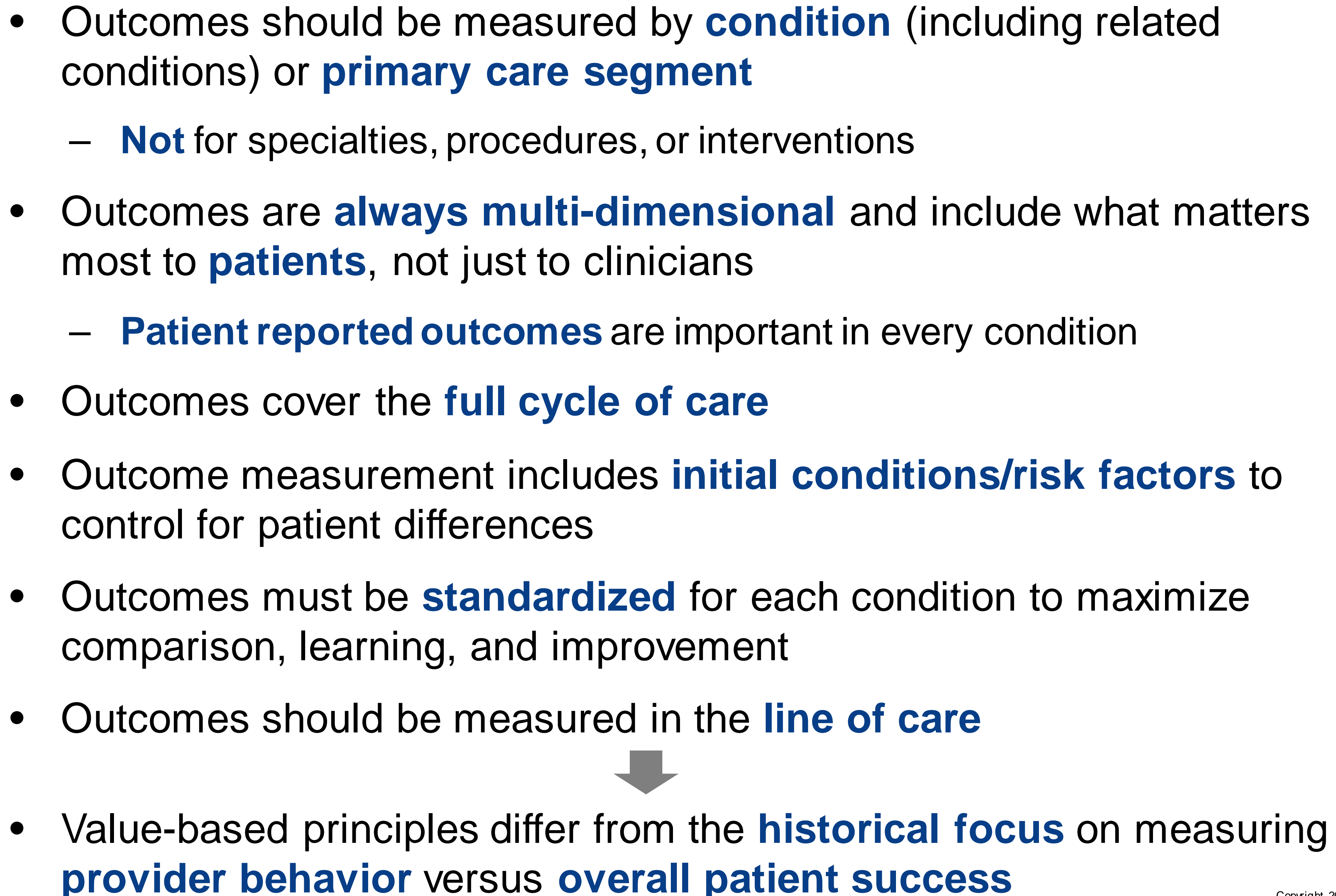
Principles of Outcome Measurement



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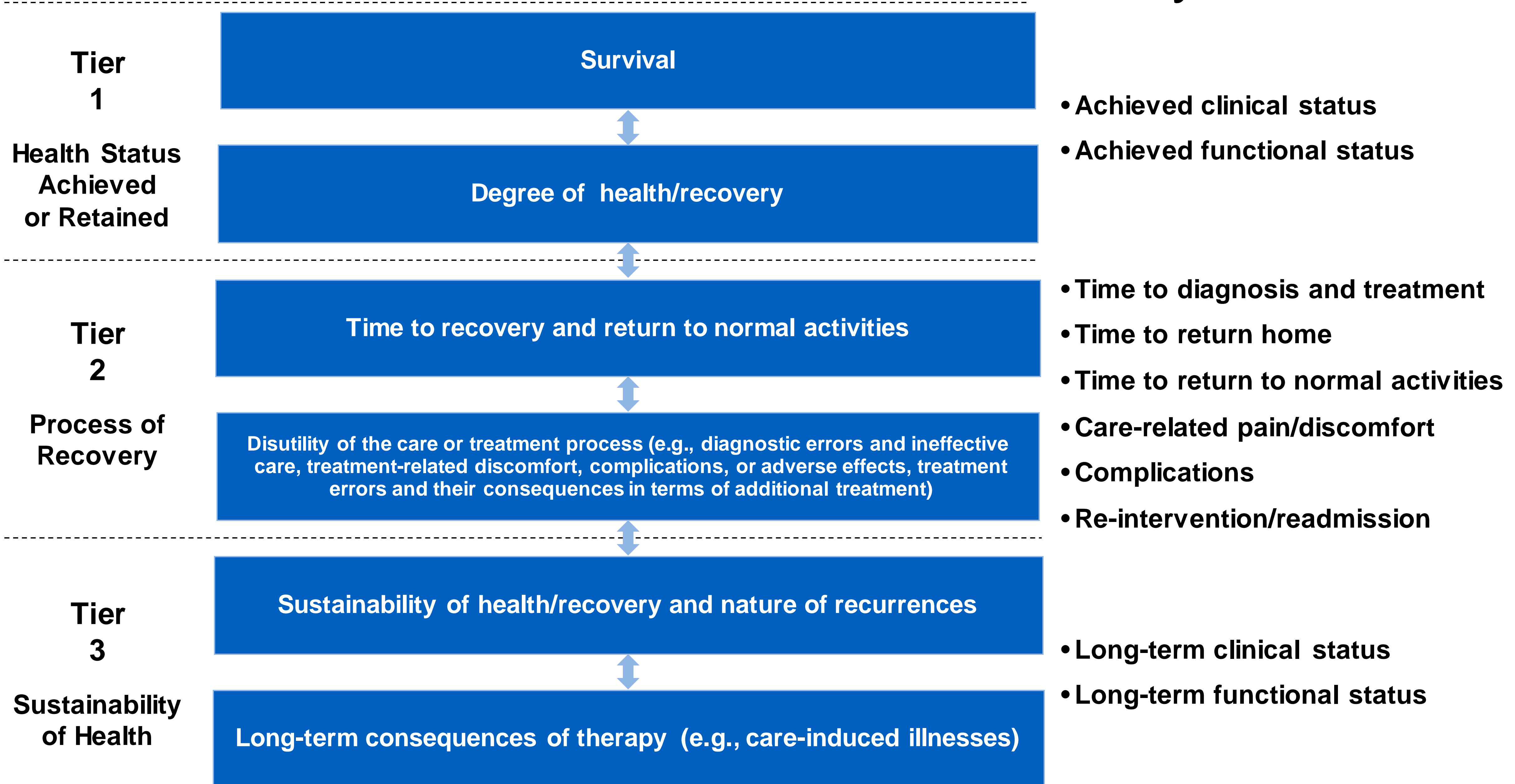
The Outcome Measures Hierarchy



Source: NEJM Dec 2010

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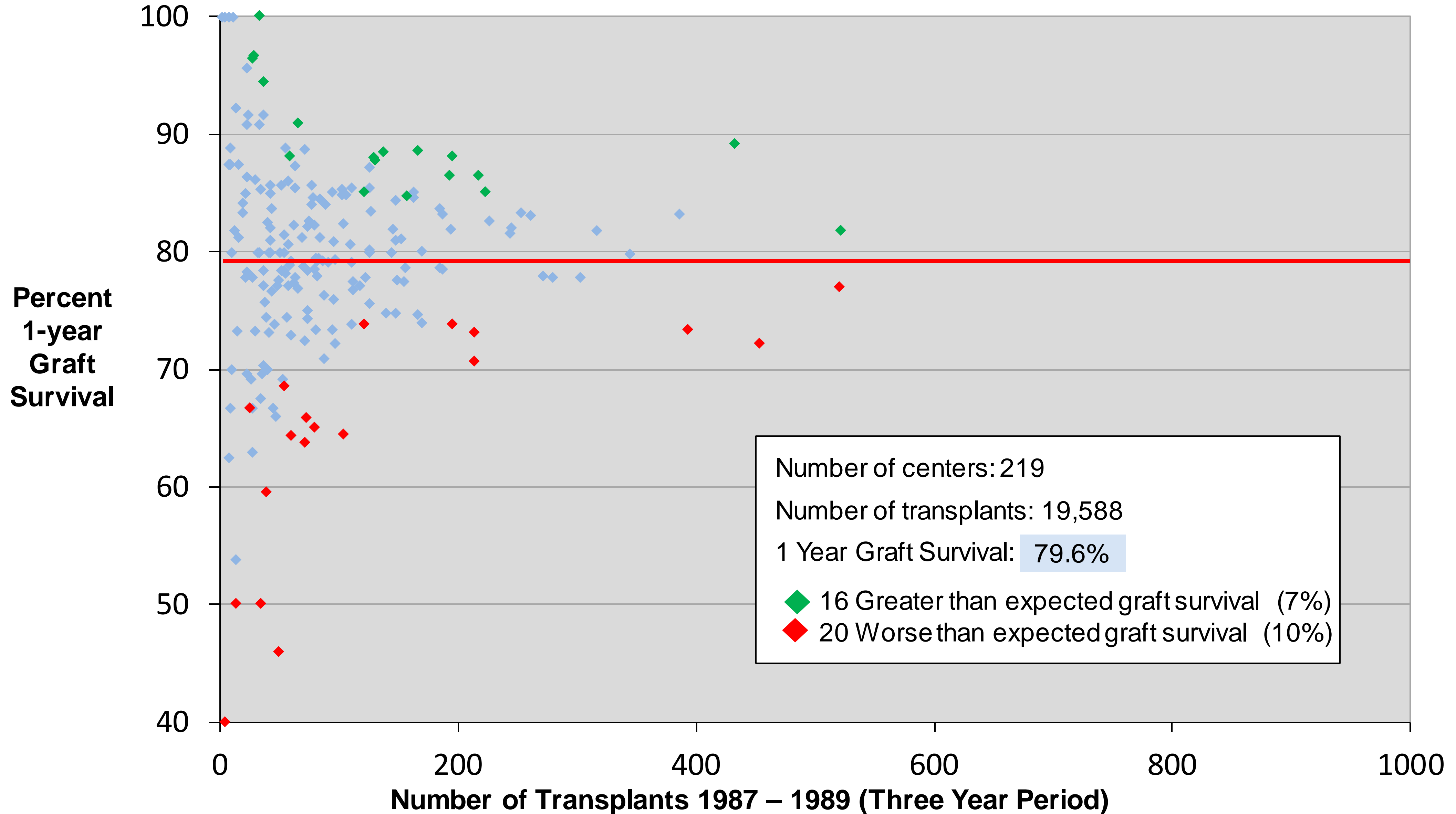
Adult Kidney Transplant Outcomes

1987 - 1989



Source: Scientific Registry of Transplant Recipients, http://www.srtr.org

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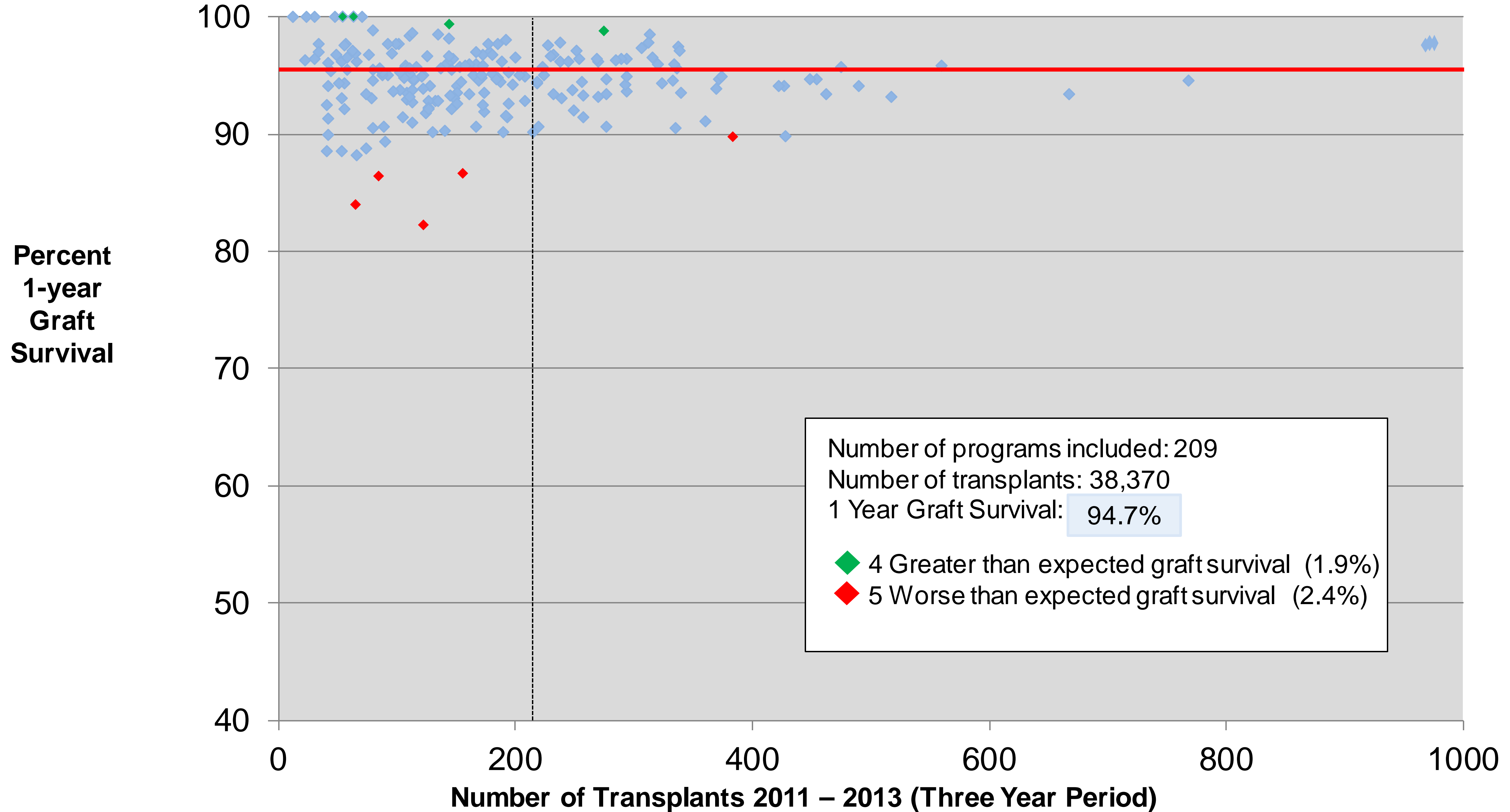
Adult Kidney Transplant Outcomes

2011 - 2013



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Standardizing Outcome Sets

ICHOM Standard Sets

Standard Sets Complete (2013)	Standard Sets Complete (2014)	Standard Sets Complete (2015-16)	Standard Sets Complete (2017-18)	Committed/ In Process
1. Localized Prostate Cancer *	5. Parkinson's Disease*	13. Breast Cancer*	22. Chronic Kidney Disease*	28. Diabetes
2. Lower Back Pain *	6. Cleft Lip and Palate*	14. Dementia	23. Congenital Upper Limb Malformations	29. Atrial Fibrillation
3. Coronary Artery Disease *	7. Stroke *	15. Frail Elderly	24. Pediatric Facial Palsy	30. Overall Adult Health
4. Cataracts *	8. Hip and Knee Osteoarthritis*	16. Heart Failure	25. Inflammatory Arthritis*	31. Pediatric Health
	9. Macular Degeneration*	17. Pregnancy and Childbirth	26. Hypertension	32. Hand and Wrist
	10. Lung Cancer*	18. Colorectal Cancer*	27. Oral Health	33. Neonates
	11. Depression and Anxiety*	19. Overactive Bladder		34. Head and Neck Cancer
	12. Advanced Prostate Cancer *	20. Craniofacial Microsomia		35. Congenital Heart Disease
		21. Inflammatory Bowel Disease		36. Mental Health in Children and Young People

* Published Thus Far in Peer-Reviewed Journals (16)

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Measure Cost for Every Patient

Principles

- Cost is the **actual expense** of patient care, not the **sum of charges** billed or collected

- Properly measuring the cost of care requires **different cost accounting** methods than prevailing approaches such as departmental, charge-based, or RVU-based costing

- Cost should be measured for **each patient** over the **full cycle of care for the condition**

- Cost is driven by the use of **the resources** involved in a patient's care (personnel, facilities, supplies, and support services)
  - Time and actual **costs**, not arbitrary allocations

- Understanding costs requires **mapping the care process**

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

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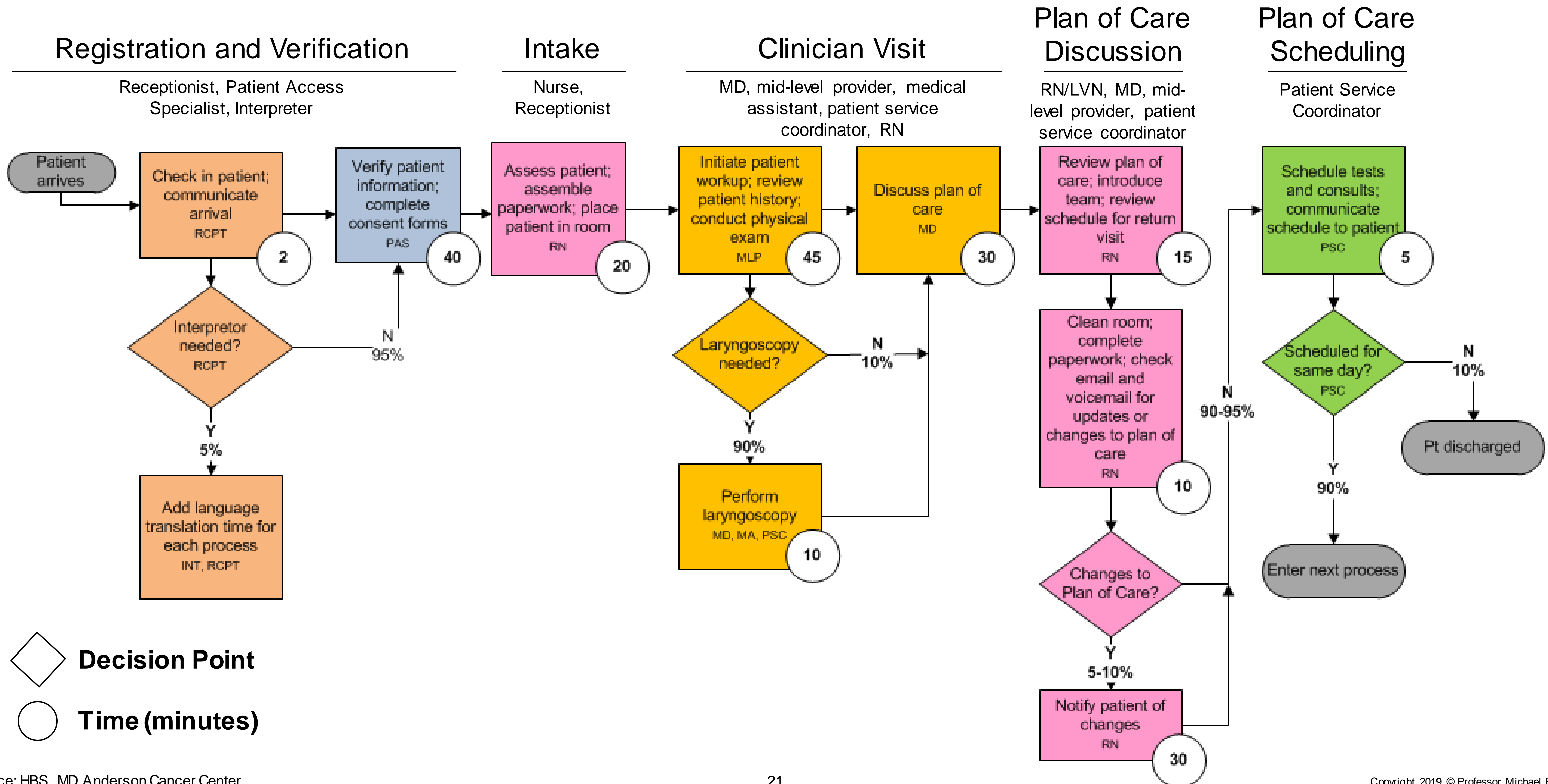
Mapping Resource Utilization

MD Anderson Cancer Center – New Patient Visit



Source: HBS, MD Anderson Cancer Center

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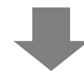
Major Cost Reduction Opportunities in Health Care

- Utilize **physicians and skilled staff** at the top of their licenses
- Eliminate **low-** or **non-value added** services or tests
- Reduce **process variation** that increases complexity and raises cost
- **Reduce cycle times** across the care cycle, which expands capacity with the same staff and facilities
- Invest in additional services or higher costs inputs that will **lower overall care cycle cost**
- Move uncomplicated services **out of highly-resourced** facilities
- Reduce **service duplication** and **volume fragmentation** across sites
- Rationalize redundant **administrative** and **scheduling** units
- Increase **cost awareness** in clinical teams
- Decrease the cost of **claims management** and **billing** processes



- Our work reveals typical **cost reduction opportunities of 30+%**
- Many cost improvements also **improve outcomes**

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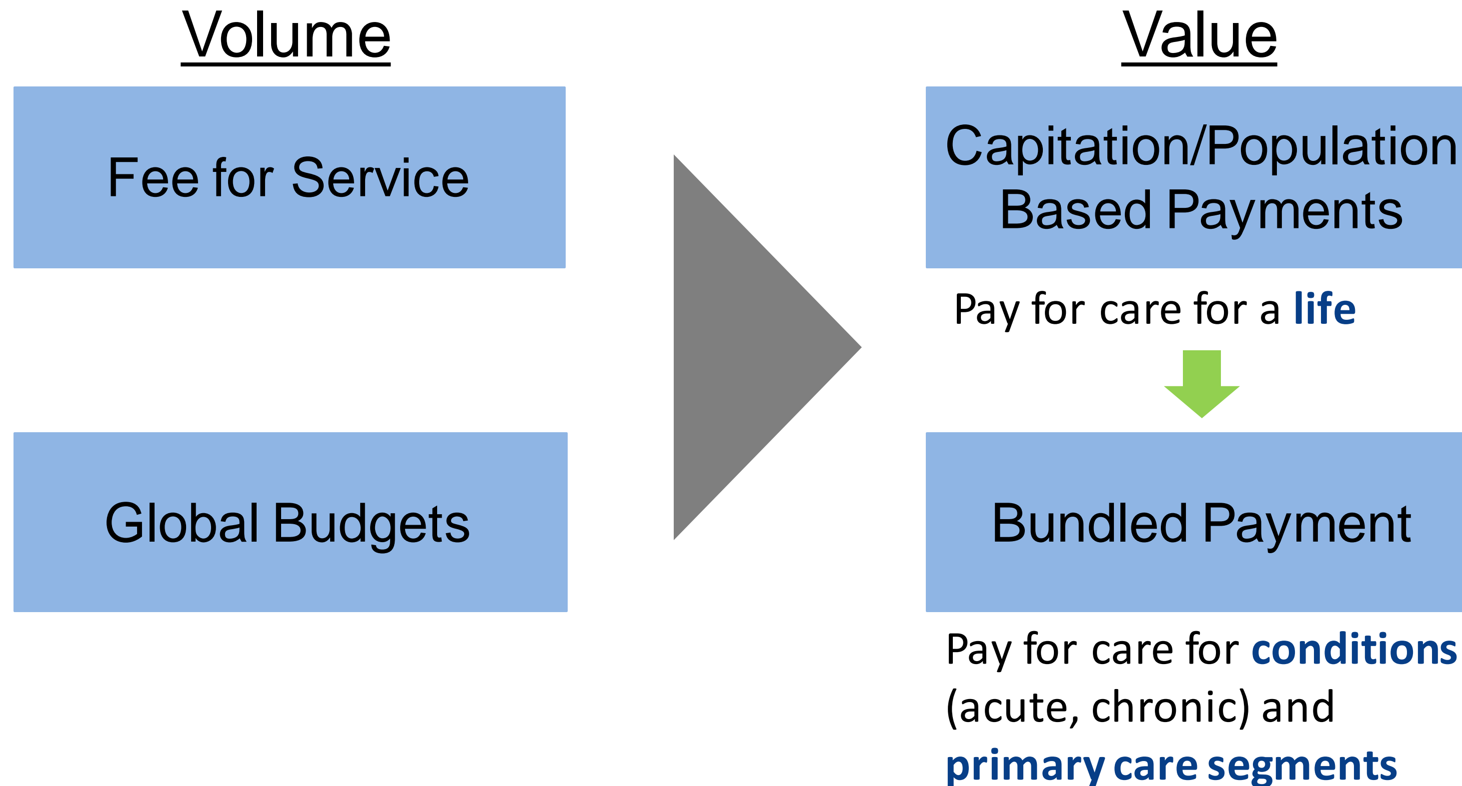
Move to Value-Based Payment Models



- Both approaches create positive incentives for **reducing costs** and **separate payment** from performing particular services
- Capitation at the hospital or system level can **coexist** with bundle payment at the condition level

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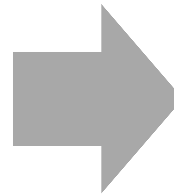
Emerging Value-Based Payment Models

Capitation (Population-Based)

- A single risk-adjusted payment for the overall care for a **life**
- Responsible for **all needed care** in the covered population
- Accountable for **population level quality metrics**
- At risk for the difference between the **sum of payments** for the population and **overall spending**
  - Providers take **disease incidence risk**, not just **execution/outlier risk**
- Accountable for **overall cost** and **population level** quality measures



Bundled Payment

- A single risk adjusted payment for the overall care for a **condition**
  - **Not** for a specialty, procedure, or short episode
- Covers the **full set** of services needed **over an acute care cycle**, or a **defined time period** for chronic care or primary care
- Contingent on **condition-specific outcomes**
  - Including responsibility for avoidable **complications**
- At risk for the difference between the **bundled price** and the **actual cost** of all included services
  - **Limits of responsibility** for unrelated care and outliers
- Accountable for costs and outcomes, **patient by patient**, and **condition by condition**

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Integrate Multi-site Care

Children's Hospital of Philadelphia Care Network

Wholly-Owned Outpatient Units

- Primary Care Practices
- Specialty Care Centers
- Specialty Care Center, Surgery Center & After-Hours Urgent Care
- Specialty Care & Surgery Centers
- Specialty Care Center, Surgery Center, After-Hours Urgent Care & Home Care

Community Inpatient Partnerships

- CHOP Newborn Care
- CHOP Pediatric Care
- CHOP Newborn & Pediatric Care
- Hospital & Integrated Specialty Program

PA
NY
NJ
Saint Peter's University Hospital (Cardiac Center)
Grand View Hospital
Doylestown Hospital
Princeton at Plainsboro
Indian Valley
Central Bucks County
University Medical Center of Princeton at Plainsboro
Pottstown
Norristown
High Point
St. Mary Medical Center
Flourtown
King of Prussia
Abington
Abington
Newtown
Chestnut Hill
Holy Redeemer Hospital
Exton
Paoli
Roxborough
Karabots PCC
Salem Road
Coatesville
Chester Co.
Haverford
Broomall
HUP
Mt. Laurel
West Chester
Springfield
Cobbs
North Hills
Brandywine
South Philadelphia
Virtua
Kennett Square
Drexel
Voorhees
Media
Gibbsboro
West Grove
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Harborview/Smithville
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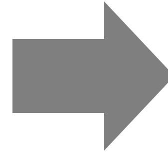
Shifting The Strategic Logic of Health Systems

Confederation of Standalone Units/Facilities



Clinically Integrated Care Delivery System

- Increase **volume**

↓

- More clout in **contracting** and **purchasing**
- **Spread** "fixed overhead" costs
- Use **owned or affiliated** primary care practices to **"guarantee"** referrals

- Increase **value**

↓

- Value-based **delivery models**
- **Concentrate**, **allocate**, and **integrate** care across appropriate sites
- The system is **more than** the sum of its parts

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Four Levels of Provider System Integration

1. Defining the **overall scope of services** for each site and for the system as a whole, based on **value**
   - **Affiliate** when this creates value

2. Concentrate **volume** of patients by condition in **fewer locations** to support IPUs and improve outcomes and efficiency

3. Perform the **right services** in the **right locations** based on acuity level, resource/cost fit, and the benefits of patient convenience for repetitive services
   - E.g., move **less complex surgeries** out of tertiary hospitals to lower acuity facilities and outpatient surgery centers
   - **Affiliate** when this creates value

4. Integrate the care cycle **across sites** via an **IPU structure**
   - Common **scheduling**
   - **Digital services** and **telemedicine** can help tie together the care cycle

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The Geography of Care and Value

- The Traditional Care Geography Model
  - Care organized around **specialties** and **interventions** for each site
  - **Duplication** of services across sites/facilities (community and AMCs)
  - Sites provide care for **multiple acuity levels**
  - **Limited integration** of care across services and sites (multiple hubs)
  - Reinforced by **fee-for-service** model and **siloed IT systems**
- Geography and Value: Strategic Principles
  - Organize **care by condition** in IPUs (hubs)
    - Multi-disciplinary teams
    - Responsibility for full care cycle
  - **Allocate services** across the care cycle to sites based on care complexity, patient risk, and patient convenience
  - **Integrate** telemedicine, affiliation with independent provider sites, and home services into the care cycle
  - The IPU **builds systems** for teams to direct patients to the most appropriate site

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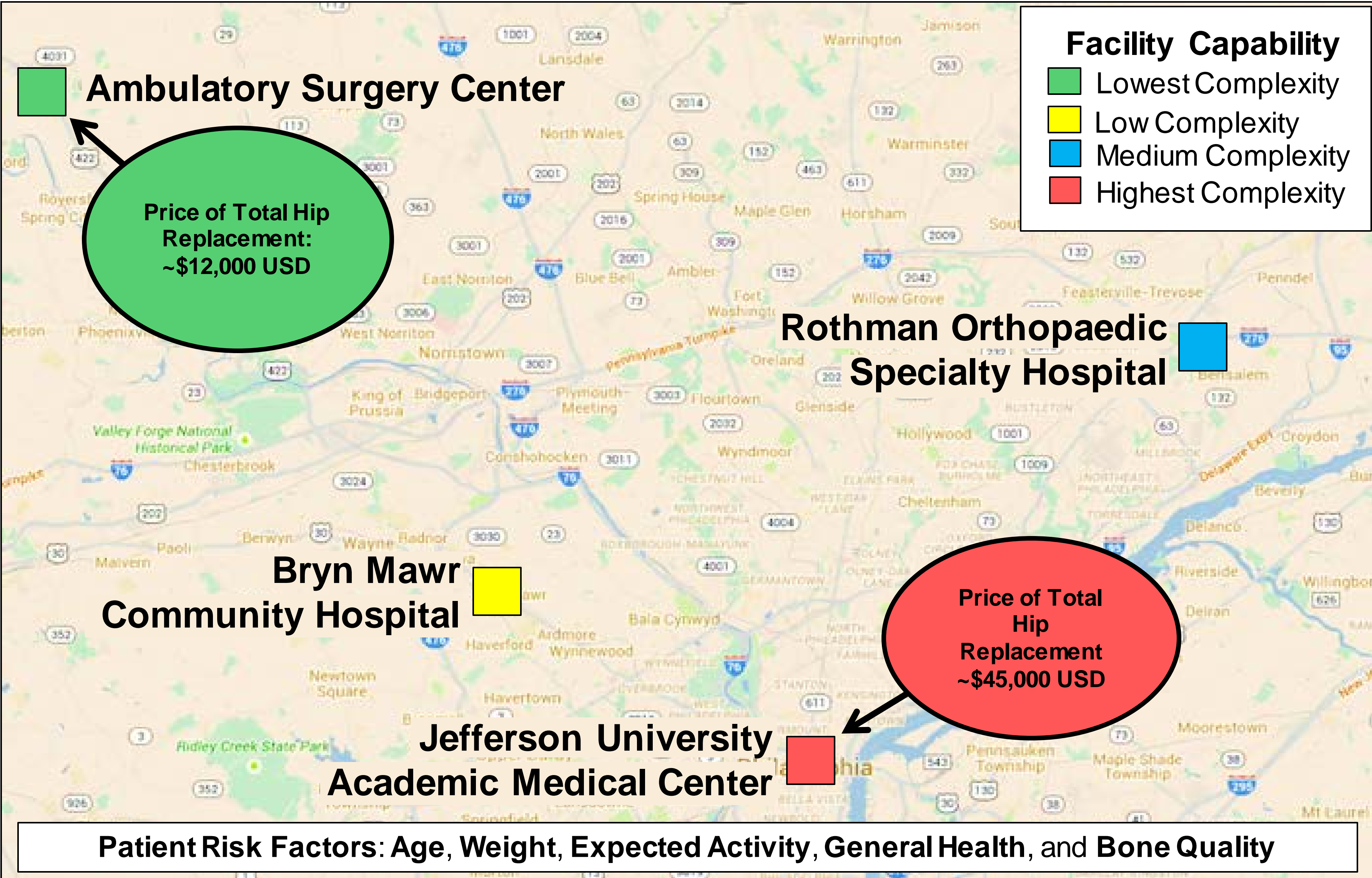
Delivering the Right Care at the Right Location

Rothman Institute, Philadelphia



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Build an Enabling IT Platform

Attributes of a Value-Based IT Platform

1. Combines **all types of data** for each patient across the full care cycle (notes, lab tests, genomics, imaging, costs) using standard definitions and terminology
2. Tools to capture, store, and extract **structured data** and eliminate **free text**
3. Data is captured in the **clinical** and **administrative workflow**
4. Data is stored and easily extractable from a common warehouse. Capability to **aggregate**, **extract**, **run analytics** and display **data by condition** and **over time**
5. **Full interoperability** allowing data sharing within and across networks, EMR platforms, referring clinicians, and **health plans**
6. Platform is structured to enable the capture and aggregation of **outcomes**, **costing** parameters, and **bundled payment** eligibility/billing
7. Leverages **mobile technology** for scheduling, PROMs collection, secure patient communication and monitoring, virtual visits, access to clinical notes, and patient education

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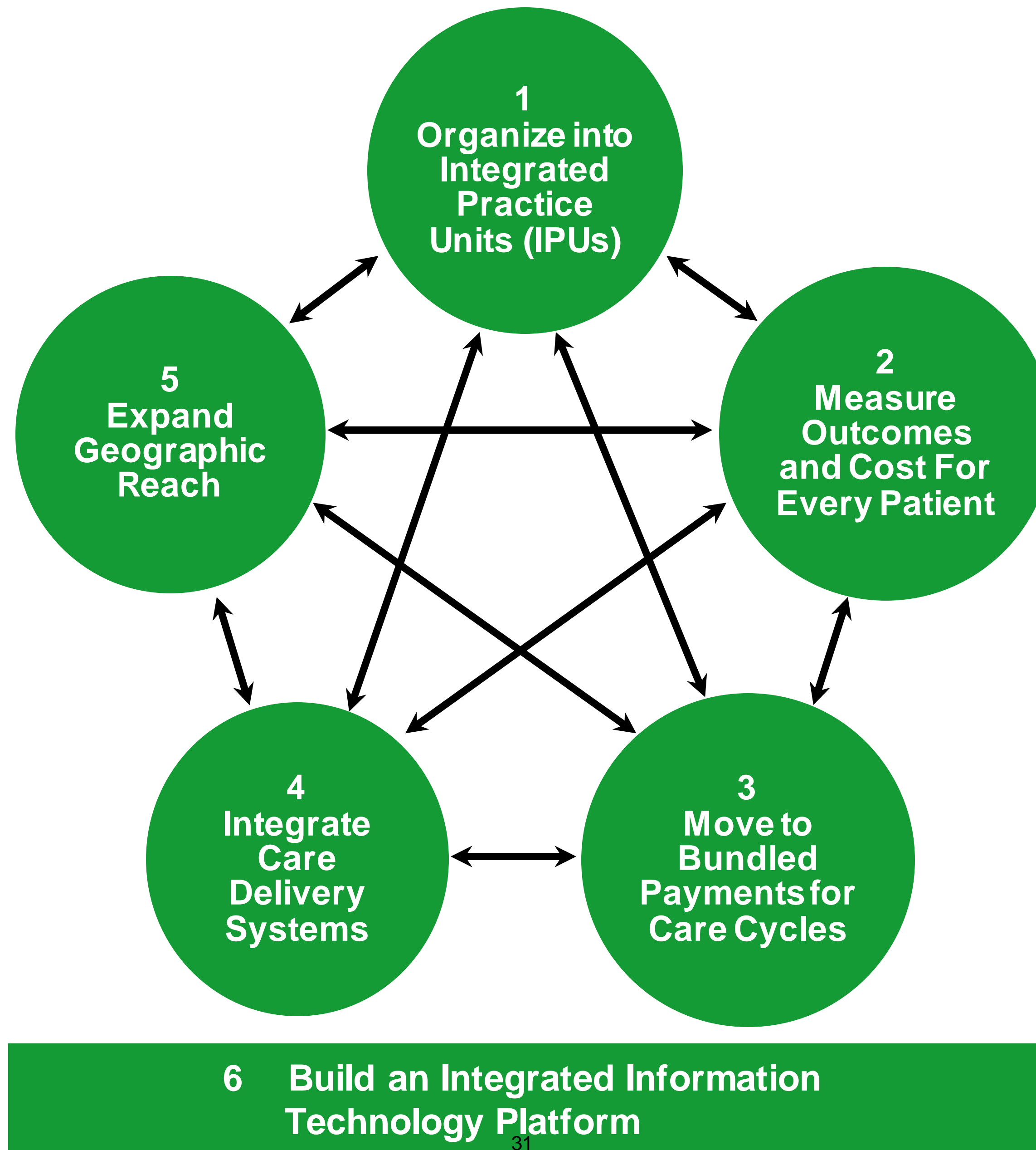
A Mutually Reinforcing Strategic Agenda



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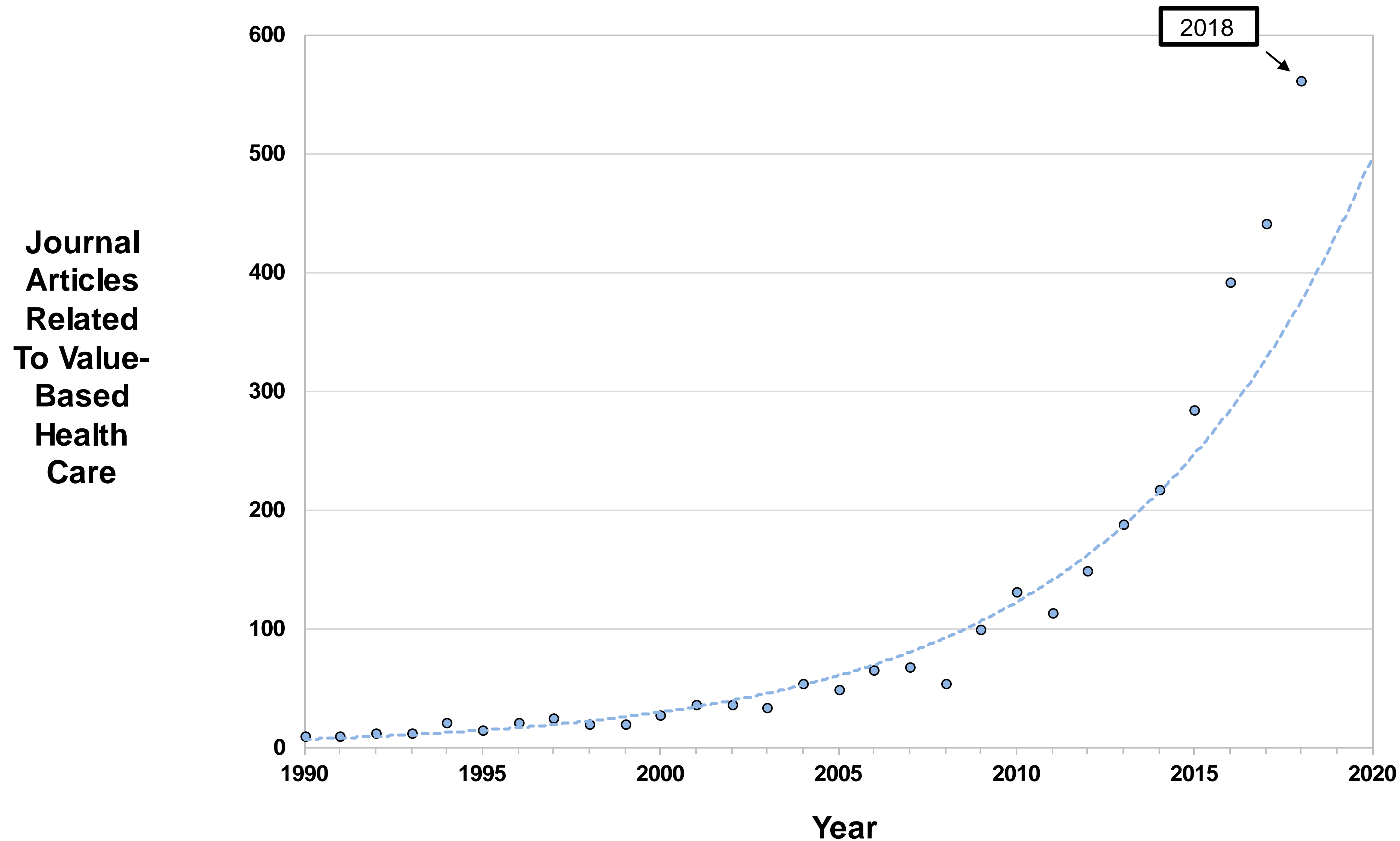
Value-Based Health Care is Rapidly Diffusing

Peer Reviewed Literature 1990-2018



From: Science Direct; accessed December 2018, Patrick Clapp, Baker Research Services, Harvard Business School

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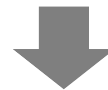
The Health Care Transformation is Well Underway

- We **know the path** forward
- **Value for patients** is True North
- **Value based thinking** is restructuring care organization, outcome measurement, payment models and **health system strategy** across multiple countries
- **Standardized outcome measurement** and new **costing practices** are beginning to accelerate value improvement
- **Employers**, **suppliers**, and **insurers** can be the next accelerators
- **Government policy** is beginning to reinforce value improvement



- We are anxious to **work with all** of you in accelerating this transformation

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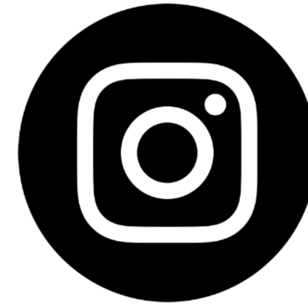

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