

# Value-Based Health Care Delivery IPUs, Outcomes and Cost Measurement, and Bundled Pricing

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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.

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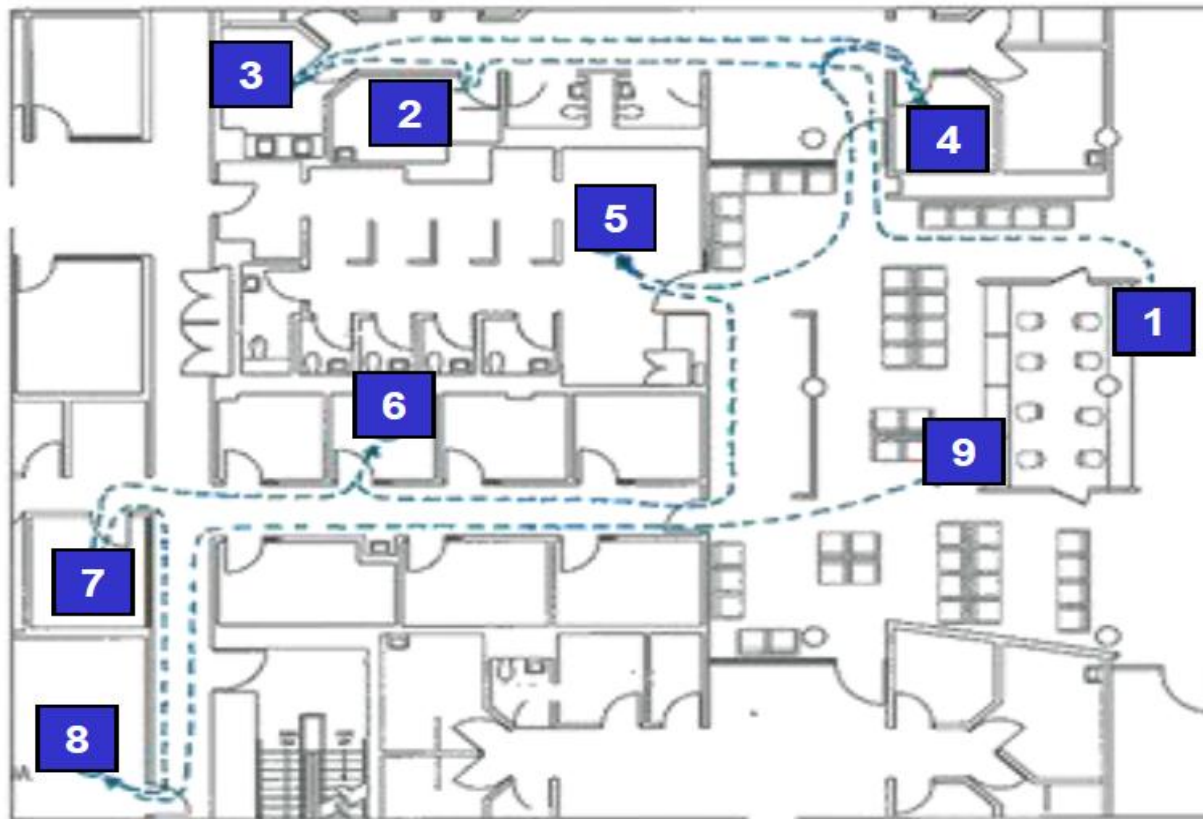
# Creating a Value-Based Health Care Delivery System

## The Strategic Agenda

- 1. Organize into Integrated Practice Units (IPUs) Around Patient Medical Conditions**
  - Organize primary and preventive care to serve **distinct patient populations**
- 2. Establish Universal Measurement of Outcomes and Cost for Every Patient**
- 3. Move to Bundled Prices for Care Cycles**
- 4. Integrate Care Delivery Across Separate Facilities**
- 5. Expand Excellent IPUs Across Geography**
- 6. Create an Enabling Information Technology Platform**

# 1. Organizing Around Patient Medical Conditions

## Integrated Diabetes Care: Joslin Diabetes Center



1. Check-in
2. Endocrinologist
3. Nurse Coordinator
4. Eye Exam
5. Laboratory – Blood, urine
6. Diabetes Education
7. Mental Health
8. Renal
9. Check-out

Source: Joslin company documents.

# Integrated Care Delivery Includes the Patient

- Value in health care is **co-produced** by clinicians and the patient
- Unless patients **comply** with care and take steps to improve their health, even the best delivery team will fail
- For chronic care, patients **are often the best experts** on their own health and personal barriers to compliance
- Today's fragmented system creates **obstacles** to patient education, involvement, and adherence to care



- **IPUs** dramatically improve patient engagement
  - Focus, resources, sustained patient contact and accountability
  - Education and support services
- Simply forcing consumers to pay more is a **false solution**

# Integrated Models of Primary Care

- Today's primary care is **fragmented** and attempts to address **overly broad needs** with limited resources



- Organize primary care around teams serving **specific patient populations** (e.g. healthy adults, adults with one or more related chronic conditions (diabetes), frail elderly, rather than attempting to be all things to all patients)
- Deliver **defined service bundles** covering appropriate prevention, screening, diagnosis, and health maintenance
- Provide services with **multidisciplinary teams** including ancillary health professionals and support staff
- Form **alliances with specialty IPUs** covering the prevalent medical conditions represented in the patient population
- Deliver services not only in traditional settings but at the **workplace, schools, community organizations**, and in **other locations** offering regular patient contact and the ability to develop a group culture of wellness

# Organizing Around Patient Medical Conditions

## Attributes of an Integrated Practice Unit (IPU):

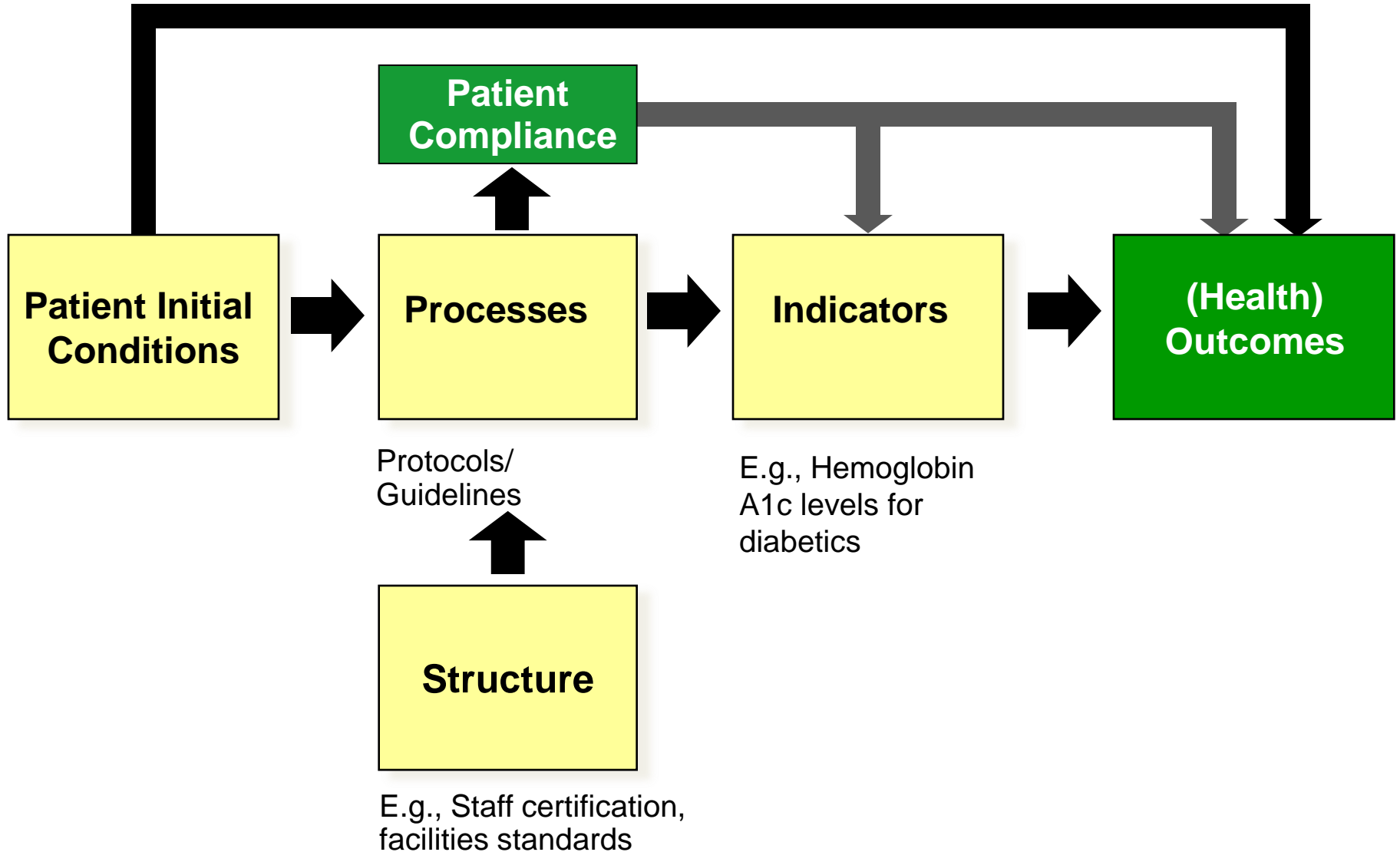
1. Organized around the **patient medical condition** or set of closely related conditions
2. Involves a **dedicated, multidisciplinary team** who devotes a significant portion of their time to the condition
3. Providers are part of or affiliated with a **common organizational unit**
4. Provides the **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 led by a **physician team captain** and a **care manager** who oversee each patient's care process
9. **Meets formally and informally** on a regular basis to discuss patients, processes and results
10. **Measures** outcomes, costs, and processes for each patient using a common **information platform**
11. Accepts **joint accountability** for outcomes and costs

# What is Not Integrated Care?

Integrated care is **not** the same as:

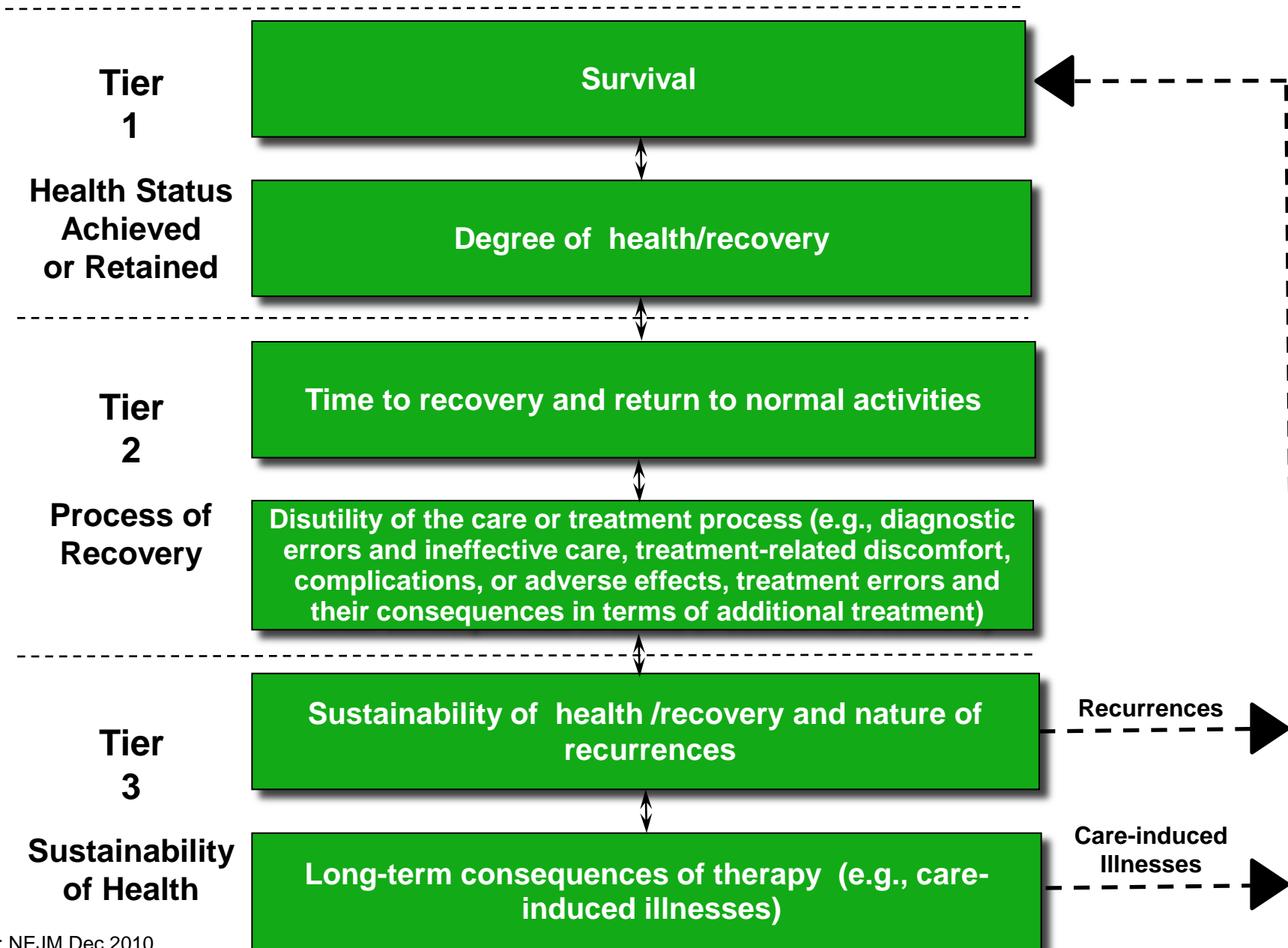
- **Co-location** per se
- Care delivered by the **same organization**
- A clinical **pathway**
- A **multispecialty group** practice
- A **medical home**
- An **accountable care organization** (ACO)
- An **institute**
- A **center** of excellence
- Freestanding **focused factories**
- A **health plan/provider** system (e.g. Kaiser Permanente)

## 2. Measuring Outcomes and Cost for Every Patient





# The Outcome Measures Hierarchy



# The Outcome Measures Hierarchy

## Breast Cancer

### Survival

- Survival rate (One year, three year, five year, longer)

### Degree of recovery / health

- Degree of remission
- Functional status
- Breast conservation
- Depression

### Time to recovery or return to normal activities

- Time to remission
- Time to functional status

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

- Nosocomial infection
- Nausea/vomiting
- Febrile neutropenia
- Suspension of therapy
- Failed therapies
- Limitation of motion
- Depression

### Sustainability of recovery or health over time

- Cancer recurrence
- Sustainability of functional status

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

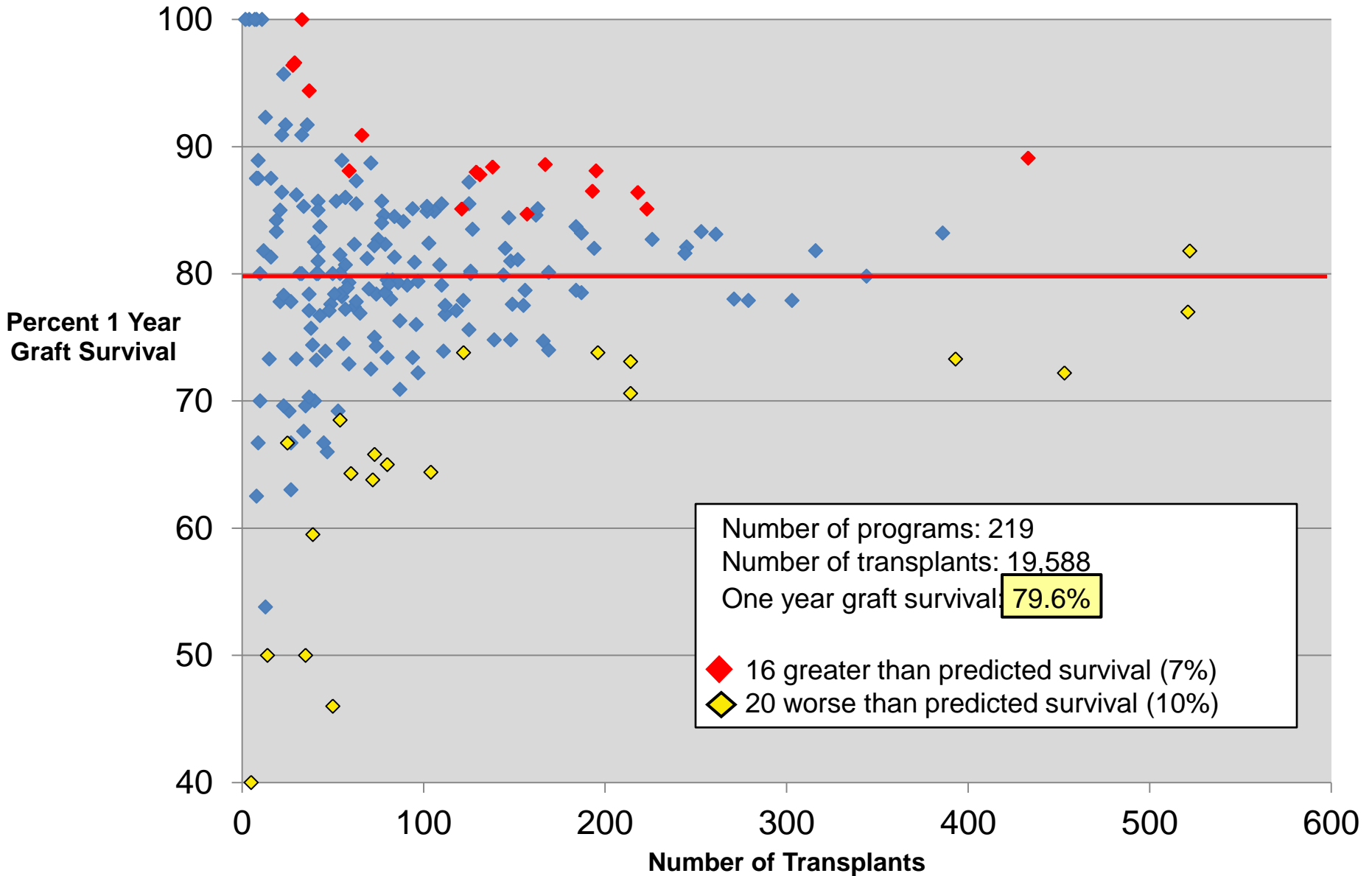
- Incidence of secondary cancers
- Brachial plexopathy
- Fertility/pregnancy complications
- Premature osteoporosis

### Initial Conditions/Risk Factors

- Stage upon diagnosis
- Type of cancer (infiltrating ductal carcinoma, tubular, medullary, lobular, etc.)
- Estrogen and progesterone receptor status (positive or negative)
- Sites of metastases
- Previous treatments
- Age
- Menopausal status
- General health, including co-morbidities
- Psychological and social factors

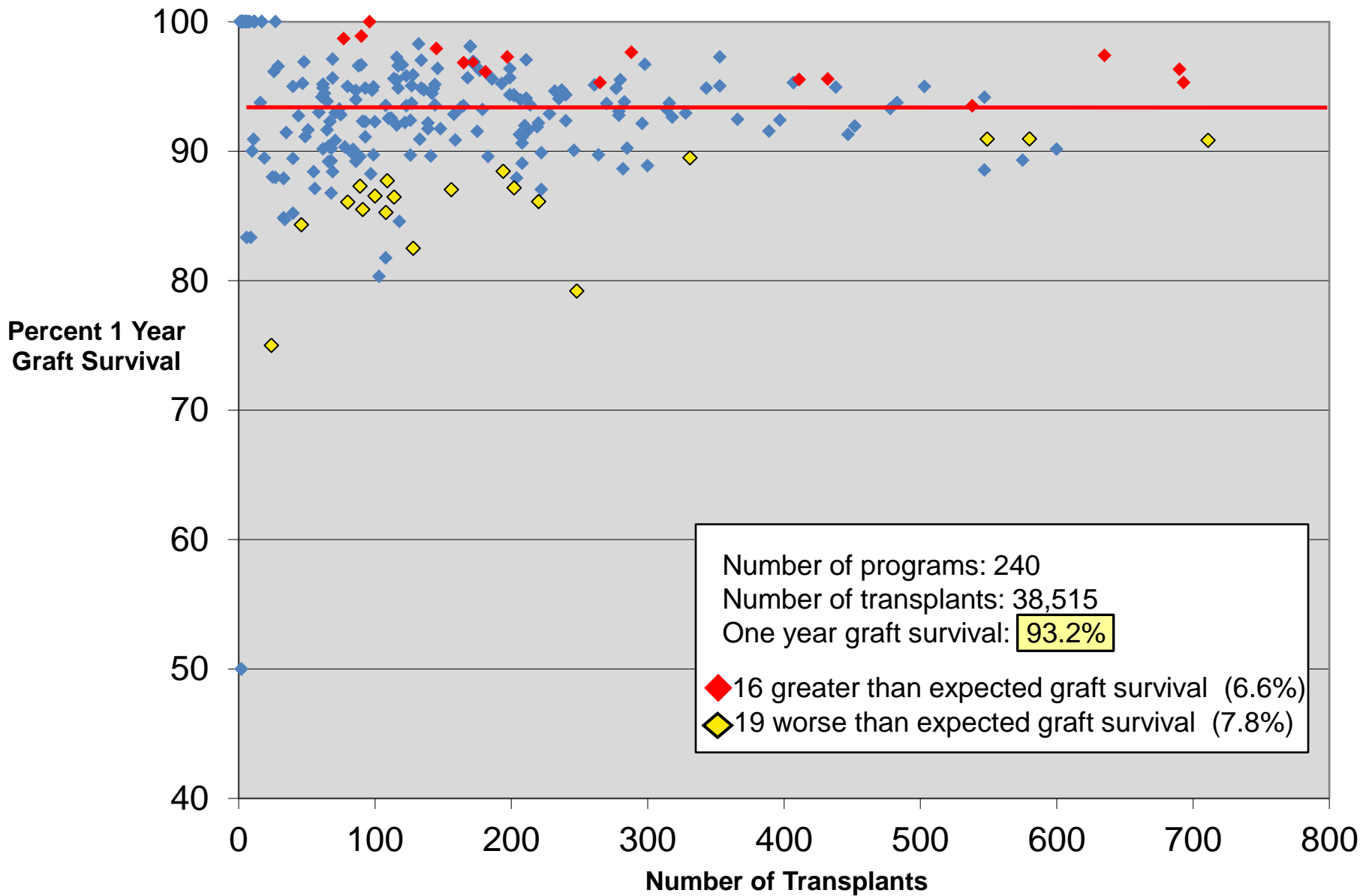
# Adult Kidney Transplant Outcomes

## U.S. Centers, 1987-1989



# Adult Kidney Transplant Outcomes

U.S. Centers, 2005-2007



# Creating an Outcome Measurement System

## Schön Klinik

### 1. Designate the medical conditions to measure

- Define medical conditions and boundaries
- Chart the CDVC

### 2. Develop outcome dimensions, measures, and risk adjustments

- Measures developed by convening groups of involved physicians and members of Schön's quality improvement team
- Five metrics per medical condition

### 3. Create infrastructure for data collection

- Physicians and nurses enter data during the patient's stay
- Data can be extracted from the EMR to reduce the burden of capture
- Collection of long term follow-up data still done manually

### 4. Introduce incentives for data reporting

- Involvement in the metrics development process increases physician buy-in
- Reporting of all metrics is mandated for all physicians
- Outcome data captured for 70% of patients

### 5. Compliance and accuracy validation

- Accuracy validated through trend analysis

### 6. Outcome reporting

- Report results internally at the individual physician level
- Annual quality report (27 process and outcome measures) disseminated externally

### 7. Institutionalize a process for outcome improvement

- Physicians trust metrics and are convinced of their value in driving improvement
- Physician pay linked to quality of care delivered

# Selected Swedish National Quality Registers, 2007

## Respiratory Diseases

- Respiratory Failure Register (Swedevox)
- Swedish Quality Register of Otorhinolaryngology

## Childhood and Adolescence

- The Swedish Childhood Diabetes Registry (SWEDIABKIDS)
- Childhood Obesity Registry in Sweden (BORIS)
- Perinatal Quality Registry/Neonatology (PNQn)
- National Registry of Suspected/Confirmed Sexual Abuse in Children and Adolescents (SÖK)

## Circulatory Diseases

- Swedish Coronary Angiography and Angioplasty Registry (SCAAR)
- Registry on Cardiac Intensive Care (RIKS-HIA)
- Registry on Secondary Prevention in Cardiac Intensive Care (SEPHIA)
- Swedish Heart Surgery Registry
- Grown-Up Congenital Heart Disease Registry (GUCH)
- National Registry on Out-of-Hospital Cardiac Arrest
- Heart Failure Registry (RiksSvikt)
- National Catheter Ablation Registry
- Vascular Registry in Sweden (Swedvasc)

- National Quality Registry for Stroke (Riks-Stroke)
- National Registry of Atrial Fibrillation and Anticoagulation (Auricula)

## Endocrine Diseases

- National Diabetes Registry (NDR)
- Swedish Obesity Surgery Registry (SOReg)
- Scandinavian Quality Register for Thyroid and Parathyroid Surgery

## Gastrointestinal Disorders

- Swedish Hernia Registry
- Swedish Quality Registry on Gallstone Surgery (GallRiks)
- Swedish Quality Registry for Vertical Hernia

## Musculoskeletal Diseases

- Swedish Shoulder Arthroplasty Registry
- National Hip Fracture Registry (RIKSHÖFT)
- Swedish National Hip Arthroplasty Register
- Swedish Knee Arthroplasty Register
- Swedish Rheumatoid Arthritis Registry
- National Pain Rehabilitation Registry
- Follow-Up in Back Surgery
- Swedish Cruciate Ligament Registry – X-Base
- Swedish National Elbow Arthroplasty Register (SAAR)

\* Registers Receiving Funding from the Executive Committee for National Quality Registries in 2007


# Flawed Cost Measurement in Health Care

- Current cost accounting practices in health care **obscure understanding of the actual costs** of care delivery and **severely compromise** true cost reduction


## Cost Definition Problem

- Costs are widely confused with **prices**, or allocated based on prices
- **Reimbursement** has been based on past reimbursement rates, rather than actual costs

## Cost Aggregation Problem

- Costs are measured and aggregated for departments, specialties, discrete services, and line items (e.g. devices)
  - Costs are measured **independent of outcomes**
- 
- Costs should be aggregated for **patient medical conditions** over the **full care cycle**

## Cost Allocation Problem

- Resource costs are allocated across departments and to patients using **averages or estimates**
  - Unbilled services are included in overhead
  - Costs should be allocated to **individual patients** based on the **actual use of the resources involved** in their care
- 
- The application of **time-driven activity-based costing (TDABC)** to health care delivery reveals many structural opportunities for cost reduction

# Measuring the Cost of Care Delivery: Principles

- Cost should be measured around the **patient**
- Cost depends on the **actual use of resources** involved in a patient's care
- The only way to properly measure cost per patient is to track the **time devoted to each patient** by these resources (personnel, facilities, and support services) and resource **capacity costs**.
- **Indirect and support costs** should be allocated to direct resources based on the demand for the support they create
- Cost should be aggregated for the **medical condition level** for each patient **over the full cycle of care**, not for departments, services, or line items
- Cost measurement should be combined with **outcome measurement** to inform process improvement and cost reduction
  - E.g. Reduce high cost activities that **do not contribute** to superior outcomes

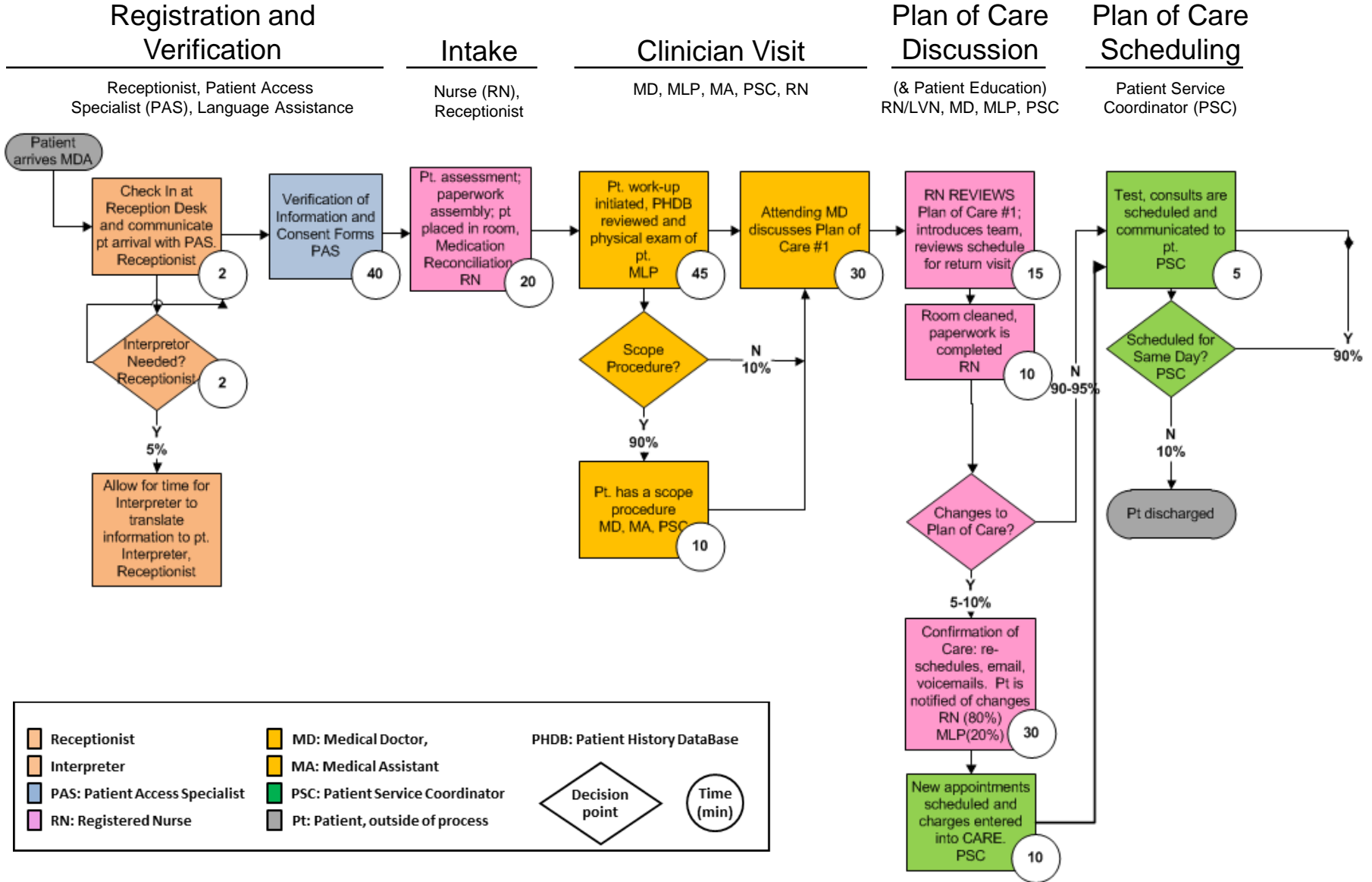


- Combining actual costs and outcomes will **transform the discussion** about care improvement




# Mapping Resource Utilization

## MD Anderson Cancer Center



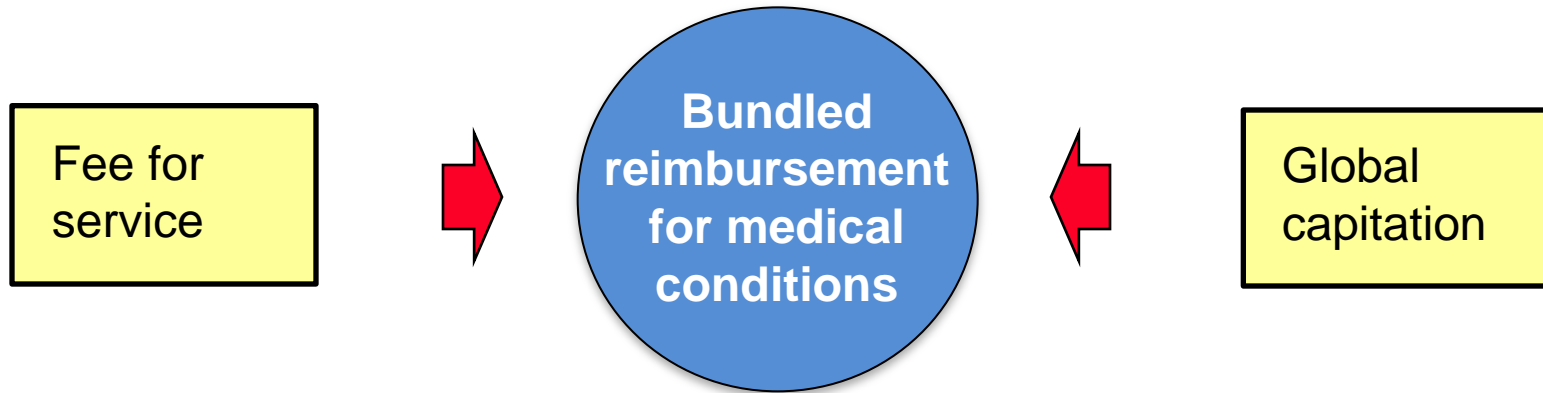
# Selected Cost Reduction Opportunities in Health Care

- **Process variation** that reduces efficiency without improving outcomes
  - Over-provision of **low-** or **non-value adding** services in order to justify billing or follow rigid protocols
  - Redundant **administrative** and scheduling personnel
  - **Low utilization** of expensive clinical space, equipment, and facilities due to duplication and service fragmentation
  - Poor utilization of **physicians and skilled staff**
  - Much care is delivered 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 discrete services rather than **optimize the total cost** of care
  - Lack of **cost awareness** in clinical teams
- 
- There are numerous cost reduction opportunities that **do not require outcome tradeoffs**, but may actually improve outcomes

# Integrating Costs and Outcomes

- **Cost** measurement and outcome measurement are most effective when brought together
- Bringing costs and outcomes together for a medical condition **reveals inefficiencies** and opportunities for **reallocating resource use**
  - E.g. High cost activities which do not correspond to superior outcomes
  - Identify low cost activities delivering high value
- Knowledge of both costs and outcomes creates a different dynamic in **reimbursement discussions**
  - Understanding true costs for a medical condition is essential to constructing bundled payments
  - Better align objective charges and actual cost
  - Objective cost has been a missing link in debates about appropriate charges
  - Cost data is essential to justify the value of services being provided


### 3. Setting Bundled Prices for Care Cycles




#### Bundled Price

- A single price covering the **full care cycle for an acute medical condition**
- Time-based reimbursement for full care of a **chronic condition**
- Time-based reimbursement for **primary/preventive care for a defined patient population**

# What is a Bundled Payment?

- A **total package price** for the care cycle for a **medical condition**
    - “Medical condition capitation”
  - Time-based bundled reimbursement for **managing chronic conditions**
  - Time-based reimbursement for defined **primary / preventative service bundles**
- 
- Should include responsibility for **avoidable complications**
  - The bundled price should be **severity adjusted**

## What is Not a Bundled Payment


- **Separate** payments for physicians and facilities
  - Payment for a **short** episode (e.g. inpatient only, procedure only)
  - **Pay-for-performance** bonuses
  - “**Medical Home**” payment for care coordination
- 
- DRGs can be a **starting point** for bundled payment models
    - DRGs in **some countries** are closer to true bundles
  - **Providers** and **health plans** should be **proactive** in driving new reimbursement models, not wait for government

# 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
  - Provider participation is **voluntary**. All providers are participating
- 
- The Stockholm bundled price for a knee or hip replacement is about **US \$8,000**

# Moving to Value-Based Reimbursement

## Strengths of the Bundled Approach

- Fosters **integrated care delivery** (IPUs)
- Creates **strong incentives to improve value** through reducing delays, avoidable complications, and unnecessary services
- Reinforces focus on **areas of excellence**
- Promotes provider control and accountability for outcomes **at the medical condition level**
- Payment is aligned with areas providers can **directly control**



- Aligns reimbursement with **value creation**
- Accelerates care delivery **integration**

# Creating a Bundled Pricing System

- Defining the Bundle
  - **Scope** of the medical condition and care cycle duration
  - **Services** included, but retaining flexibility on methods
  - **Complications** and **comorbidities** included/excluded
- Pricing the Bundle: Key Choices
  - **Level** of bundled price vs. sum of current charges
  - Price **stability** commitment
  - Extent of **severity/risk** adjustment
  - Extent of “**guarantees**” by providers
  - Mechanism for handling **outliers** and **unanticipated** complications
  - Bonuses for **excellent outcomes**?
- Implementing the Bundle
  - Internal **distribution of the payment** among providers (dividing the pie)
  - **Billing and claims** processes
  - **Outcome measurement** to minimize incentives to limit value-enhancing services



- **Accurate costing** at the medical condition level is a prerequisite for negotiating bundled prices