

# Value-Based Health Care Delivery

Professor Michael E. Porter  
Harvard Business School

*Medical Care and the Corporation*  
*September 29, 2010*

---

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.

---

# Redefining Health Care Delivery

- Achieving universal coverage and access to care are **essential, but not enough**
- The core issue in health care is the **value of health care delivered**

Value: Patient health outcomes per dollar spent



- How to design a health care system that **dramatically improves patient value**
  - Ownership of entities is secondary (e.g. non-profit vs. for profit vs. government)
- How to construct a **dynamic system** that keeps rapidly improving

# Creating a Value-Based Health Care System

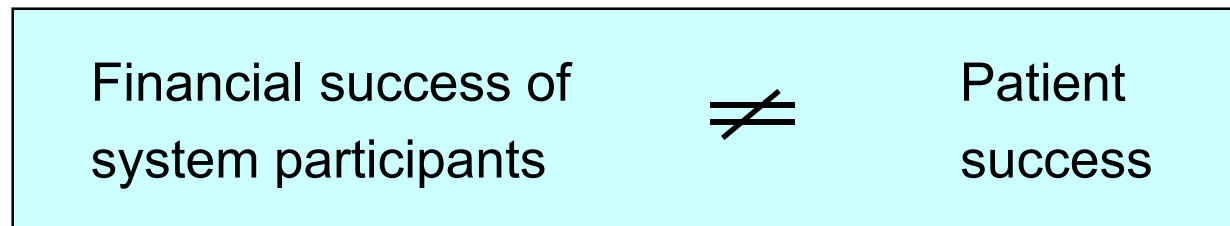
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

Today, 21<sup>st</sup> century medical technology is often delivered with 19<sup>th</sup> century organization structures, management practices, and payment models

- Process improvements, safety initiatives, disease management and other **overlays** to the current structure are beneficial, but not sufficient
- Consumers alone **cannot fix the dysfunctional structure** of the current system

# Creating Competition on Value

- **Competition and choice for patients/subscribers** are powerful forces to encourage restructuring of care and continuous improvement in value
- Today's competition in health care **is often not aligned with value**



- Creating positive-sum **competition on value** is a central challenge in health care reform in every country

# Principles of Value-Based Health Care Delivery

The central goal in health care must be **value for patients**, not access, volume, convenience, or cost containment

$$\text{Value} = \frac{\text{Health outcomes}}{\text{Costs of delivering the outcomes}}$$

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



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

# Principles of Value-Based Health Care Delivery

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

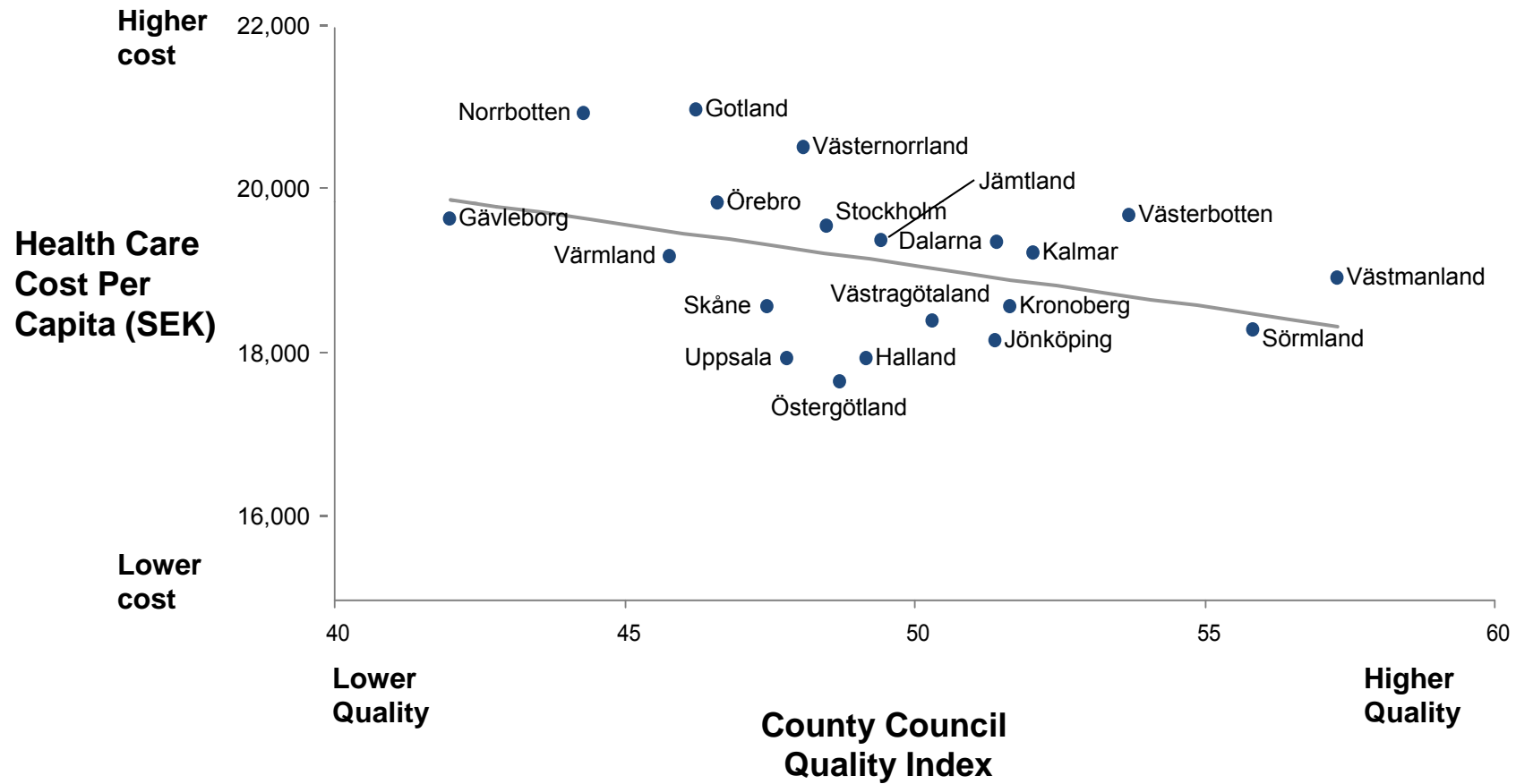
- Prevention of illness and recurrences
- Early detection
- Right diagnosis
- Right treatment to the right patient
- Early and timely treatment
- Treatment earlier in the causal chain of disease
- Rapid cycle time of diagnosis and treatment
- Less invasive treatment methods
- Fewer complications
- Fewer mistakes and repeats in treatment
- Faster recovery
- More complete recovery
- Less disability
- Fewer relapses, flare ups, or acute episodes
- Slower disease progression
- Less need for long term care
- Less care induced illness



- **Better health** is the goal, not more treatment
- Better health is **inherently less expensive** than poor health

# Cost versus Quality, Sweden

## Health Care Spending by County, 2008



Note: Cost including; primary care, specialized somatic care, specialized psychiatry care, other medical care, political health- and medical care activities, other subsidies (e.g. drugs)  
 Source: Öpnna jämförelser, Socialstyrelsen 2008; Sjukvårdsdata i fokus 2008; BCG analysis

# 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

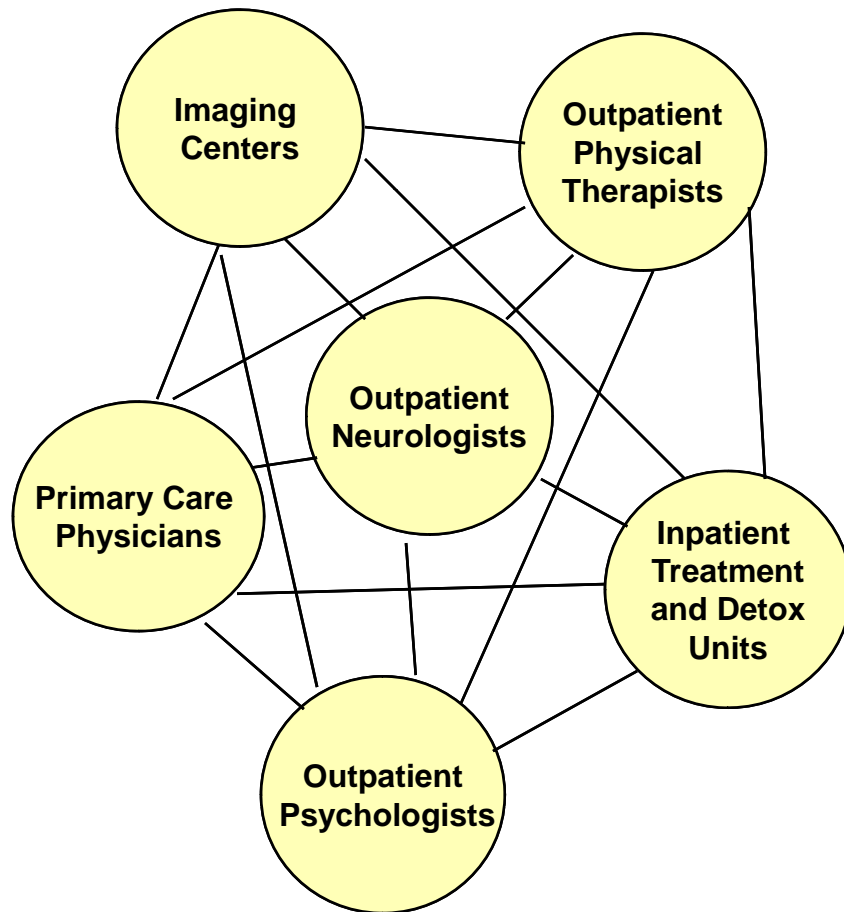


# 1. Organize Around Patient Medical Conditions

## Migraine Care in Germany

### Existing Model:

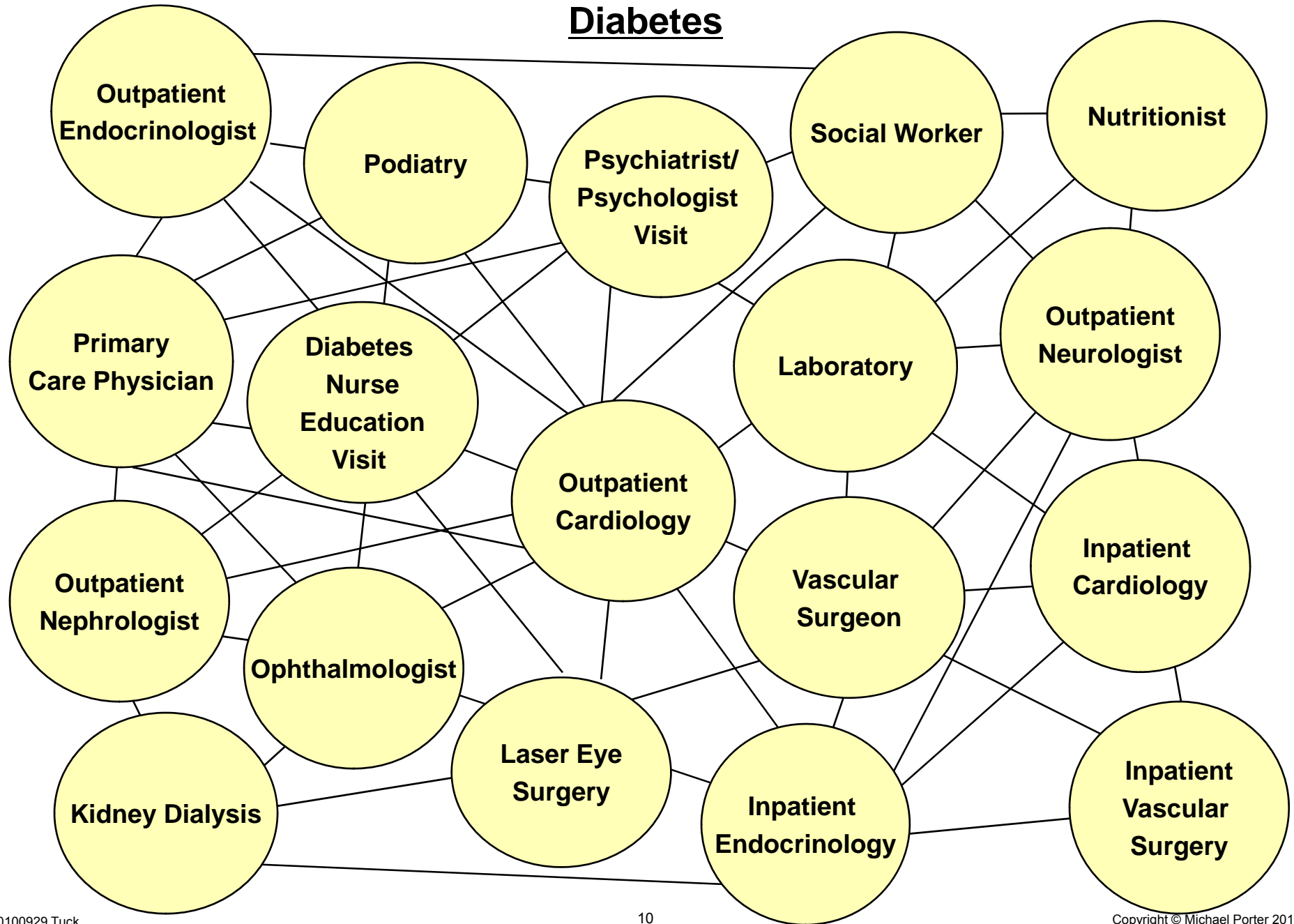
Organize by Specialty and Discrete Services



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

# Typical Care Structure

## Diabetes

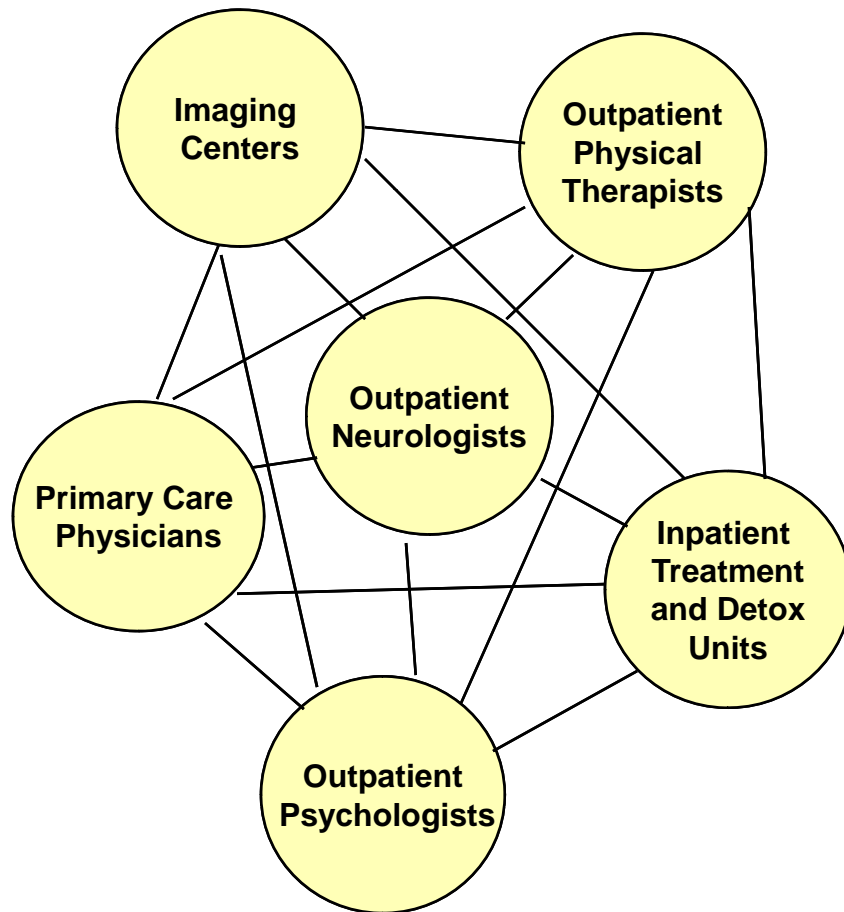


# 1. Organize Around Patient Medical Conditions

## Migraine Care in Germany

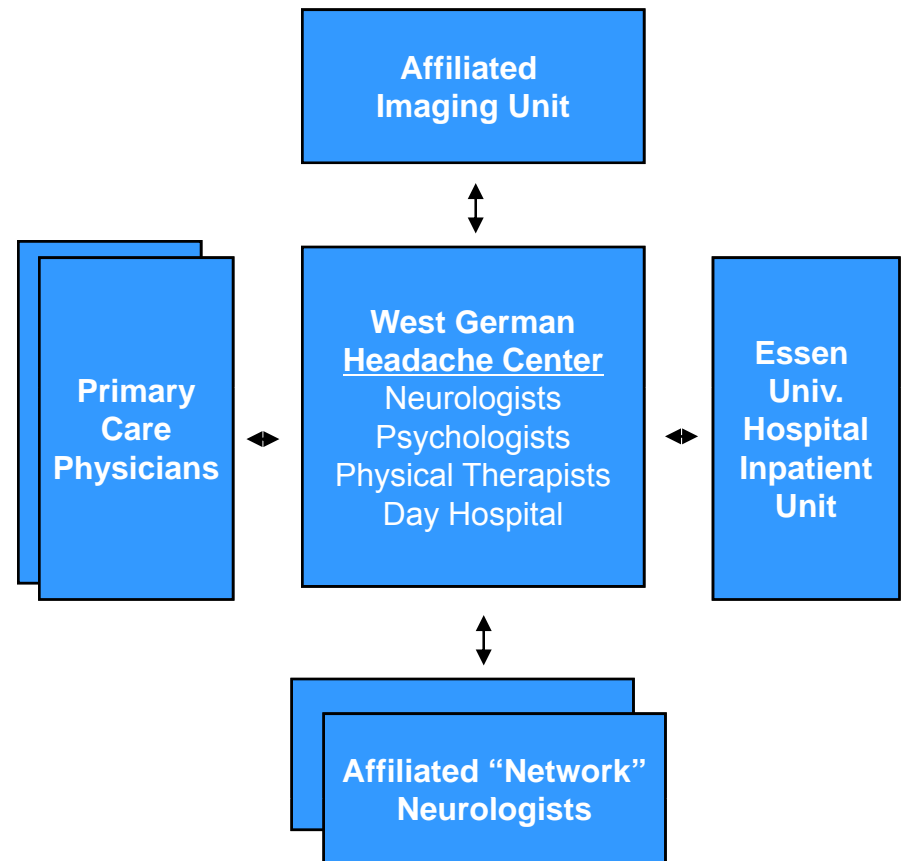
### Existing Model:

Organize by Specialty and Discrete Services



### New Model:

Organize into Integrated Practice Units (IPUs)



Source: Porter, Michael E., Clemens Guth, and Elisa Dannemiller, *The West German Headache Center: Integrated Migraine Care*, Harvard Business School Case 9-707-559, September 13, 2007

# Integrating Across the Cycle of Care

## Breast Cancer

|                               |  |   |  |  |   |   |
|-------------------------------|--|---|--|--|---|---|
| <b>INFORMING AND ENGAGING</b> | <ul style="list-style-type: none"> <li>Advice on self screening</li> <li>Consultations on risk factors</li> </ul>  | <ul style="list-style-type: none"> <li>Counseling patient and family on the diagnostic process and the diagnosis</li> </ul>   | <ul style="list-style-type: none"> <li>Explaining patient treatment options/shared decision making</li> </ul>  | <ul style="list-style-type: none"> <li>Counseling on the treatment process</li> <li>Education on managing side effects and avoiding complications of treatment</li> <li>Achieving compliance</li> </ul>  | <ul style="list-style-type: none"> <li>Counseling on rehabilitation options, process</li> <li>Achieving compliance</li> <li>Psychological counseling</li> </ul>   | <ul style="list-style-type: none"> <li>Counseling on long term risk management</li> <li>Achieving Compliance</li> </ul>   |
|                               |  |   | <ul style="list-style-type: none"> <li>Patient and family psychological counseling</li> </ul>  |  |   |   |
| <b>MEASURING</b>              | <ul style="list-style-type: none"> <li>Self exams</li> <li>Mammograms</li> </ul>   | <ul style="list-style-type: none"> <li>Mammograms</li> <li>Ultrasound</li> <li>MRI</li> <li>Labs (CBC, Blood chems, etc.)</li> <li>Biopsy</li> <li>BRACA 1, 2...</li> <li>CT</li> <li>Bone Scans</li> </ul> | <ul style="list-style-type: none"> <li>Labs</li> </ul>   | <ul style="list-style-type: none"> <li>Procedure-specific measurements</li> </ul>  | <ul style="list-style-type: none"> <li>Range of movement</li> <li>Side effects measurement</li> </ul>   | <ul style="list-style-type: none"> <li>MRI, CT</li> <li>Recurring mammograms (every six months for the first 3 years)</li> </ul>  |
| <b>ACCESSING</b>              | <ul style="list-style-type: none"> <li>Office visits</li> <li>Mammography lab visits</li> </ul>  | <ul style="list-style-type: none"> <li>Office visits</li> </ul>   | <ul style="list-style-type: none"> <li>Office visits</li> </ul>  | <ul style="list-style-type: none"> <li>Hospital stays</li> </ul>   | <ul style="list-style-type: none"> <li>Office visits</li> </ul>   | <ul style="list-style-type: none"> <li>Office visits</li> </ul>   |
|                               |  | <ul style="list-style-type: none"> <li>Lab visits</li> </ul>  | <ul style="list-style-type: none"> <li>Hospital visits</li> <li>Lab visits</li> </ul>  | <ul style="list-style-type: none"> <li>Visits to outpatient radiation or chemotherapy units</li> <li>Pharmacy</li> </ul>   | <ul style="list-style-type: none"> <li>Rehabilitation facility visits</li> <li>Pharmacy</li> </ul>  | <ul style="list-style-type: none"> <li>Lab visits</li> <li>Mammographic labs and imaging center visits</li> </ul>   |
|                               |  | <ul style="list-style-type: none"> <li>High risk clinic visits</li> </ul>   |  |  |   |   |
|                               |  |   |  |  |   |   |
|                               | <b>MONITORING/<br/>PREVENTING</b>  | <b>DIAGNOSING</b>   | <b>PREPARING</b>   | <b>INTERVENING</b>   | <b>RECOVERING/<br/>REHABING</b>   | <b>MONITORING/MANAGING</b>  |
|                               | <ul style="list-style-type: none"> <li>Medical history</li> <li>Control of risk factors (obesity, high fat diet)</li> <li>Genetic screening</li> <li>Clinical exams</li> <li>Monitoring for lumps</li> </ul> | <ul style="list-style-type: none"> <li>Medical history</li> <li>Determining the specific nature of the disease (mammograms, pathology, biopsy results)</li> <li>Genetic evaluation</li> <li>Labs</li> </ul> | <ul style="list-style-type: none"> <li>Choosing a treatment plan</li> <li>Surgery prep (anesthetic risk assessment, EKG)</li> <li>Plastic or onco-plastic surgery evaluation</li> <li>Neo-adjuvant chemotherapy</li> </ul> | <ul style="list-style-type: none"> <li>Surgery (breast preservation or mastectomy, oncoplastic alternative)</li> <li>Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)</li> </ul> | <ul style="list-style-type: none"> <li>In-hospital and outpatient wound healing</li> <li>Treatment of side effects (e.g. skin damage, cardiac complications, nausea, lymphodema and chronic fatigue)</li> <li>Physical therapy</li> </ul> | <ul style="list-style-type: none"> <li>Periodic mammography</li> <li>Other imaging</li> <li>Follow-up clinical exams</li> <li>Treatment for any continued or later onset side effects or complications</li> </ul> |

Breast Cancer Specialist  
 Other Provider Entities

# The Care Delivery Value Chain

## HIV/AIDS

|   |  |  |  |   |   |   |
|---|--|--|--|---|---|---|
| <b>INFORMING/<br/>ENGAGING</b>  | <ul style="list-style-type: none"> <li>Prevention counseling on modes of transmission and condom use</li> </ul>  | <ul style="list-style-type: none"> <li>Explanation of diagnosis and the implications</li> <li>Explaining the course of HIV and the prognosis</li> </ul>  | <ul style="list-style-type: none"> <li>Explanation of the approach to forestalling progression</li> </ul>  | <ul style="list-style-type: none"> <li>Explanation of Medication Instructions and Side-Effects</li> </ul>   | <ul style="list-style-type: none"> <li>Counseling about adherence; understanding factors for non-adherence</li> </ul>   | <ul style="list-style-type: none"> <li>Explanation of the co-morbid diagnoses and the implications</li> <li>End-of Life Counseling</li> </ul>   |
| <b>MEASURING</b>  | <ul style="list-style-type: none"> <li>HIV testing</li> <li>Screen for sexually transmitted infections</li> <li>Collect baseline demographics</li> </ul>   | <ul style="list-style-type: none"> <li>HIV testing for others at risk</li> <li>Clinical examination CD4+ count and other labs</li> <li>Testing for common co-morbidities such as tuberculosis and sexually transmitted diseases</li> <li>Pregnancy testing</li> </ul>  | <ul style="list-style-type: none"> <li>CD4+ Count Monitoring (Continuous Staging)</li> <li>Regular Primary Care Assessment</li> <li>HIV Testing for Others at Risk</li> <li>Laboratory Evaluation for Medication Initiation</li> </ul>   | <ul style="list-style-type: none"> <li>HIV Staging and Medication Response</li> <li>Highly Frequency Primary Care Assessment</li> <li>Assessing/Managing Complications of Therapy</li> <li>HIV testing for others at risk (bi-annually)</li> <li>Laboratory Evaluation</li> </ul>                 | <ul style="list-style-type: none"> <li>HIV Staging and Medication Response</li> <li>Regular Primary Care Assessment</li> <li>Laboratory Evaluation</li> </ul>   | <ul style="list-style-type: none"> <li>HIV Staging and Medication Response</li> <li>Regular Primary Care Assessment</li> <li>Laboratory Evaluation</li> </ul>   |
| <b>ACCESSING</b>  | <ul style="list-style-type: none"> <li>Testing centers</li> <li>High risk settings</li> <li>Primary Care Clinics</li> </ul>  | <ul style="list-style-type: none"> <li>Primary Care Clinics</li> <li>On-sight laboratories at Primary Care Clinics</li> <li>Testing Centers</li> </ul>   | <ul style="list-style-type: none"> <li>Primary Care Clinics</li> <li>Laboratories (on-site at primary clinic)</li> <li>Pharmacy</li> <li>Food Centers</li> <li>Community Health Workers/ Home Visits</li> <li>Support Groups</li> </ul>  | <ul style="list-style-type: none"> <li>Primary Care Clinics</li> <li>Laboratories (on-site at primary clinic)</li> <li>Pharmacy</li> <li>Community Health Workers/ Home Visits</li> <li>Support Groups</li> </ul>   | <ul style="list-style-type: none"> <li>Primary Care Clinics</li> <li>Laboratories (on-site at primary clinic)</li> <li>Pharmacy</li> <li>Community Health Workers/ Home Visits</li> <li>Support Groups</li> </ul>   | <ul style="list-style-type: none"> <li>HIV Staging and Medication Response</li> <li>Regular Primary Care Assessment</li> <li>Laboratory Evaluation</li> <li>Food Centers</li> </ul> <ul style="list-style-type: none"> <li>Primary Care Clinics (Labs on site)</li> <li>Community Health Workers / Home Visits</li> <li>Hospitals &amp; Hospice Facilities</li> <li>Support Groups</li> </ul> |
| <b>SCREENING                  DIAGNOSING/<br/>STAGING                  DELAYING<br/>PROGRESSION                  INITIATING<br/>ANTIRETROVIRAL<br/>THERAPY                  ONGOING<br/>DISEASE<br/>MANAGEMENT                  MANAGEMENT OF<br/>CLINICAL<br/>DETERIORATION</b>                                      |  |  |  |   |   |   |
| <ul style="list-style-type: none"> <li>Connecting patients with primary care system</li> <li>Identifying high risk individuals</li> <li>Testing at-risk individuals</li> <li>Promoting appropriate risk reduction strategies</li> <li>Modifying behavioral risk factors</li> <li>Creating a medical record</li> </ul> | <ul style="list-style-type: none"> <li>Formal diagnosis and staging</li> <li>Determine method of transmission and others at potential risk</li> <li>Identify others at risk</li> <li>Screen for TB, syphilis, and other sexually transmitted diseases</li> <li>Pregnancy testing and contraceptive counseling</li> <li>Create management plan, including scheduling of follow-up visits</li> <li>Formulate a treatment plan</li> </ul> | <ul style="list-style-type: none"> <li>Initiate therapies that can delay onset, including vitamins and food</li> <li>Treat co-morbidities that affect progression of disease, especially tuberculosis</li> <li>Improve patient awareness of disease progression, prognosis, and transmission</li> <li>Connect patient to care team, including community health work</li> </ul> | <ul style="list-style-type: none"> <li>Initiate comprehensive anti-retroviral therapy and assess medication readiness</li> <li>Prepare patient for disease progression and side-effects of associated treatment</li> <li>Manage secondary infections and associated illnesses</li> </ul> | <ul style="list-style-type: none"> <li>Managing effects of associated illnesses</li> <li>Managing side effects of treatment</li> <li>Determine supporting nutritional modifications</li> <li>Preparing patient for end-of-life management</li> <li>Primary care and health maintenance</li> </ul> | <ul style="list-style-type: none"> <li>Identifying clinical and laboratory deterioration</li> <li>Initiating second-line, third-line drug therapies</li> <li>Managing acute illness and opportunistic infection either through aggressive outpatient management or hospitalization</li> <li>Provide additional community/ social support if needed</li> <li>Access to Hospice Care</li> </ul> |   |



# What is Integrated Care?

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

1. Organized around the **patient's medical condition**
2. Involves a **dedicated team** who devote a significant portion of their time to the condition
3. Where providers are part of a **common organizational unit**
4. Utilizing a **single administrative** and **scheduling structure**
5. Provides the **full cycle of care** for the condition
  - Encompasses **inpatient, outpatient, and rehabilitative** care as well as **supporting services** (e.g. nutrition, social work, behavioral health)
  - Includes **patient education, engagement** and **follow-up**
6. **Co-located** in **dedicated facilities**
7. With a **physician team captain** and a **care manager** who oversee each patient's care process
8. Where the team **meets formally and informally** on a regular basis
9. And measures **processes** and **outcomes** as a **team**, not individually
10. And 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 multispecialty group practice
- Freestanding focused factories
- A clinical pathway
- An institute or center
- A Center of Excellence
- A health plan/provider system (e.g. Kaiser Permanente)
- Medical homes
- Accountable care organizations

# Integrated Cancer Care

## MD Anderson Head and Neck Center

| Dedicated   | Shared  |                    |                  |                |                |                        |                 |                         |  |
|---|---|--------------------|------------------|----------------|----------------|------------------------|-----------------|-------------------------|--|
| <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;"><b>Dedicated MDs</b></div> <ul style="list-style-type: none"> <li>- 8 Medical Oncologists</li> <li>- 12 Surgical Oncologists</li> <li>- 8 Radiation Oncologists</li> <li>- 5 Dentists</li> <li>- 1 Diagnostic Radiologist</li> <li>- 1 Pathologist</li> <li>- 4 Ophthalmologists</li> </ul> <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;"><b>Skilled Staff</b></div> <ul style="list-style-type: none"> <li>- 22 Nurses</li> <li>- 3 Social Workers</li> <li>- 4 Speech Pathologists</li> <li>- 1 Nutritionist</li> <li>- 1 Patient Advocate</li> </ul> <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;"><b>Patient Access Center</b></div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;"><b>Facilities</b></div> <ul style="list-style-type: none"> <li>-Dedicated Outpatient Unit</li> </ul> | <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;"><b>Shared</b></div> <ul style="list-style-type: none"> <li>-Endocrinologists</li> <li>-Other specialists as needed<br/>(cardiologists, plastic surgeons, etc.)</li> </ul> <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;"><b>Skilled Staff</b></div> <ul style="list-style-type: none"> <li>-Dietician</li> <li>-Inpatient Nutritionists</li> <li>-Radiation Nutritionists</li> <li>-Smoking Cessation Counselors</li> </ul> <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;"><b>Shared Facilities (located nearby)</b></div> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">-Radiation Therapy</td> <td style="width: 50%;">-Inpatient Wards</td> </tr> <tr> <td>-Pathology Lab</td> <td>→Medical Wards</td> </tr> <tr> <td>-Ambulatory Chemo Unit</td> <td>→Surgical Wards</td> </tr> <tr> <td colspan="2">-ORs (grouped by needs)</td> </tr> </table> | -Radiation Therapy | -Inpatient Wards | -Pathology Lab | →Medical Wards | -Ambulatory Chemo Unit | →Surgical Wards | -ORs (grouped by needs) |  |
| -Radiation Therapy  | -Inpatient Wards  |                    |                  |                |                |                        |                 |                         |  |
| -Pathology Lab  | →Medical Wards  |                    |                  |                |                |                        |                 |                         |  |
| -Ambulatory Chemo Unit  | →Surgical Wards   |                    |                  |                |                |                        |                 |                         |  |
| -ORs (grouped by needs)   |   |                    |                  |                |                |                        |                 |                         |  |

Source: Jain, Sachin H. and Michael E. Porter, *The University of Texas MD Anderson Cancer Center: Interdisciplinary Cancer Care*, Harvard Business School Case 9-708-487, May 1, 2008



# Integrated Models of Primary Care

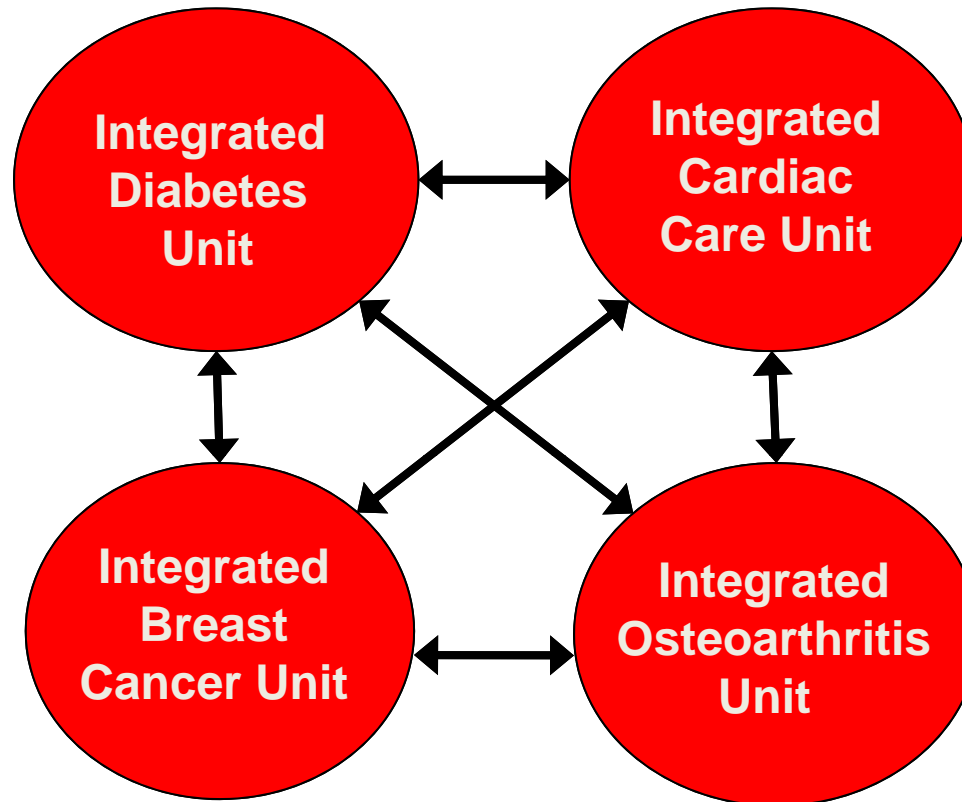
- Today's primary care is **fragmented** and attempts to address **overly broad needs** with limited resources



- Organize primary care around teams serving **specific patient populations** (e.g. healthy adults, frail elderly, type II diabetics) rather than attempting to be all things to all patients
- Deliver **defined service bundles** covering appropriate prevention, screening, diagnosis, wellness and health maintenance
- Provide services with **multidisciplinary teams**, including ancillary health professionals and support staff in **dedicated facilities**
- 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, community organizations, schools**, and in **other locations** that offer regular patient contact and the ability to develop a group culture of wellness

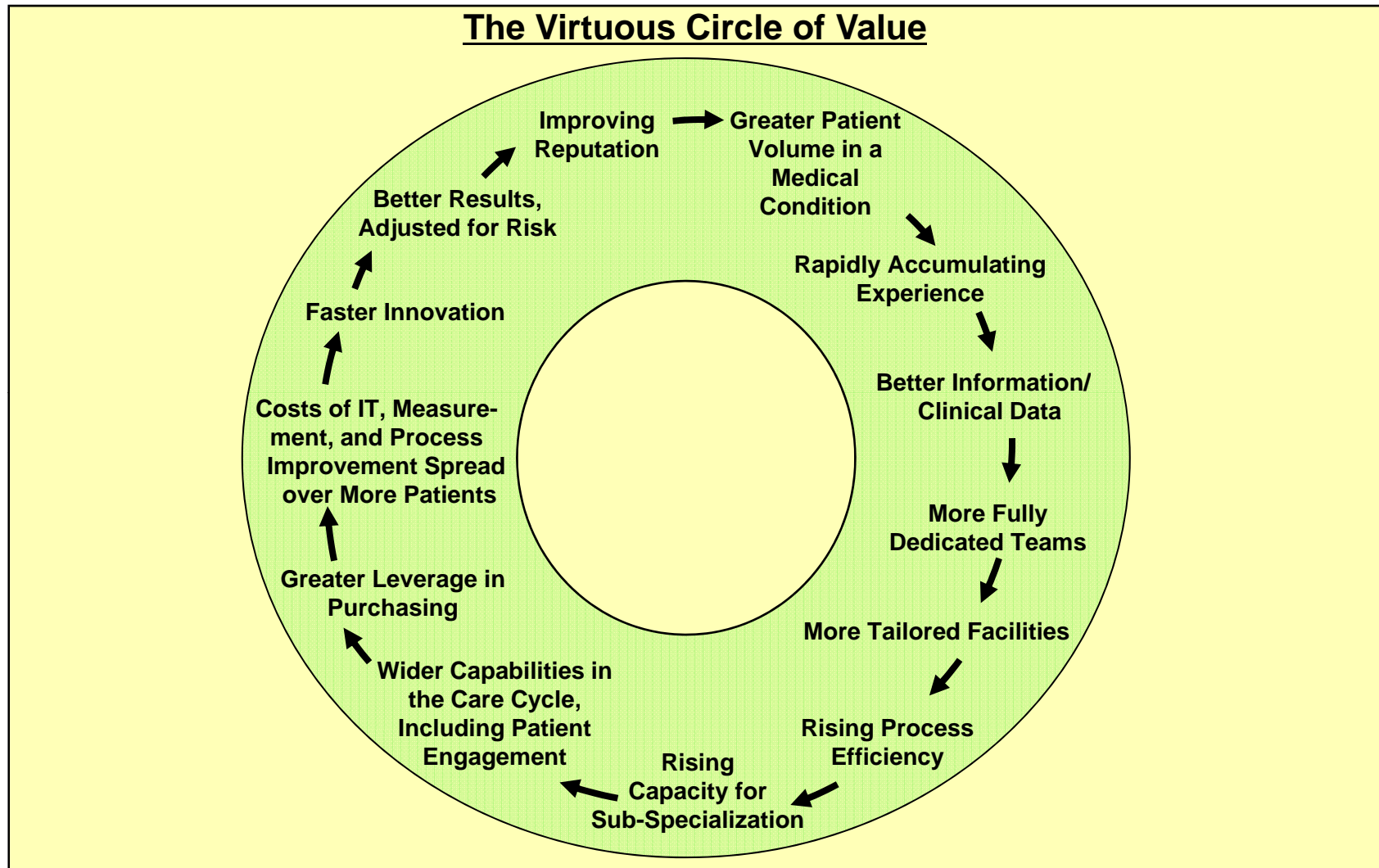
# Coordinating Care Across IPUs

## Patients with Multiple Medical Conditions



- The primary organizational structure for care delivery should be around the forms of integration required for **every patient**, or IPUs
    - The current system is organized around the **exception**, not the rule
  - **Overlay mechanisms** should manage **coordination across IPUs**
- ↓
- The IPU model will **greatly simplify** coordination of care for patients with multiple medical conditions

# 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

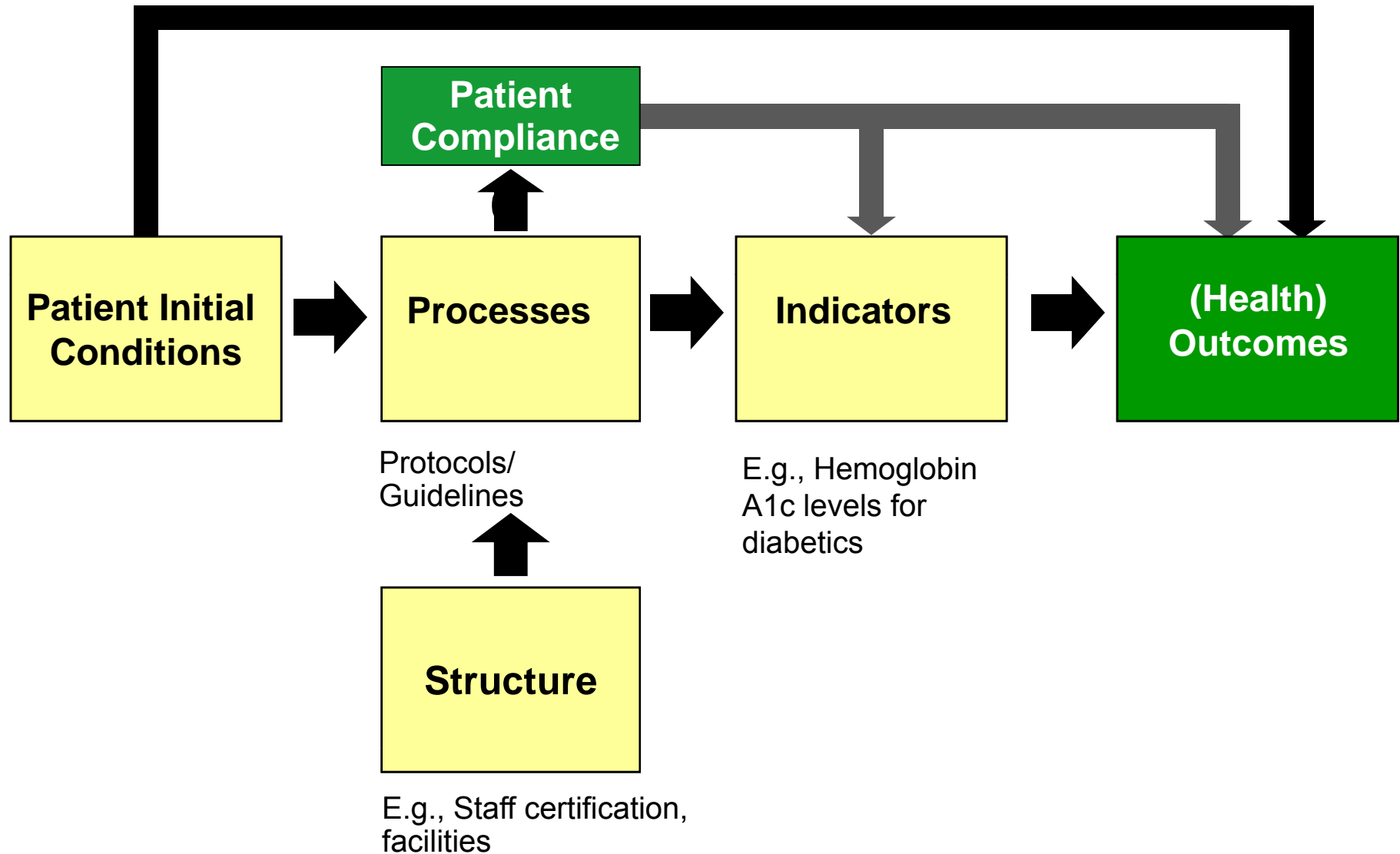
# Fragmentation of Hospital Services

## Sweden

| DRG                                      | Number of admitting providers | Average percent of total national admissions | Average admissions/ provider/ year | Average admissions/ provider/ week |
|--|-------------------------------|--|------------------------------------|------------------------------------|
| Knee Procedure                           | 68                            | 1.5%   | 55                                 | 1                                  |
| Diabetes age > 35                        | 80                            | 1.3%   | 96                                 | 2                                  |
| Kidney failure                           | 80                            | 1.3%   | 97                                 | 2                                  |
| Multiple sclerosis and cerebellar ataxia | 78                            | 1.3%   | 28                                 | 1                                  |
| Inflammatory bowel disease               | 73                            | 1.4%   | 66                                 | 1                                  |
| Implantation of cardiac pacemaker        | 51                            | 2.0%   | 124                                | 2                                  |
| Splenectomy age > 17                     | 37                            | 2.6%   | 3                                  | <1                                 |
| Cleft lip & palate repair                | 7                             | 14.2%  | 83                                 | 2                                  |
| Heart transplant                         | 6                             | 16.6%  | 12                                 | <1                                 |

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

## 2. Measure Outcomes and Cost for Every Patient



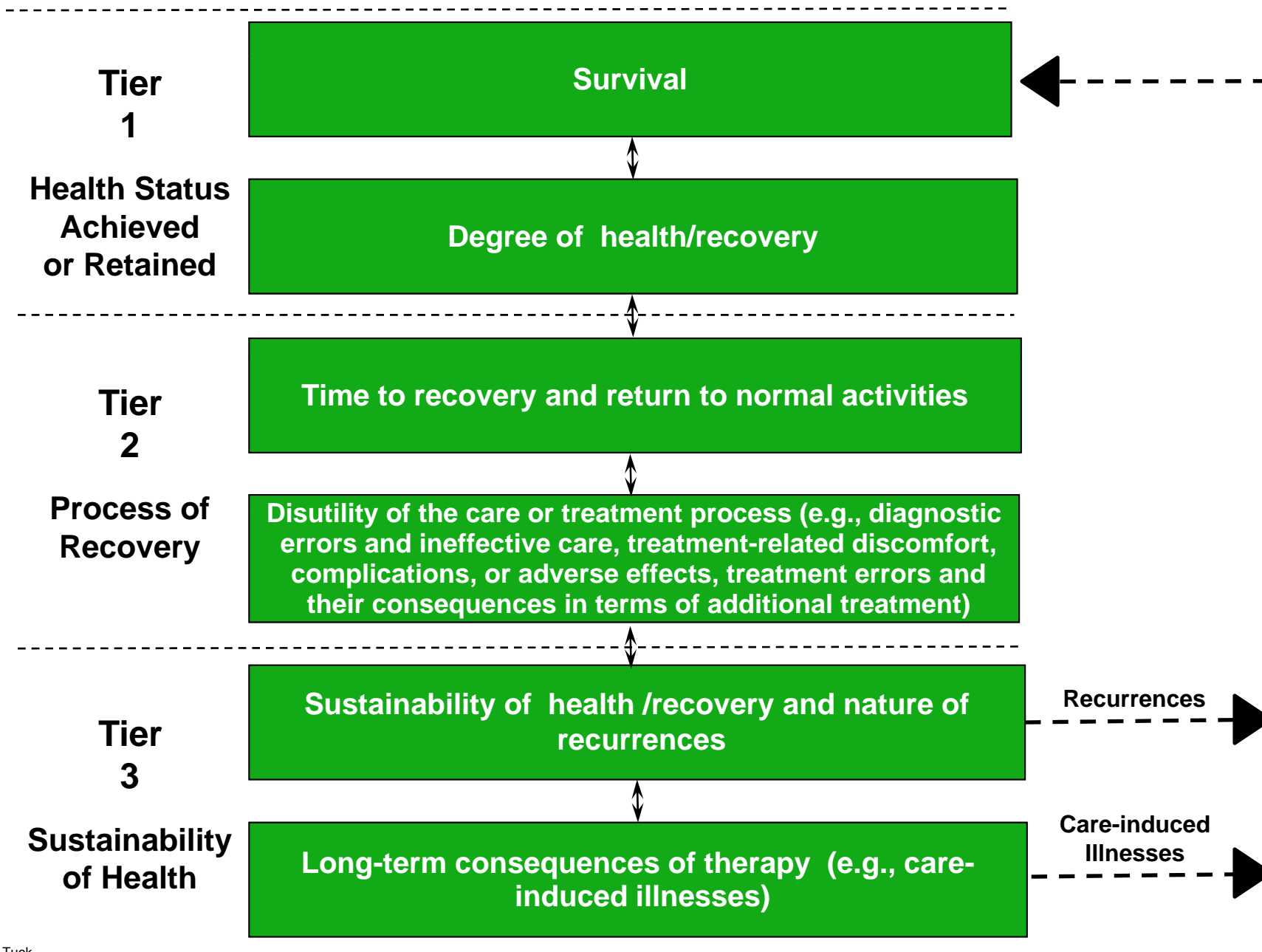
# Measuring Value

- **For** medical conditions/primary care patient populations
- **Real time** and “**on-line**” in care delivery, not just retrospectively or in clinical studies
- **Not** for interventions or short episodes
- **Not** separately for types of service (e.g. inpatient, outpatient, tests, rehabilitation)
- **Not** for practices, departments, clinics, or entire hospitals

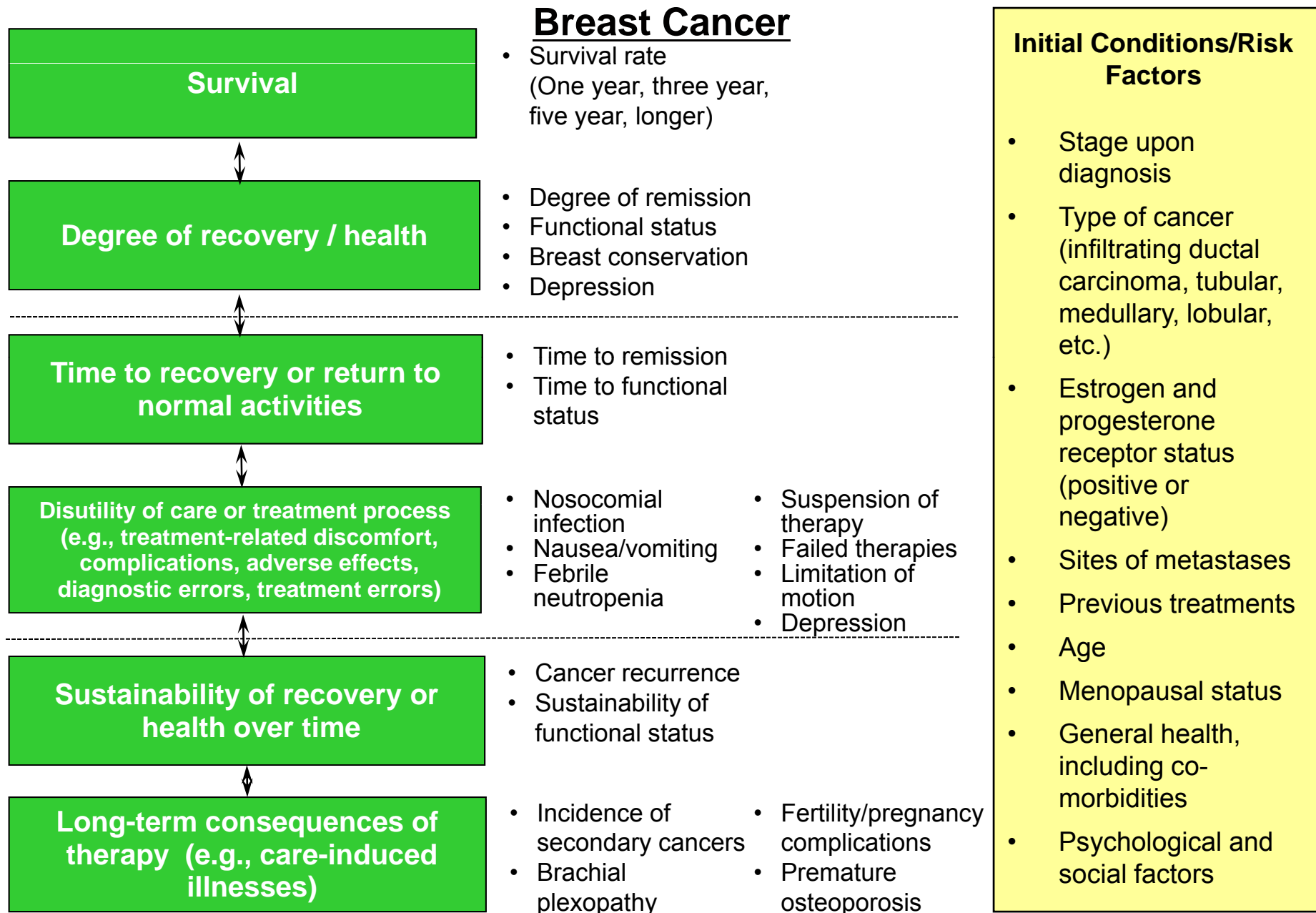


Measuring and reporting **volume** by medical condition

# The Outcome Measures Hierarchy

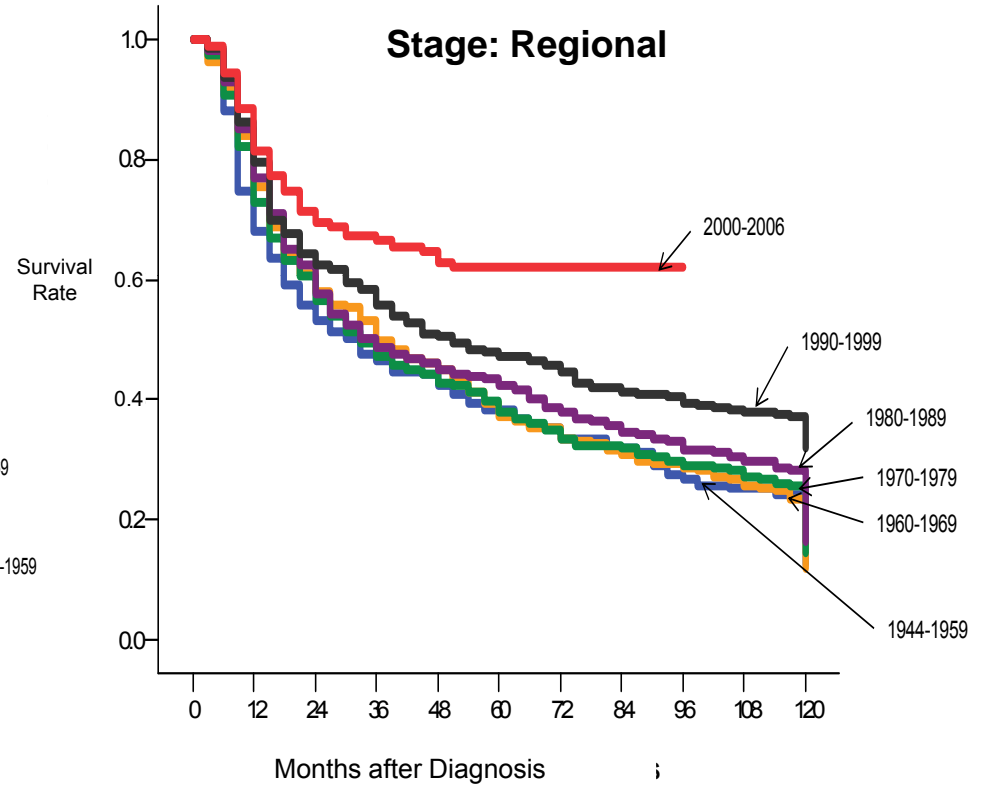
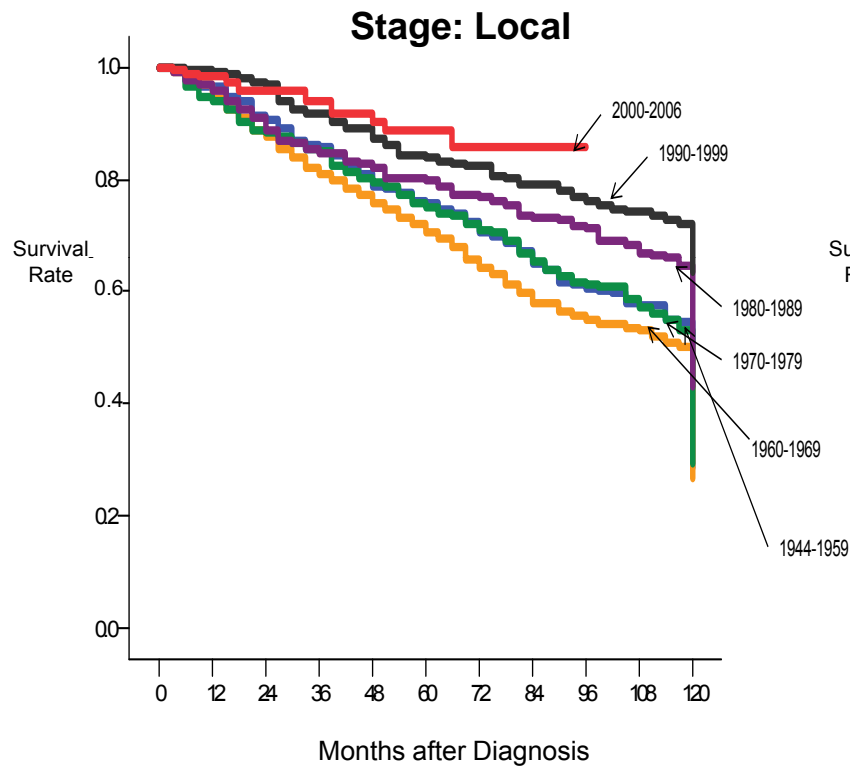


# The Outcome Measures Hierarchy





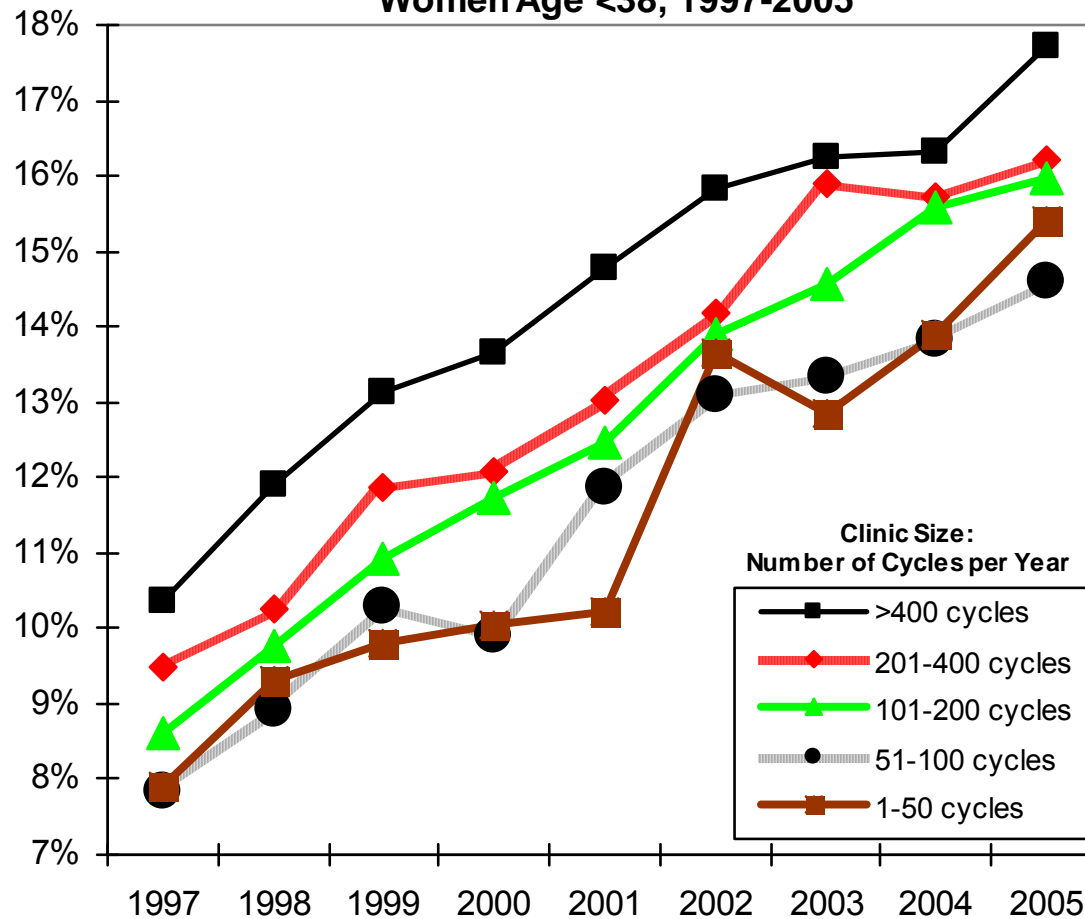
# MD Anderson Oral Cavity Cancer Survival by Patient Registration Year



Source: MD Anderson Cancer Center

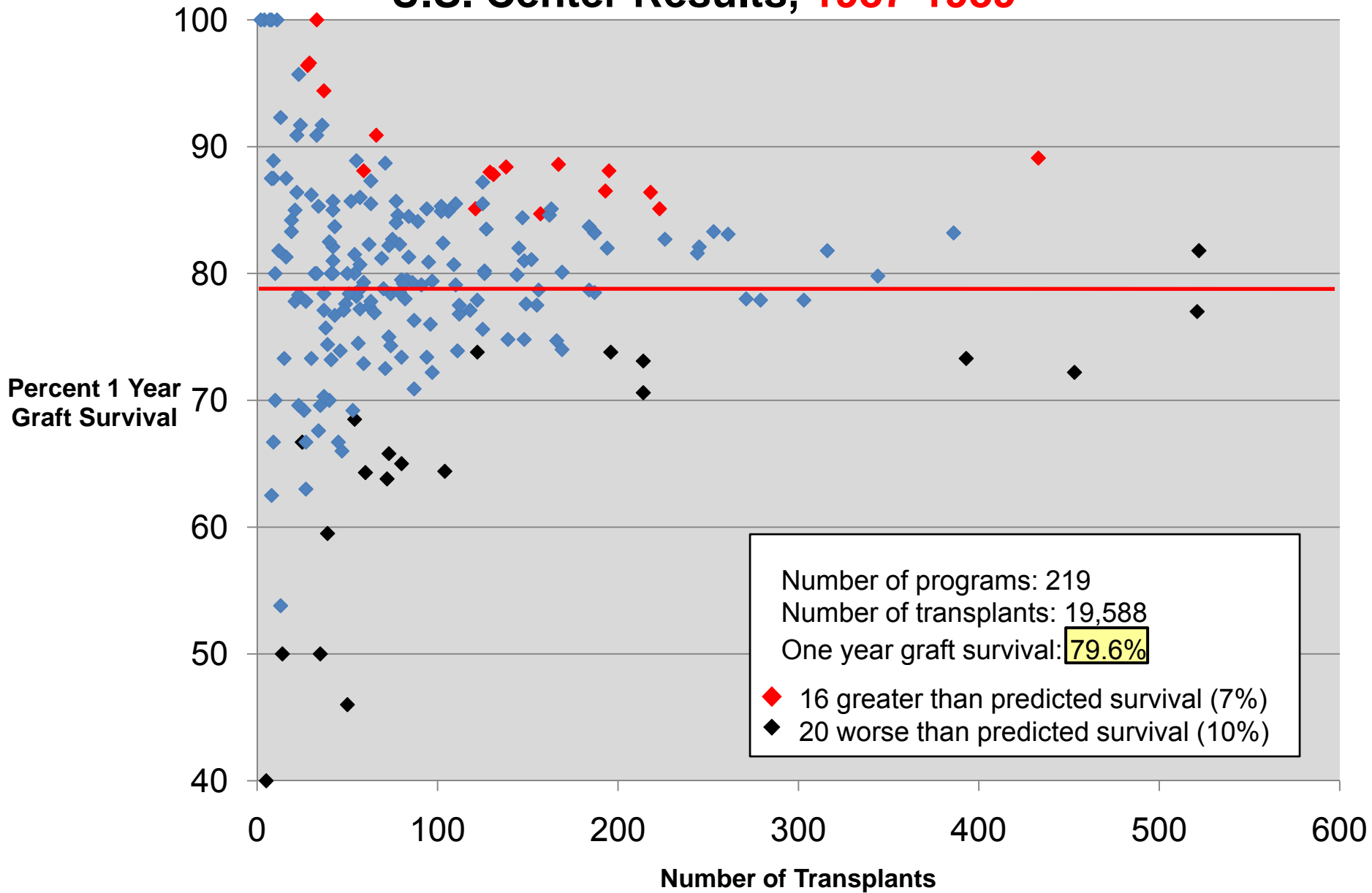
# In-vitro Fertilization Success Rates Over Time

Percent Live Births per Fresh, Non-Donor Embryo Transferred by Clinic Size  
Women Age <38, 1997-2005



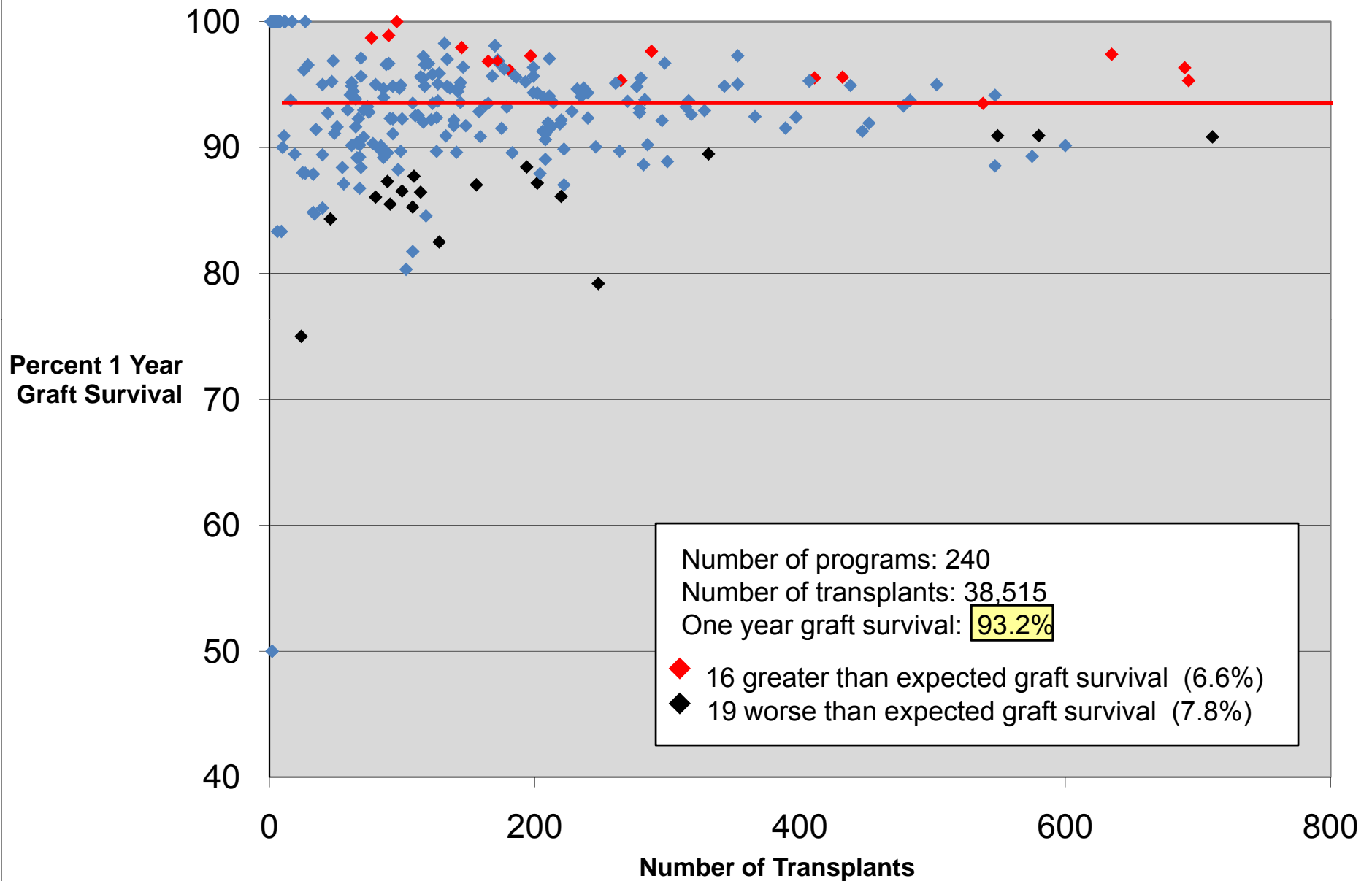
Source: Michael Porter, Saquib Rahim, Benjamin Tsai, *In-vitro Fertilization: Outcomes Measurement*. Harvard Business School Press, 2008

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



# Adult Kidney Transplant Outcomes

## U.S. Center Results, 2005-2007



# 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

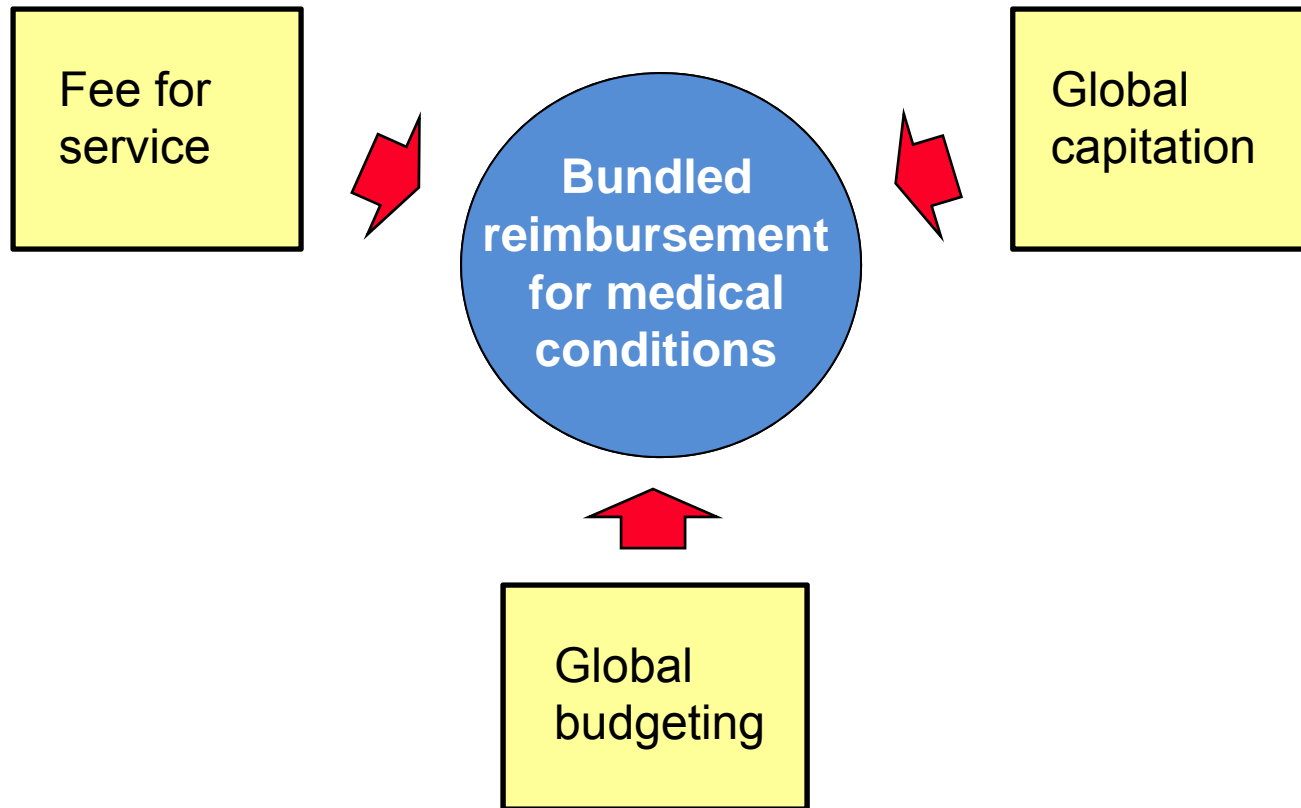
# Measuring Health Care Costs

- Current organization structure and cost accounting practices in health care obscure the measurement of costs, leaving major **opportunities for cost efficiencies**
  - Over-resourced facilities
    - E.g. routine care delivered in expensive hospital settings
  - Under-utilization of expensive clinical space, equipment, and facilities
  - Poor utilization of highly skilled physicians and staff
  - Over-provision of low- or no-value testing and other services in order to justify billing/follow rigid protocols
  - Long cycle times
  - Redundant administrative and scheduling personnel
  - Missed opportunities for volume procurement
  - Excess inventory and weak inventory management
  - Lack of cost knowledge and awareness in clinical teams



- These cost reduction opportunities **do not require outcome tradeoffs**, but may actually improve outcomes

### 3. Move to Bundled Prices for Care Cycles



## What is a Bundled Payment?

- A **total package price** for the care cycle for a medical condition
  - Including time-based bundled reimbursement for **managing chronic conditions** and for **primary/preventive** service bundles
  - Including responsibility for **avoidable complications**
- The bundled price should be **severity adjusted**

### What is Not a Bundled Payment

- Price for a **short** episode (e.g. inpatient only, procedure only)
- **Separate** payments for physicians and facilities
- “**Medical Home**” payment for care coordination
- **Pay-for-performance** bonuses



- DRGs can be a **starting point** for bundled payment models




# Bundled Payment in Practice

## Hip and Knee Replacement in Stockholm, Sweden

- **Components** of the bundle

- |                                 |   |
|---------------------------------|---|
| - Pre-op evaluation             | - All physician and staff 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 |   |

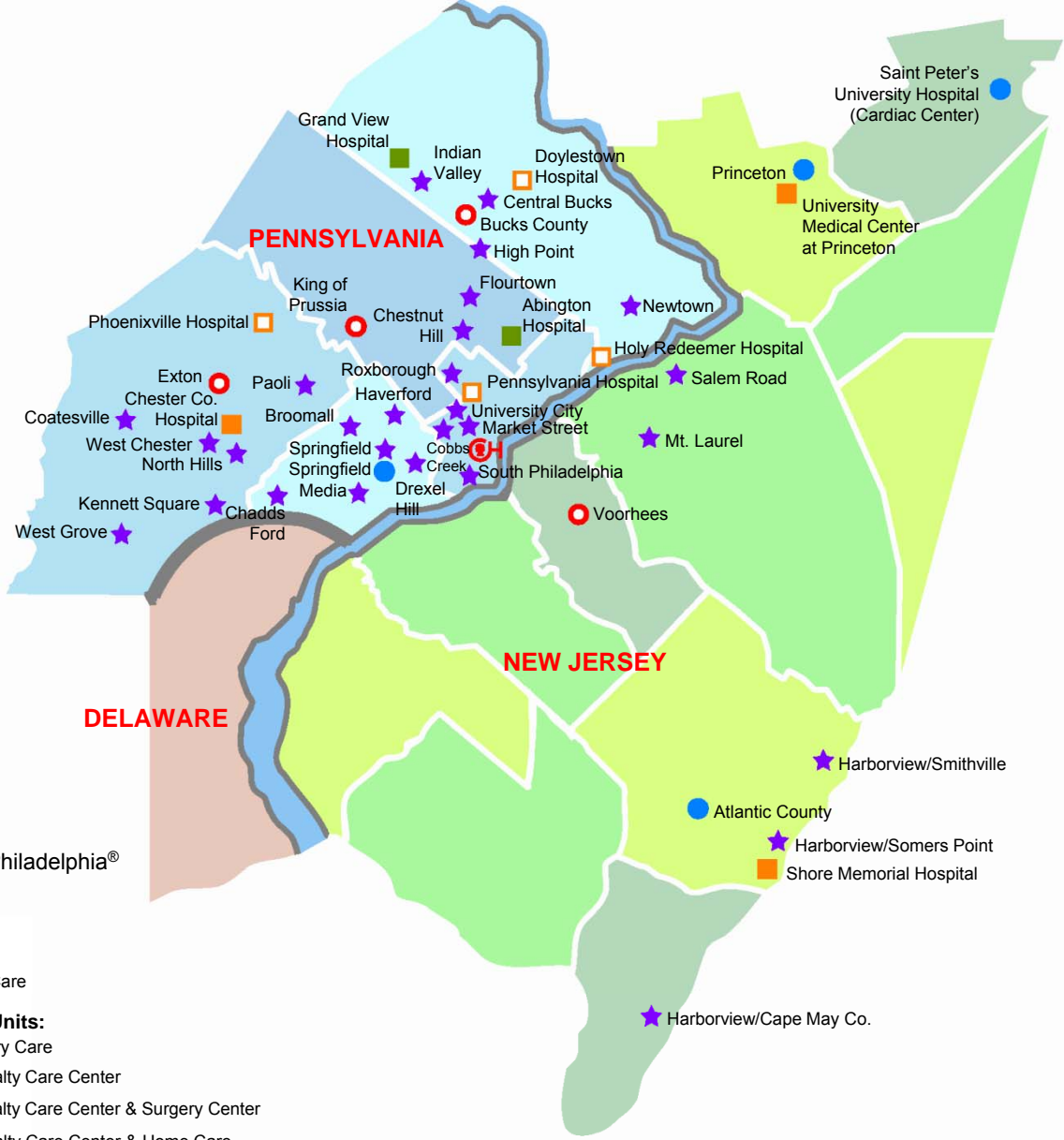
- Applies to all **relatively healthy patients** (i.e. ASA scores of 1 or 2)
  - The same **referral process** from PCPs is utilized as the traditional system
  - **Mandatory reporting** by providers to the joint registry plus supplementary reporting
  - Provider participation is **voluntary** but all providers are involved
- 
- The bundled price for a knee or hip replacement is about **US \$8,000**

# Creating a Bundled Pricing System

- Defining the Bundle
  - **Scope** of the medical condition
  - **Range of services** included
  - **Complications** and **comorbidities** included/excluded
  - **Duration** of care cycle/time period
    - Must be long enough to minimize the risk of cost shifting
  - **Flexibility** on methods/process of care essential
- Pricing the Bundle: Key Choices
  - Price set relative to **sum of current costs**
  - Extent of **incentive** to improve value by reducing avoidable complications, improving efficiency, etc.
  - Extent of “**guarantees**” by providers
  - Extent of **severity/risk** adjustments
  - Mechanism for handling **unanticipated** complications and **outliers**
- Implementing the Bundle
  - **Claims** management process and infrastructure
  - Internal **distribution of payment** among providers (dividing the pie)
    - Degree of risk sharing by specialty
  - **Outcome measurement** is essential to measure success and minimize incentives to limit value-enhancing services

# 4. Integrate Care Delivery Across Separate Facilities

## Children's Hospital of Philadelphia Care Network



- CH** 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

# Levels of System Integration

- Choose a **scope of service lines** where the organization can achieve excellence
- **Rationalize service lines/ IPU**s across facilities to improve volume, avoid duplication, and deepen teams
- **Offer specific services** at the **appropriate facility**
  - E.g. acuity level, cost level, need for convenience
- **Clinically integrate care across facilities**, within an IPU structure
  - **Expand** and **integrate** the care cycle
  - Better connect **preventive/primary care** units to specialty IPUs



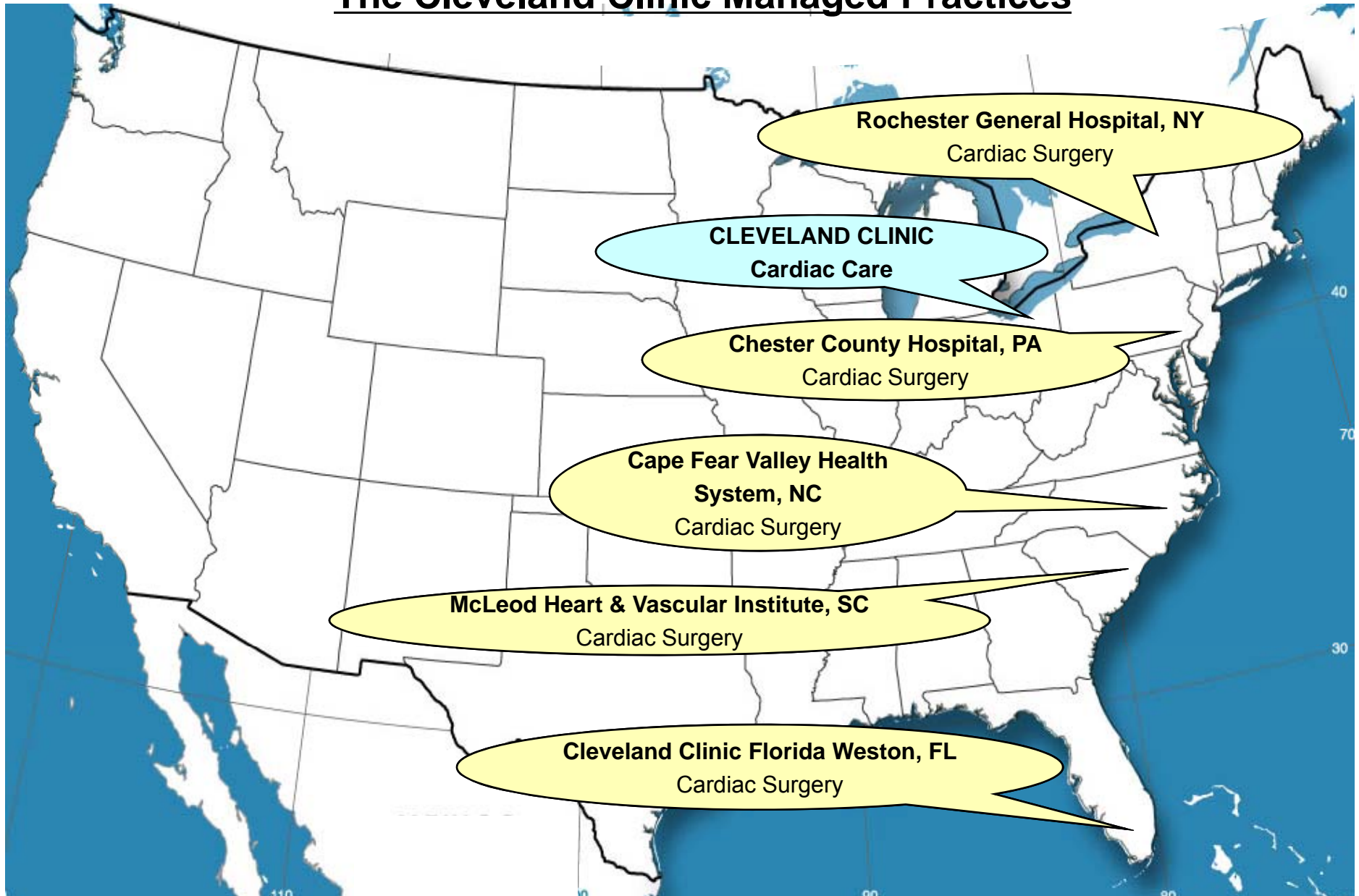
- There is a major opportunity to improve value through **moving care out** of heavily resourced hospital, tertiary and quaternary facilities

## 5. Expand Excellent IPUs Across Geography

- Grow **areas of excellence** and **leverage across locations**, rather than adding broad line, stand-alone units
- **Affiliate with excellent providers** in medical conditions where there is insufficient volume or expertise to achieve superior value

# Expanding Excellent IPUs Across Geography

## The Cleveland Clinic Managed Practices



## 6. Create an Enabling Information Technology Platform

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

- Common **data definitions**
- Combine **all types of data** (e.g. notes, images) for each patient over time
- Data encompasses the **full care cycle**, including referring entities
- Allows access and communication among **all involved parties**, including patients
- **“Structured”** data vs. free text
- **Templates** for medical conditions to enhance the user interface
- Architecture that allows **easy extraction of outcome measures, process measures, and activity based cost measures for each patient and medical condition**
- Interoperability standards enabling communication among **different provider systems**

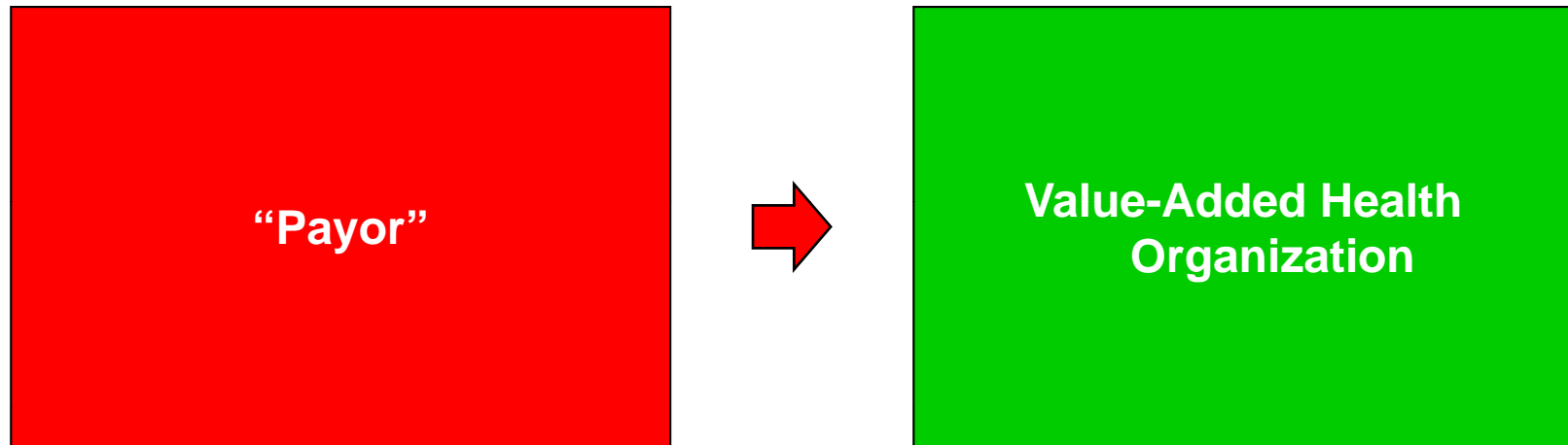
# Creating a Value-Based Health Care Delivery System

## 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




## Value-Based Health Care Delivery: Implications for Contracting Parties/Health Plans




- Providers can lead in developing new relationships with health plans through their role in **providing health benefits for their own employees**


## Value-Adding Roles of Health Plans

- Assemble, analyze and manage the **total medical records** of members
  - Provide for comprehensive and integrated **prevention, wellness, screening,** and **disease management** services to all members
  - Monitor and compare **provider results** by medical condition
  - Provide advice to patients (and referring physicians) in selecting **excellent providers**
  - Assist in coordinating patient care across the **care cycle** and **across medical conditions**
  - Encourage and reward **integrated practice unit** models by providers
  - Design new **bundled reimbursement structures** for care cycles instead of fees for discrete services
  - Measure and report **overall health results** for members by medical condition versus other plans
- 
- Health plans will require **new capabilities** and **new types of staff** to play these roles

# Value-Based Health Care Delivery: The Role of Employers

- Employer interests are **more closely aligned with patient interests** than any other system participant
    - Employers need healthy, high performing employees
    - Employers bear the costs of chronic health problems and poor quality care
  - The cost of poor health is 2 to 7 times more than the cost of health benefits
    - Absenteeism
    - Presenteeism
- 
- Employers are **uniquely positioned** to improve employee health
    - Daily interactions with employees
    - On-site clinics for quick diagnosis and treatment, prevention, and screening
    - Group culture of wellness
  - Employers must insist that their health plans **enable value-based delivery**
  - Employers can establish **direct relationships with providers** to jump start value based approaches
    - Self-insured employers
    - Consortia of smaller employers

# Value-Based Health Care Delivery: Implications for Employers

- Set the goal of **employee health**
  - Assist employees in **healthy living** and **active participation in their own care**
  - Provide for convenient and high value **prevention, wellness, screening,** and **disease management** services
    - On site clinics
  - Set **new expectations for payors**
    - Plans should contract for **integrated care**, not discrete services
    - Plans should contract for care **cycles rather** than single interventions
    - Plans should assist subscribers in **accessing excellent providers** for their medical condition
    - Plans should **measure** and **improve** member health results by condition, and expect providers to do the same
  - Provide for **health plan continuity** for employees, rather than plan churning
  - Find ways to **expand insurance coverage** and advocate **reform of the insurance system**
- 
- Measure and hold employee benefit staff accountable for the **health value achieved** by the company

# Value-Based Health Care Delivery: Implications for Government

- Establish **universal measurement** and **reporting** of provider **health outcomes**
  - Also require universal reporting by **health plans**
- Remove obstacles to the **restructuring of health care delivery** around the integrated care of medical conditions
- Shift reimbursement systems to **bundled prices for cycles of care** instead of payments for discrete treatments or services
- **Open up competition** among providers and across geography
- Mandate **EMR adoption** that enables integrated care and supports outcome measurement
  - National **standards** for data definitions, communication, and aggregation
  - **Software as a service** model for smaller providers
- Set policies that encourage greater **responsibility of individuals** for their health and their health care