

Value-Based Health Care Delivery

Professor Michael E. Porter
Harvard Business School

Baylor EDGE
September 24, 2009

This presentation draws on Michael E. Porter and Elizabeth Olmsted Teisberg: [Redefining Health Care: Creating Value-Based Competition on Results](#), Harvard Business School Press, May 2006, and “How Physicians Can Change the Future of Health Care,” *Journal of the American Medical Association*, 2007; 297:1103:1111. 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 Olmsted Teisberg. Further information about these ideas, as well as case studies, can be found on the website of the Institute for Strategy & Competitiveness at <http://www.isc.hbs.edu>.

Redefining Health Care Delivery

- 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

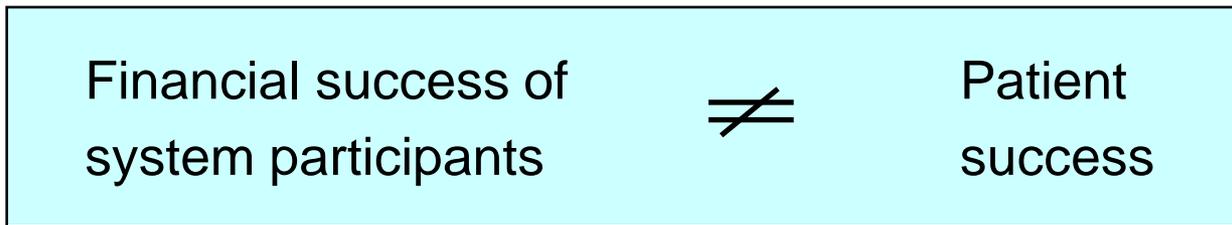
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

Today, 21st century medical technology is often delivered with 19th century organization structures, management practices, and pricing models

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

Harnessing Competition on Value

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



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

Zero-Sum Competition in U.S. Health Care

Bad Competition

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



Zero or Negative Sum
Competition

Good Competition

- Competition to **increase value for patients**



Positive Sum
Competition

Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**, not access, equity, 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 for the care of the patient's condition**, not just the costs borne by a single provider

Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**, not containing costs
2. **Quality improvement** is the key driver of cost containment and value improvement, where quality is **health outcomes**

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

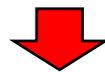


- **Better health** is the goal, not more treatment
- Better health is **inherently less expensive** than poor health

Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**, not containing costs
2. **Quality improvement** is the key driver of cost containment and value improvement, where quality is **health outcomes**
3. Care delivery should be organized around the patient's **medical condition** over the **full cycle of care**

- A medical condition is **an interrelated set of patient medical circumstances best addressed in an integrated way**
 - Defined from the **patient's** perspective
 - **Including** the most common co-occurring conditions
 - Involving **multiple** specialties and services

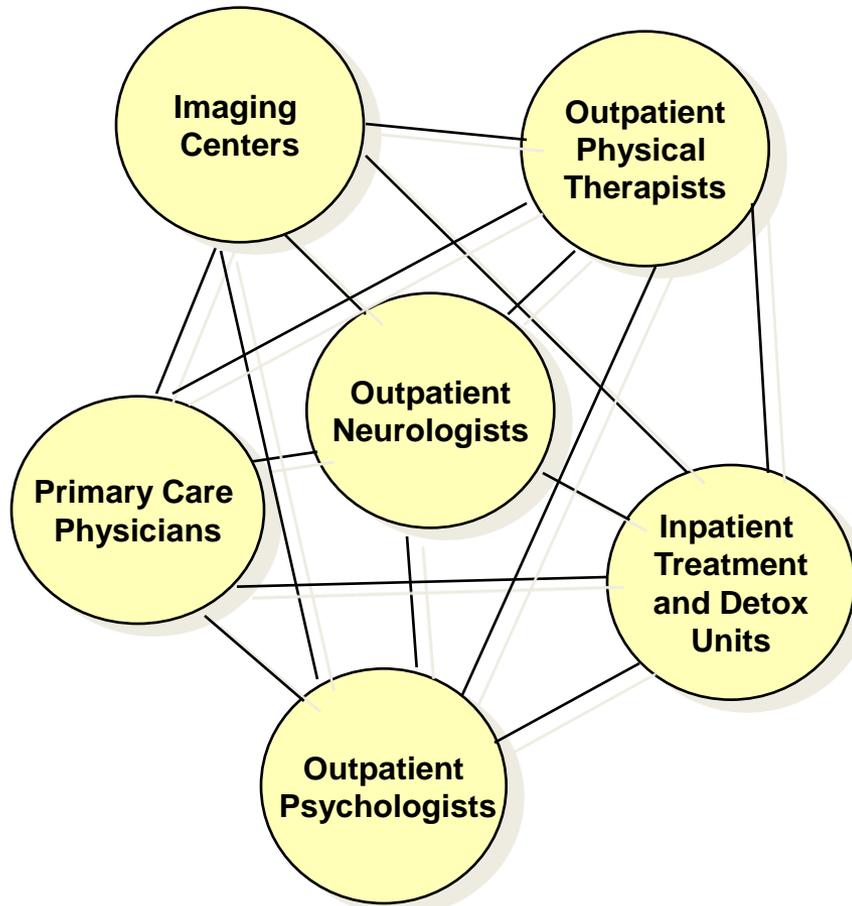


- The patient's medical condition is the **unit of value creation** in health care delivery

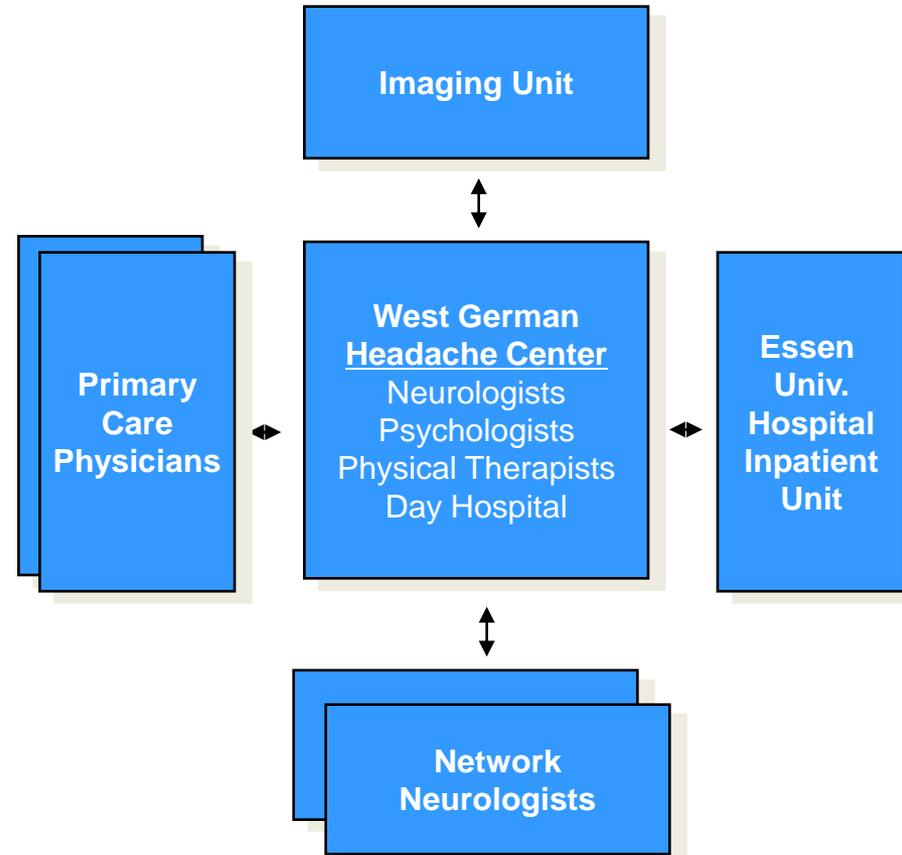
Restructuring Care Delivery

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

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

Breast Cancer Specialist
 Other Provider Entities

Integrated Diabetes Care

Joslin Diabetes Center

Core Team

Endocrinologist
Diabetes Nurse Educator

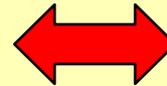
Shared Facilities

Common Exam Rooms

Dedicated Just-in-Time Lab

Eye Scan

Laser Eye Surgery Suite



Extended Team

Nephrologists
Ophthalmologists/Optometrists
Psychiatrists, Psychologists,
Social Workers
Nutritionists
Exercise Physiologists

Acute Complications

Hyperglycemia
Hypoglycemia

Long-Term Complications

Cardiovascular
Disease

Cardiologist

Neuropathy

Vascular Surgeon,
Neurologist, Podiatrist

End Stage
Renal Disease

Dialysis

What is Integrated Care?

Key Elements of Integrated Care:

- Care for the full care cycle of a **medical condition**
- Encompassing **inpatient/outpatient/rehabilitation** care
- By **dedicated teams** focused around the patient
- **Co-located** in **dedicated facilities**
- Providers are all part of the **same organizational entity**
- Utilizing a **single administrative and scheduling structure**
- With **joint accountability** for outcomes and overall costs



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

- Co-location
- Care delivered by the same organization
- A multispecialty group practice
- Freestanding focused factories
- An Institute or Center
- A Center of Excellence
- A health plan/provider system (e.g. Kaiser Permanente)
- Medical homes
- Accountable Care Organizations

Integrated Care Delivery Includes the Patient

- Value in health care is **co-produced** by clinicians and the patient
- Unless patients **comply** with care and treatment plans 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



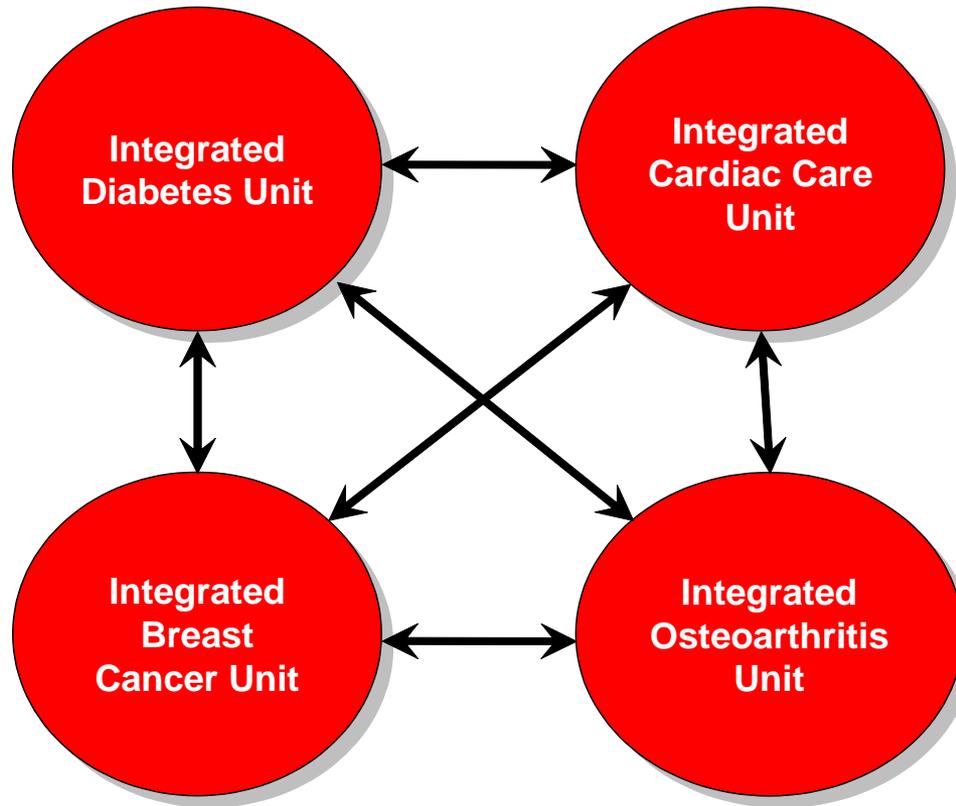
- **IPUs** dramatically improve patient engagement
 - Focus, resources, sustained patient contact and accountability
 - Education and support services
- Simply forcing consumers to pay more is a **false solution**

Integrated Primary Care

- Today's primary care structures are **fragmented** and attempt to address **overly broad** needs with limited resources
- 
- Redefine primary care as sets of **prevention, screening, diagnosis, and wellness/health maintenance services** for specific patient groups
 - Deliver primary care service bundles using **multidisciplinary teams, support staff, and facilities** to allow effective management of the patient's care cycle
 - Segment service bundles around **specific patient populations** (e.g. healthy adults, frail elderly, type II diabetics) rather than attempt to be all things to all patients
 - Create **formal partnerships** between primary care organizations and specialty IPUs
 - Deliver primary care at the **workplace, community organizations, and other settings** that offer regular patient contact and the ability to develop a group culture of wellness

Coordinating Care Across IPUs

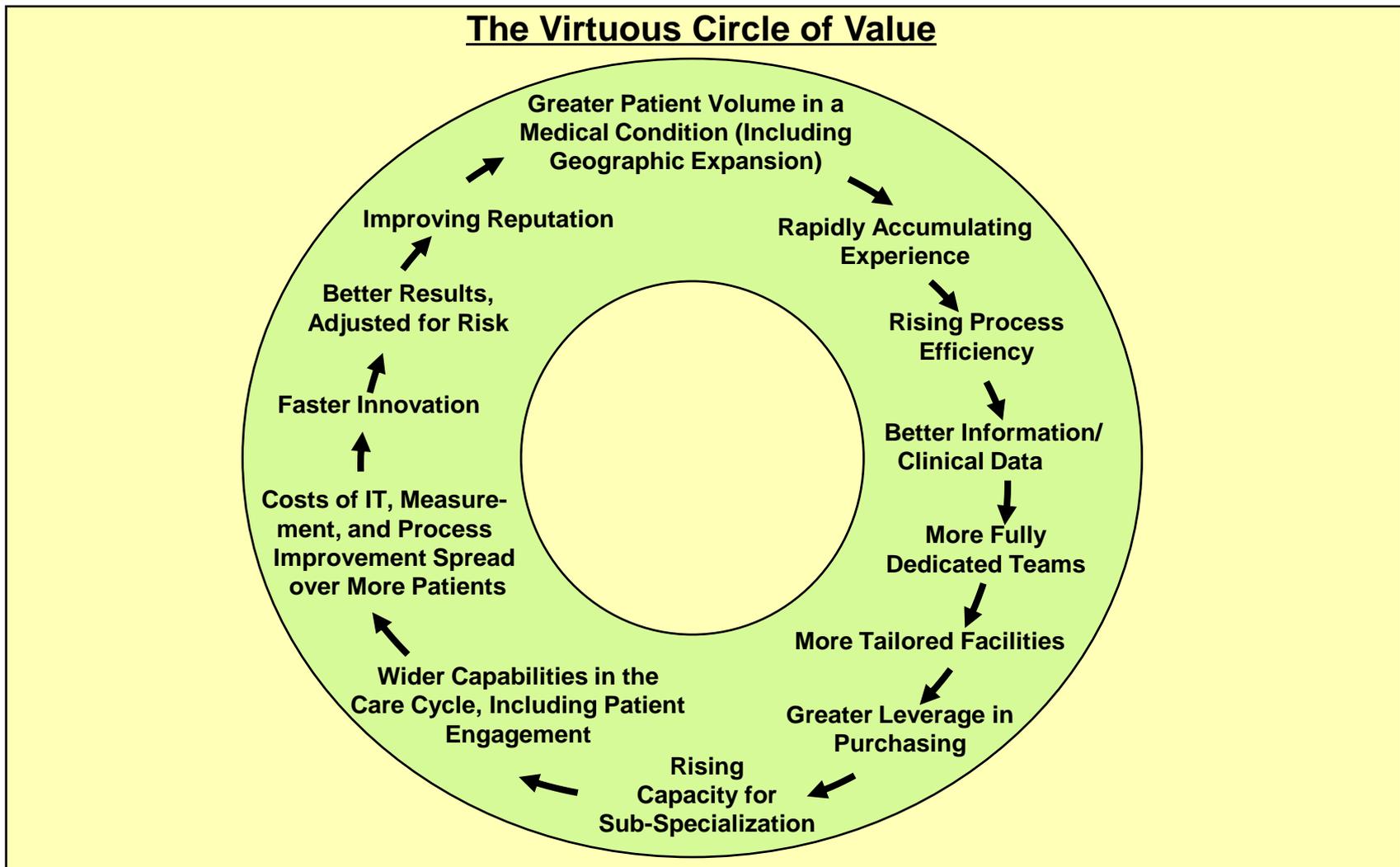
Patients with Multiple Medical Conditions



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

Principles of Value-Based Health Care Delivery

4. Provider **experience**, **scale**, and **learning** at the medical condition level drive value improvement



- Volume and experience will have a **much greater impact** on value in an IPU structure
- The virtuous circle **extends across geography** when care for a medical condition is integrated across locations

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	1
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.

Fragmentation of Hospital Services

Japan

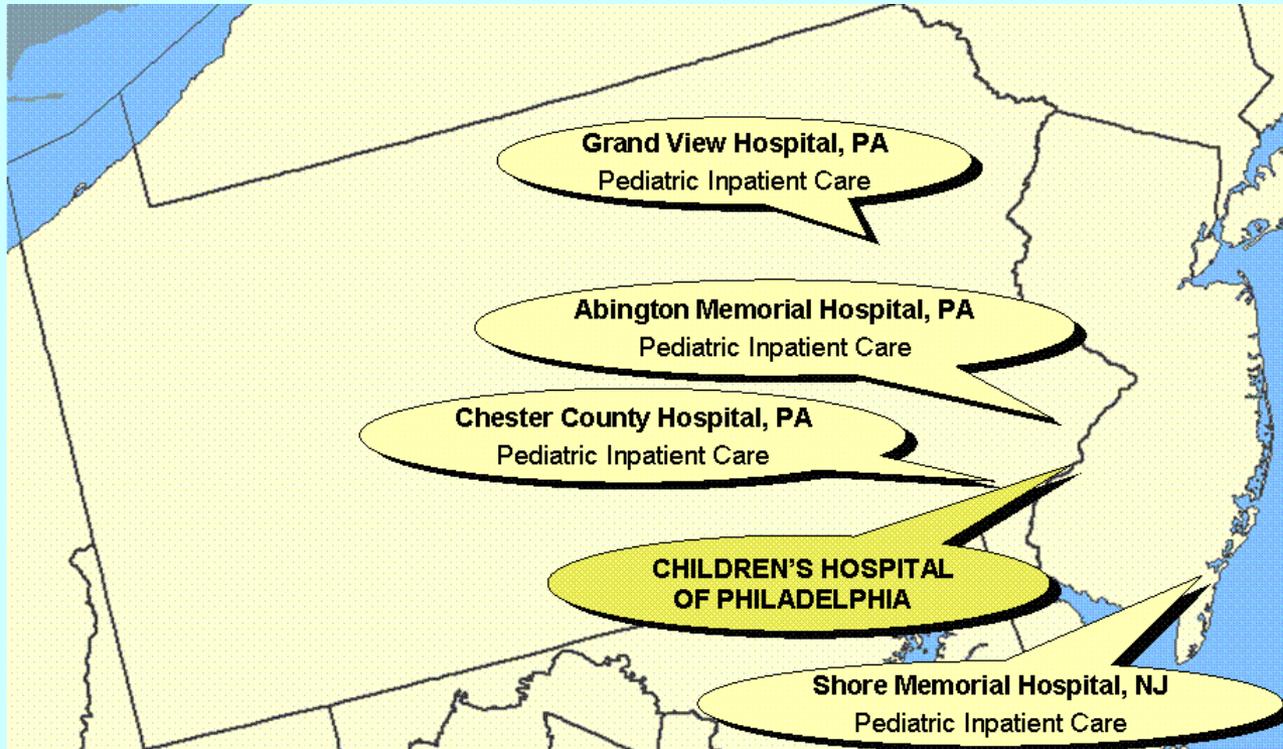
Procedure	Number of hospitals performing the procedure	Average number of procedures per provider per year	Average number of procedures per provider per week
Craniotomy	1,098	71	1.4
Operation for gastric cancer	2,336	72	1.4
Operation for lung cancer	710	46	0.9
Joint replacement	1,680	50	1.0
Pacemaker implantation	1,248	40	0.8
Laparoscopic procedure	2,004	72	1.4
Endoscopic procedure	2,482	202	3.9
Percutaneous transluminal coronary angioplasty	1,013	133	2.6

Source: Porter, Michael E. and Yuji Yamamoto, *The Japanese Health Care System: A Value-Based Competition Perspective*, Unpublished White Paper, September 1, 2007

Principles of Value-Based Health Care Delivery

5. **Integrate care across facilities** and **geography**, rather than duplicating services in stand-alone units

Children's Hospital of Philadelphia (CHOP) Affiliations

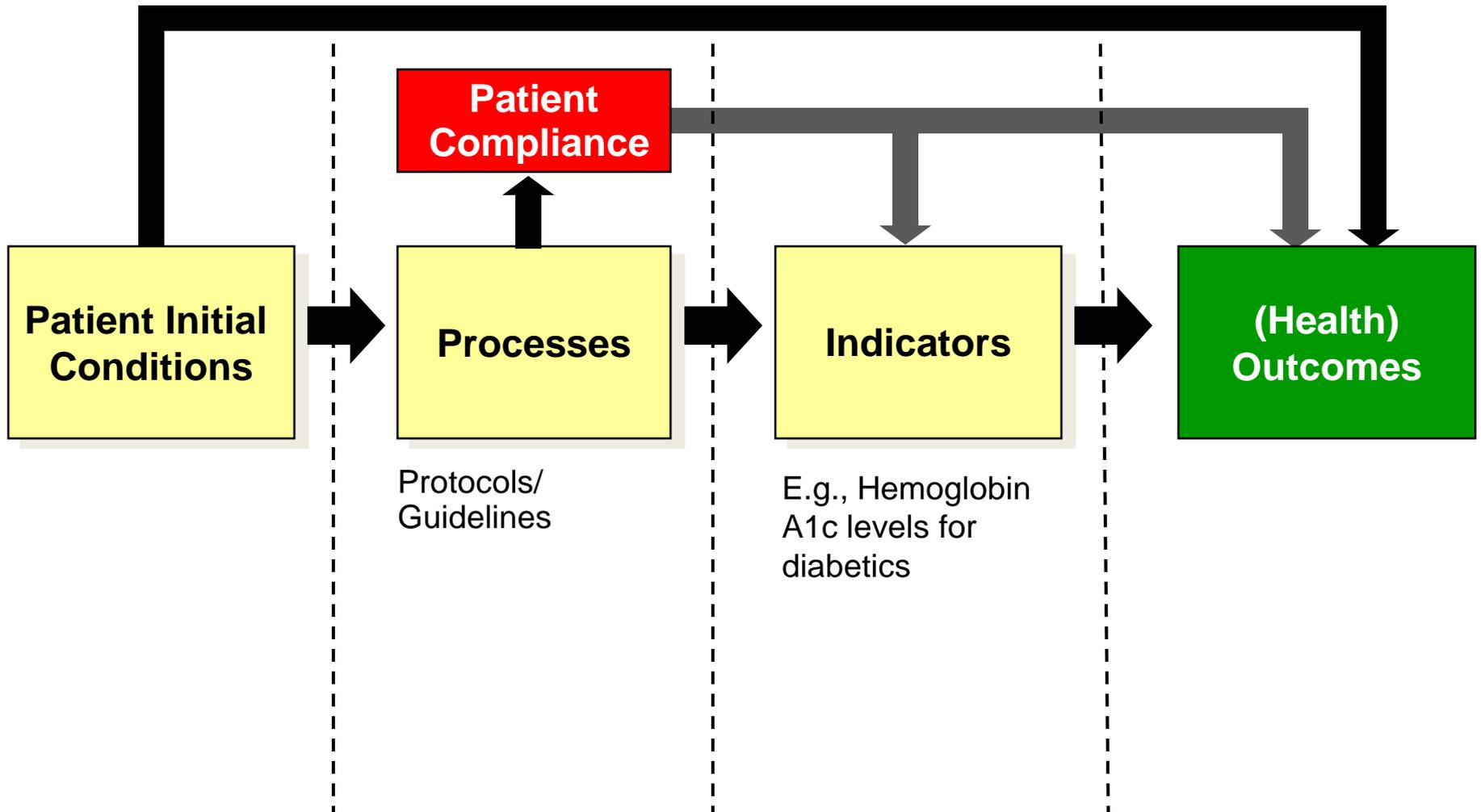


- Deliver services in the **appropriate** facility, not every facility
- Excellent providers can manage care delivery in **multiple geographic areas**

Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**, not containing costs
2. **Quality improvement** is the key driver of cost containment and value improvement, where quality is **health outcomes**
3. Care delivery should be organized around the patient's **medical condition** over the **full cycle of care**
4. Provider **experience**, **scale**, and **learning** at the medical condition level drive value improvement
5. **Integrate care across facilities** and **geography**, rather than duplicating services in stand-alone units
6. Measure and report **outcomes** and **costs** for every provider, every medical condition, and every patient

Measuring Value in Health Care



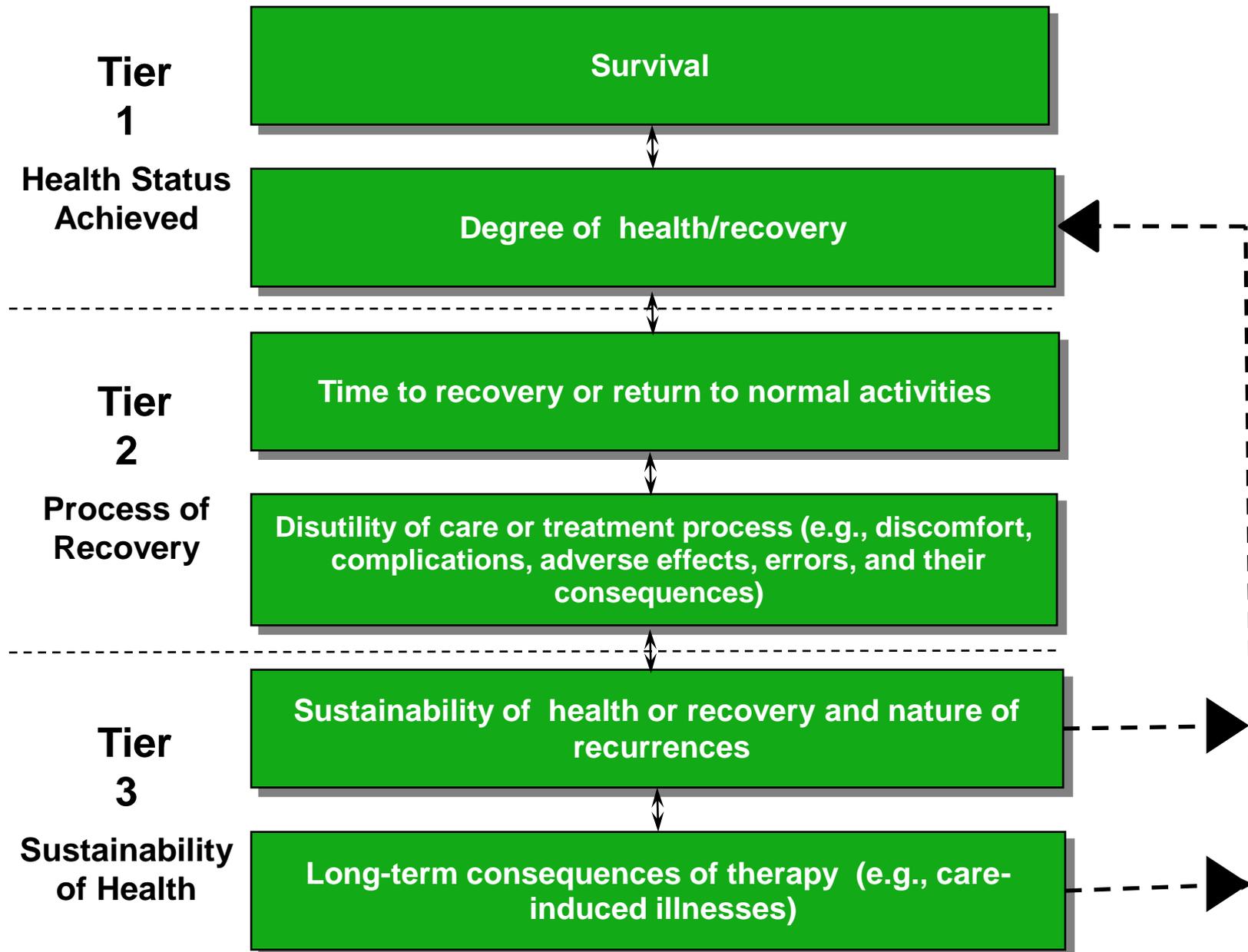
Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**, not containing costs
2. **Quality improvement** is the key driver of cost containment and value improvement, where quality is **health outcomes**
3. Care delivery should be organized around the patient's **medical condition** over the **full cycle of care**
4. Provider **experience**, **scale**, and **learning** at the medical condition level drive value improvement
5. **Integrate care across facilities** and **geography**, rather than duplicating services in stand-alone units
7. Measure and report **outcomes** and **costs** for every provider, every medical condition, and every patient



- Outcomes should be measured for **each medical condition** over the **cycle of care**
 - Not for interventions or short episodes
 - Not for practices, departments, clinics, or entire hospitals
 - Not separately for types of service (e.g. inpatient, outpatient, tests, rehabilitation)
- Results must be measured at **the level at which value is created** not traditional organizational units

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 outcome**

Time to recovery or return to normal activities

- **Time to remission**
- **Time to achieve functional status**

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

- **Nosocomial infection**
- **Nausea**
- **Vomiting**
- **Failed therapies**
- **Febrile neutropenia**
- **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**

Swedish Obesity Registry

Indicators

Surgery

- Operation type and concurrent operations (gall bladder removal, appendix removal, etc)
- Surgery data (surgery/anesthesia times, blood loss, etc)
- Perioperative complications

6-week follow-up

- Length of stay
- Post operative but <30d surgical complications (bleeding, leakage, infection, technical complications, etc)
- Post operative but <30d general complications (blood clot, urinary infection, etc)
- Other operations required (gall bladder, plastic surgery, etc)
- Diabetes compliance (HbA1c)
- Repetition of anthropometric measurements (height, weight, waist, BMI, and change from initial)

Source: SOReg: Swedish National Obesity Registry

1,2 & 5-year follow-up

- Anthropometrics and change from initial
- Diabetes, triglycerides, cholesterol indicators
- Comorbidities, and ongoing treatments
- Delayed complications of operation (hernia, ulcer, treatment related malnutrition or anemia, etc)
- Other surgeries since registration
- SF-36/OP-9 (validated quality of life measures)

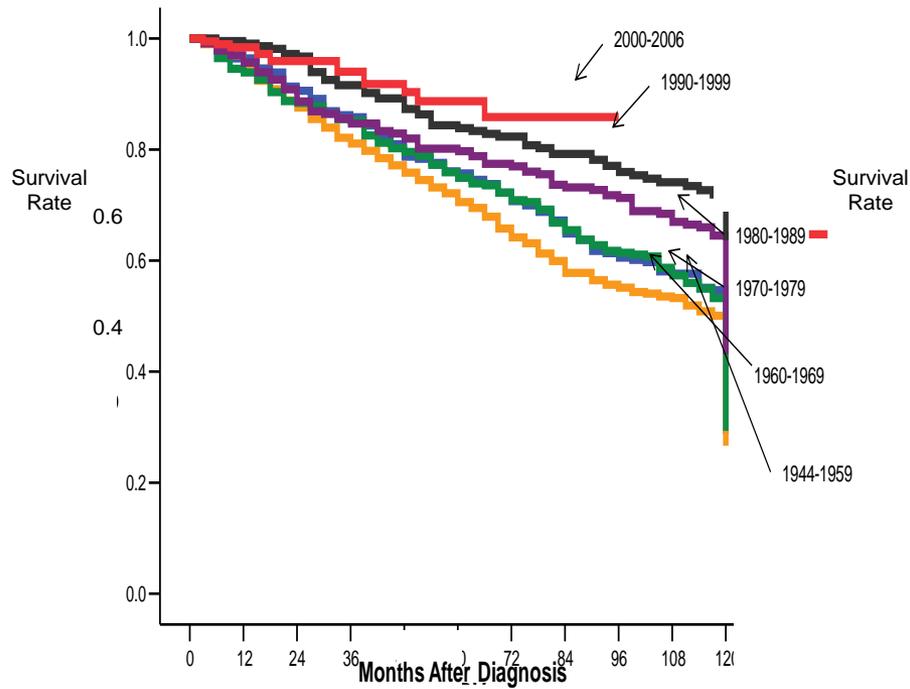
Initial Conditions

- Demographics (age, sex, height, weight, BMI, waist circumference etc)
- Baseline labs – HbA1c (a measure of long-term blood glucose control), Triglycerides, Low Density Lipoprotein (bad cholesterol), High Density Lipoprotein (good cholesterol) Comorbidities (sleep apnea, diabetes, depression, etc)
- SF-36/OP-9 (validated quality of life measures)
- Background (Previous surgeries, anesthesia risk class)

Source: SOReg: Swedish National Obesity Registry

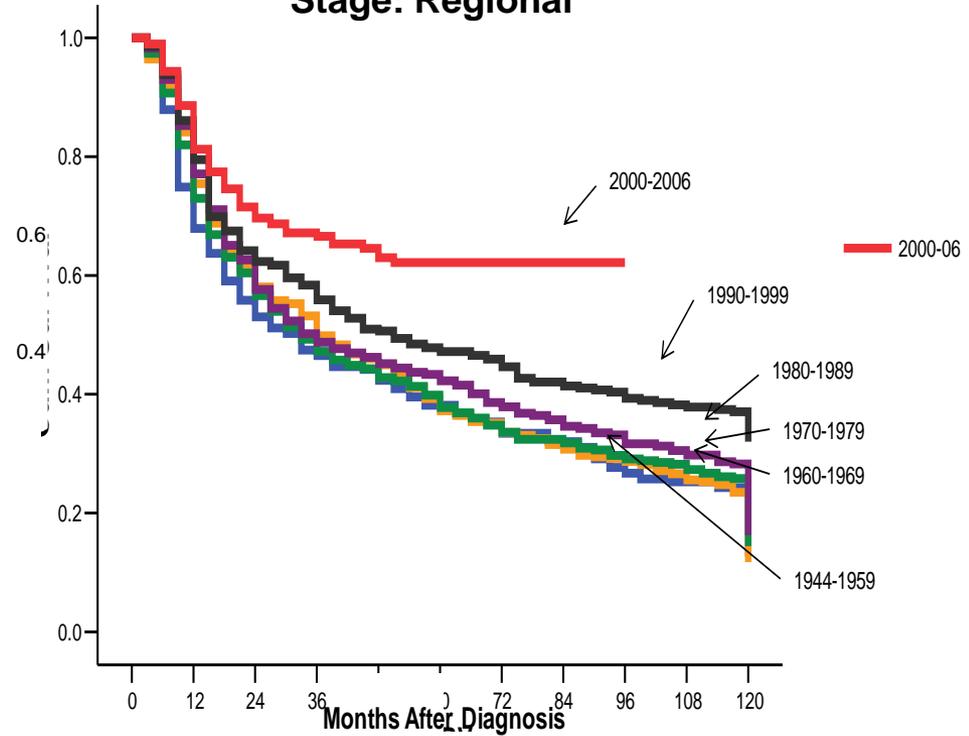
MD Anderson Oral Cavity Cancer Survival by Registration Year

Stage: Local



staer = REGIONAL

Stage: Regional



Source: MD Anderson Cancer Center

Principles of Value-Based Health Care Delivery

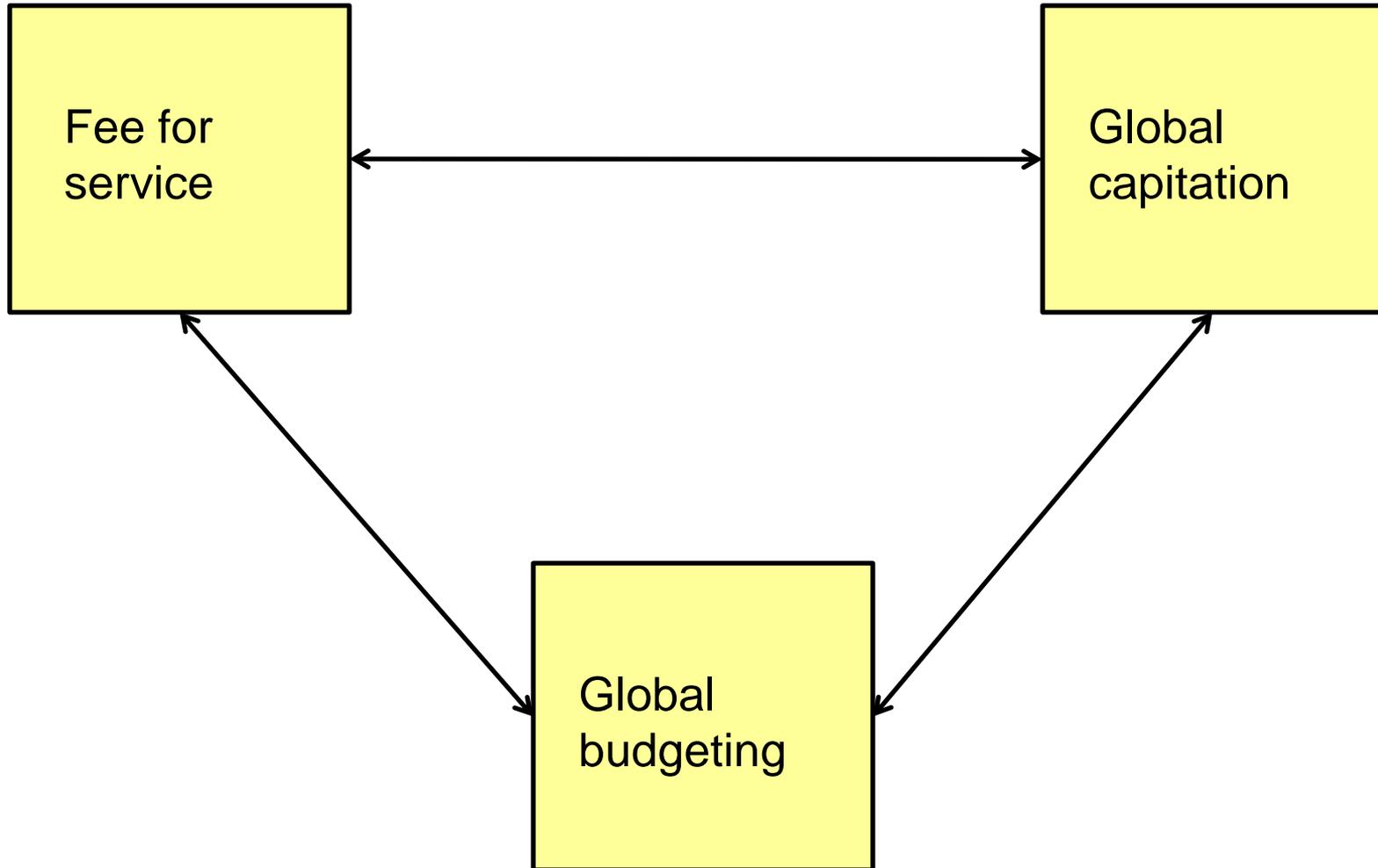
1. Set the goal as **value for patients**, not containing costs
2. **Quality improvement** is the key driver of cost containment and value improvement, where quality is **health outcomes**
3. Care delivery should be organized around the patient's **medical condition** over the **full cycle of care**
4. Provider **experience**, **scale**, and **learning** at the medical condition level drive value improvement
5. **Integrate care across facilities** and **geography**, rather than duplicating services in stand-alone units
6. Measure and report **outcomes** and **costs** for every provider, every medical condition, and every patient
7. **Align reimbursement** with value and reward innovation

- **Bundled reimbursement** for **cycles of care** for medical conditions, not payment for discrete services or short episodes
- Time-base bundled reimbursement for **managing chronic conditions**
- Reimbursement for defined **prevention, screening, wellness/health maintenance** service bundles

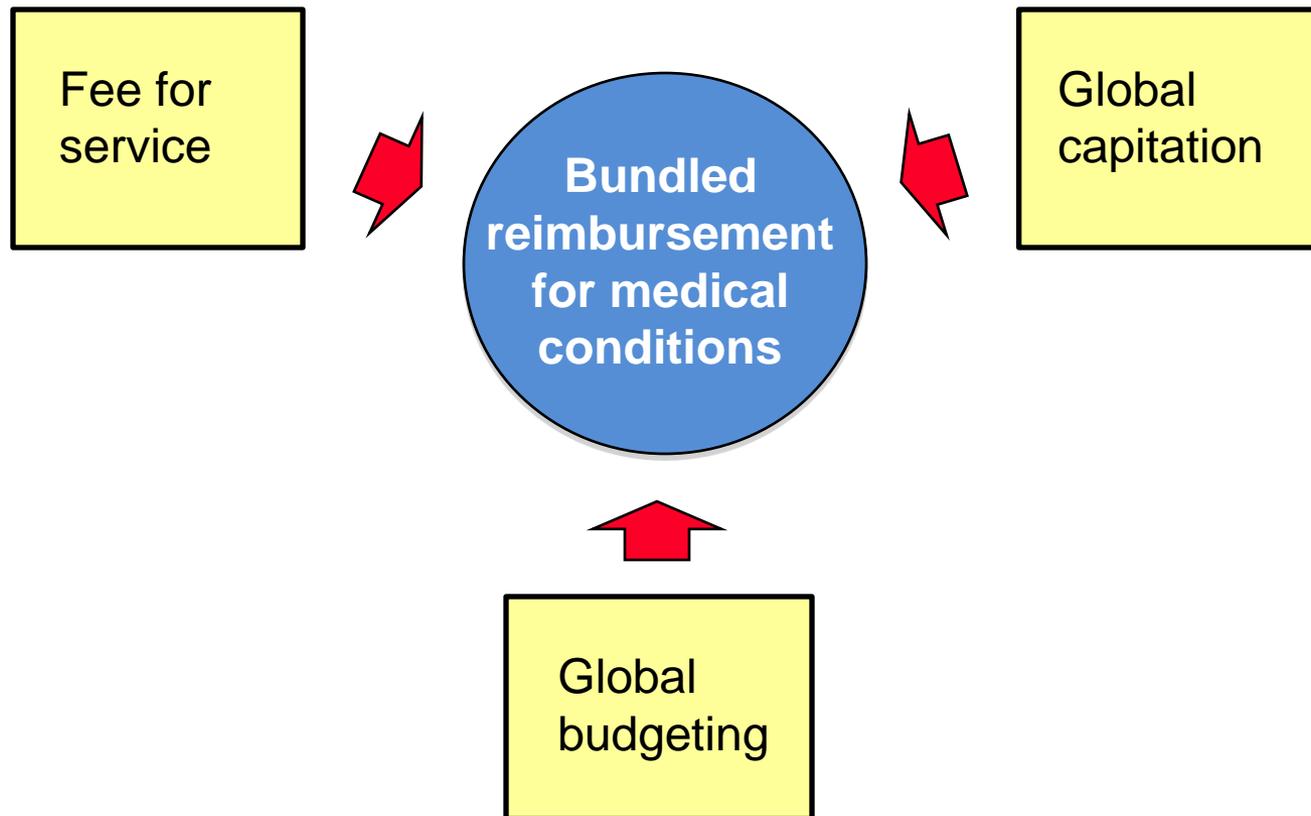


- **Providers** and **health plans** should be proactive in driving new reimbursement models, not wait for government

Traditional Reimbursement Systems in Health Care Delivery



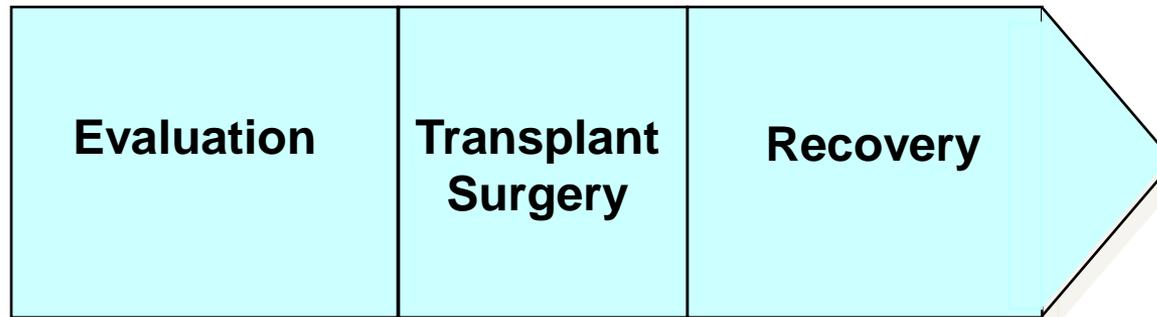
Value-Based Reimbursement



- Bundled reimbursement for care cycles motivates **value improvement, care cycle optimization**, and **spending to save**
- **Outcome measurement and reporting** at the medical condition level is needed for any reimbursement system to ultimately succeed

Reimbursement for Care Cycles

Organ Transplantation



- Addressing organ rejection
- Fine-tuning the drug regimen
- Adjustment and monitoring

- Leading transplantation centers offer a **single bundled price**



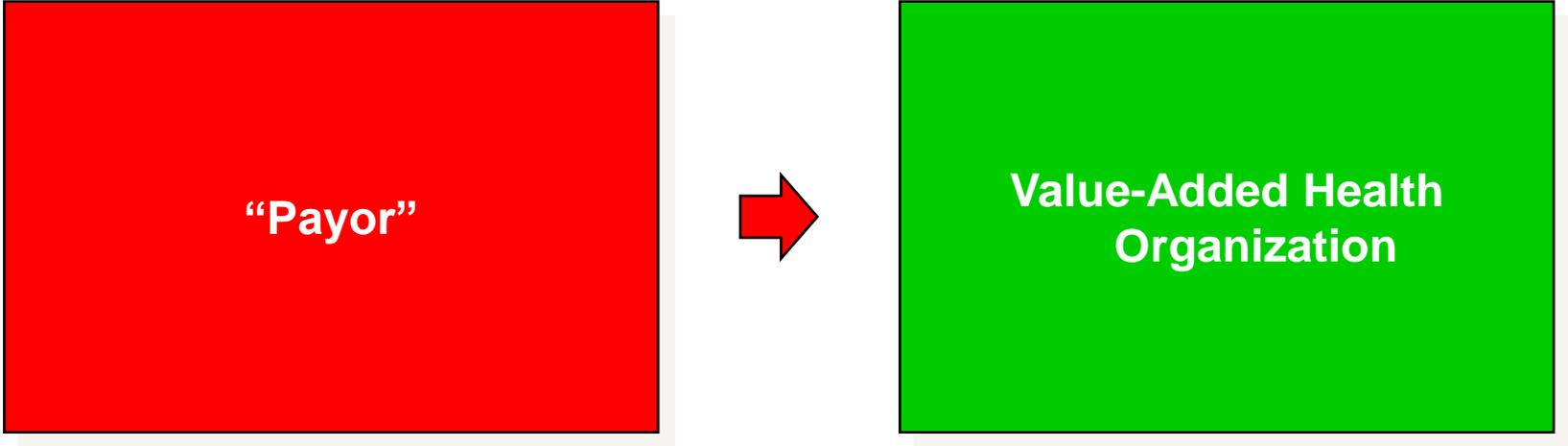
- UCLA Medical Center was a pioneer
- In dividing transplantation revenue, some UCLA physicians **bear risk** and capture some of the value improvement, while others are compensated with conventional charges

Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**, not containing costs
2. **Quality improvement** is the key driver of cost containment and value improvement, where quality is **health outcomes**
3. Care delivery should be organized around the patient's **medical condition** over the **full cycle of care**
4. Provider **experience**, **scale**, and **learning** at the medical condition level drive value improvement
5. **Integrate care across facilities** and **geography**, rather than duplicating services in stand-alone units
6. Measure and report **outcomes** and **costs** for every provider, every medical condition, and every patient
7. **Align reimbursement** with value and reward innovation
8. Utilize information technology to enable **restructuring of care delivery** and **measuring results**, rather than treating it as a solution itself

- Common data definitions
- Interoperability standards
- Architecture for combining all types of data (e.g. notes, images) for each patient over time
- Encompassing the full care cycle, including referring entities
- Templates for medical conditions to enhance the user interface
- Accessible and supporting communication among all involved parties

Value-Based Healthcare Delivery: Implications for Health Plans



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
 - Measure and hold employee benefit staff accountable for the **health value achieved** by the company
 - Find ways to **expand insurance coverage** and advocate **reform of the insurance system**
- 
- Providers should **forge direct relationships** with employers

Value-Based Health Care Delivery

The Strategic Agenda

- 1. Integrated Practice Units**
- 2. Outcomes and Cost Measurement**
- 3. New Reimbursement Models**
- 4. Provider System Integration**
- 5. Information Technology Platform**
- 6. Growth Across Geography**

Value-Based Health Care Delivery

The Strategic Agenda

1. Integrated Practice Units

- **Partnerships** with other care organizations involved in the care cycle including the primary care cycle

2. Outcomes and Cost Measurement

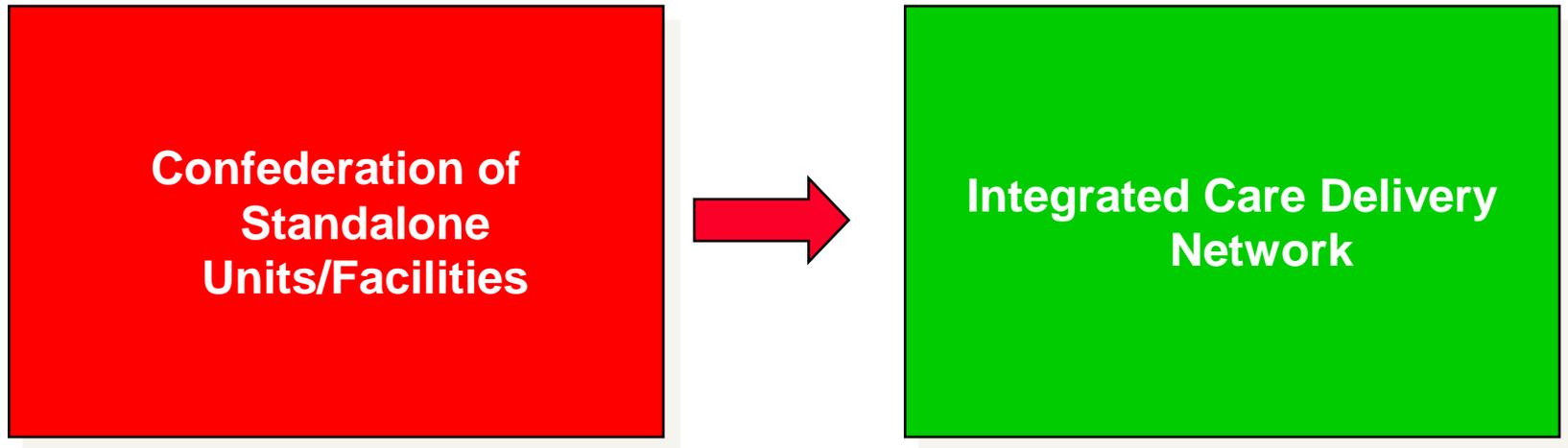
3. New Reimbursement Models

4. Provider System Integration

5. Information Technology Platform

6. Growth Across Geography

Provider System Integration



- **Rationalize service lines/ IPU**s across facilities to improve volume, avoid duplication, and enable excellence
- Clinically integrate care **across facilities** within an IPU structure
 - Common organizational unit across facilities
- Offer specific services at the **appropriate facility**
 - e.g. acuity level, cost level, benefits of convenience
- Formally link **primary care** units to specialty IPUs

Value-Based Health Care Delivery

The Strategic Agenda

1. Integrated Practice Units

- **Partnerships** with other care organizations involved in the care cycle including primary care

2. Outcomes and Cost Measurement

3. New Reimbursement Models

4. Provider System Integration

- **Rationalize service lines/ IPU**s across facilities to improve volume, avoid duplication, and enable excellence
- Clinically integrate care **across facilities** within an IPU structure
- Common organizational unit across facilities
- Offer specific services at the **appropriate facility**
 - **e.g. acuity level, cost level, benefits of convenience**
- Formally link **primary care** units to specialty IPUs

5. Information Technology Platform

6. Growth Across Geography

Growth Across Geography

The Cleveland Clinic

- Affiliate Programs in other hospitals in cardiac surgery and urology
- Internet-based second opinion service
- Network of community hospitals in the region
- Hospital/outpatient clusters in other regions
- Hospital management in other countries

Value-Based Health Care Delivery: Implications for Government

Shift insurance market competition and enable universal coverage:

- **Maintain competition** among private and public plans
- Shift insurance competition to **value-based competition for subscribers**
- Build upon the current **employer based system**
- Create a viable insurance option for **individuals and small groups**
- Create large statewide and multistate **insurance pools** coupled with a **reinsurance system** for high cost individuals
- Establish **income-based subsidies** on a sliding scale to for lower income individuals
- Once viable insurance options are established, **mandate the purchase of health insurance** for all Americans

Value-Based Health Care Delivery: Implications for Government

Restructure Delivery

- Establish universal and mandatory measurement and reporting of provider **health outcomes**
 - **Experience** reporting as an interim step
- Shift reimbursement systems to **bundled payment for cycles of care** instead of payments for discrete treatments or services
- Encourage **restructuring of health care delivery** around the integrated care for medical conditions
 - Eliminate obstacles such as Stark Laws, Corporate Practice of Medicine
 - Minimum volume standards as an interim step
- Create new integrated **prevention, wellness, screening** and **health maintenance** service bundles for defined patient groups
- Mandate **EMR adoption** that enables integrated care and supports outcome measurement
 - Software as a service model for smaller providers
 - National standards for data, communication, and aggregation
- Encourage **responsibility of individuals** for their health and health care
- **Open up value-based competition** for patients within and across state boundaries

How Will Redefining Health Care Begin?

- It is **already happening** in the U.S. and other countries
- Steps by pioneering institutions will be **mutually reinforcing**
- Once competition begins working, value improvement will **no longer be discretionary**
- Those organizations that **move early** will gain major benefits



- **Providers** can and should take the lead