

Value-Based Health Care Delivery

Professor Michael E. Porter
Harvard Business School

*HSM Brazil, Health Care Session
December 1, 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>.

Brazil's Health Care Challenge

Past Goals

**Creating a universal
and equitable health
care system**

**Controlling the cost of
health care**



Future Imperative

**Creating a high-value
health care system**

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

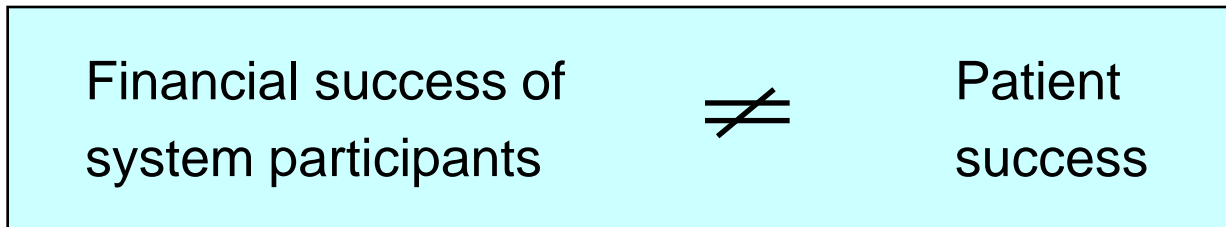
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

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, care pathways, 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

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 of the care for the patient's condition**, not just the cost borne by a single provider or for a portion of 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**

- 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

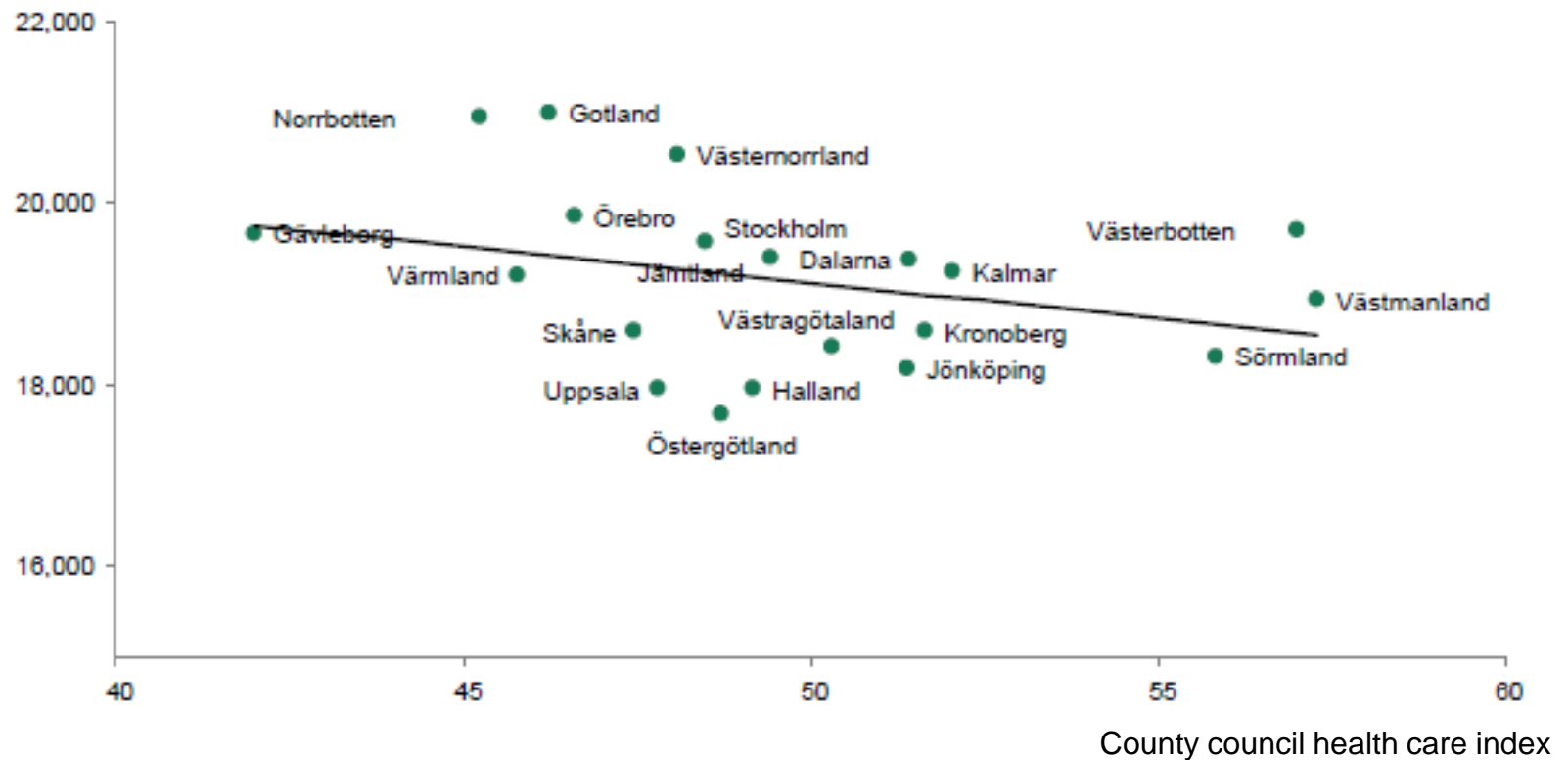


- **Better health** is the goal, not more treatment
- Better health is **inherently less expensive** than poor health

Cost versus Quality Sweden

Health Care Spending by County, 2008

Health care
cost/capita (SEK)



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: Öppna jämförelser, Socialstyrelsen 2008; Sjukvårdsdata i fokus 2008; BCG analysis

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 and complications
 - Involving **multiple** specialties and services

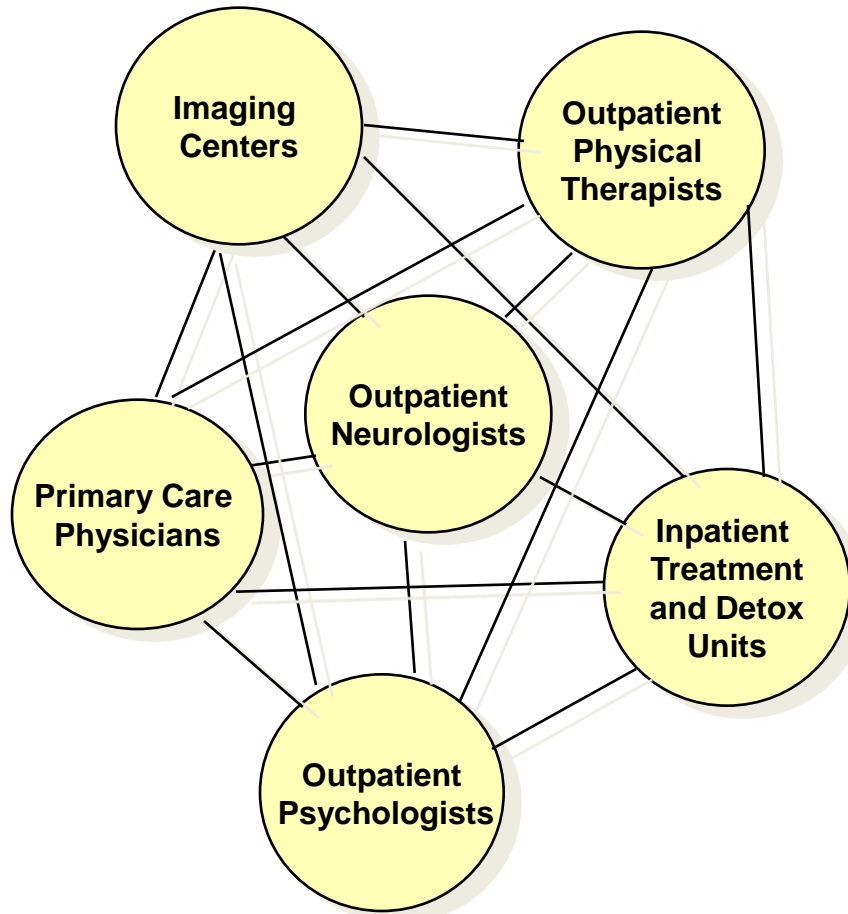


- The patient's medical condition is the **unit of value creation** in health care delivery

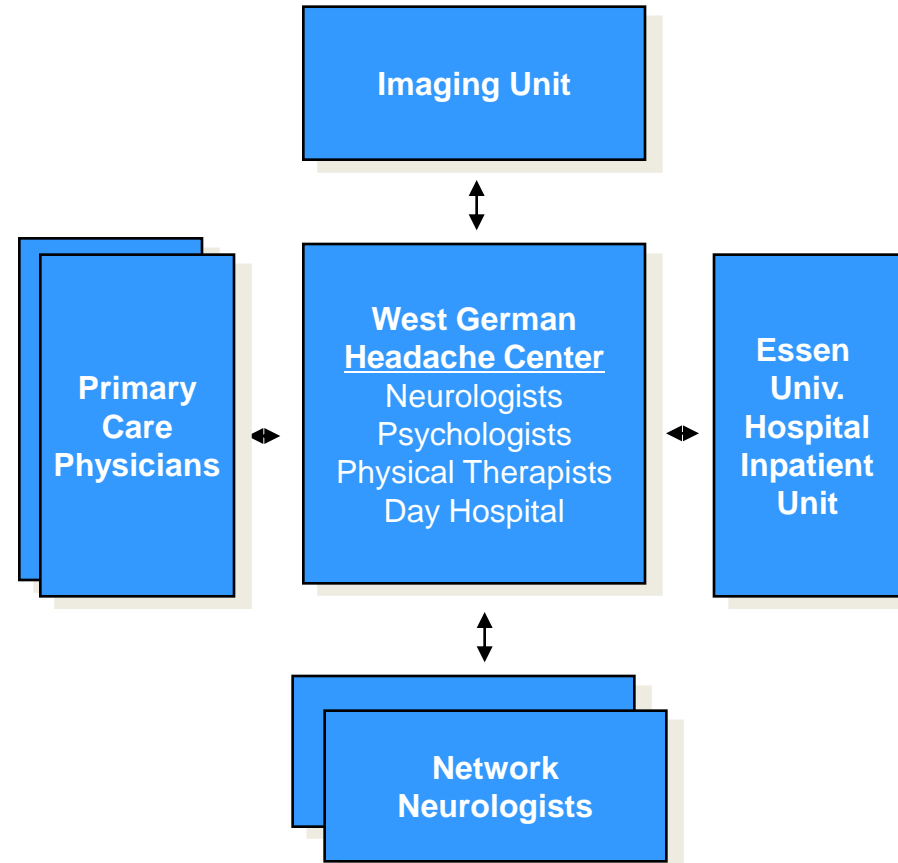
Restructuring Care Delivery

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 	<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 		<ul style="list-style-type: none"> • 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.) 	<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"> • Biopsy • BRACA 1, 2... • CT • Bone Scans 	<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) 	<ul style="list-style-type: none"> • Surgery (breast preservation or mastectomy, oncoplastic alternative) 	<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) 	<ul style="list-style-type: none"> • Periodic mammography • Other imaging 	<ul style="list-style-type: none"> • Follow-up clinical exams • Treatment for any continued or later onset side effects or complications
		<ul style="list-style-type: none"> • Plastic or onco-plastic surgery evaluation • Neo-adjuvant chemotherapy 	<ul style="list-style-type: none"> • Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy) 	<ul style="list-style-type: none"> • Physical therapy 		

Breast Cancer Specialist
 Other Provider Entities

Integrated Chronic Care

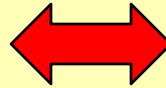
Joslin Diabetes Center

Core Team

Endocrinologist
Diabetes Nurse Educator

Extended Team

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



Shared Facilities

Common Exam Rooms

Dedicated Just-in-Time Lab

Eye Scan

Laser Eye Surgery Suite

Acute Complications

Hyperglycemia
Hypoglycemia

Long-Term Complications

Cardiovascular
Disease

Cardiologist

Neuropathy

Vascular Surgeon,
Neurologist, Podiatrist

End Stage
Renal Disease

Dialysis
Transplantation

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

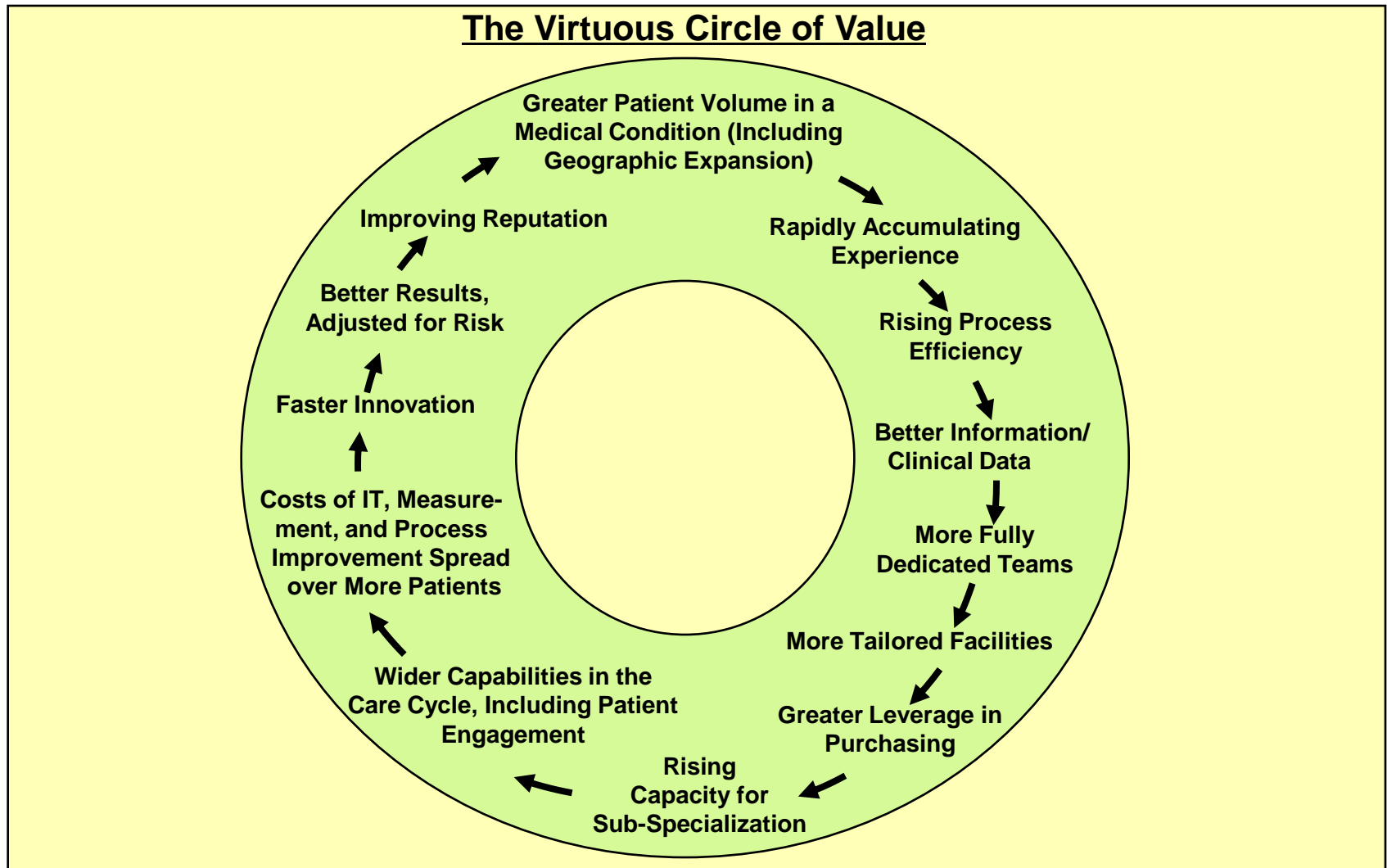
- Today's primary care is **fragmented** and attempts to address **overly broad** needs with limited resources



- Redefine primary care as prevention, screening, diagnosis, wellness and health maintenance **service bundles**
- Design primary care services around **specific patient populations** (e.g. healthy adults, frail elderly, type II diabetics) rather than attempt to be all things to all patients
- Provide primary care service bundles using **multidisciplinary teams, support staff, and dedicated facilities**
- 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
- Create **formal partnerships** between primary care organizations and specialty IPUs

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 an **even greater impact** on value in an IPU structure
- The virtuous circle **extends across geography in integrated care organizations**

Fragmentation of Hospital Services

Sweden

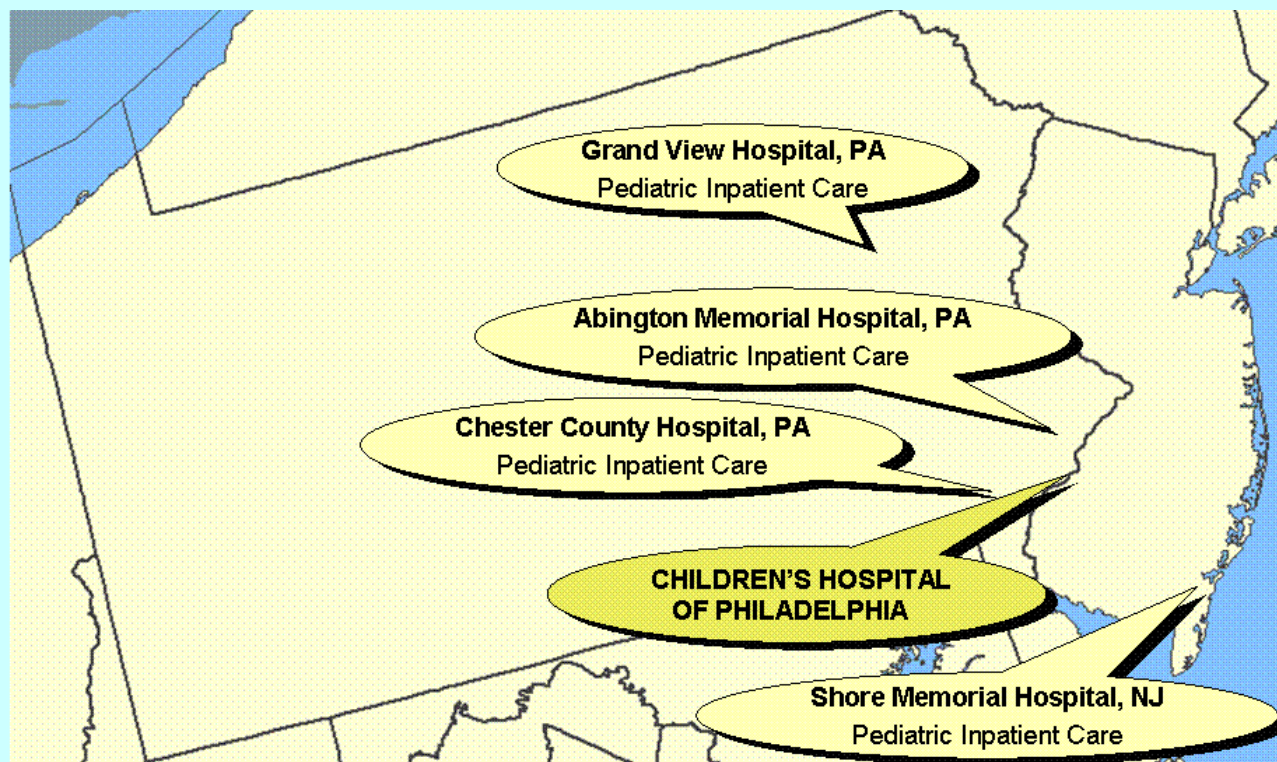
DRG	Number of admitting providers	Average percent of total national admissions	Average admissions/ provider/ year	Average admissions/ provider/ week
Knee Procedure	68	1.5%	55	1
Diabetes age > 35	80	1.3%	96	2
Kidney failure	80	1.3%	97	1
Multiple sclerosis and cerebellar ataxia	78	1.3%	28	1
Inflammatory 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.

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

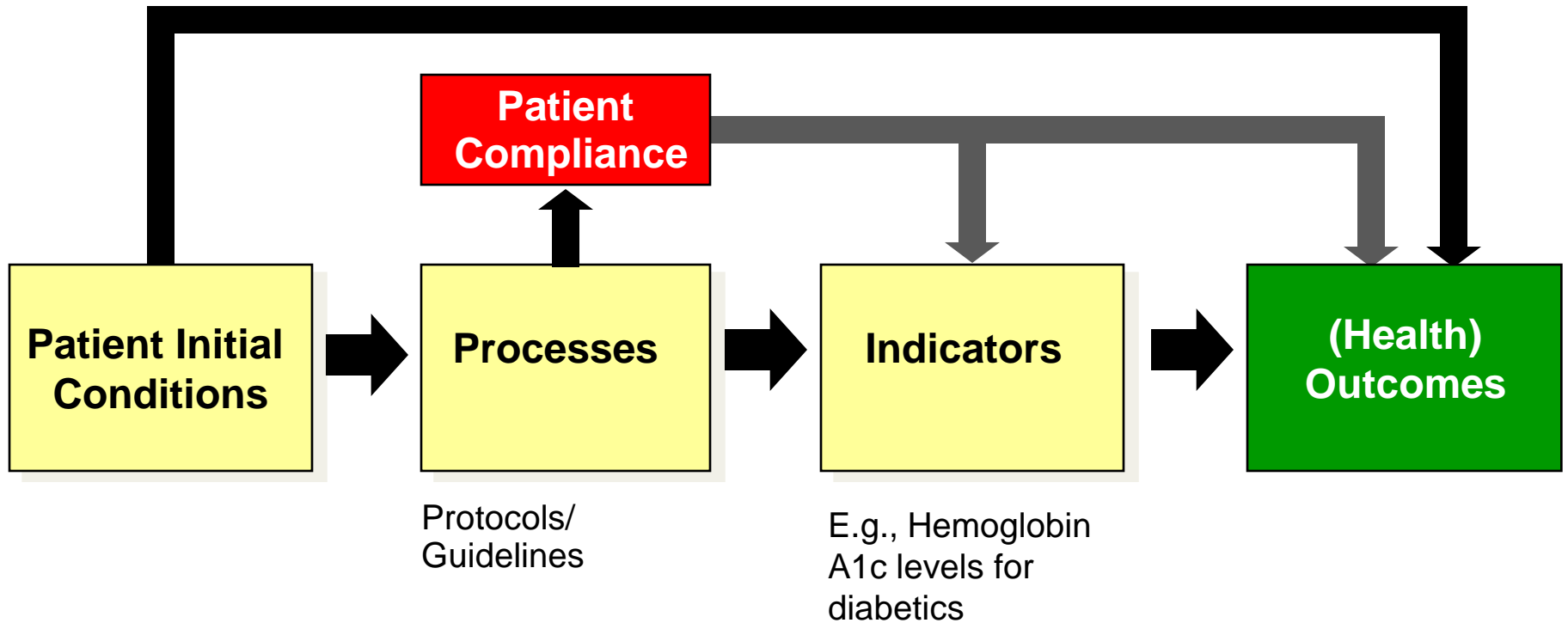


- Deliver services in the **appropriate** facility, not every facility
- Excellent providers can manage care delivery across **multiple geographic areas**

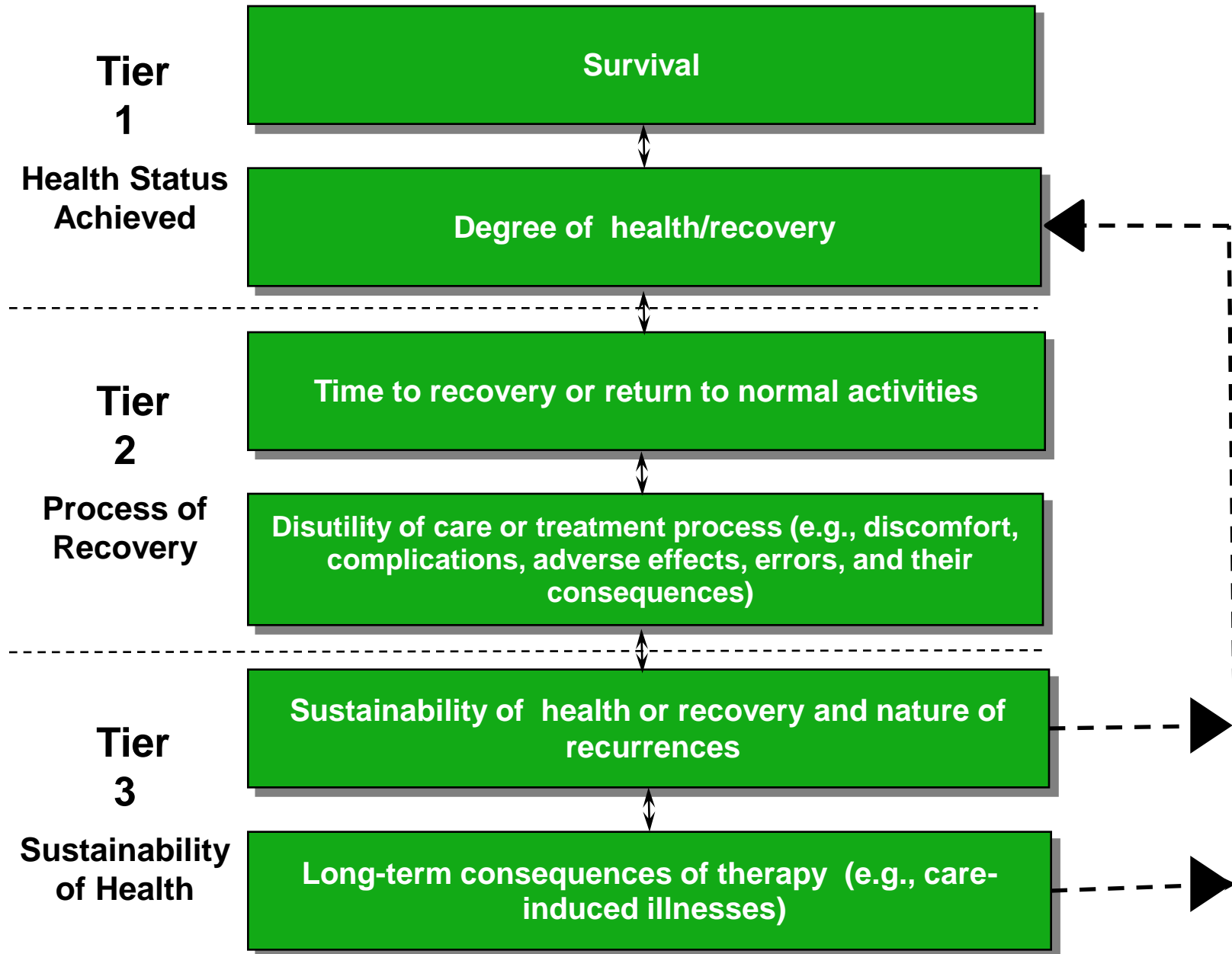
Principles of Value-Based Health Care Delivery

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**, by medical condition, for every provider and every patient
 - **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 Value in Health Care



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
- Depression
- Breast conservation

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
- Febrile neutropenia
- Limitation of motion
- Suspension of therapy
- Failed therapies
- Depression

Sustainability of recovery or health over time

- Cancer recurrence
- Sustainability of functional status

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

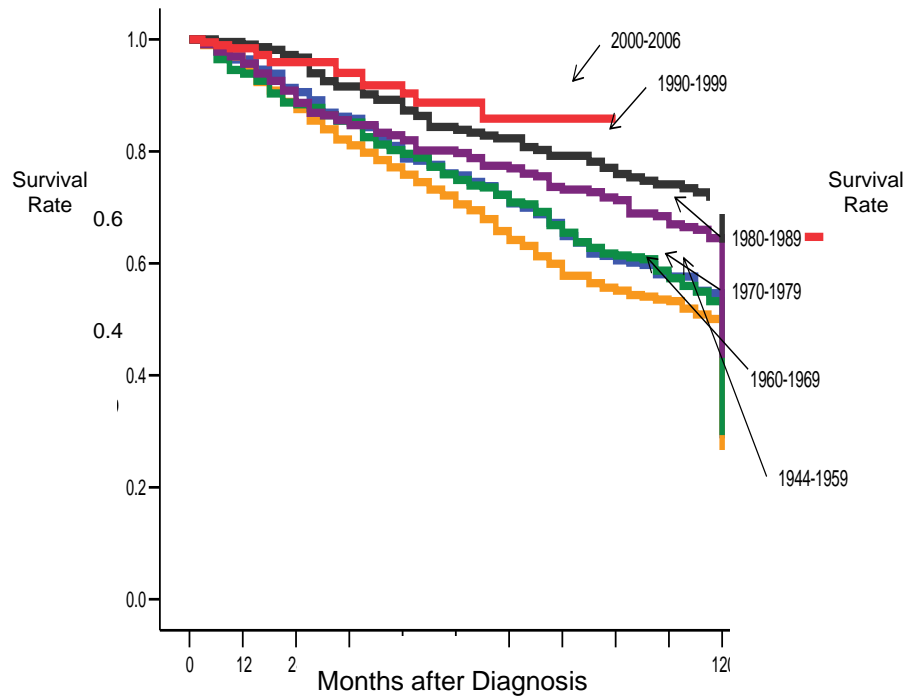
- Incidence of secondary cancers
- Brachial plexopathy
- Fertility/pregnancy complications
- Premature osteoporosis

Initial Conditions/Risk Factors

- Stage of disease
- 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

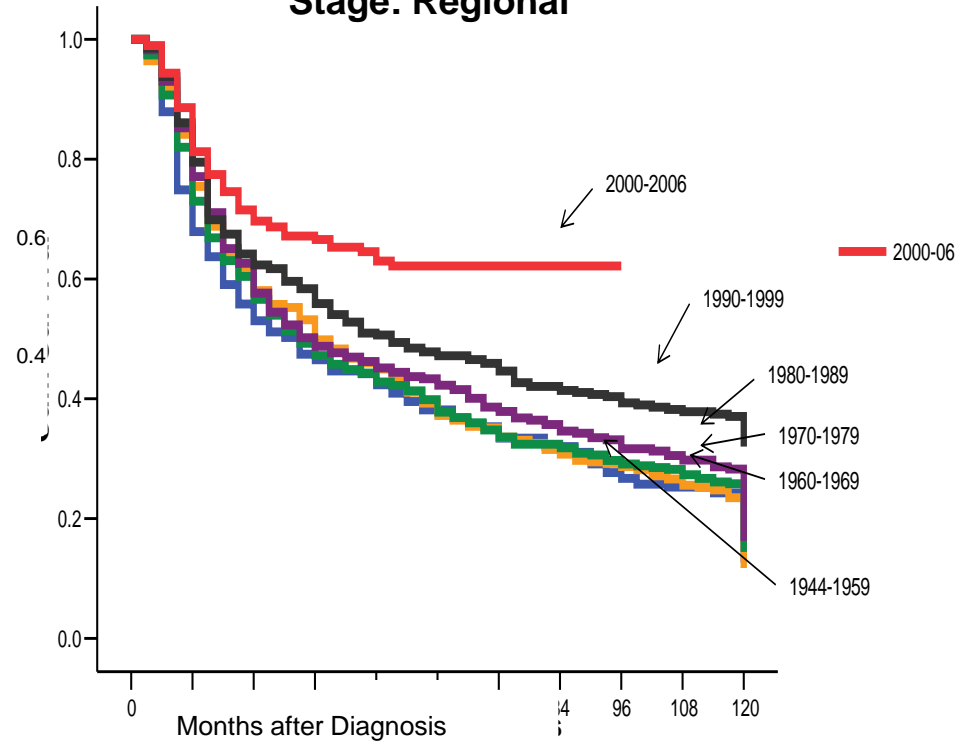
MD Anderson Oral Cavity Cancer Survival by Registration Year

Stage: Local



staer = REGIONAL

Stage: Regional



Source: MD Anderson Cancer Center

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

Swedish National Quality Registers*, continued

Diseases of the Nervous System

- Swedish Multiple Sclerosis Registry (SMS)
- Quality Registry for Children with Cerebral Palsy (CPUP)
- Quality Registry in Rehabilitation Medicine (WebRehab Sweden)
- Swedish Dementia Registry (SveDem)

Genitourinary Disorders

- National Quality Registry for Gynecological Surgery (GYNOP)
- Swedish Renal Registry (SRR)

Cancer

- National Breast Cancer Registry
- National Quality Registry for Esophageal and Stomach Cancer (NREV)
- National Prostate Cancer Registry
- Swedish Rectal Cancer Registry
- Swedish Gyn-Oncology Registry
- Swedish Colon Cancer Registry

Eye Diseases

- Swedish Corneal Transplant Register
- Swedish National Cataract Register
- Macula Register

Other Areas

- National Quality Registry for Specialized Treatment for Eating Disorders (RIKSÄT)
- Swedish Intensive Care Registry (SIR)
- Swedish Psoriasis Registry (PsoReg)
- InfCare HIV
- Swedish Therapeutic Apheresis Registry
- Swedish Quality Register in Caries and Periodontitis
- Swedish National Registry of Palliative Care
- National Registry on Nutrition, Fall Prevention, and Pressure Sores (Senior Alert)
- Quality Registry for Emergent Care

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

Swedish National Quality Registers, continued

Other Registries**

- National Quality Registry for Bladder Cancer
- National Gynecological Cell Testing Register (preventive examinations for uterine cancer)
- National Register of Treatment Follow-up for Severe ADHD (BUSÅ)
- National Quality Register for Bipolar Affective Disorder (Bipolär)
- Schizophrenia
- Swedish Anesthesiology Registry
- Swedish Dental Implant Register
- Swedish Quality Register for General Thoracic Surgery
- National Register for In-Hospital Cardiac Arrest
- National Quality Register for IVF
- Enhanced Recovery After Surgery (ERAS)
- Drug-Assisted Rehabilitation of Opiate Dependence (LAROS)
- Metabolic Effects of Antipsychotic Drug Treatment
- National Primary Care Database
- National Quality Registry for Primary Care

** Register applicants that did not receive funding from the Executive Committee for National Quality Registries in 2007

Principles of Value-Based Health Care Delivery

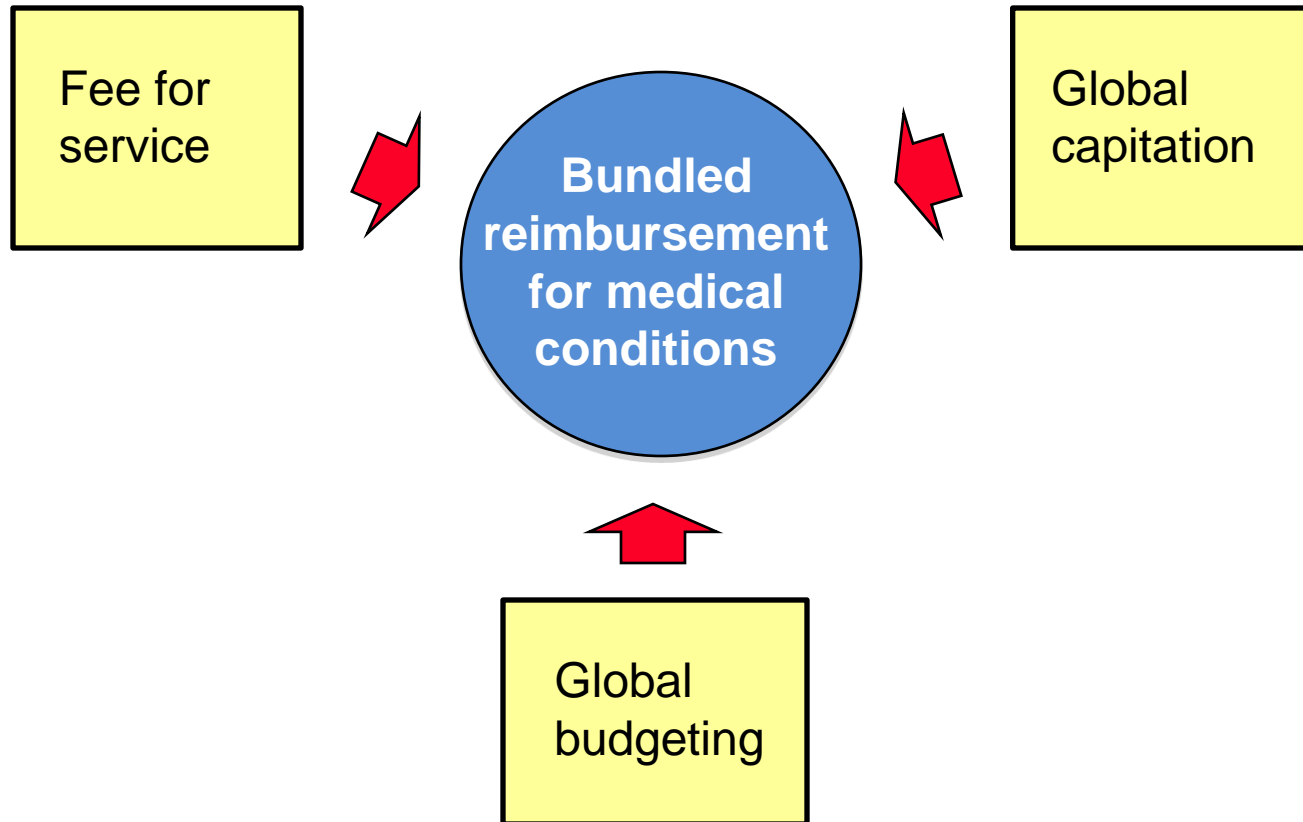
1. Set the goal as **value for patients**, not containing costs
2. **Quality improvement** is the key driver of cost containment and value improvement, where quality is **health outcomes**
3. Care delivery should be organized around the patient's **medical condition** over the **full cycle of care**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

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

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**, by medical condition, for every provider 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

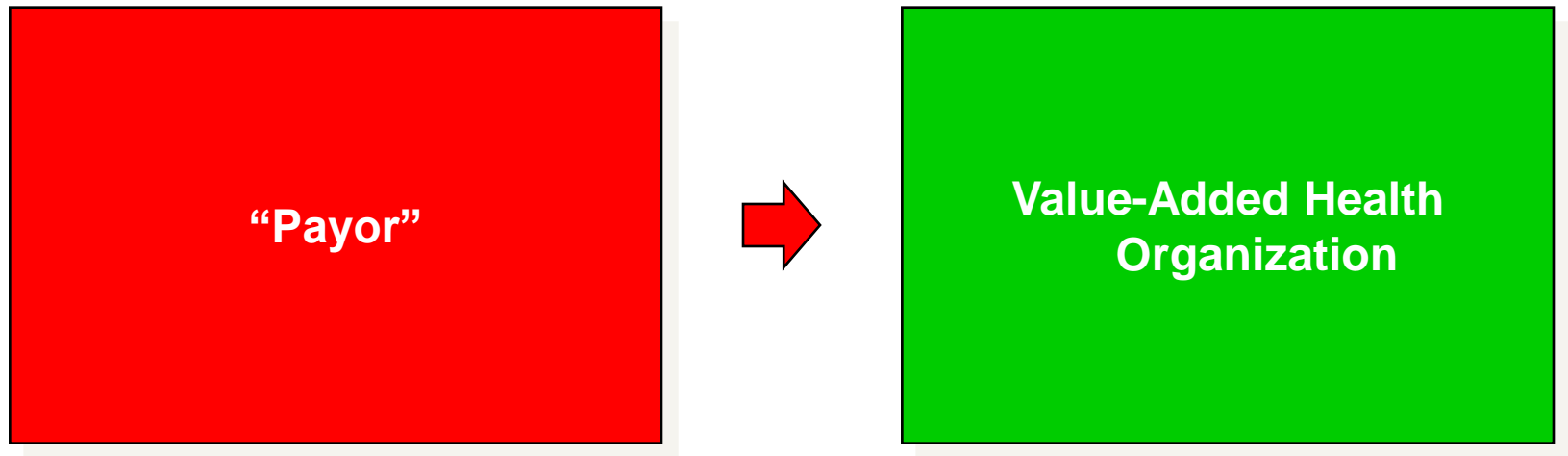
- Common data definitions
- “Structured” data vs. free text
- Data encompasses the full care cycle, including referring entities
- Structure for combining all types of data (e.g. notes, images) for each patient over time
- Templates for medical conditions to enhance the user interface
- Accessible by,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

Value-Based Health Care Delivery

The Strategic Agenda for Providers

- 1. Organize into Integrated Practice Units (IPUs)**
 - Including primary care
- 2. Measure Outcomes and Cost for Every Patient**
- 3. Lead the Development of New Reimbursement Models**
 - Engage health plans but also seek direct relationships with employers/employer groups
- 4. Provider System Integration**
 - **Rationalize service lines/ IPUs** across facilities to improve volume, avoid duplication, and enable excellence
 - Offer specific services at the **appropriate facility**
 - **e.g. acuity level, cost level, benefits of convenience**
 - Clinically integrate care **across facilities** within an IPU structure
 - The **care delivery organization should span facilities**
 - Formally link **primary care** units to specialty IPUs
- 5. Grow Excellent IPUs Across Geography**
- 6. Create an Enabling Information Technology Platform**

Value-Based Healthcare Delivery: Implications for Health Plans



Transforming the Roles of Employers

Old Role

- Set the goal of **reducing health premium costs**
- Focus on **direct cost** of health benefits
- Use bargaining power to negotiate **discounts** from health plans and providers
- **Shift costs to employees** via premium payments, co-payments
- Evaluate plans and providers based on **process compliance** (P4P)
- **Limit or eliminate the employer role** in health insurance

New Role

- Set the goal of **employee health**
- Focus on the **overall cost of poor health** (e.g., productivity, lost days)
- Work with health plans and providers to improve overall **value** delivered
- Improve access to **high-value care** (e.g., wellness, prevention, screening, and disease management)
- Evaluate plans and providers based on **health outcomes**
- Take a leadership role in **expanding the insurance system** to encompass individually purchased plans on favorable terms



A Strategy for U.S. Health Care Reform

Shift Insurance Market :

- Build upon the current **employer based system**
- Shift **insurance market competition** by ending discrimination based on pre-existing conditions and re-pricing upon illness
- Aggregate volume and buying power to create a viable insurance option for **individuals and small groups** through large statewide and multistate **insurance pools**, coupled with a **reinsurance system** for high cost individuals
- Establish **income-based subsidies** on a sliding scale for lower income individuals
- Once viable insurance options are established, **mandate the purchase of health insurance** for all Americans
- Give employers a choice of providing insurance or a payroll tax based on the proportion of employees requiring **public assistance**

A Strategy for U.S. Health Care Reform, continued

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 services
 - Including primary/preventive care for patient segments
- Encourage **restructuring of health care delivery** around the integrated care for medical conditions
 - Eliminate obstacles such as Stark Laws, Corporate Practice of Medicine, Anti-kickback
 - **Minimum volume standards** as an interim step
- Create new integrated **primary and preventive care models** for defined patient groups
- **Open up value-based competition** for patients within and across state boundaries
- Mandate **EMR adoption** that enables integrated care and supports outcome measurement
 - National standards for data, communication, and aggregation
 - Software as a service model for smaller providers
- Encourage **responsibility of individuals** for their health and health care through incentives for healthy behavior