Value-Based Health Care Delivery

Professor Michael E. Porter
Harvard Business School

Introduction to Social Medicine
November 5, 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. 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, 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**

Financial success of system participants	≠	Patient success

- 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 costs borne by a single provider or costs for a portion of care

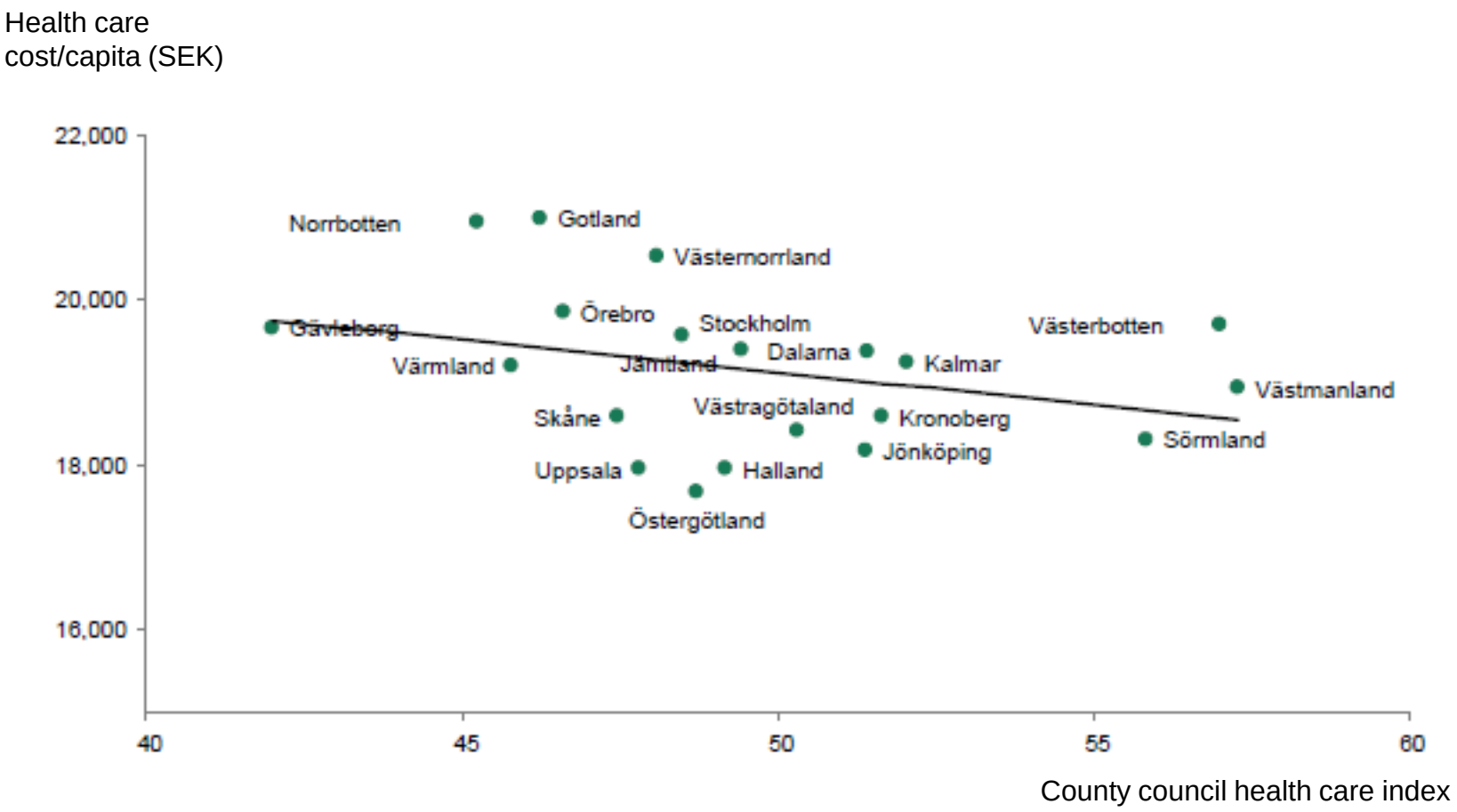
Principles of Value-Based Health Care Delivery

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

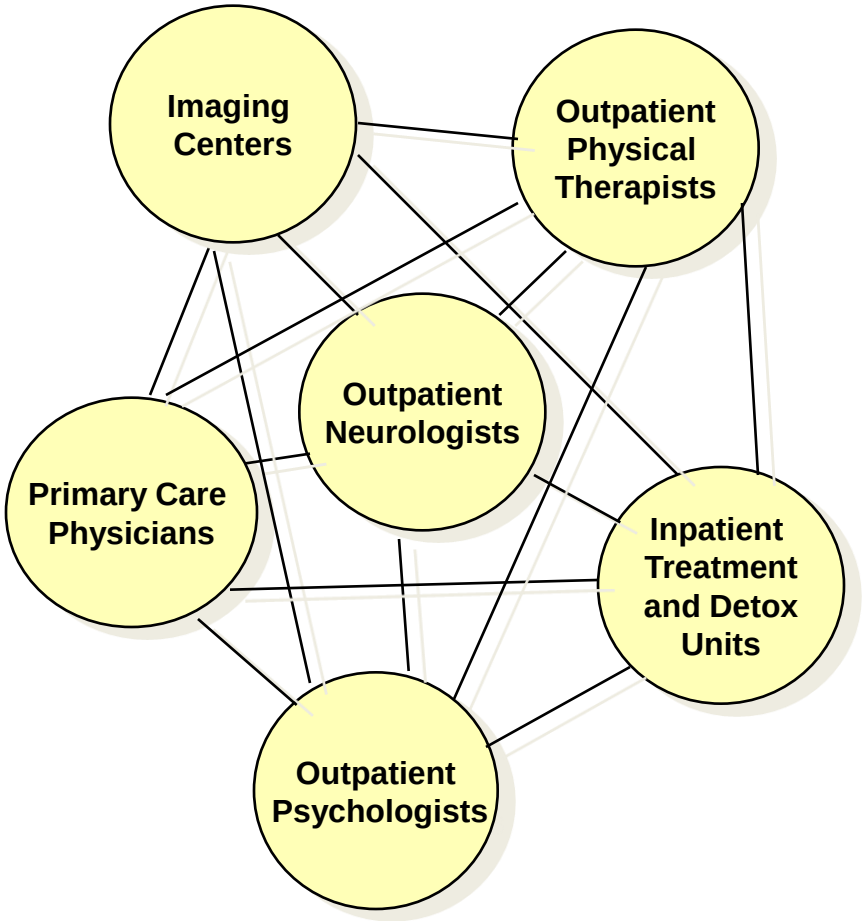
- A medical condition is **an interrelated set of patient medical circumstances best addressed in an integrated way**
  - Defined from the **patient's** perspective
  - **Including** the most common co-occurring conditions and complications
  - Involving **multiple** specialties and services

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

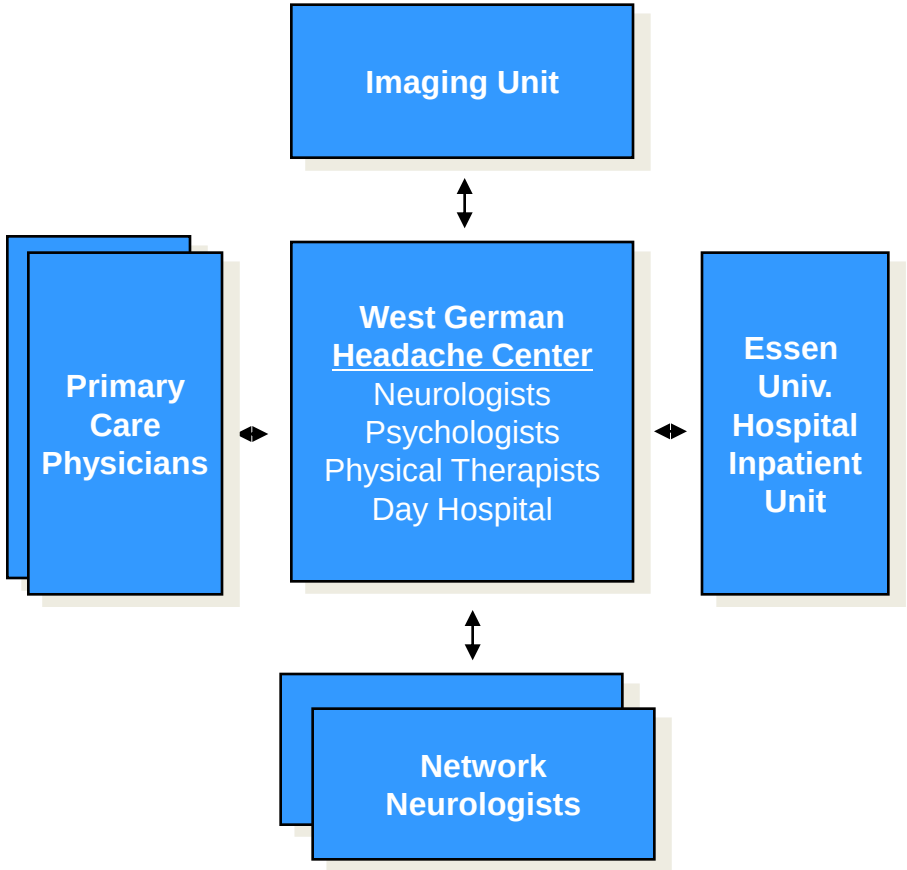
Restructuring Care Delivery

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

	MONITORING/ PREVENTING	DIAGNOSING	PREPARING	INTERVENING	RECOVERING/ REHABING	MONITORING/MANAGING
INFORMING AND ENGAGING	▪ Advice on self screening ▪ Consultations on risk factors	▪ Counseling patient and family on the diagnostic process and the diagnosis	▪ Explaining patient treatment options/shared decision making ▪ Patient and family psychological counseling	▪ Counseling on the treatment process ▪ Education on managing side effects and avoiding complications of treatment ▪ Achieving compliance	▪ Counseling on rehabilitation options, process ▪ Achieving compliance ▪ Psychological counseling	▪ Counseling on long term risk management ▪ Achieving Compliance
MEASURING	▪ Self exams ▪ Mammograms	▪ Mammograms ▪ Ultrasound ▪ MRI ▪ Labs (CBC, Blood chems, etc.) ▪ Biopsy ▪ BRACA 1, 2… ▪ CT ▪ Bone Scans	▪ Labs	▪ Procedure-specific measurements	▪ Range of movement ▪ Side effects measurement	▪ MRI, CT ▪ Recurring mammograms (every six months for the first 3 years)
ACCESSING	▪ Office visits ▪ Mammography lab visits	▪ Office visits ▪ Lab visits ▪ High risk clinic visits	▪ Office visits ▪ Hospital visits ▪ Lab visits	▪ Hospital stays ▪ Visits to outpatient radiation or chemotherapy units ▪ Pharmacy	▪ Office visits ▪ Rehabilitation facility visits ▪ Pharmacy	▪ Office visits ▪ Lab visits ▪ Mammographic labs and imaging center visits
	▪ Medical history ▪ Control of risk factors (obesity, high fat diet) ▪ Genetic screening ▪ Clinical exams ▪ Monitoring for lumps	▪ Medical history ▪ Determining the specific nature of the disease (mammograms, pathology, biopsy results) ▪ Genetic evaluation ▪ Labs	▪ Choosing a treatment plan ▪ Surgery prep (anesthetic risk assessment, EKG) ▪ Plastic or onco-plastic surgery evaluation ▪ Neo-adjuvant chemotherapy	▪ Surgery (breast preservation or mastectomy, oncoplastic alternative) ▪ Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)	▪ In-hospital and outpatient wound healing ▪ Treatment of side effects (e.g. skin damage, cardiac complications, nausea, lymphodema and chronic fatigue) ▪ Physical therapy	▪ 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

What is Integrated Care?

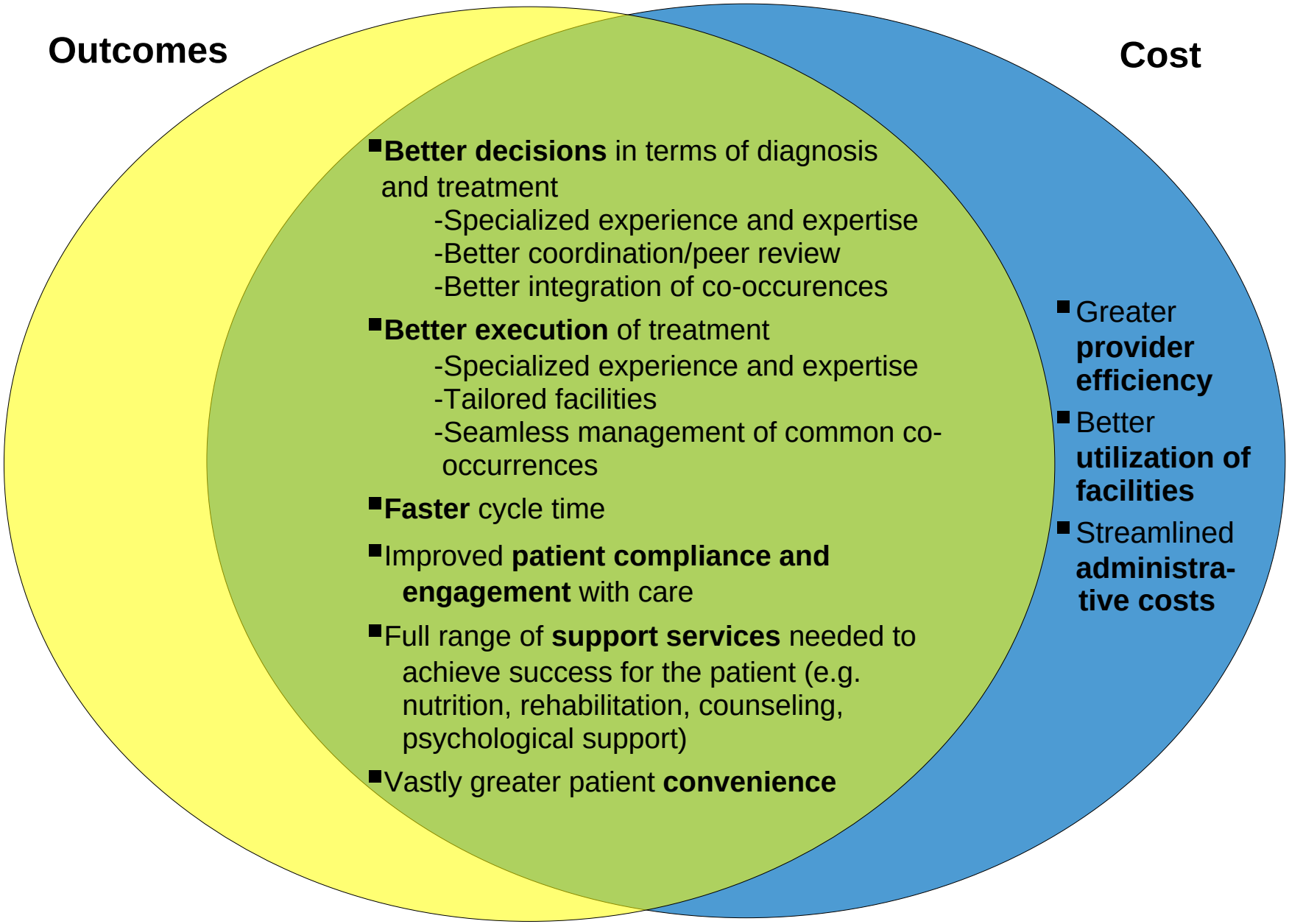
Key Elements of Integrated Care:

- 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**
- In which 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
- Clinical Pathways
- Freestanding focused factories
- An Institute or Center
- A Center of Excellence
- A health plan/provider system (e.g. Kaiser Permanente)
- Medical home
- Accountable Care Organization

IPUs and Value



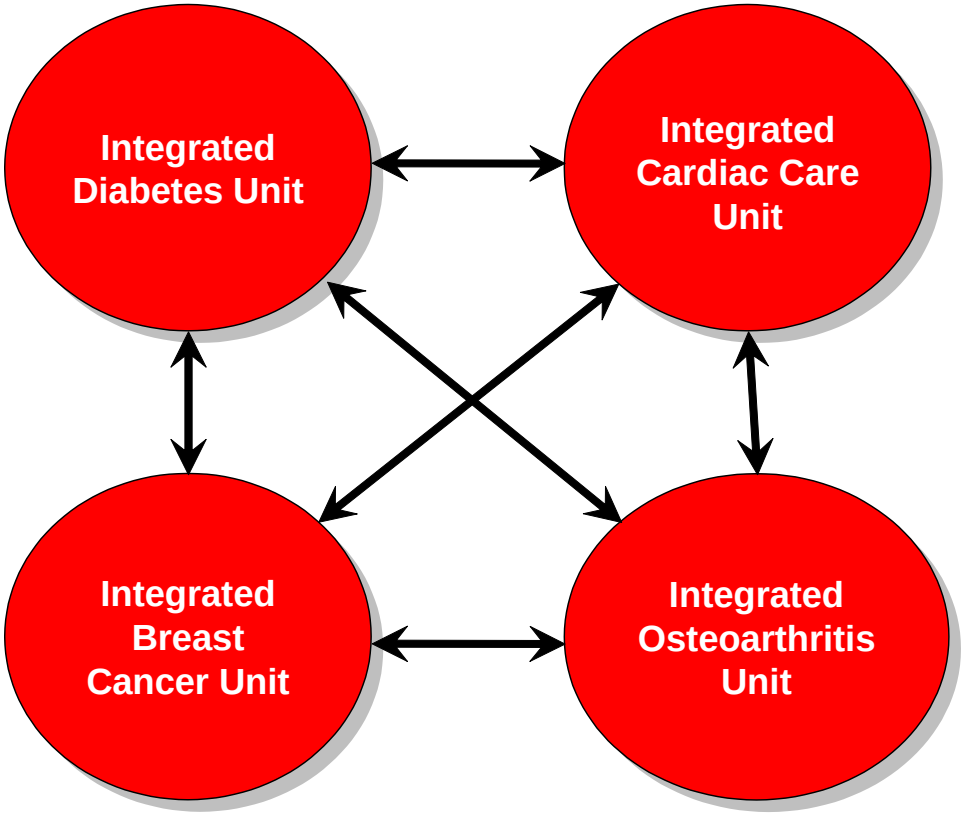
Integrated Models of Primary Care

- 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

Coordinating Care Across IPUs

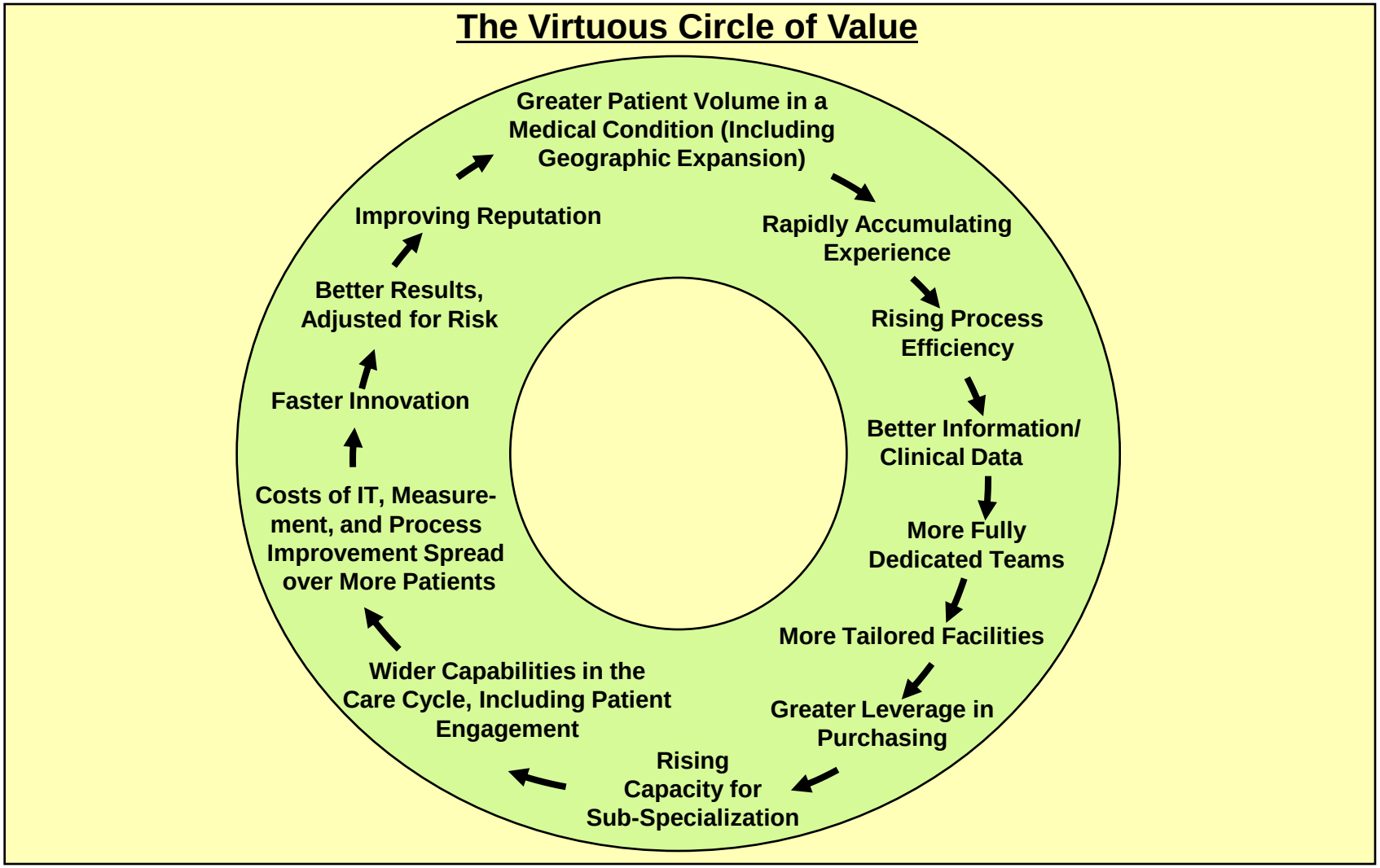
Patients with Multiple Medical Conditions



- 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 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

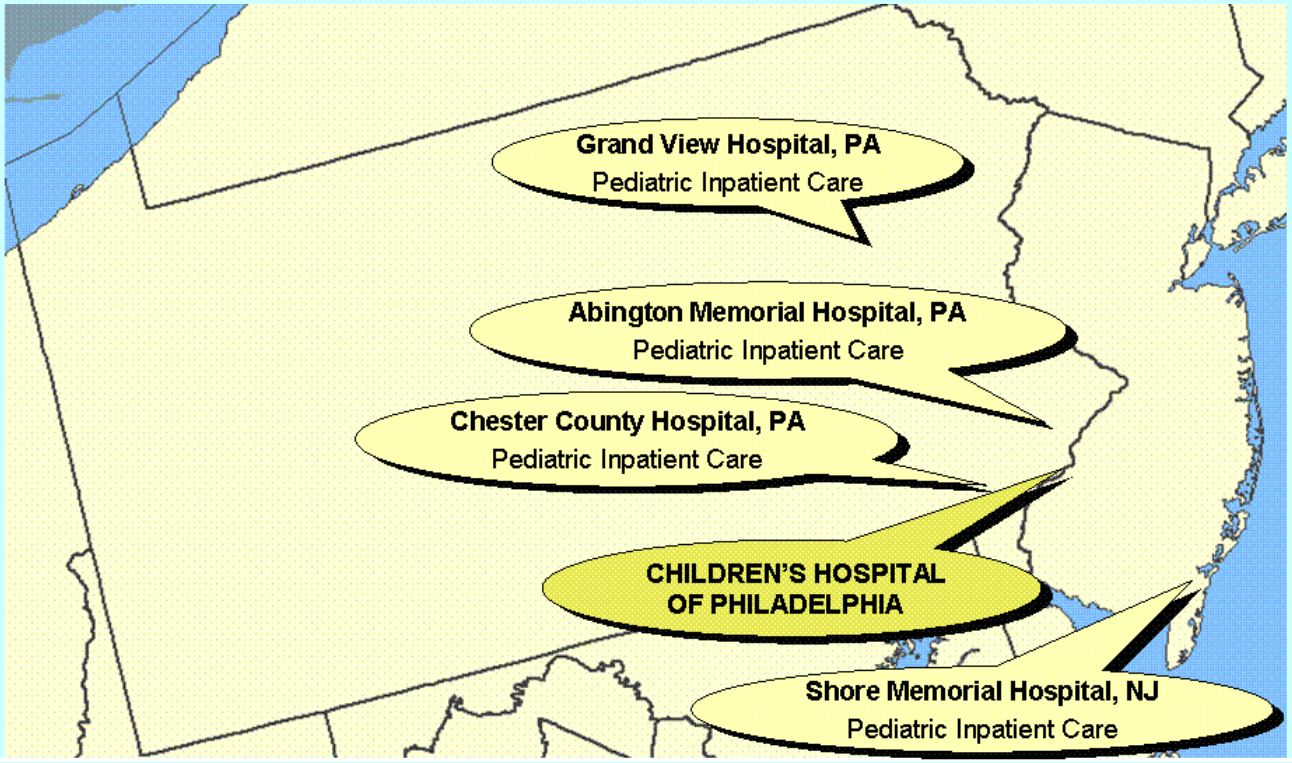
DRG	Number of admitting providers	Average percent of total national admissions	Average admissions/ provider/ year	Average admissions/ provider/ week
Knee Procedure	68	1.5%	55	1
Diabetes age > 35	80	1.3%	96	2
Kidney failure	80	1.3%	97	1
Multiple sclerosis and cerebellar ataxia	78	1.3%	28	1
Inflammatory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

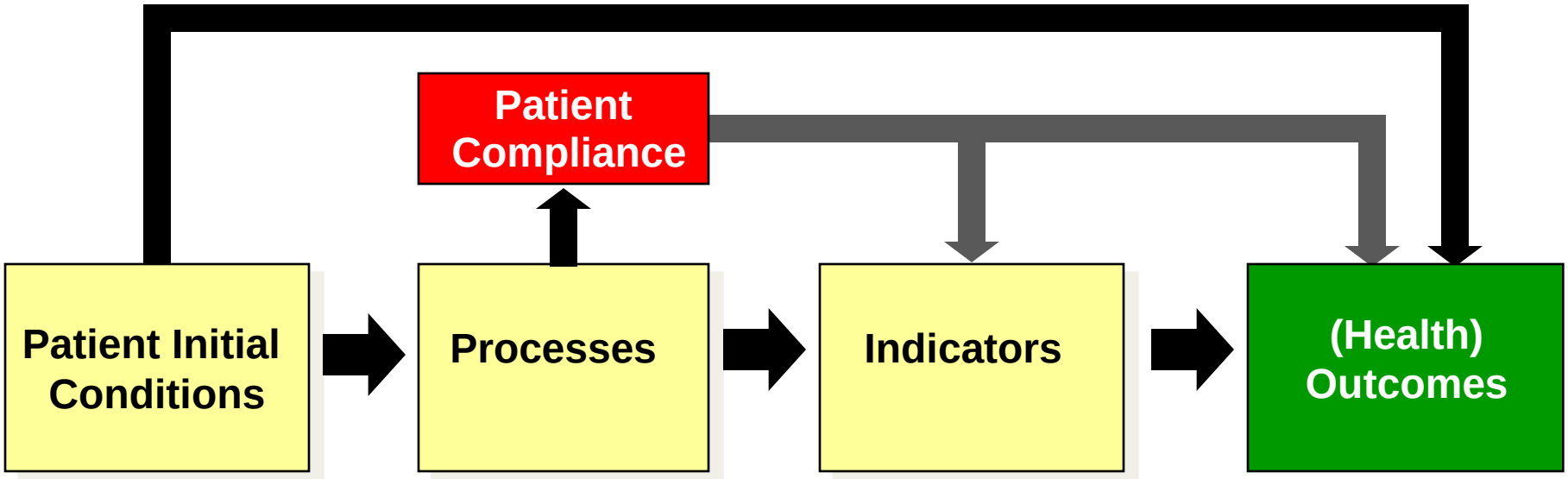


- Deliver services in the **appropriate** facility, not every facility
- Excellent providers can manage care delivery across **multiple geographic areas**

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** for every provider, every medical condition, and every patient

Measuring Value in Health Care



Protocols/ Guidelines

E.g., Hemoglobin A1c levels for diabetics

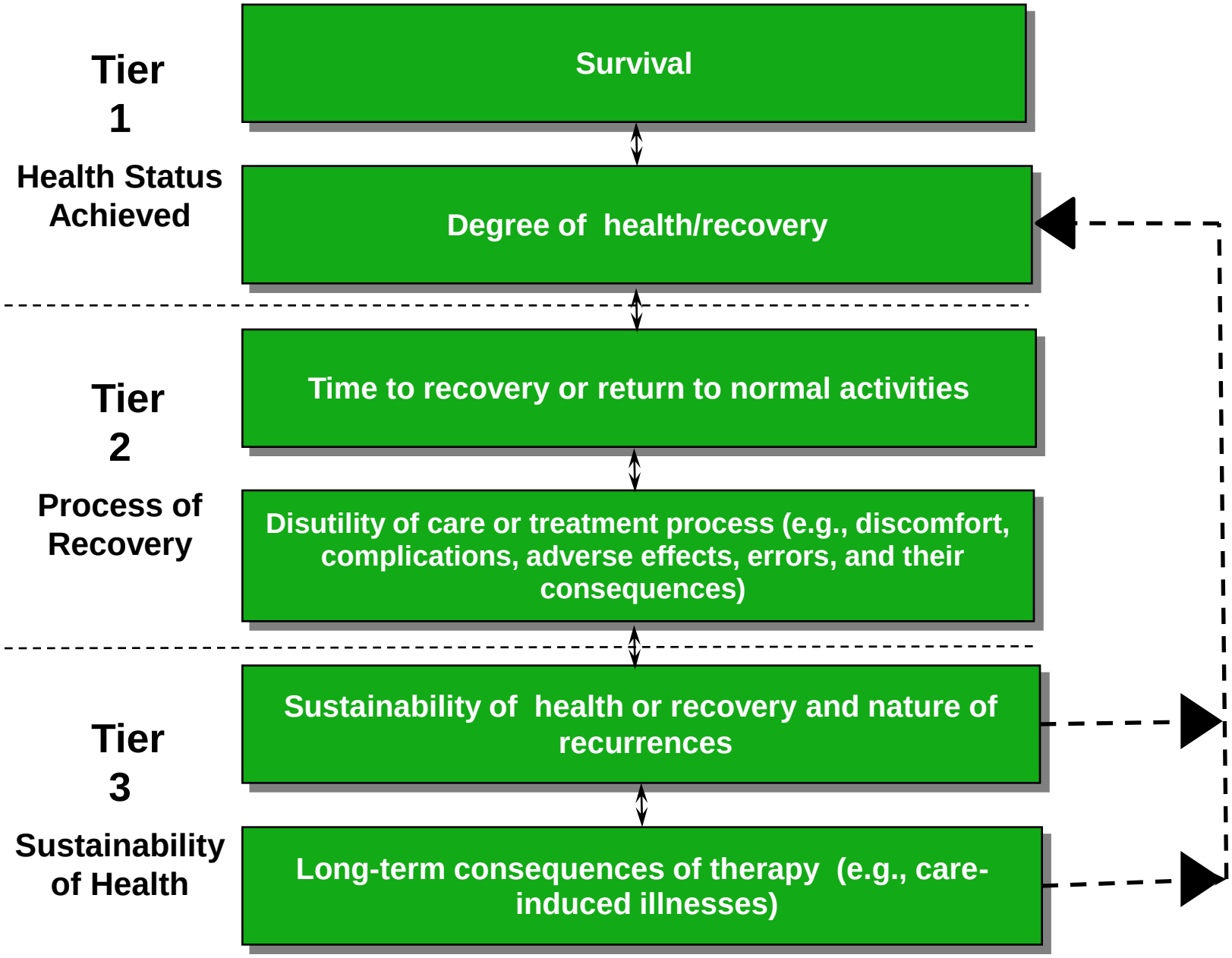
Principles of Value-Based Health Care Delivery

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

- Results must be measured at **the level at which value is created** not traditional organizational units

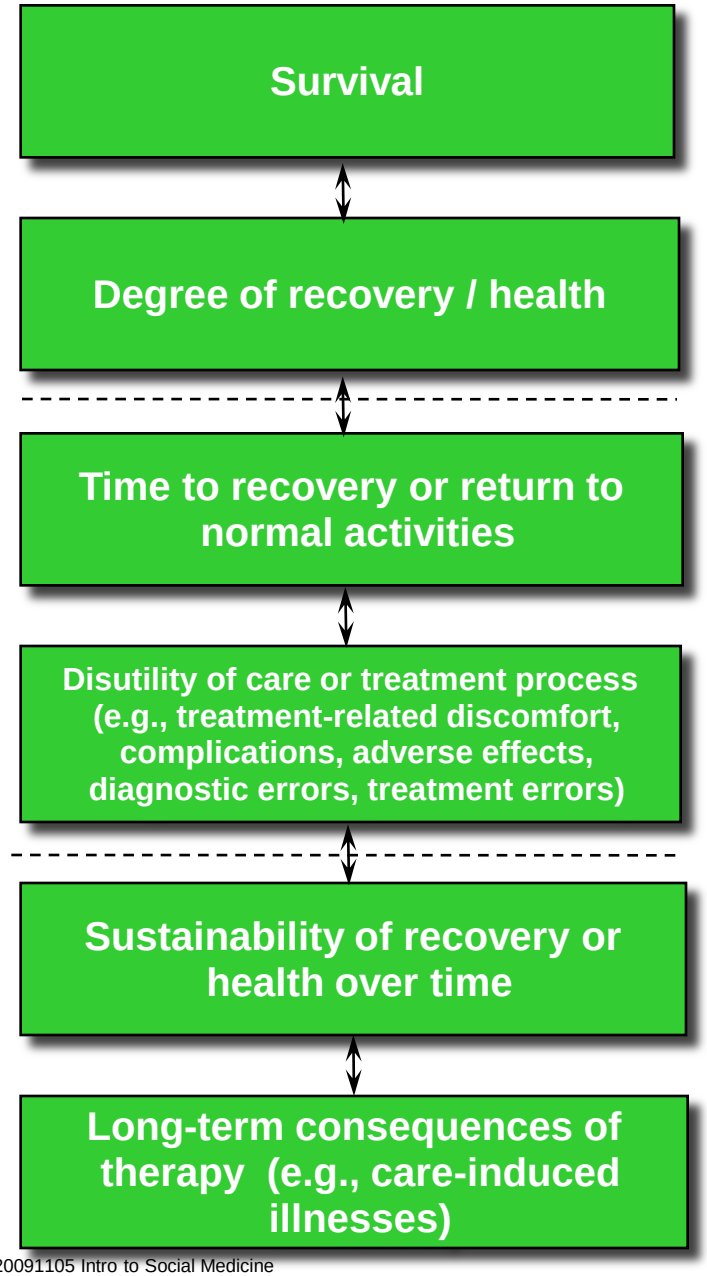
- Outcomes should be measured for **each medical condition** over the **cycle of care**
  - Not for interventions or short episodes
  - Not separately for types of service (e.g. inpatient, outpatient, tests, rehabilitation)
  - Not for practices, departments, clinics, or entire hospitals

The Outcome Measures Hierarchy



The Outcome Measures Hierarchy

Breast Cancer



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

- **Degree of remission**
- **Functional status**
- **Breast conservation outcome**

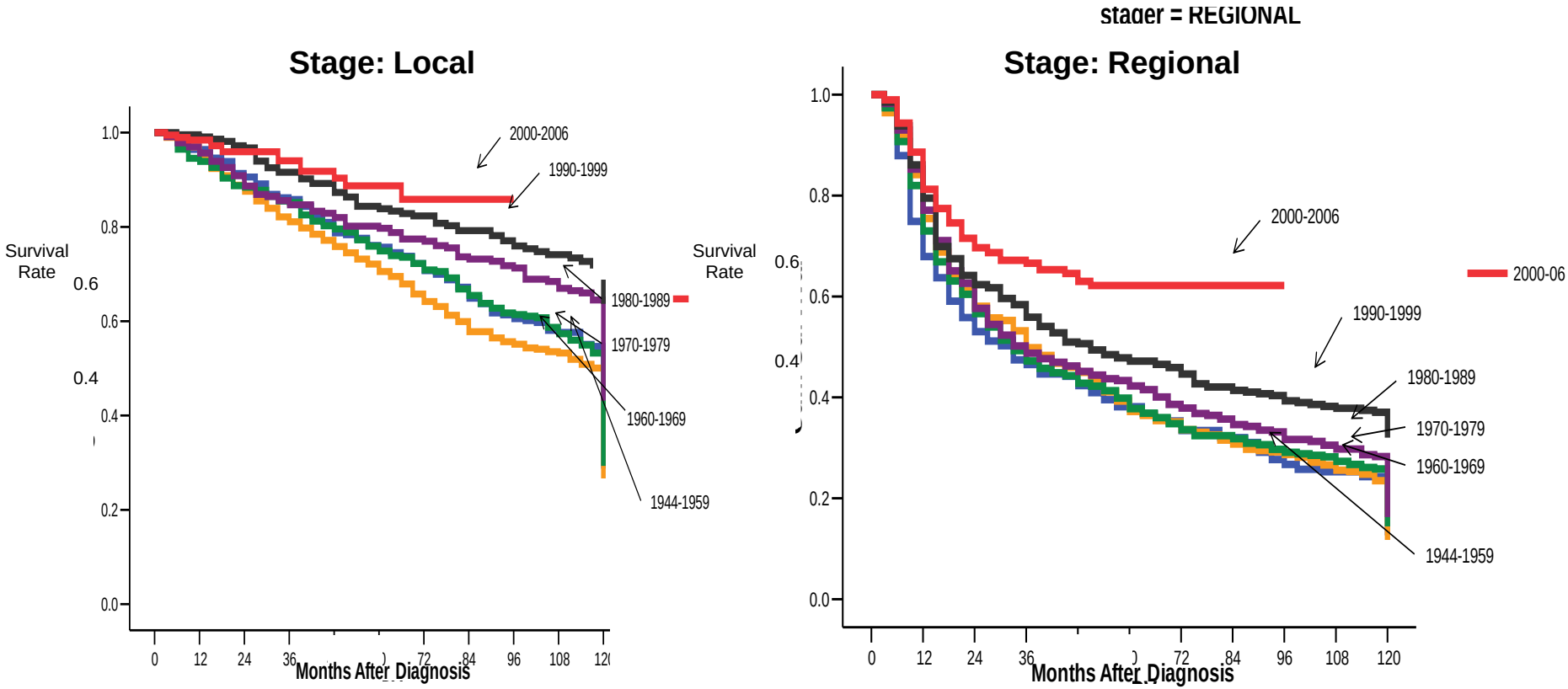
- **Time to remission**
- **Time to achieve functional status**

- **Nosocomial infection**
- **Nausea**
- **Vomiting**
- **Febrile neutropenia**
- **Limitation of motion**
- **Suspension of therapy**
- **Failed therapies**
- **Depression**

- **Cancer recurrence**
- **Sustainability of functional status**

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

MD Anderson Oral Cavity Cancer Survival by Registration Year



Source: MD Anderson Cancer Center

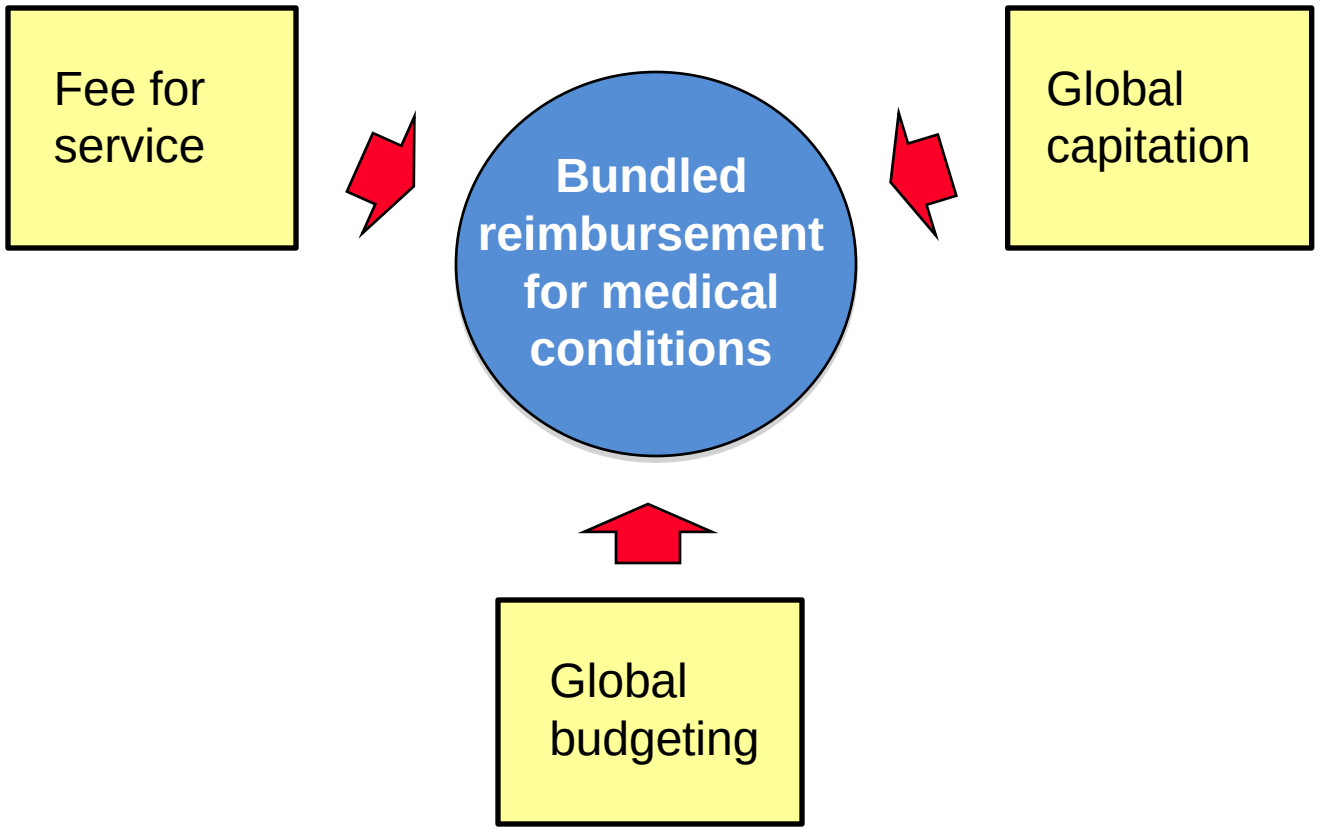
Principles of Value-Based Health Care Delivery

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

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

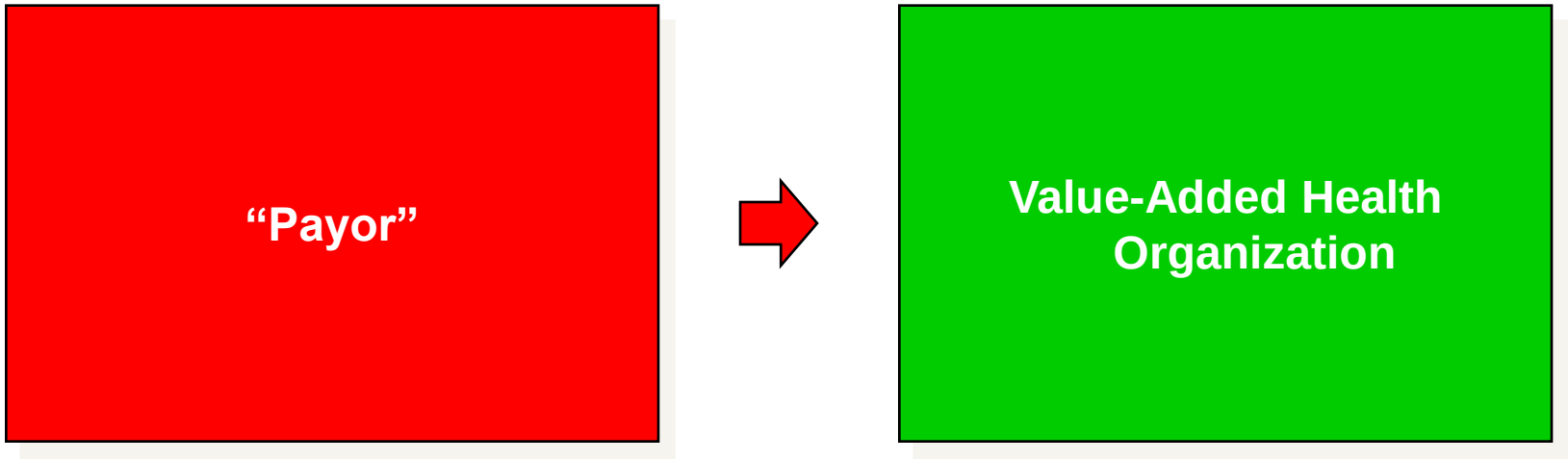
1. Set the goal as **value for patients**, not containing costs
2. **Quality improvement** is the key driver of cost containment and value improvement, where quality is **health outcomes**
3. Care delivery should be organized around the patient's **medical condition** over the **full cycle of care**
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** 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
- "Structured" data vs. free text
- Data encompasses the full care cycle, including referring entities
- Interoperability standards enabling communication among systems
- 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

Value-Based Health Care Delivery
The Strategic Agenda for Providers

1. **Integrated Practice Units**
   - Including primary care
2. **Outcomes and Cost Measurement**
3. **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. **Growth Across Geography**
6. **Enabling Information Technology Platform**

Value-Based Healthcare Delivery:
Implications for Health Plans



Implications for Government

Shift insurance market competition to value and enable universal coverage:

- Shift insurance market competition by ending discrimination based on pre-existing conditions and re-pricing upon illness
- Build upon the current **employer based system**
- 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

Implications for Government (Continued)

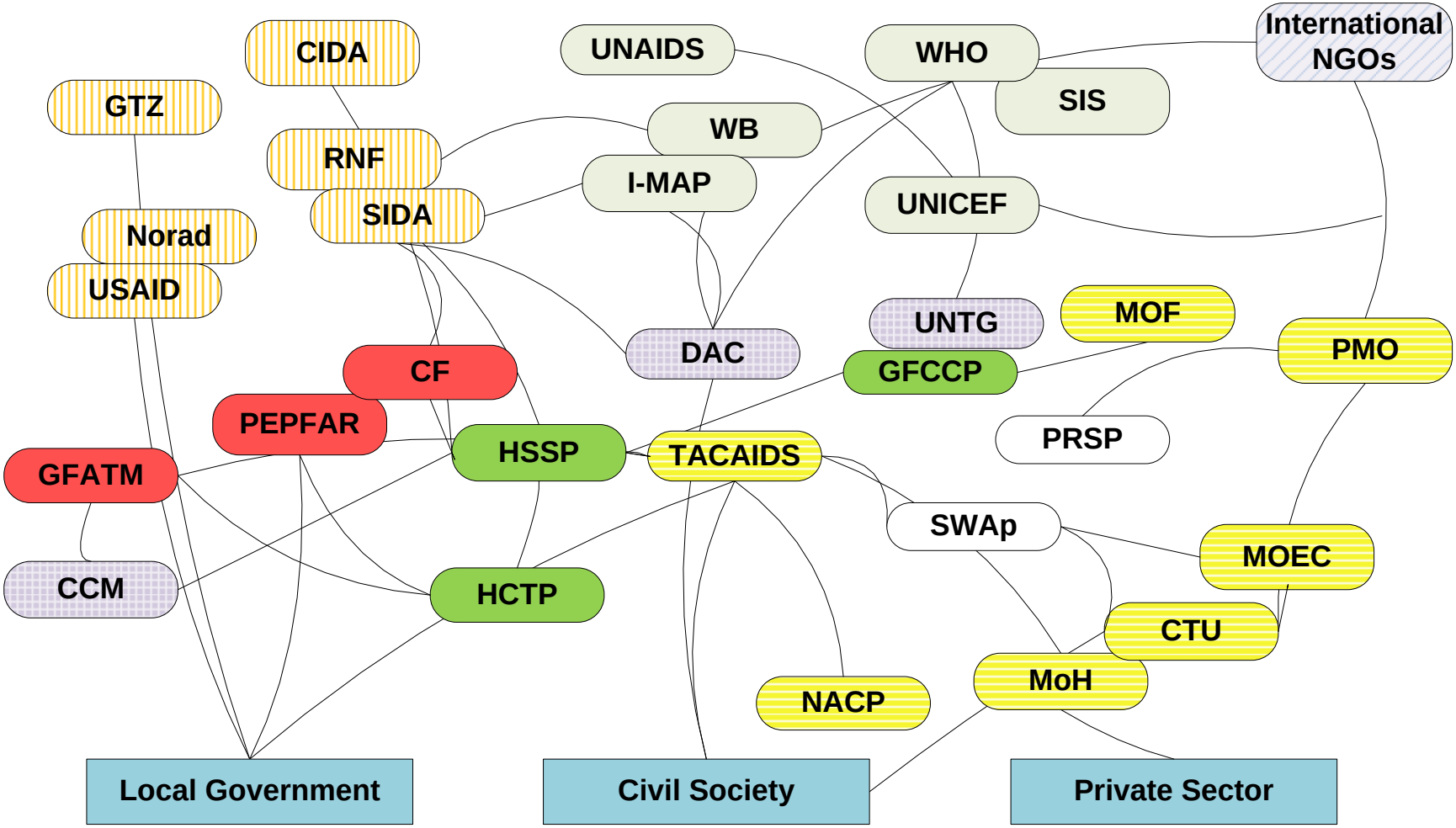
Restructure Delivery

- 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 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

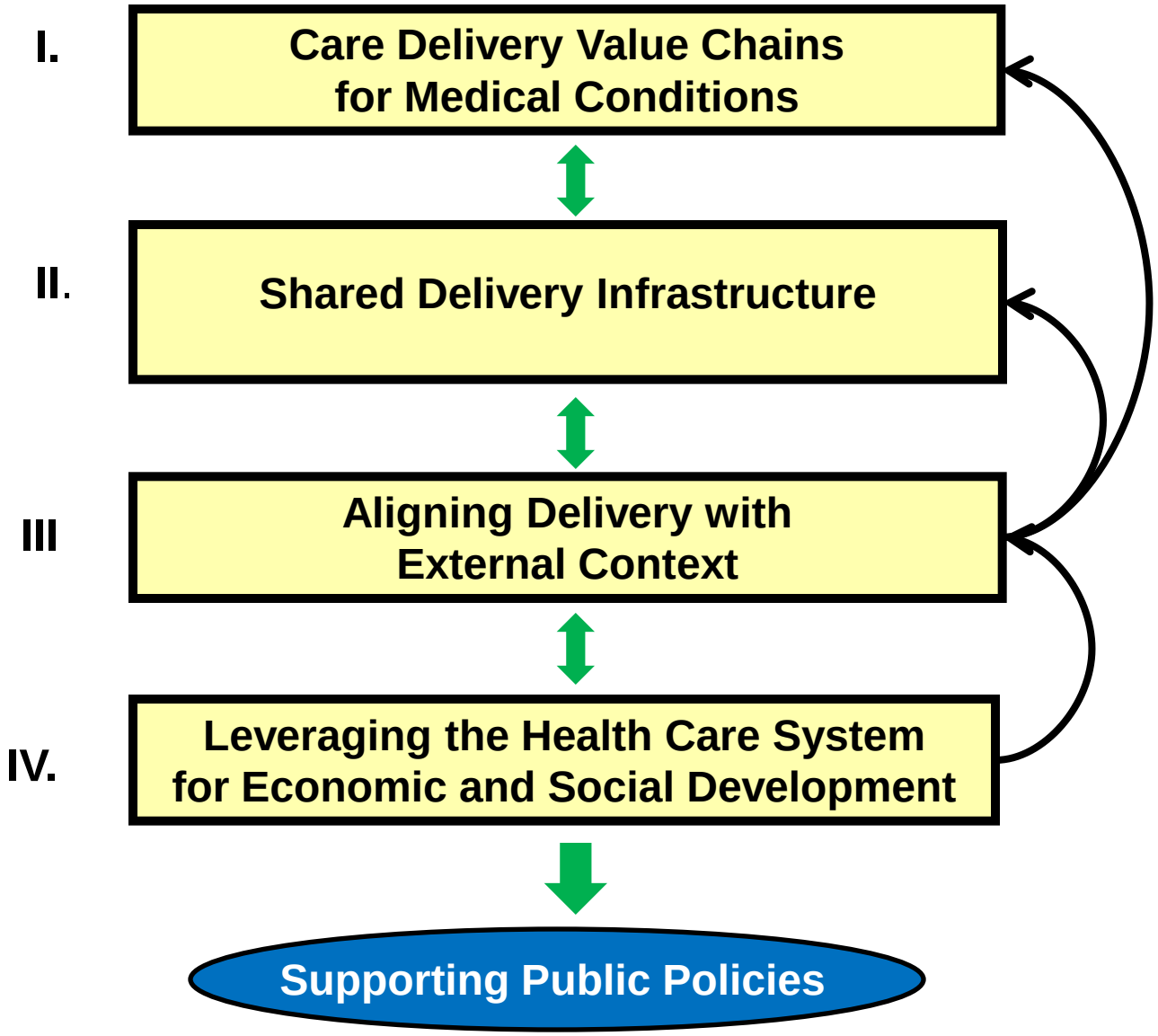
The Developed World and Resource-Poor Settings Suffer from Similar Delivery Problems

Current Model		New Model
• The product is **treatment**	→	• The product is **health**
• Measure **volume** of services (# tests, treatments)	→	• Measure **value** of services (health outcomes per unit of cost)
• Focus on overall facilities, **specialties** or **types** of practitioners	→	• **Coordinated** and **integrated** care delivery
• Discrete **interventions**	→	• **Care cycles**
• **Individual** diseases or overall facilities	→	• Sets of prevalent **co-occurrences**
• **Fragmented, localized,** pilots. programs and entities	→	• **Integrated** care delivery systems

Relationships Between Various Stakeholders in Tanzania



A Framework for Global Health Delivery



The Care Delivery Value Chain

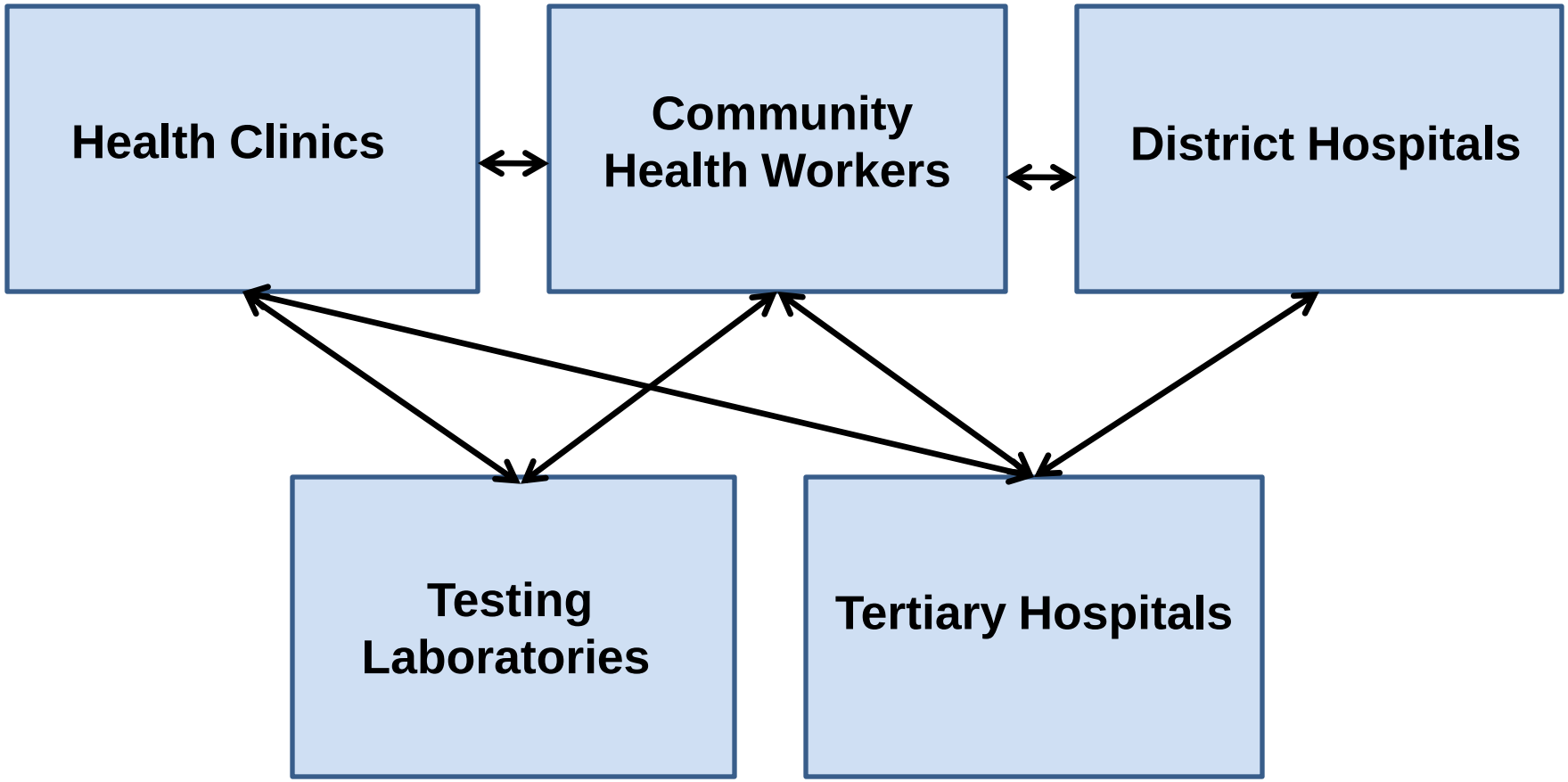
HIV/AIDS

	SCREENING/PREVENTING	DIAGNOSING/STAGING	DELAYING PROGRESSION	INTITIATING ANTIRETROVIRAL THERAPY	ONGOING DISEASE MANAGEMENT	MANAGEMENT OF CLINICAL DETERIORATION
INFORMING/ ENGAGING	▪ Prevention counseling on modes of transmission and condom use	▪ Explanation of diagnosis and the implications ▪ Explaining the course of HIV and the prognosis	▪ Explanation of the approach to forestalling progression	▪ Explanation of Medication Instructions and Side-Effects	▪ Counseling about adherence; understanding factors for non-adherence	▪ Explanation of the co-morbid diagnoses and the implications ▪ End-of Life Counseling
MEASURING	▪ HIV testing ▪ Screen for sexually transmitted infections ▪ Collect baseline demographics	▪ HIV testing for others at risk ▪ Clinical examination CD4+ count and other labs ▪ Testing for common co-morbidities such as tuberculosis and sexually transmitted diseases ▪ Pregnancy testing	▪ CD4+ Count Monitoring (Continuous Staging) ▪ Regular Primary Care Assessment ▪ HIV Testing for Others at Risk ▪ Laboratory Evaluation for Medication Initiation	▪ HIV Staging and Medication Response ▪ Highly Frequency Primary Care Assessment ▪ Assessing/Managing Complications of Therapy ▪ HIV testing for others at risk (bi-annually) ▪ Laboratory Evaluation	▪ HIV Staging and Medication Response ▪ Regular Primary Care Assessment ▪ Laboratory Evaluation	▪ HIV Staging and Medication Response ▪ Regular Primary Care Assessment ▪ Laboratory Evaluation
ACCESSING	▪ Testing centers ▪ High risk settings ▪ Primary Care Clinics	▪ Primary Care Clinics ▪ On-sight laboratories at Primary Care Clinics ▪ Testing Centers	▪ Primary Care Clinics ▪ Laboratories (on-site at primary clinic) ▪ Pharmacy ▪ Food Centers ▪ Community Health Workers/ Home Visits ▪ Support Groups	▪ Primary Care Clinics ▪ Laboratories (on-site at primary clinic) ▪ Pharmacy ▪ Community Health Workers/ Home Visits ▪ Support Groups	▪ Primary Care Clinics ▪ Laboratories (on-site at primary clinic) ▪ Pharmacy ▪ Community Health Workers/ Home Visits ▪ Support Groups	▪ HIV Staging and Medication Response ▪ Regular Primary Care Assessment ▪ Laboratory Evaluation ▪ Primary Care Clinics ▪ Pharmacy ▪ Laboratories (on-site at primary clinic) ▪ Community Health Workers/Home Visits ▪ Hospitals & Hospice Facilities ▪ Support Groups ▪ Food Centers
	▪ Connecting patients with primary care system ▪ Identifying high risk individuals ▪ Testing at-risk individuals ▪ Promoting appropriate risk reduction strategies ▪ Modifying behavioral risk factors ▪ Creating a medical record	▪ Formal diagnosis and staging ▪ Determine method of transmission and others at potential risk ▪ Identify others at risk ▪ Screen for TB, syphilis, and other sexually transmitted diseases ▪ Pregnancy testing and contraceptive counseling ▪ Create management plan, including scheduling of follow-up visits ▪ Formulate a treatment plan	▪ Initiate therapies that can delay onset, including vitamins and food ▪ Treat co-morbidities that affect progression of disease, especially tuberculosis ▪ Improve patient awareness of disease progression, prognosis, and transmission ▪ Connect patient to care team, including community health work	▪ Initiate comprehensive anti-retroviral therapy and assess medication readiness ▪ Prepare patient for disease progression and side-effects of associated treatment ▪ Manage secondary infections and associated illnesses	▪ Managing effects of associated illnesses ▪ Managing side effects of treatment ▪ Determine supporting nutritional modifications ▪ Preparing patient for end-of-life management ▪ Primary care and health maintenance	▪ Identifying clinical and laboratory deterioration ▪ Initiating second-line, third-line drug therapies ▪ Managing acute illness and opportunistic infection either through aggressive outpatient management or hospitalization ▪ Provide additional community/ social support if needed ▪ Access to Hospice Care

Care Delivery Value Chain
Implications for HIV/AIDS Care

- **Early diagnosis** helps in forestalling disease progression
- **Intensive evaluation and treatment at the time of the diagnosis** can forestall disease progression
- **Improving compliance with first stage drug therapy** lowers drug resistance and the need to move to more costly second line therapies

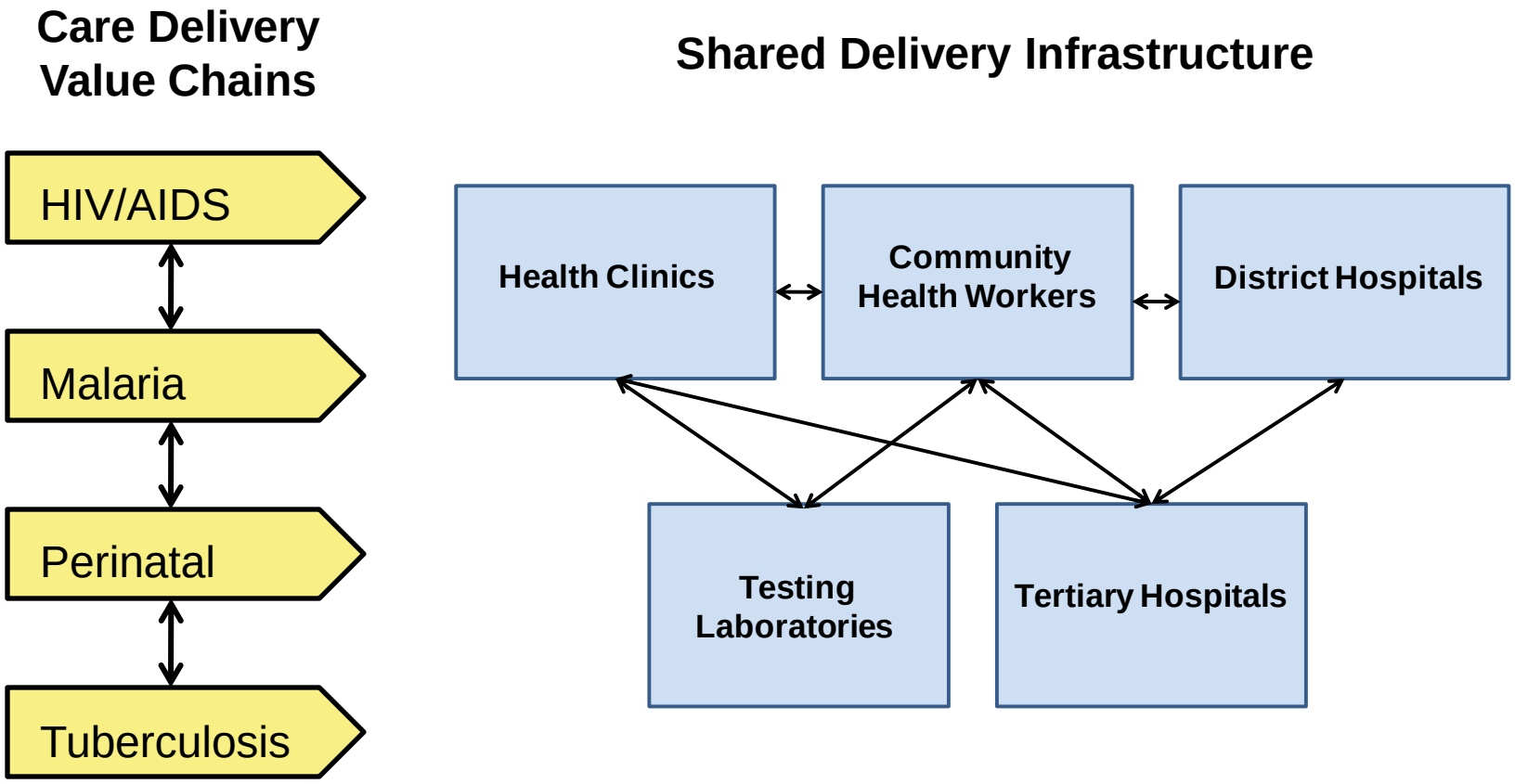
Shared Delivery Infrastructure



Cross Cutting Issues

- Supply Chain Management
- Human Resource Development
- Insurance and Financing

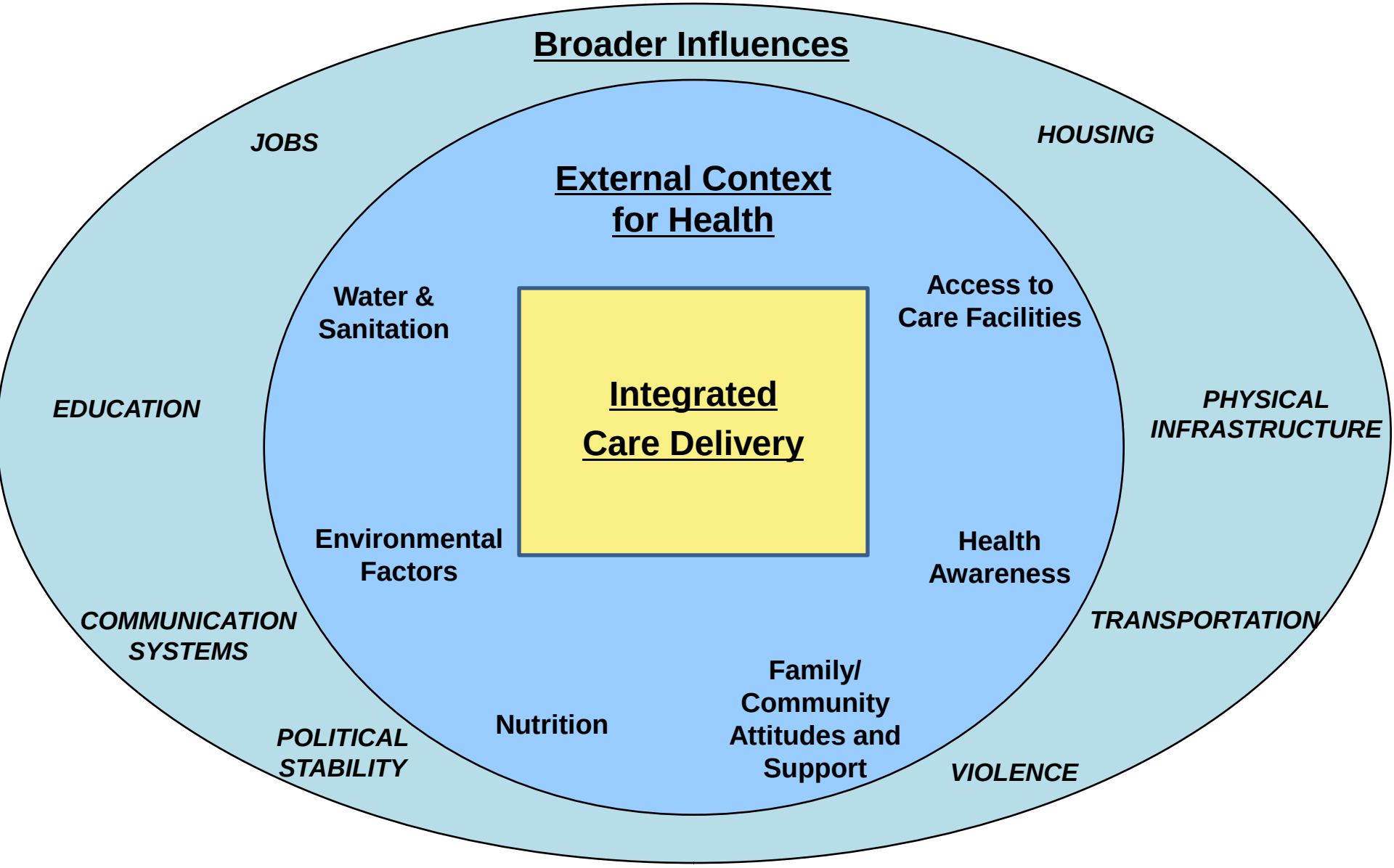
Integrating “Vertical” and “Horizontal”



Shared Delivery Infrastructure
Implications for HIV/AIDS Care

- Screening is most effective when **integrated into a primary health care system**
- Providing **maternal and child health** care services is integral to the HIV/AIDS care cycle by substantially **reducing the incidence of new cases of HIV**
- Community health workers not only improve compliance with ARV therapy but can **simultaneously address other conditions**

Integrating Delivery and Context



Integrating Care Delivery and Social/Economic Context
Implications for HIV/AIDS Care

- Community health workers can have a major role in **overcoming transportation and other barriers to access and compliance** with care
- Providing nutrition support can be important to **success in ARV therapy**
- Integrating HIV screening and treatment into routine primary care facilities can help address the **social stigma** of seeking care for HIV/AIDS
- Gender dynamics **limit the use of prevention options** in some settings

- Management of **social** and **economic barriers** is critical to the treatment and prevention of HIV/AIDS

The Relationship Between Health Systems and Economic Development

Better Health Enables Economic Development

- Enables people to work
- Raises productivity

Health System Development **Fosters** Economic Development

- Direct employment (health sector jobs)
- Local procurement
- Catalyst for infrastructure (e.g. cell towers, internet, and electrification)

A New Field in Global Health