

Value-Based Global Health Care Delivery

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This presentation draws on *Redefining Health Care: Creating Value-Based Competition on Results* (with Elizabeth O. Teisberg), Harvard Business School Press, May 2006; “A Strategy for Health Care Reform—Toward a Value-Based System,” *New England Journal of Medicine*, June 3, 2009; “Value-Based Health Care Delivery,” *Annals of Surgery* 248: 4, October 2008; “Defining and Introducing Value in Healthcare,” *Institute of Medicine Annual Meeting*, 2007. Additional information about these ideas, as well as case studies, can be found the Institute for Strategy & Competitiveness Redefining Health Care website at <http://www.hbs.edu/rhc/index.html>. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means — electronic, mechanical, photocopying, recording, or otherwise — without the permission of Michael E. Porter and Elizabeth O. Teisberg.

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

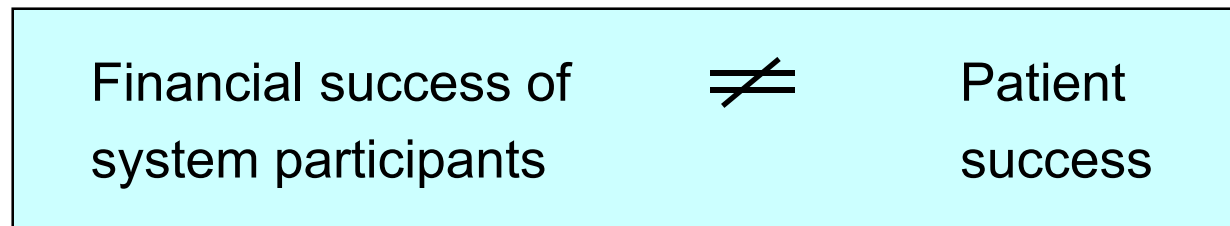
- Significant improvement in value will require **fundamental restructuring of health care delivery**, not incremental improvements

Today, 21st century medical technology is often delivered with 19th 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 for patients/subscribers** is a powerful force 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

Creating a Value-Based Health Care Delivery System

The Strategic Agenda

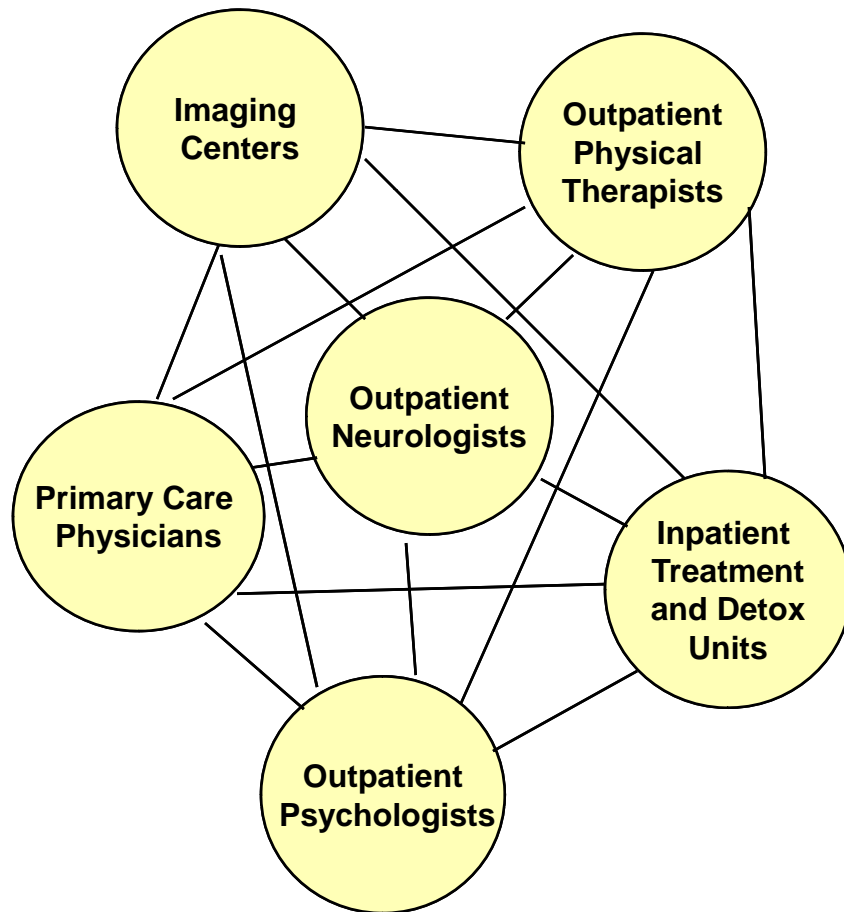
1. Organize into Integrated Practice Units (IPUs) Around Patient Medical Conditions
 - Organize primary and preventive care to serve **distinct patient populations**
2. Establish Universal Measurement of Outcomes and Cost for Every Patient
3. Move to Bundled Prices for Care Cycles
4. Integrate Care Delivery 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

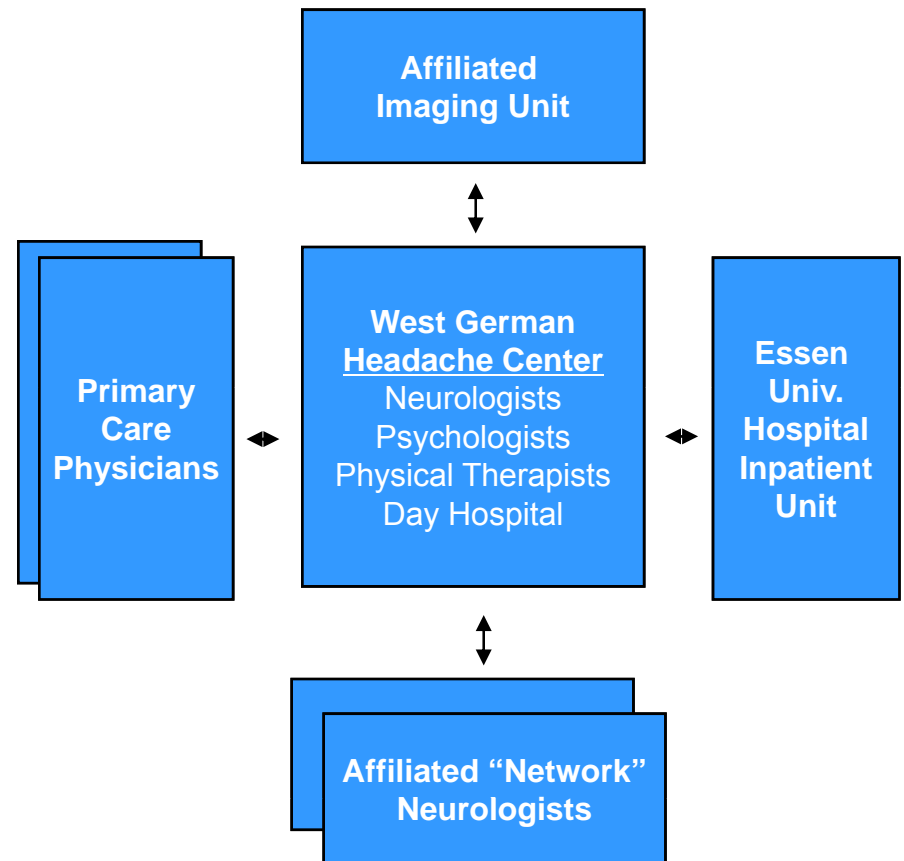
Existing Model:

Organize by Specialty and Discrete Services



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, lymphodema 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 Models of Primary Care

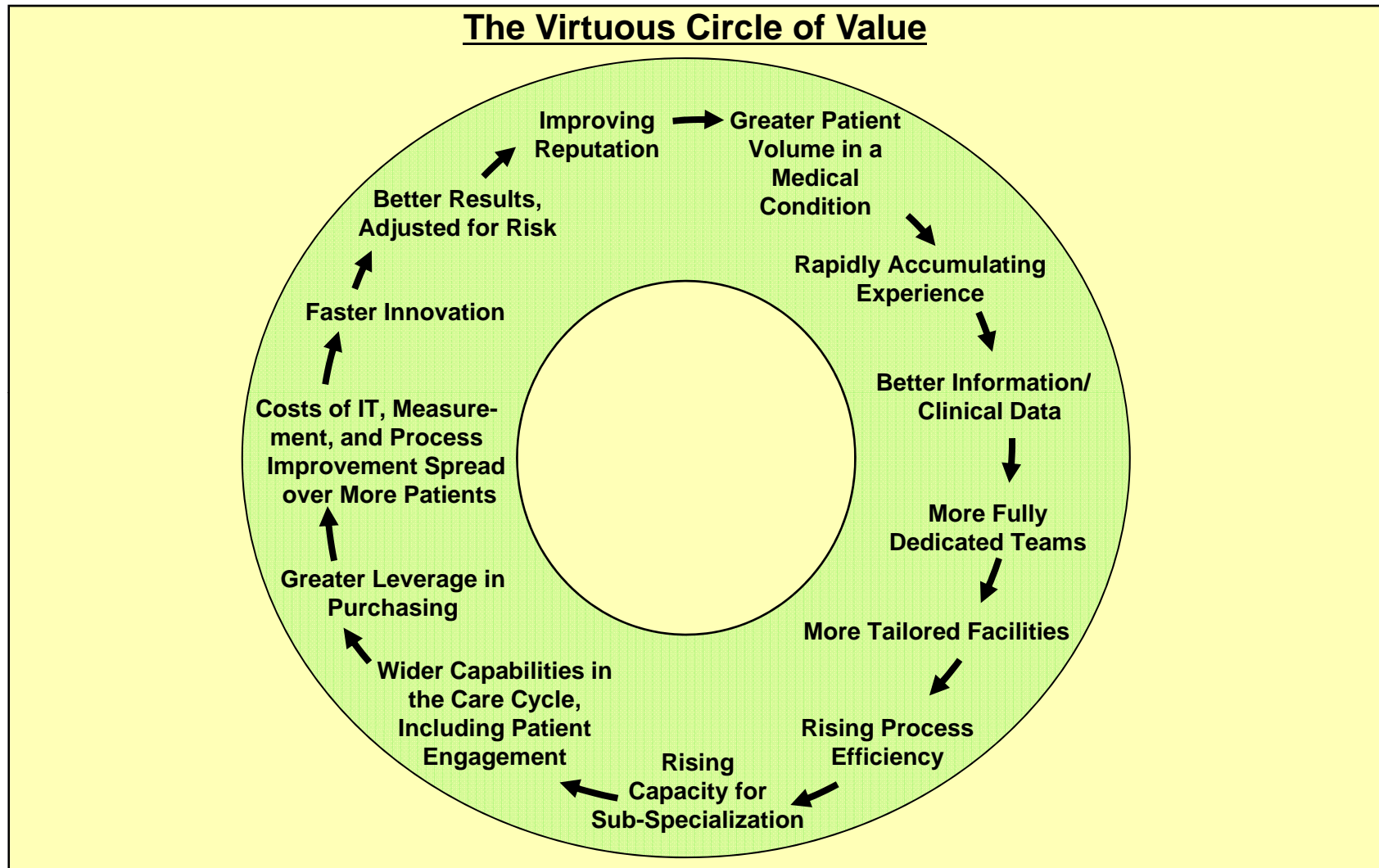
- Organize primary care around **specific patient populations** (e.g. healthy adults, frail elderly, type II diabetics) rather than attempting to be all things to all patients
 - Involving **defined service bundles** covering appropriate prevention, screening, diagnosis, wellness and health maintenance
 - Services are provided by **multidisciplinary teams**, including ancillary health professionals and support staff in **dedicated facilities**
 - **Alliances with specialty IPUs** covering the prevalent medical conditions represented in the patient population
 - Delivered not only in traditional settings but at the **workplace**, **community organizations**, and in **other locations** that offer regular patient contact and the ability to develop a group culture of wellness
- 
- Today's primary care is **fragmented** and attempts to address **overly broad needs** with limited resources

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

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

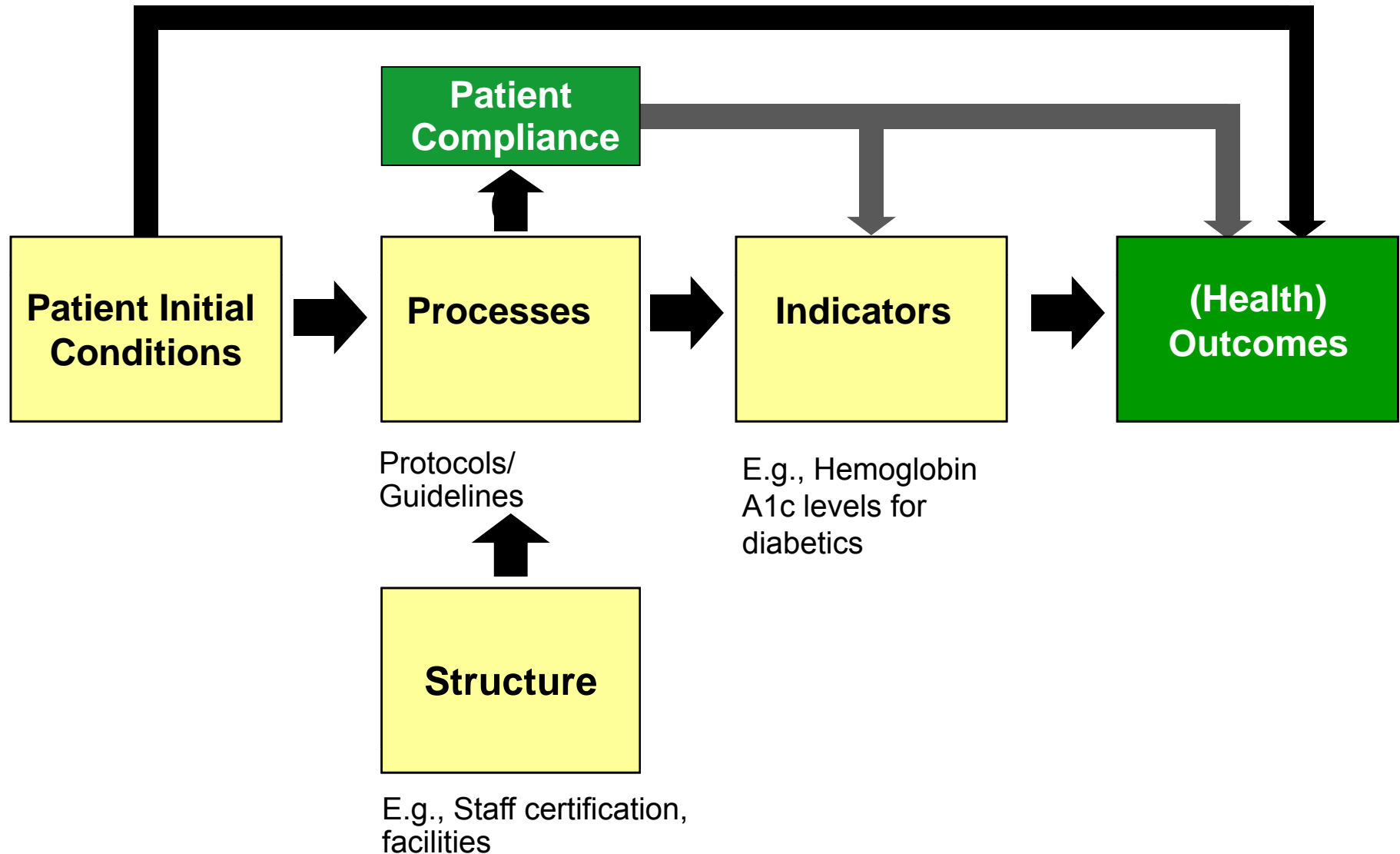
Fragmentation of Hospital Services

Sweden

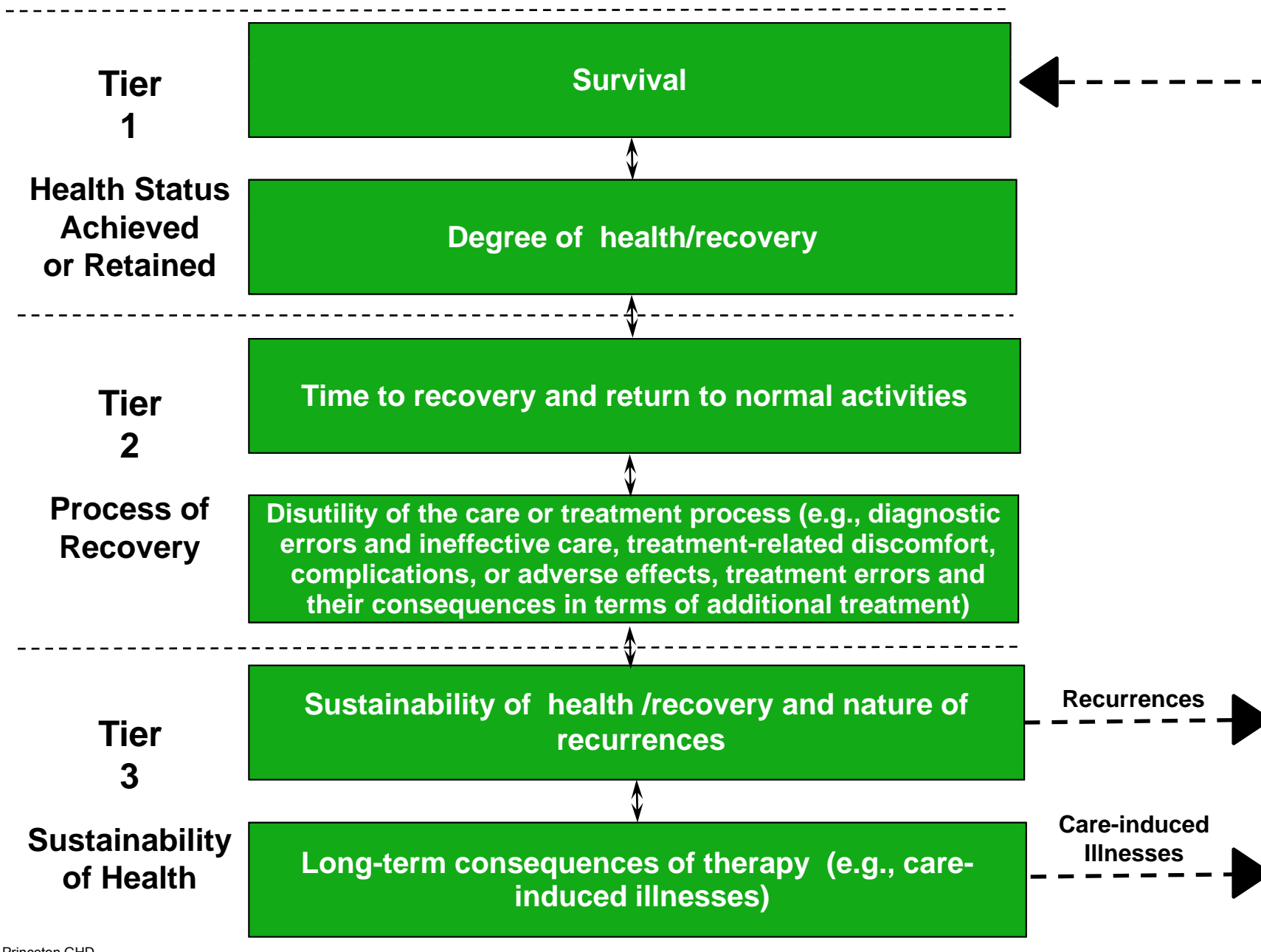
DRG	Number of admitting providers	Average percent of total national admissions	Average admissions/ provider/ year	Average admissions/ provider/ week
Knee Procedure	68	1.5%	55	1
Diabetes age > 35	80	1.3%	96	2
Kidney failure	80	1.3%	97	2
Multiple sclerosis and cerebellar ataxia	78	1.3%	28	1
Inflammatory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

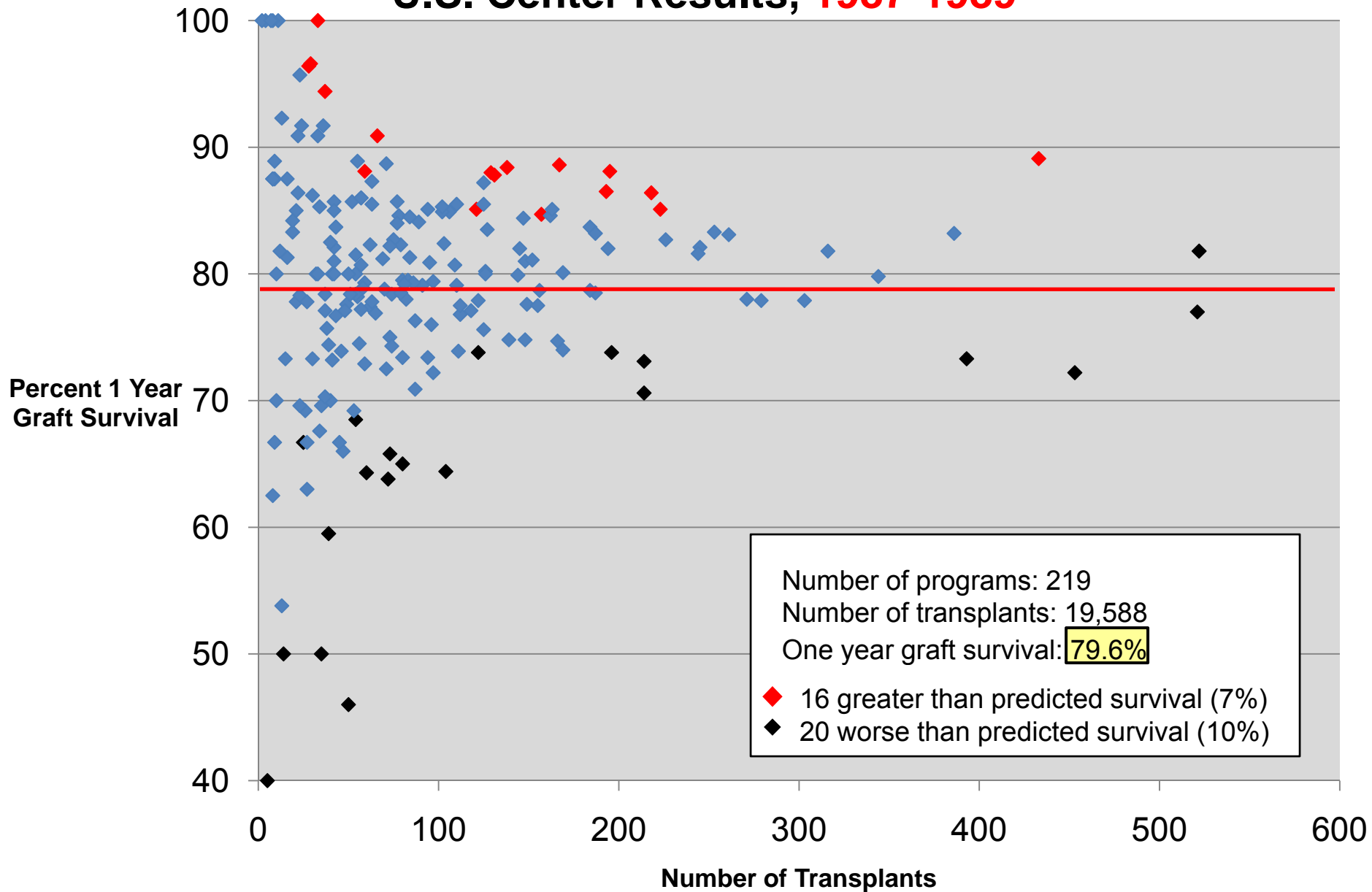
2. Measure Outcomes and Cost for Every Patient



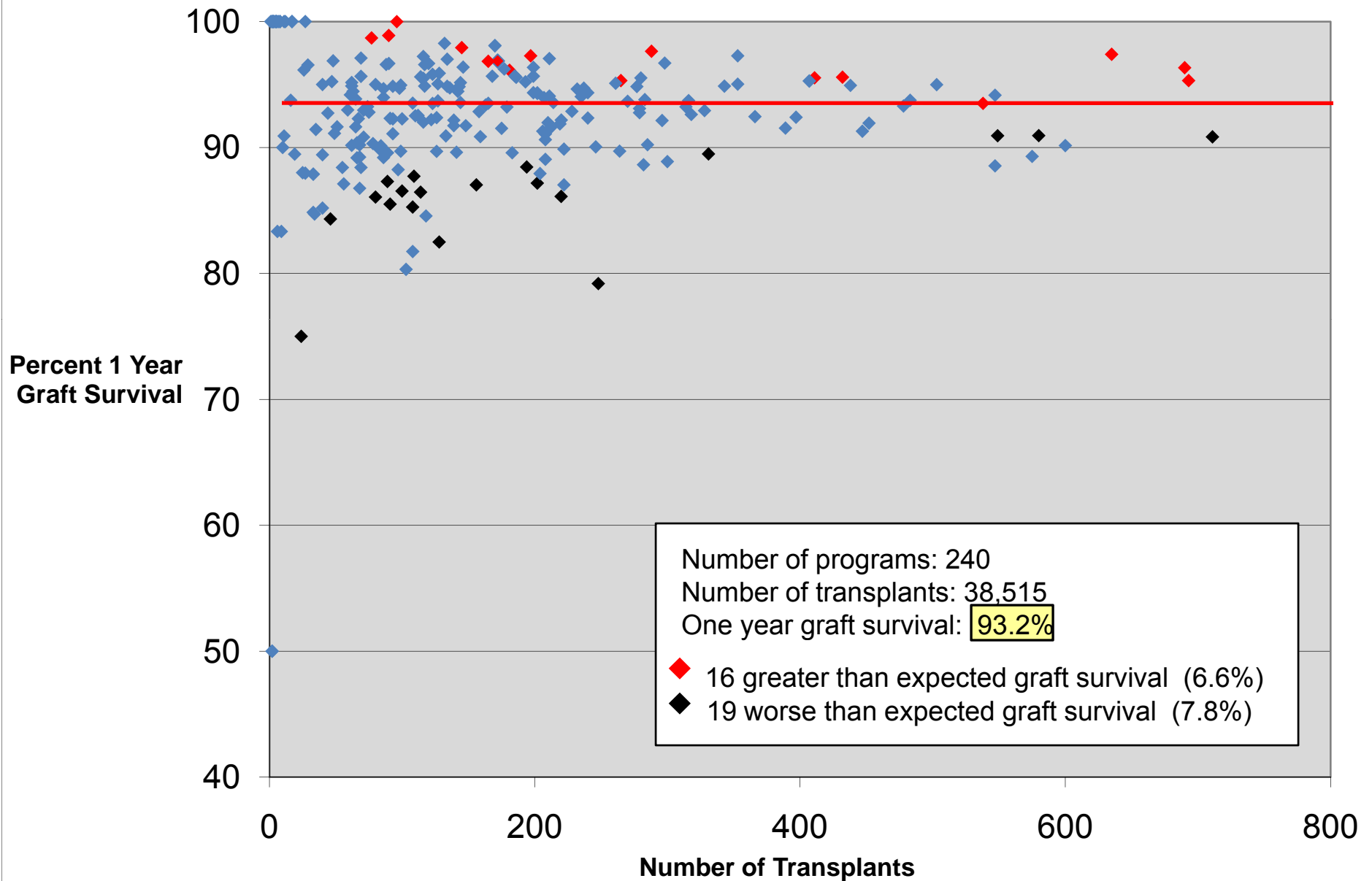
The Outcome Measures Hierarchy



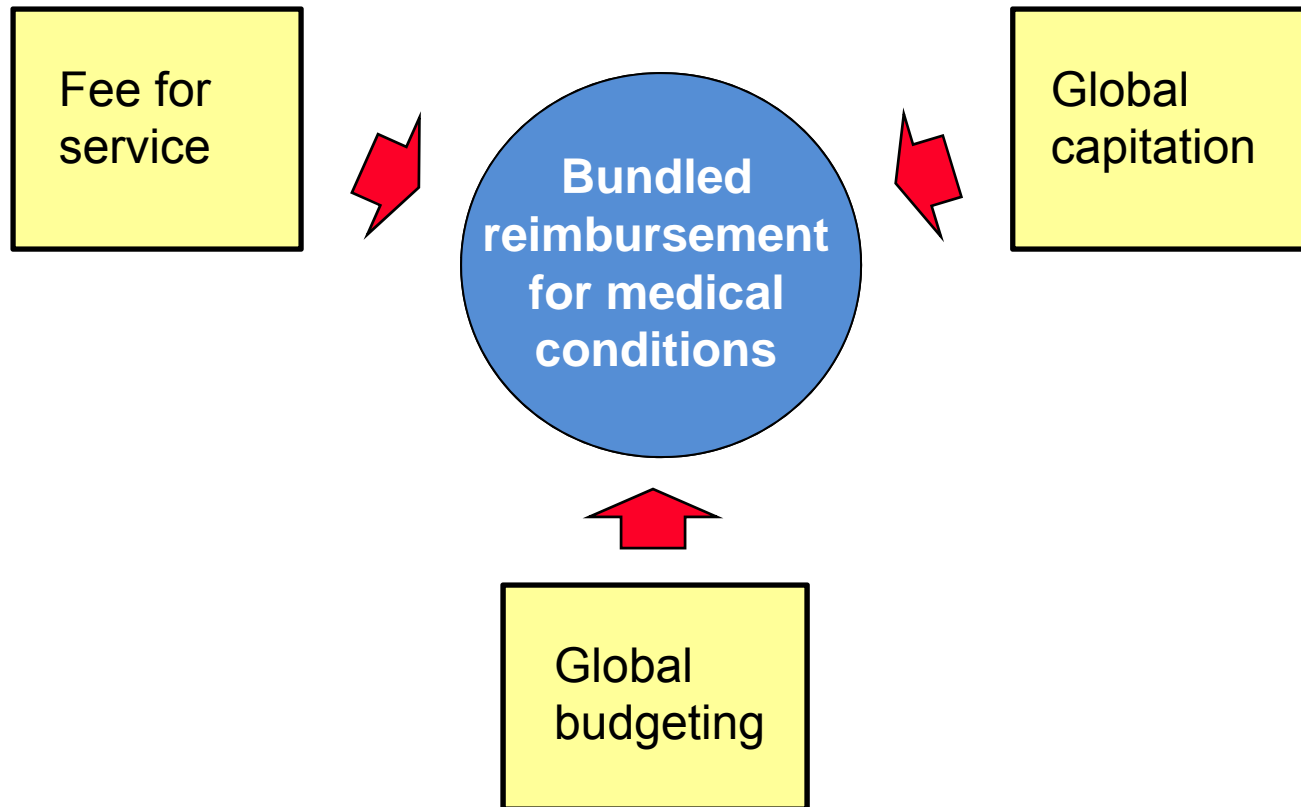
Adult Kidney Transplant Outcomes, U.S. Center Results, 1987-1989



Adult Kidney Transplant Outcomes U.S. Center Results, 2005-2007



3. Move to Bundled Prices for Care Cycles




Bundled Payment in Practice

Hip and Knee Replacement in Stockholm, Sweden

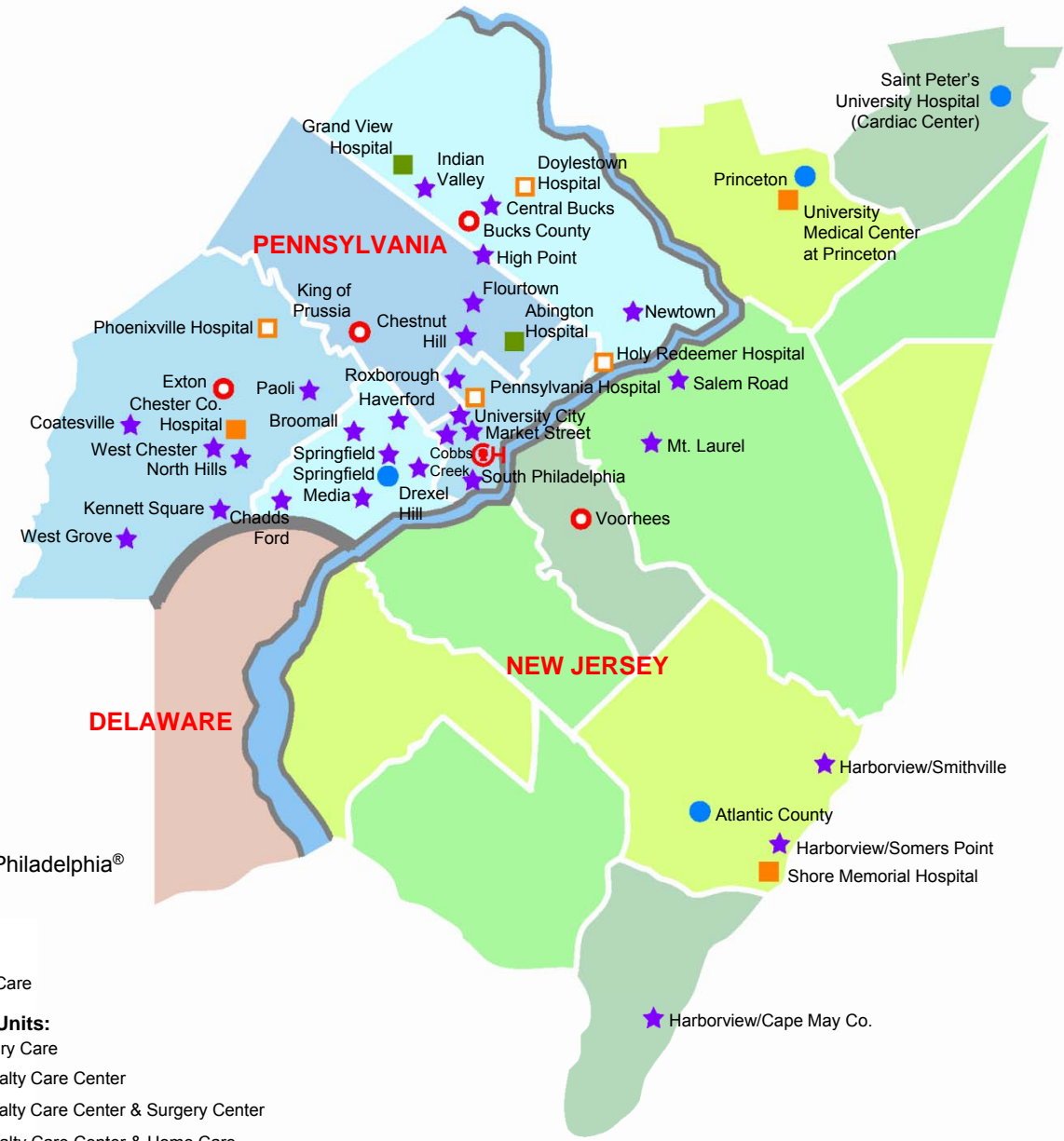
- **Components** of the bundle

- | | |
|---------------------------------|---|
| - 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**

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

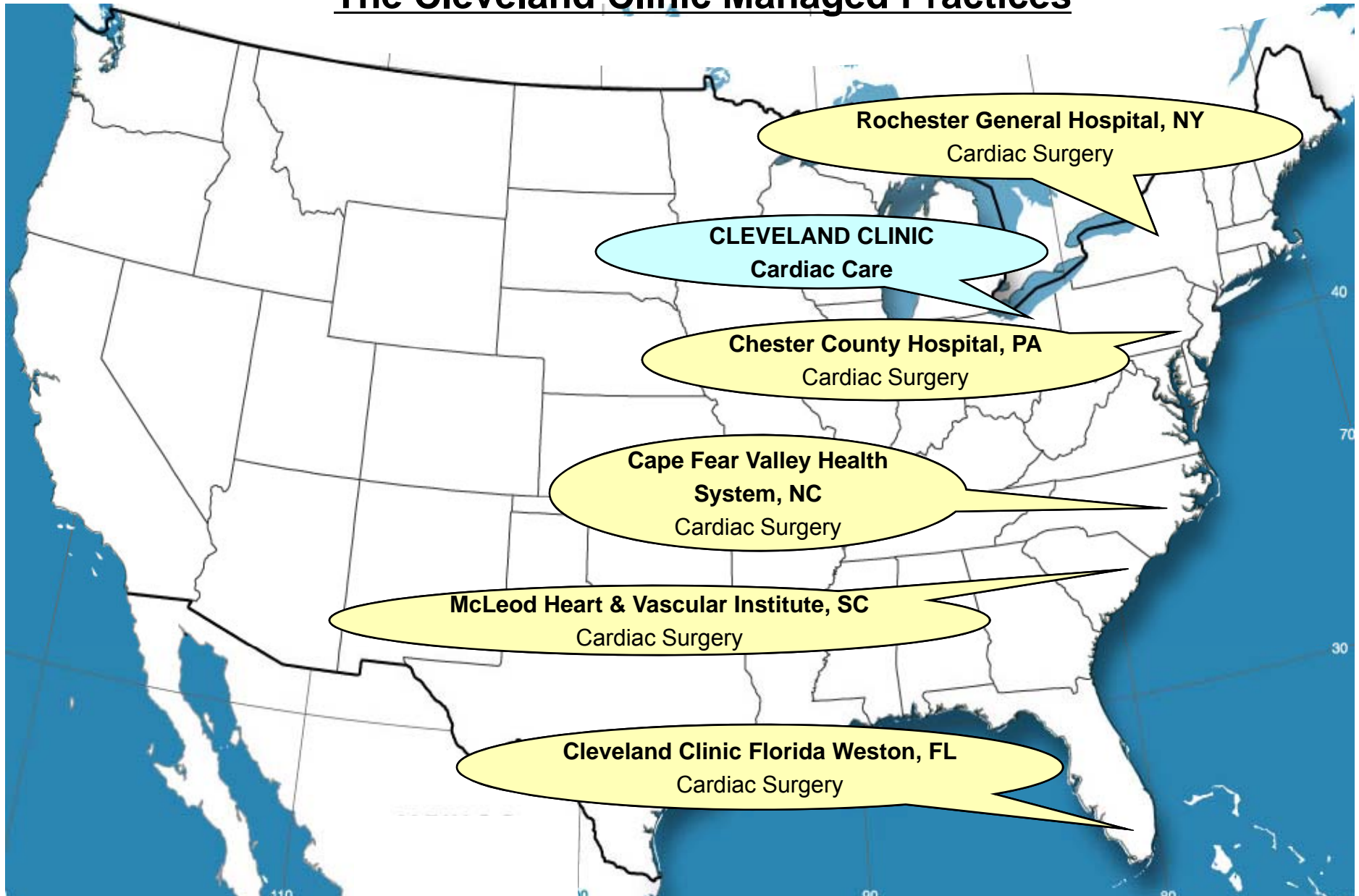
- Select a **scope of service lines** where the organization can achieve excellence
- **Rationalize service lines/ IPU**s across facilities to improve volume, avoid duplication, and deepen teams
- **Offer specific services** at the **appropriate facility**
 - E.g. acuity level, cost level, need for convenience
- **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 IPU's 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**

Health Care Delivery in Resource-Poor Settings: The Need for New Approaches

Current Model

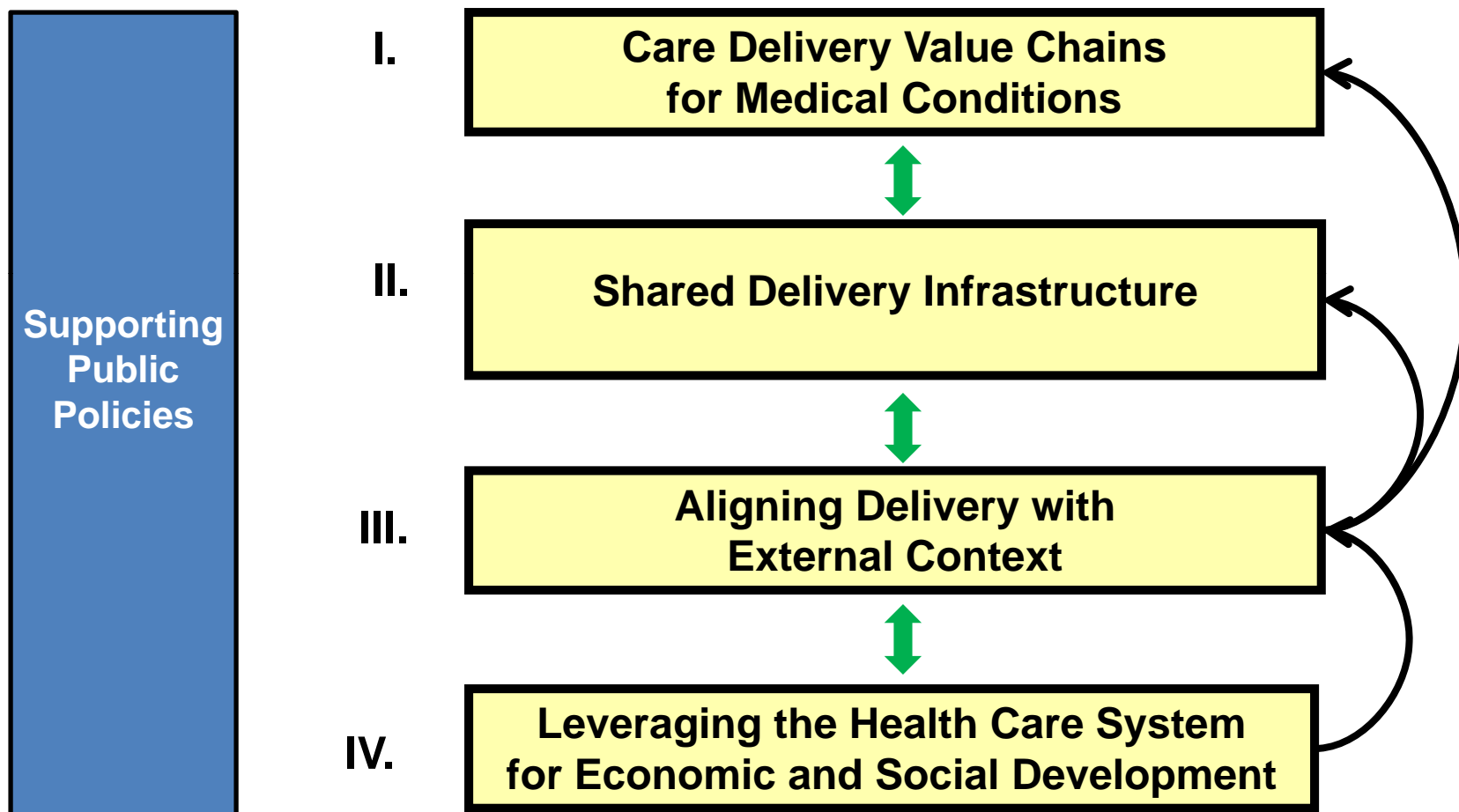
- The product is **treatment**
- Measure **volume** of services (number of tests, treatments)
- Discrete **interventions**
- **Individual** diseases
- **Fragmented, localized,** pilots, programs, and entities



New Model

- The product is **health**
- Measure **value** of services (health outcomes per unit of cost)
- **Care cycles**
- Sets of prevalent **co-occurring conditions**
- Large scale **integrated** care delivery systems

A Framework for Global Health Delivery



The Care Delivery Value Chain

HIV/AIDS

INFORMING/ ENGAGING	<ul style="list-style-type: none"> Prevention counseling on modes of transmission and condom use 	<ul style="list-style-type: none"> Explanation of diagnosis and the implications Explaining the course of HIV and the prognosis 	<ul style="list-style-type: none"> Explanation of the approach to forestalling progression 	<ul style="list-style-type: none"> Explanation of Medication Instructions and Side-Effects 	<ul style="list-style-type: none"> Counseling about adherence; understanding factors for non-adherence 	<ul style="list-style-type: none"> Explanation of the co-morbid diagnoses and the implications End-of Life Counseling
MEASURING	<ul style="list-style-type: none"> HIV testing Screen for sexually transmitted infections Collect baseline demographics 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> CD4+ Count Monitoring (Continuous Staging) Regular Primary Care Assessment HIV Testing for Others at Risk Laboratory Evaluation for Medication Initiation 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> HIV Staging and Medication Response Regular Primary Care Assessment Laboratory Evaluation 	<ul style="list-style-type: none"> HIV Staging and Medication Response Regular Primary Care Assessment Laboratory Evaluation
ACCESSING	<ul style="list-style-type: none"> Testing centers High risk settings Primary Care Clinics 	<ul style="list-style-type: none"> Primary Care Clinics On-sight laboratories at Primary Care Clinics Testing Centers 	<ul style="list-style-type: none"> Primary Care Clinics Laboratories (on-site at primary clinic) Pharmacy Food Centers Community Health Workers/ Home Visits Support Groups 	<ul style="list-style-type: none"> Primary Care Clinics Laboratories (on-site at primary clinic) Pharmacy Community Health Workers/ Home Visits Support Groups 	<ul style="list-style-type: none"> Primary Care Clinics Laboratories (on-site at primary clinic) Pharmacy Community Health Workers/ Home Visits Support Groups 	<ul style="list-style-type: none"> HIV Staging and Medication Response Regular Primary Care Assessment Laboratory Evaluation Food Centers <ul style="list-style-type: none"> Primary Care Clinics (Labs on site) Community Health Workers / Home Visits Hospitals & Hospice Facilities Support Groups
SCREENING DIAGNOSING/ STAGING DELAYING PROGRESSION INITIATING ANTIRETROVIRAL THERAPY ONGOING DISEASE MANAGEMENT MANAGEMENT OF CLINICAL DETERIORATION						
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	



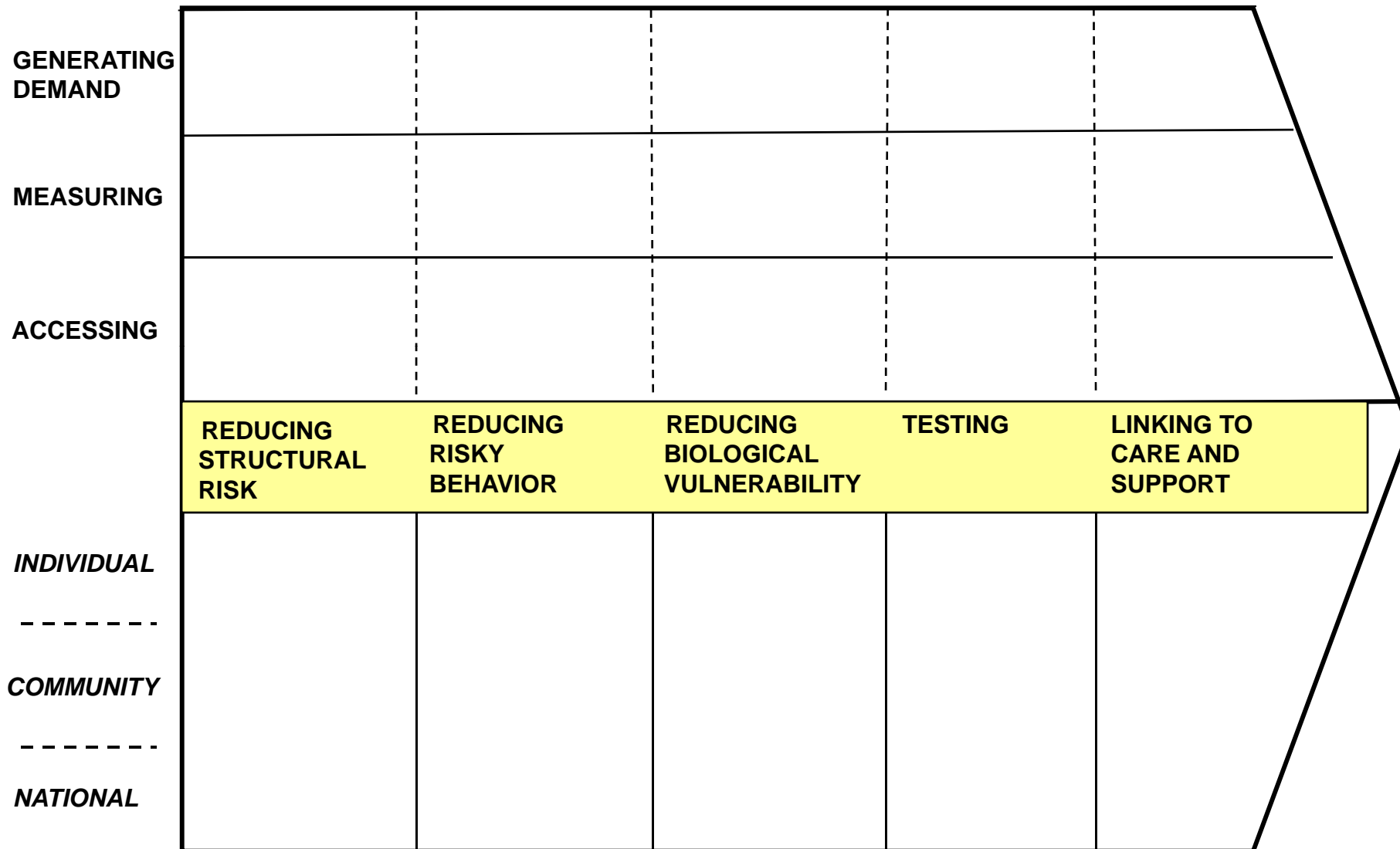
Care Delivery Value Chain

Illustrative Implications for HIV/AIDS Care

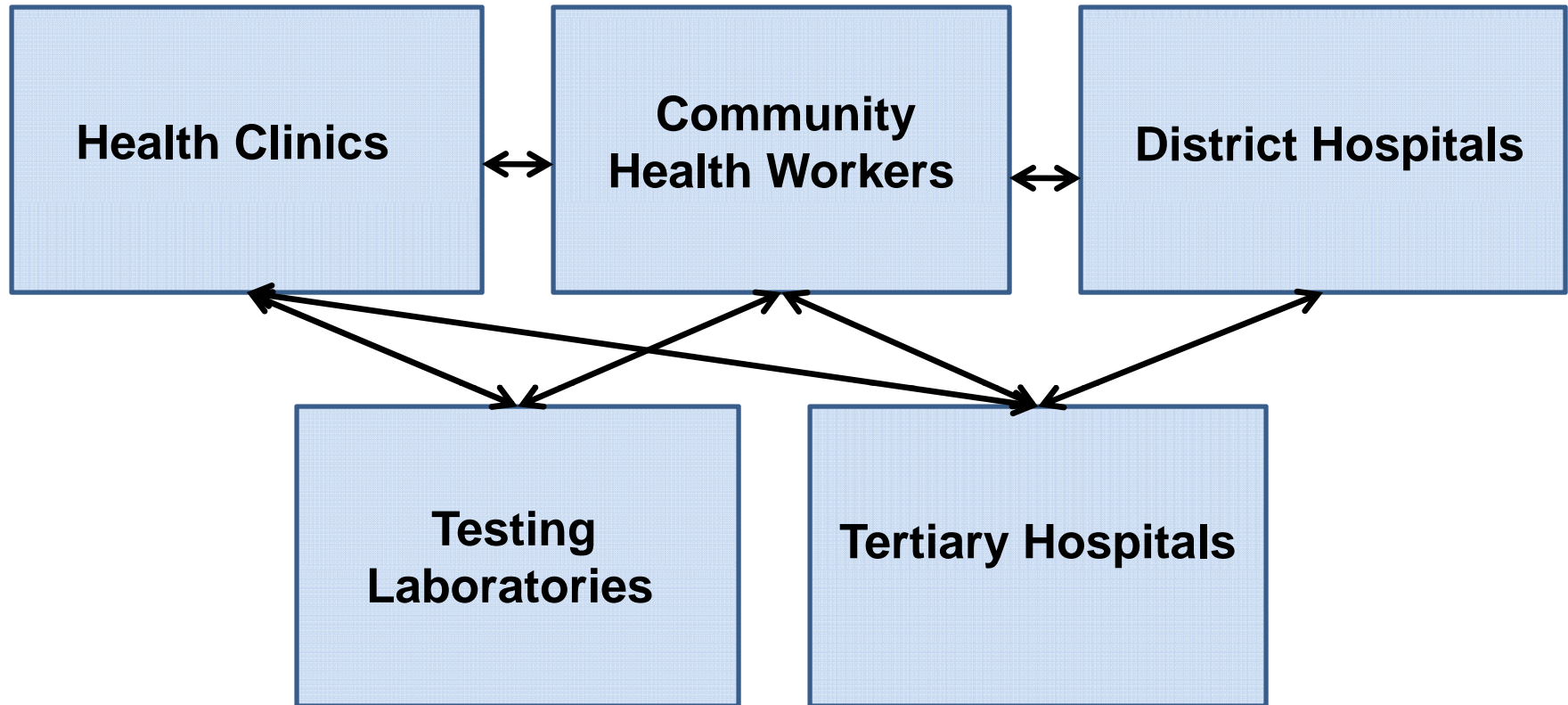
- **Intensive evaluation and treatment at the time of diagnosis** can forestall disease progression
- **Improving compliance with first stage drug therapy** lowers drug resistance and the need to move to more costly second line therapies

The Prevention Delivery Value Chain

HIV/AIDS



Shared Delivery Infrastructure

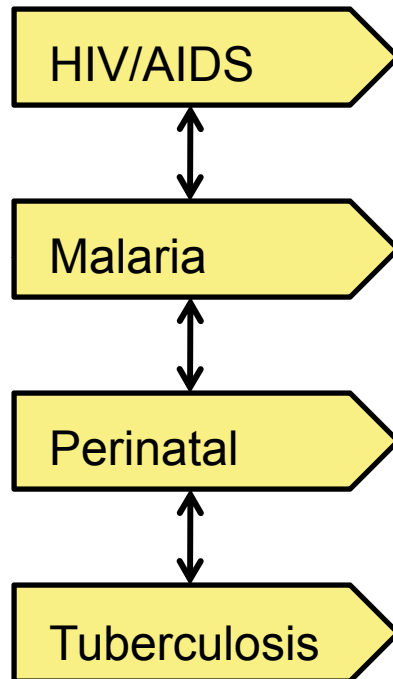


Cross Cutting Issues

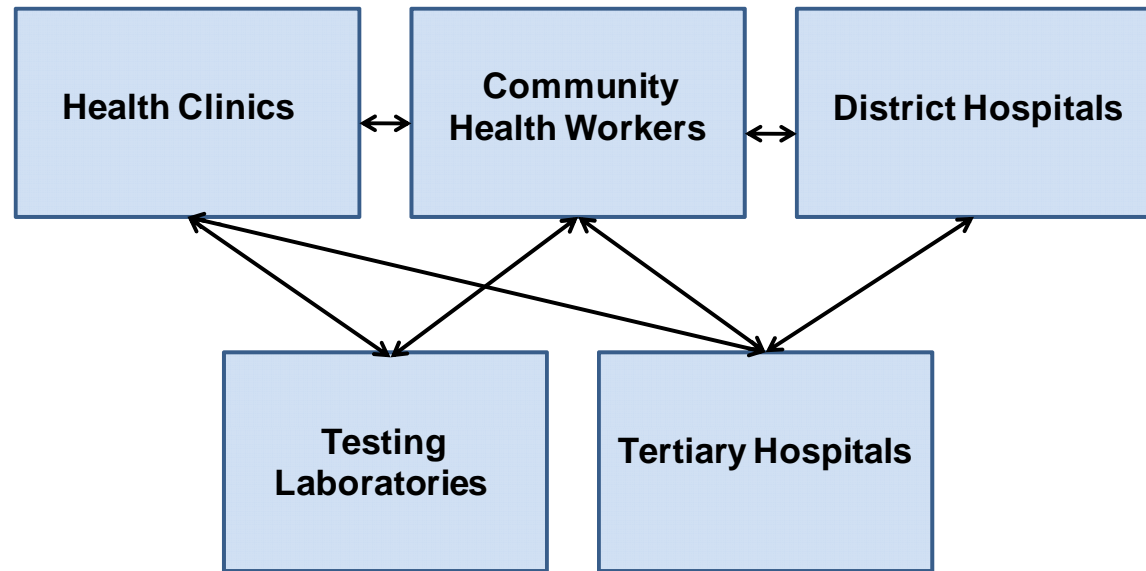
- Supply Chain Management
- Information and IT
- Human Resource Development
- Insurance and Financing

Integrating “Vertical” and “Horizontal”

Care Delivery Value Chains



Shared Delivery Infrastructure



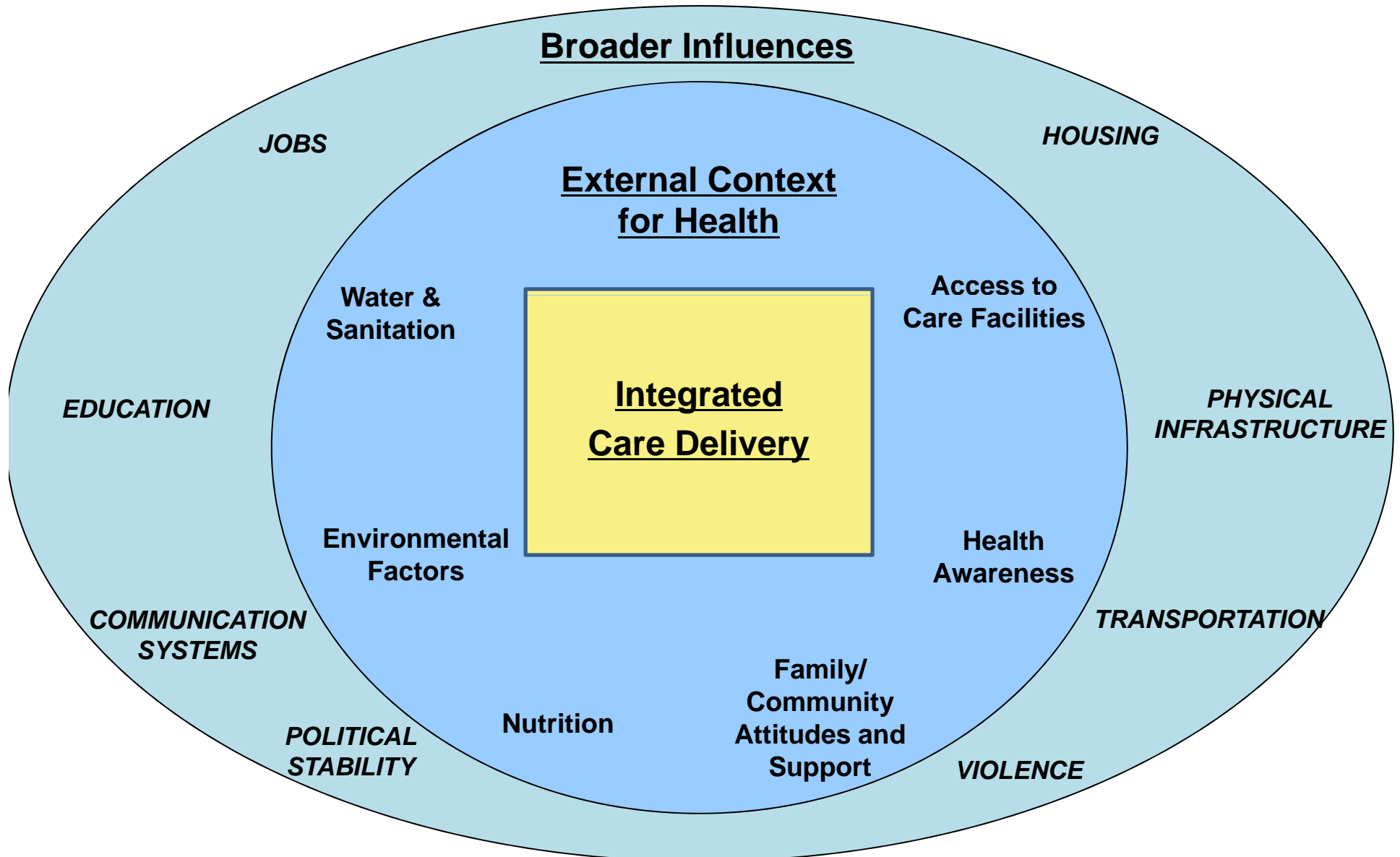
- **Scope of services** at each facility
 - Integrate care across **related diseases**
- Provide care at the **right facility**
- Integrate care **across facilities**

Shared Delivery Infrastructure

Illustrative 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 can not only improve compliance with ARV therapy but also **simultaneously address other conditions**

Integrating Delivery and Context



Integrating Care Delivery and Social/Economic Context

Illustrative 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
- Integrating HIV screening and treatment into routine primary care facilities can help address the **social stigma** of seeking care for HIV/AIDS
- Providing **nutrition support** can be important to success in ARV therapy



- 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 improvement (e.g. cell towers, internet, and electrification)

A New Field of Health Care Delivery

