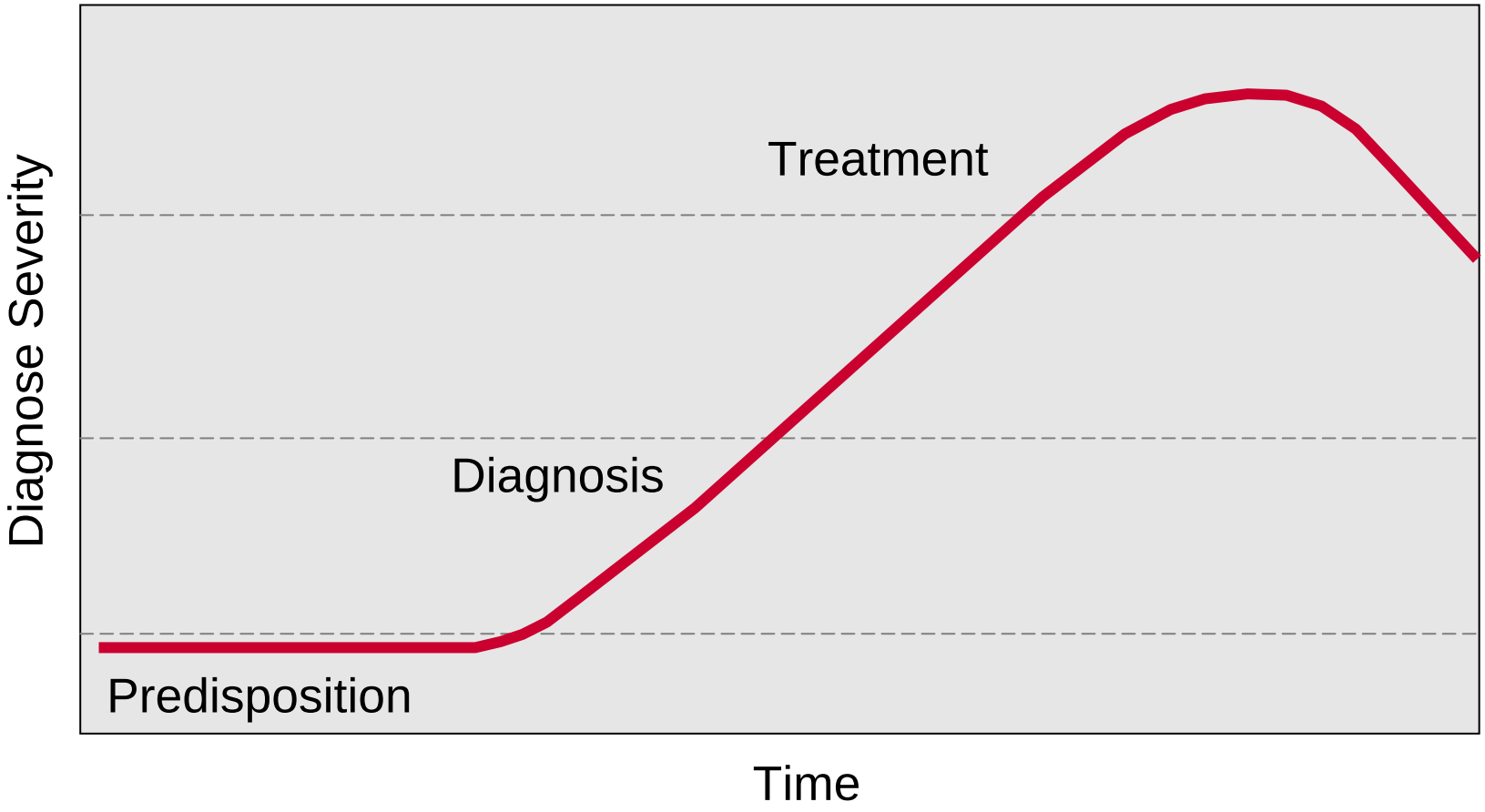
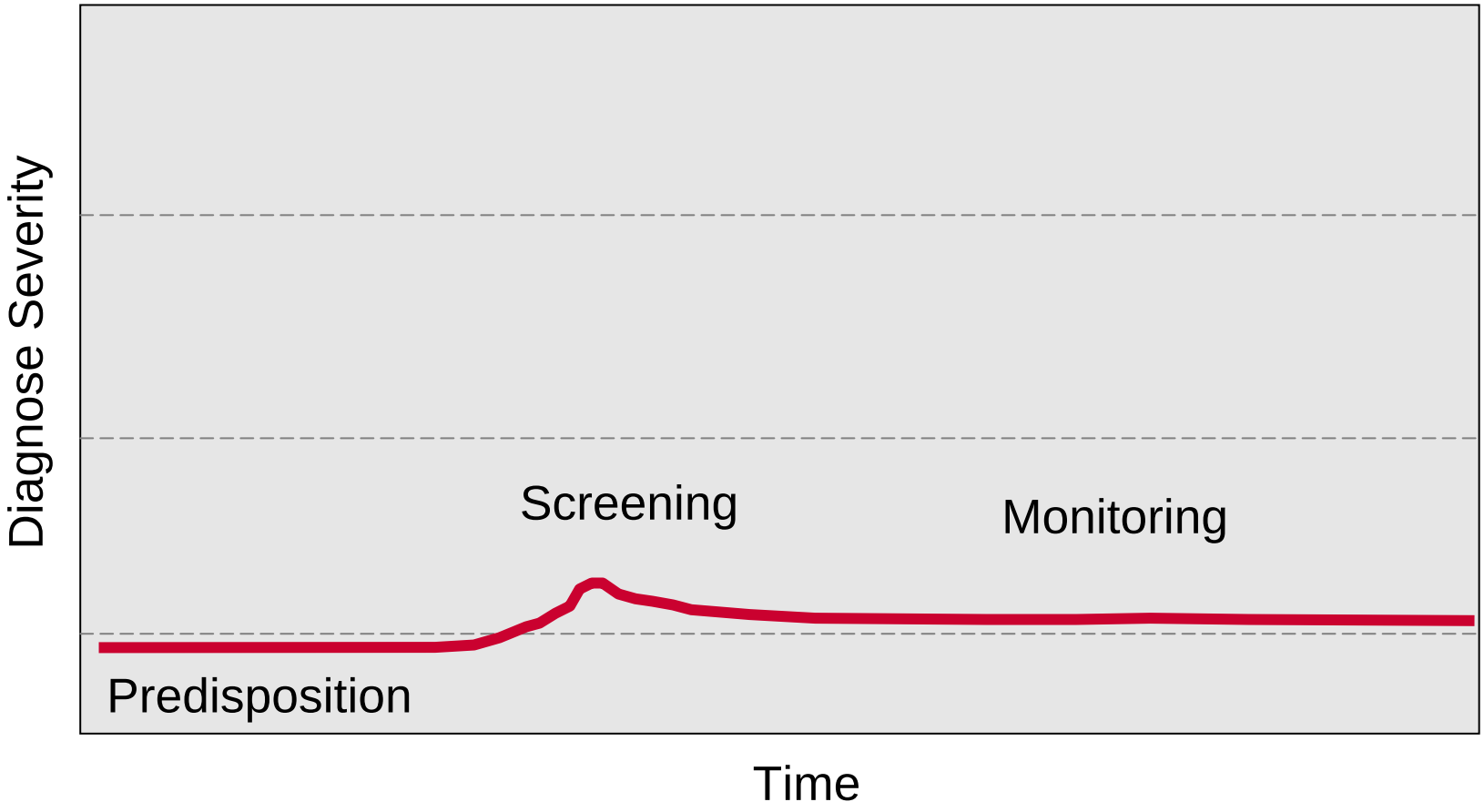
Value Generation in Health Care

	DOCTORS' WARD			MIDWIVES' WARD		
YEAR	BIRTHS	DEATHS	RATE	BIRTHS	DEATHS	RATE
1841	3,036	237	7.8%	2,442	86	3.5%
1842	3,287	518	15.8%	2,659	202	7.6%
1843	3,060	274	9.0%	2,739	164	6.0%
1844	3,157	260	8.2%	2,956	68	2.3%
1845	3,492	241	6.9%	3,241	66	2.0%
1846	4,010	459	11.4%	3,754	105	2.8%
TOTAL	20,042	1,989		17,791	691	
AVERAGE RATE			9.9%			3.9%

Reactive Medical Care



Moving Healthcare Upstream



Newborn Screening

Newborn Screening

Costs per patient detected

20.000 €

Costs per patient not detected

> 1.000.000 €

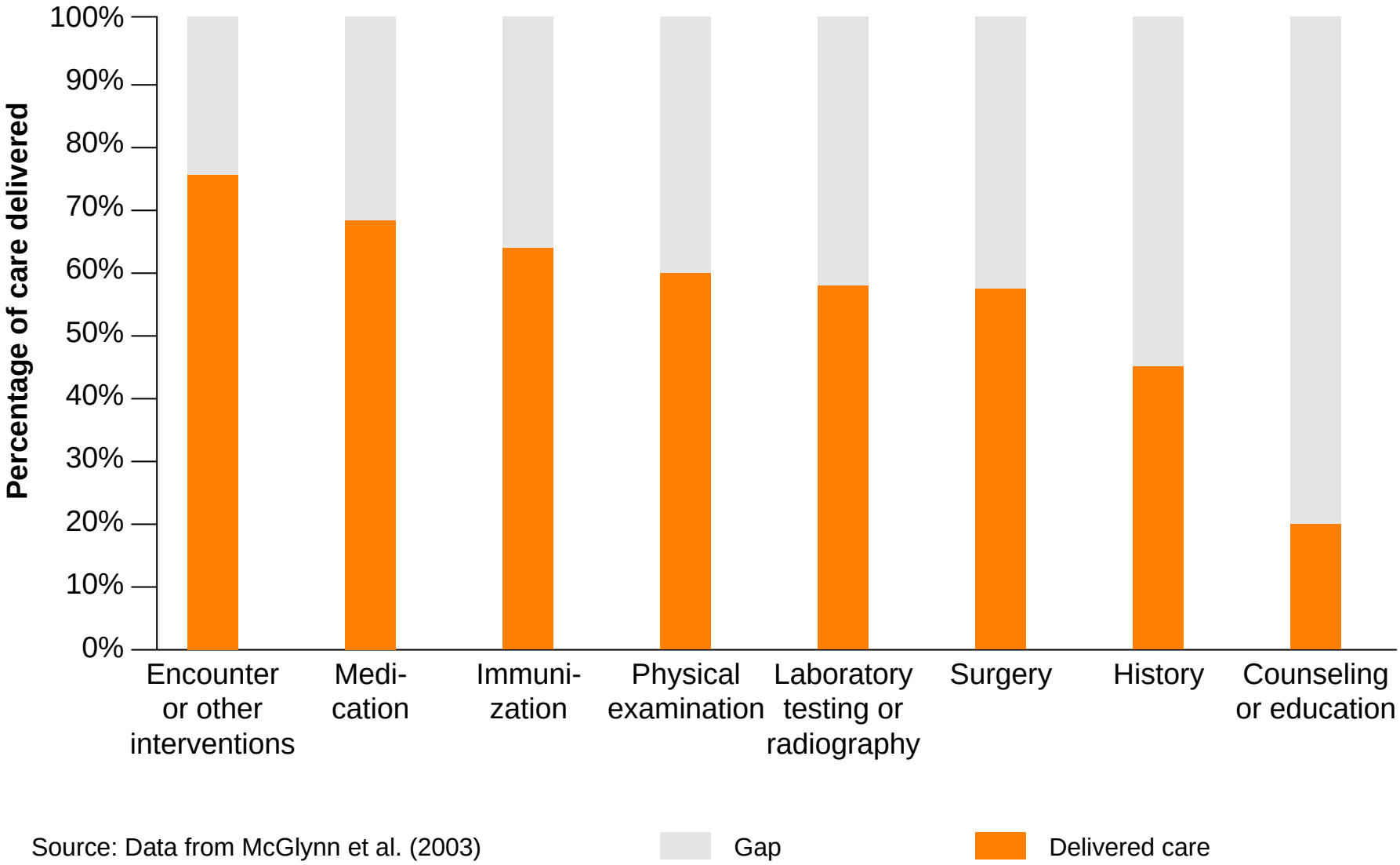
Gap between recommended care and delivered care

Relationship between Application of Selected HEDIS Diagnostic Quality Measures and Avoidable Adverse Health Events, Deaths and Costs

HEDIS Quality Measure	Percent National Under-use in HEDIS Compliant Health Plans	Estimated Annual Avoidable Adverse Health Events	Estimated Annual Avoidable Deaths	Estimated Annual Avoidable Costs
Breast cancer screening (biopsy, needle aspiration or mammography)	19.3%	7,600 breast cancer cases treated in Stage IV due to late diagnosis	600-1,000	$ 48 million
Cholesterol management	48.9	14,600 major coronary events	6,900-17,000	$ 87 million
Colorectal cancer screening (FOBT or colonoscopy)	51.9	20,000 cases of colorectal cancer diagnosed/treated at a later stage	4,200-6,300	$191 million
Diabetes management (HbA1c control)	20.2	14,000 heart attacks, strokes, or amputations	4,300-9,600	$573 million

**Source: The state of health care quality: industry trends and analysis. Washington, DC: National Committee for Quality Assurance, 2004.*

Gap between recommended care and delivered care



Source: Data from McGlynn et al. (2003)

Value Generation in Health Care

In today's dysfunctional competition, players strive not to create value for patients but to

capture revenue

shift costs

restrict services

Michael E. Porter, Redefining Healthcare (2006)

Capturing Revenue and Shifting Costs in Health Care

- Reimbursement

- Regulation

The Diagnostic Value Stream

Specimens	+	Preanalytics
⬇		
Analytics	+	Communication
⬇		
Information	+	Experience
⬇		
Knowledge	+	Judgment
⬇		
= Medical Value		

Pricing and Reimbursement of Diagnostics

- Cost-based reimbursement in EU and US (low margin)

- Little consideration is given to the generated medical value

Reimbursement

Specimens + Preanalytics

↓

Analytics + Communication

↓

Information + Experience

↓

Knowledge + Judgment

↓

= Medical Value

The Diagnostic Revenue Stream

Logistics + Supply Chain Management

Analytics + Communication

= Information

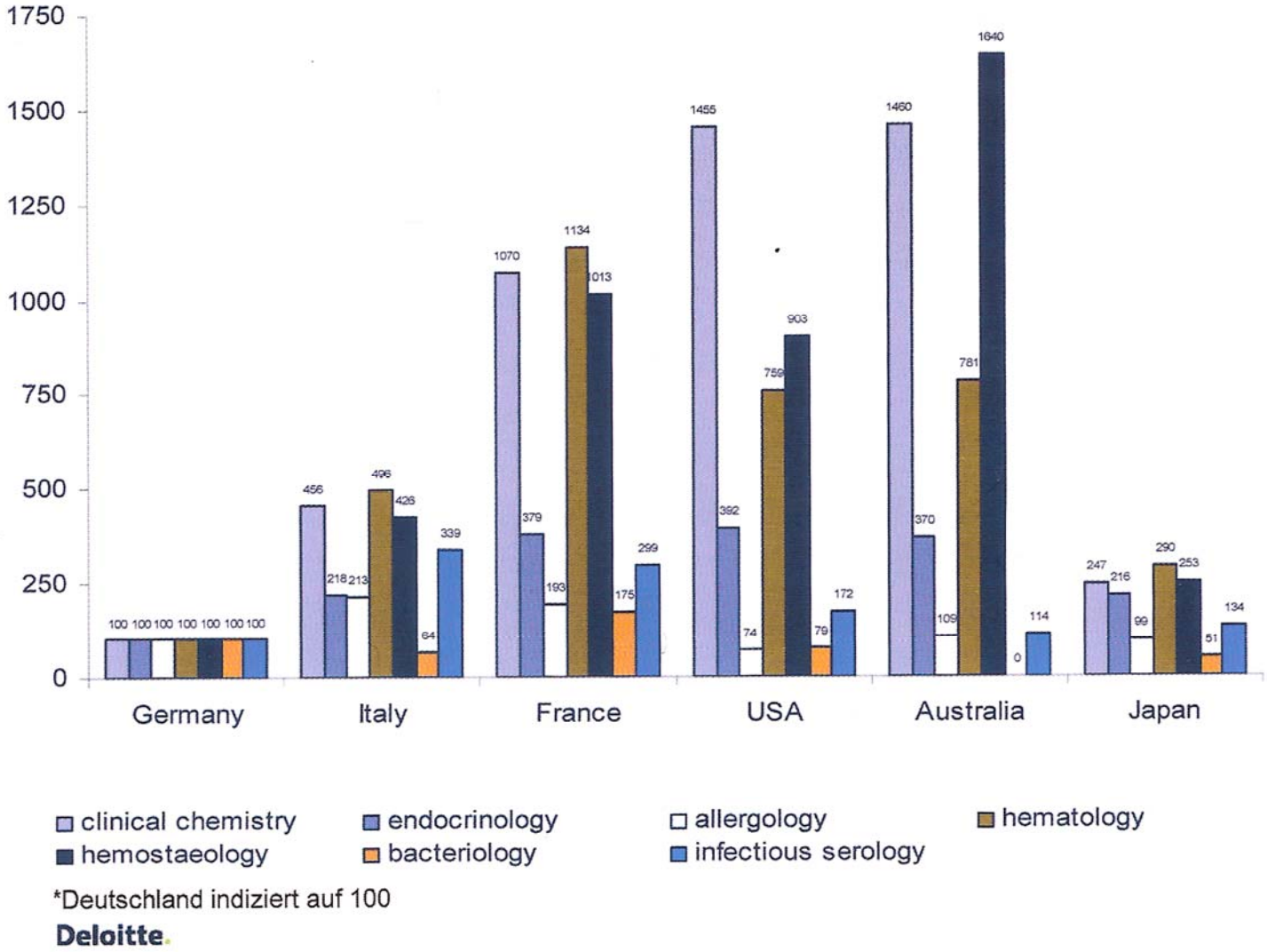
+

Profit Sharing

Laboratory Medicine: Crunch Time in Germany

- Consolidation (Mergers, Acquisitions)
- Private Equity
- Overcapacities

Laboratory Medicine: Crunch Time in Germany



*Deutschland indiziert auf 100

Deloitte.

Laboratory Medicine in Germany

Regulation

Specimens + Preanalytics

⬇

Analytics + Communication

Rili-BÄK

⬇

Information + Experience

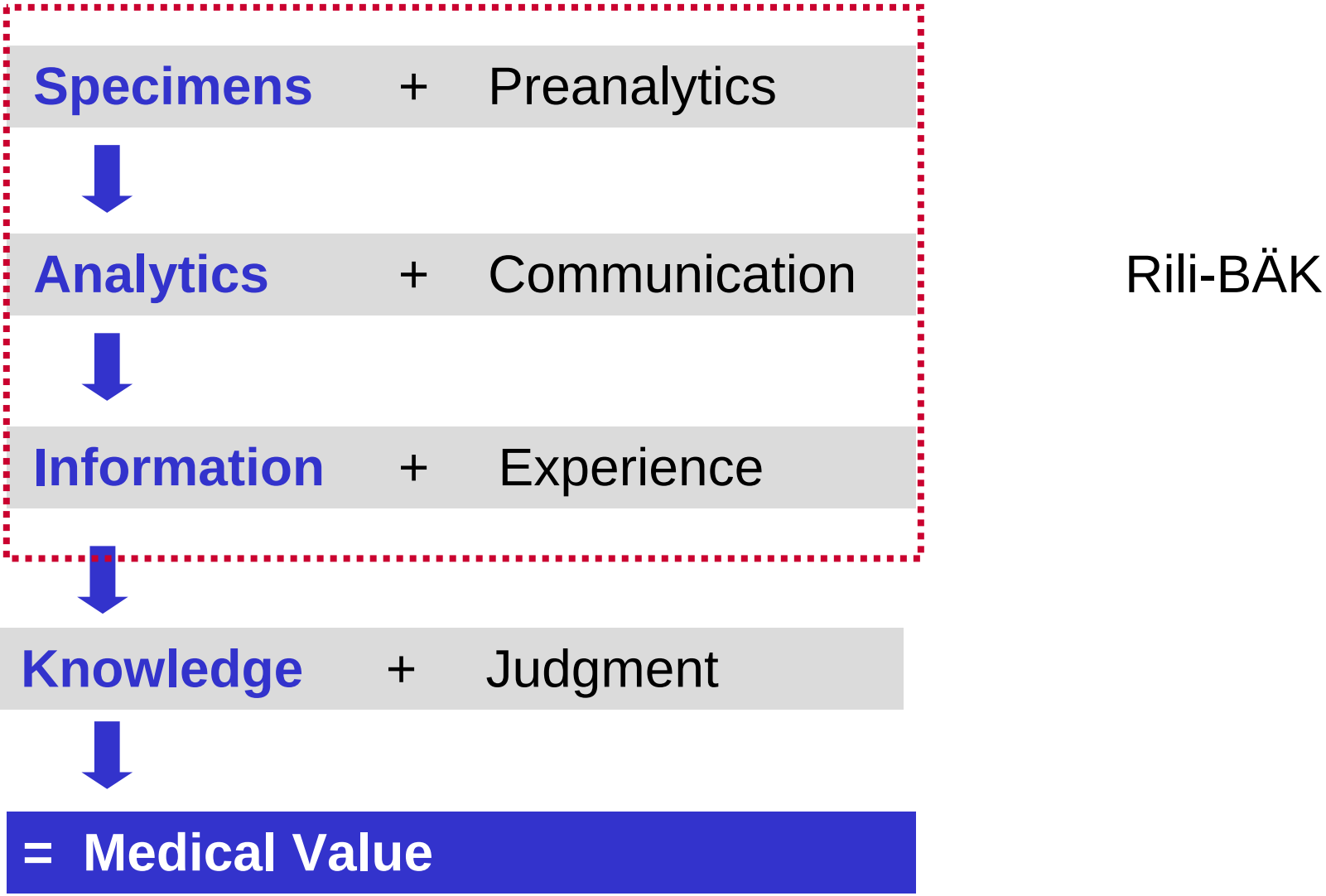
⬇

Knowledge + Judgment

⬇

= Medical Value

Regulation



Rili-BÄK

The Diagnostic Revenue Stream

Logistics + Supply Chain Management

Analytics + Communication

= Information

+

Profit Sharing

Reimbursement in Laboratory Medicine in Germany

	Ambulant	Stationär
GKV	1,668 Mrd. €	2,324 Mrd. €
GOÄ	0,615 Mrd. €	0,399 Mrd. €
Andere	0,786 Mrd. €	0,208 Mrd. €

Statistisches Bundesamt 2005

The Diagnostic Revenue Stream

Logistics + Supply Chain Management

Analytics + Communication

= Information = Commodity Value

The Diagnostic Value Stream

Specimens + Preanalytics

⬇

Analytics + Communication

⬇

Information + Experience

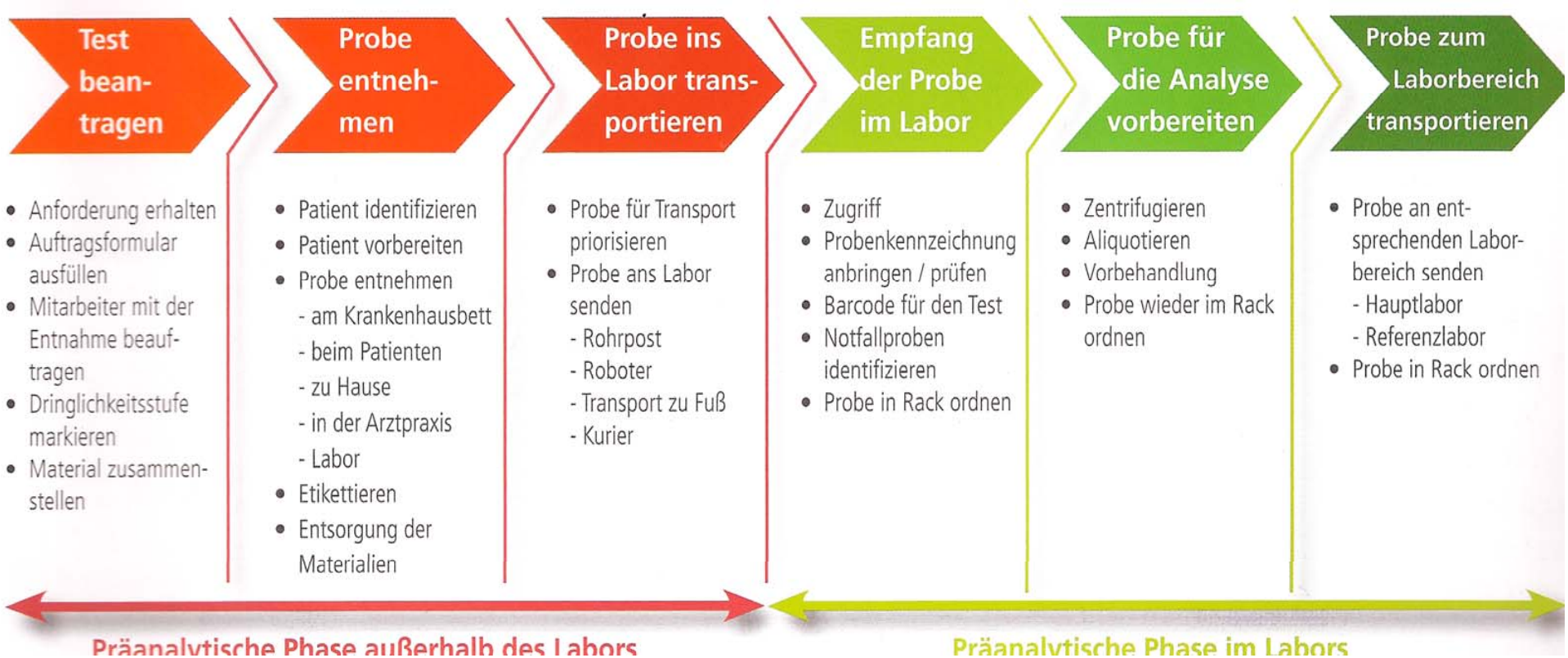
⬇

Knowledge + Judgment

⬇

= Medical Value

Preanalytics

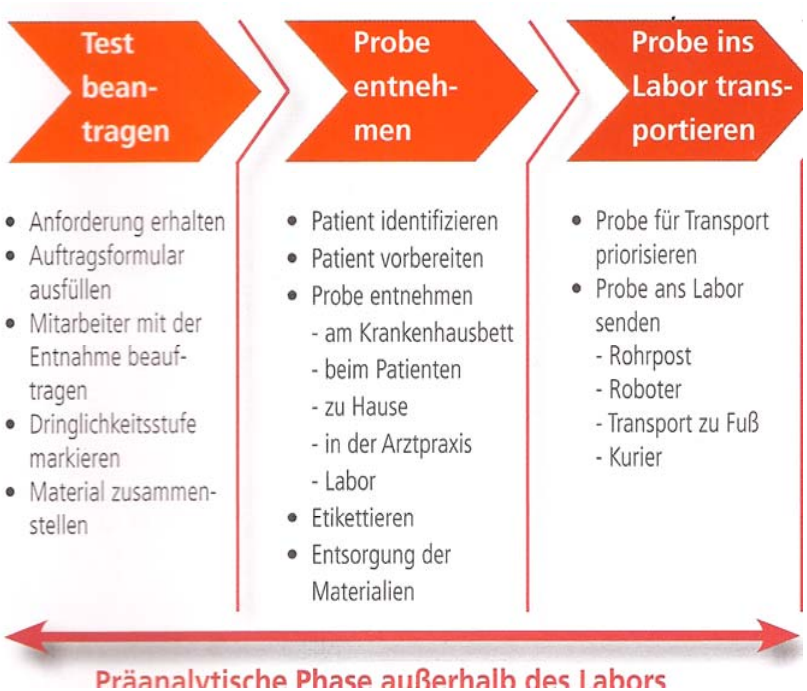


Preanalytics

- 2 in 1000 laboratory tests
- 0,2 – 0,3 % of overall hospital costs

Frost & Sullivan, Oxford, Great Britain 2009

Preanalytics



The Diagnostic Value Stream

Specimens + Preanalytics

⬇

Analytics + Communication

⬇

Information + Experience

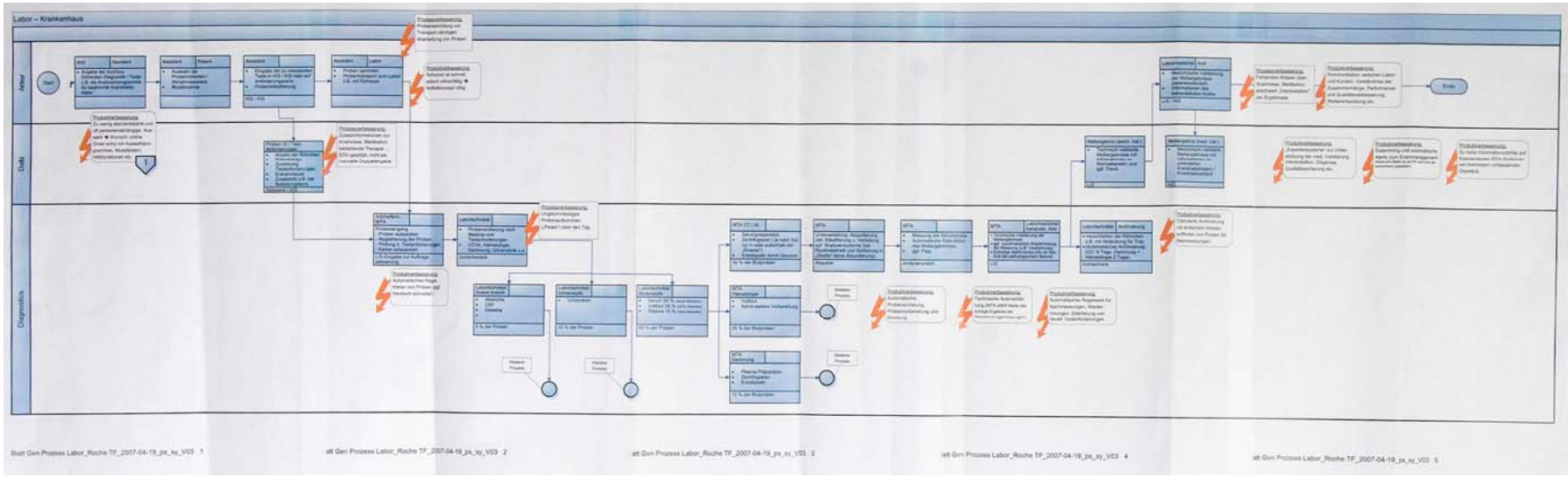
⬇

Knowledge + Judgment

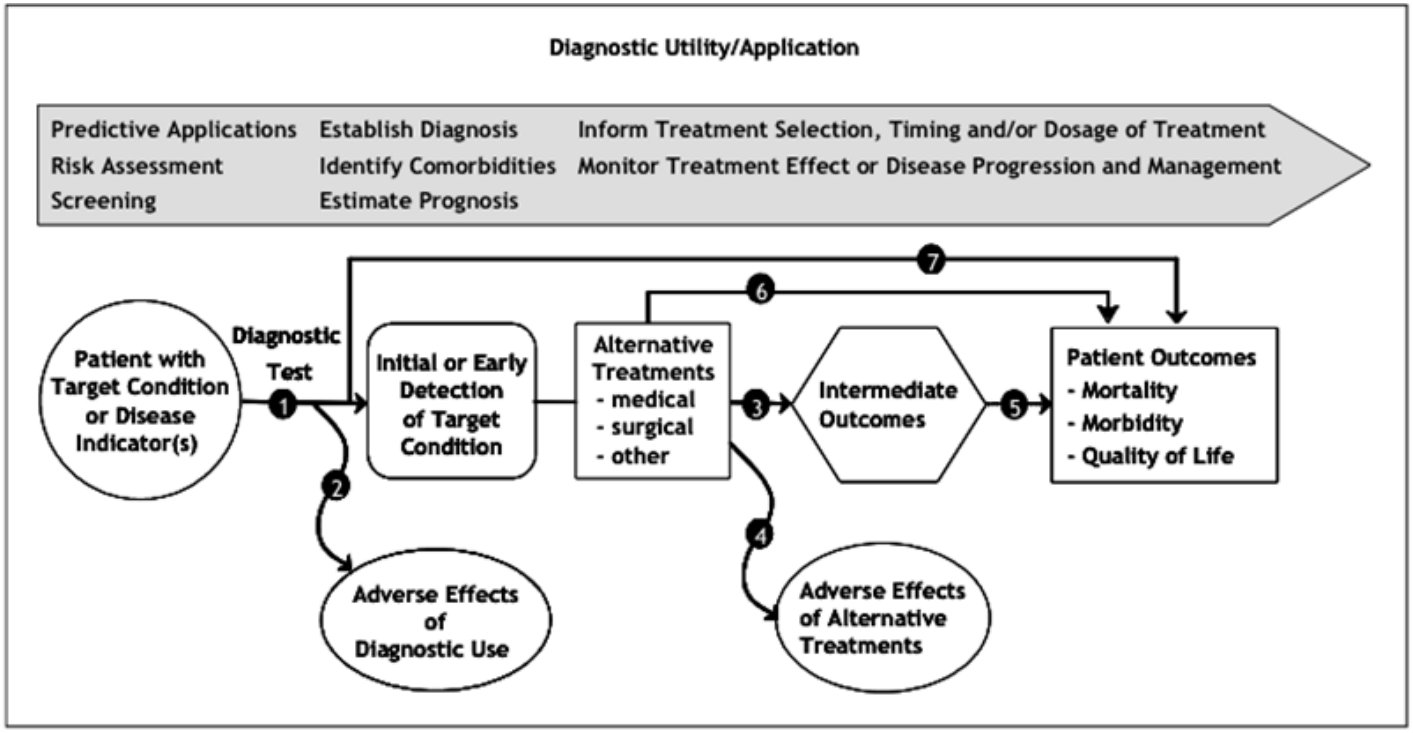
⬇

= Medical Value

Example: acute coronary syndrome



Diagnostic value generation



1. *Is a particular diagnostic test accurate for the target condition?*
2. *Does diagnostic use result in adverse effects or harms?*
3. *Do treatments change intermediate health outcomes? (e.g., cholesterol levels, tumor size)*
4. *Do treatments/health interventions result in adverse effects?*
5. *Are changes in intermediate outcomes associated with changes in health outcomes?*
6. *Does treatment improve health outcomes?*
7. *Is there direct evidence that diagnostic use improves health outcomes?*

Source: Adapted from Harris, Helfand, Woolf, et al. 2001.

The Diagnostic Value Stream

Specimens + Preanalytics

⬇

Analytics + Communication

⬇

Information + Experience

⬇

Knowledge + Judgment

⬇

= Medical Value

Diagnostic Errors—The Next Frontier for Patient Safety

David E. Newman-Toker, MD, PhD

Peter J. Pronovost, MD, PhD

DURING THE PAST DECADE, AWARENESS AND UNDERstanding of medical errors have expanded rapidly, with an energetic patient safety movement promoting safer health care through "systems" solutions. Efforts have focused on translating evidence into practice, mitigating hazards from therapies, and improv-

An estimated 40 000 to 80 000 US hospital deaths result from misdiagnosis annually.[4] Roughly 5% of autopsies reveal lethal diagnostic errors for which a correct diagnosis coupled with treatment could have averted death.[5] In the Harvard Medical Practice Study, physician errors resulting in adverse events were more likely to be diagnostic than drug-related (14% vs 9%), and misdiagnoses were more likely to be considered negligent (75% vs 53%) and to result in serious disability (47% vs 14%).[6] Not surprisingly, tort claims

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Diagnostic Workflow

Microbiology

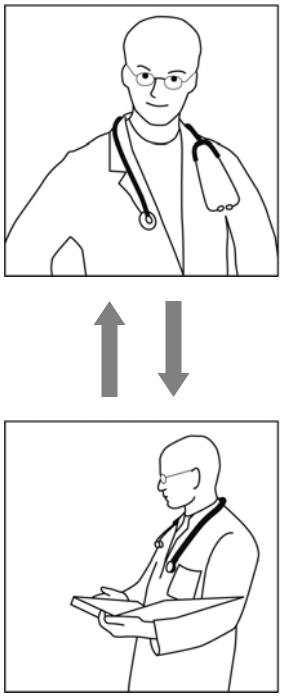
Clinical chemistry

Transfusion medicine

Pathology

Immunology

Integration

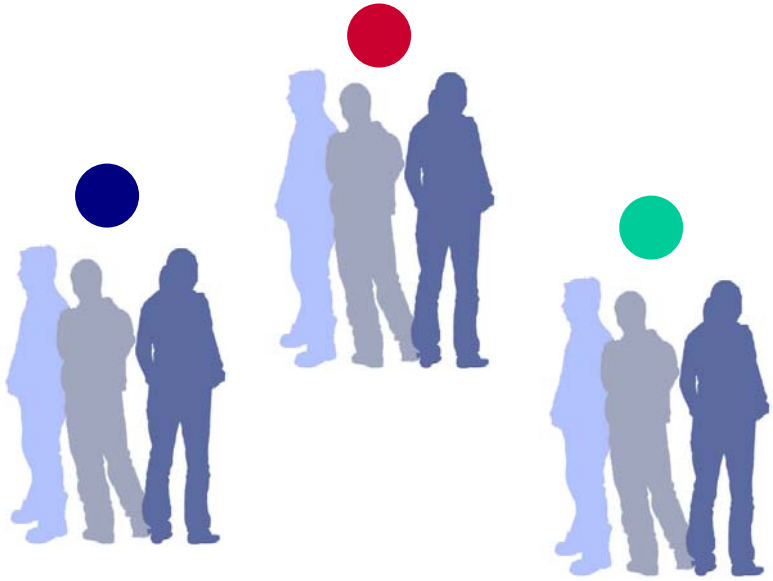


Personalized Medicine

Current Practice

Trial and Error

Personalized Medicine



The right treatment for the right person at the right time

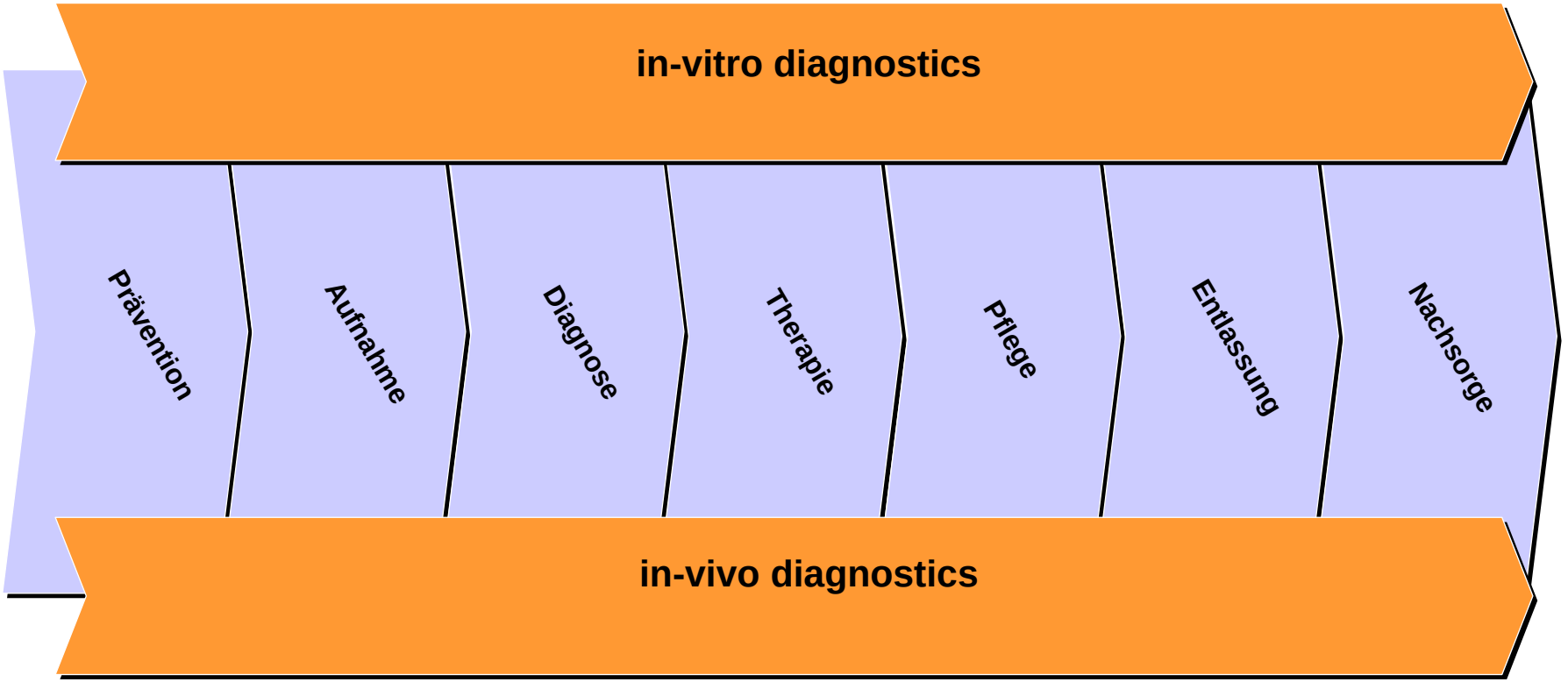
Needed: reliably applying medical science to each patient

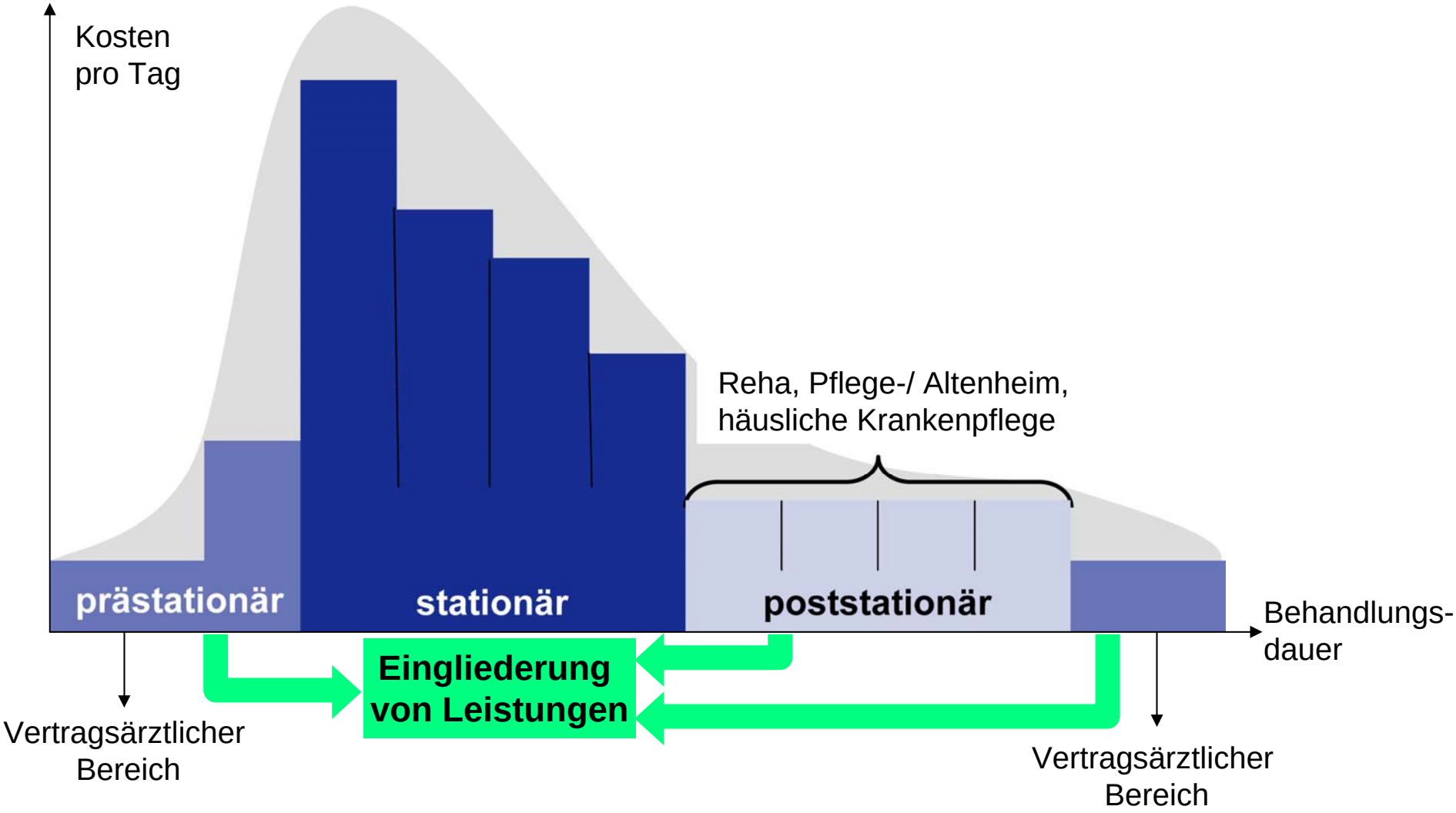
A Comparison of Service-Oriented Organizations and Outcomes-Oriented Organizations in Health Care Delivery.

Variable	Service-Oriented Organizations	Outcomes-Oriented Organizations
Role of delivery organization	Health care production facility: aggregate and manage essential resources	Health care production facility: improve outcomes by reliably applying medical science to each patient
Primary measures	Transactions	Outcomes
Locus of knowledge	Individual	Organization
Clinical perspective	Individual interaction	System design and effectiveness
Doctor's skill set	Clinical judgment	Leadership

Bohmer, R. et al., N ENGL J MED 361;6 2009

From Service-Oriented to Outcome-Oriented Organizations




Kosten
pro Tag
Reha, Pflege-/ Altenheim,
häusliche Krankenpflege
prästationär
stationär
poststationär
Behandlungs-
dauer
Eingliederung
von Leistungen
Vertragsärztlicher
Bereich
Vertragsärztlicher
Bereich