

A Science of Connectedness

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
Case Western Reserve University

A Talk from Two Places

- The day-to-day
- A step back

THE UNIVERSITY
OF MELBOURNE

 nab

 nab



- Cycles of renewal & adaption
- The problem of fragmentation
- The paradox of primary care
- A generalist approach
- A science of connectedness
- Ways of knowing and inquiry
- [Regaining our moral authority]

Adaptive Renewal Cycles

Panarchy

*UNDERSTANDING
TRANSFORMATIONS
IN HUMAN AND
NATURAL SYSTEMS*

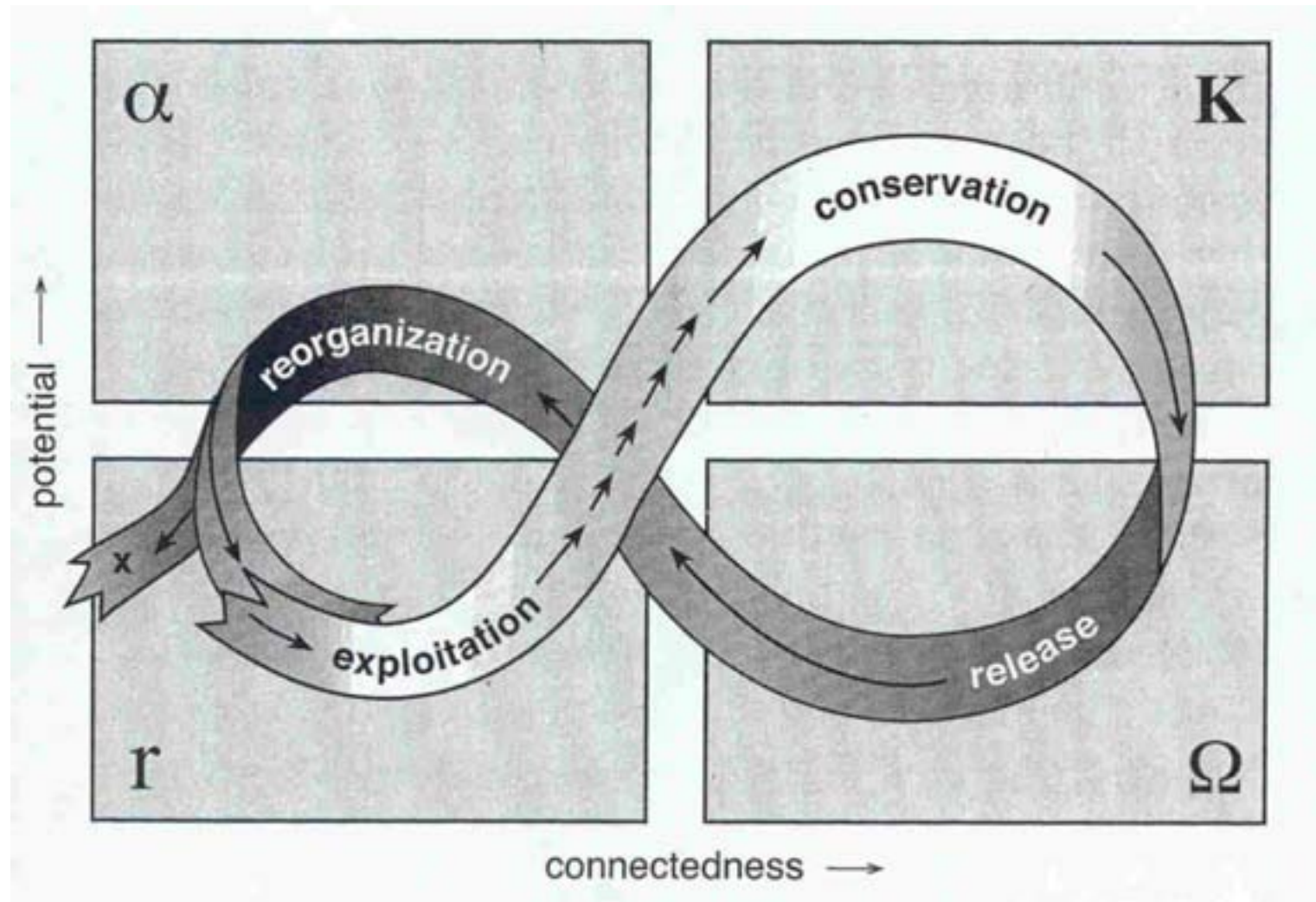


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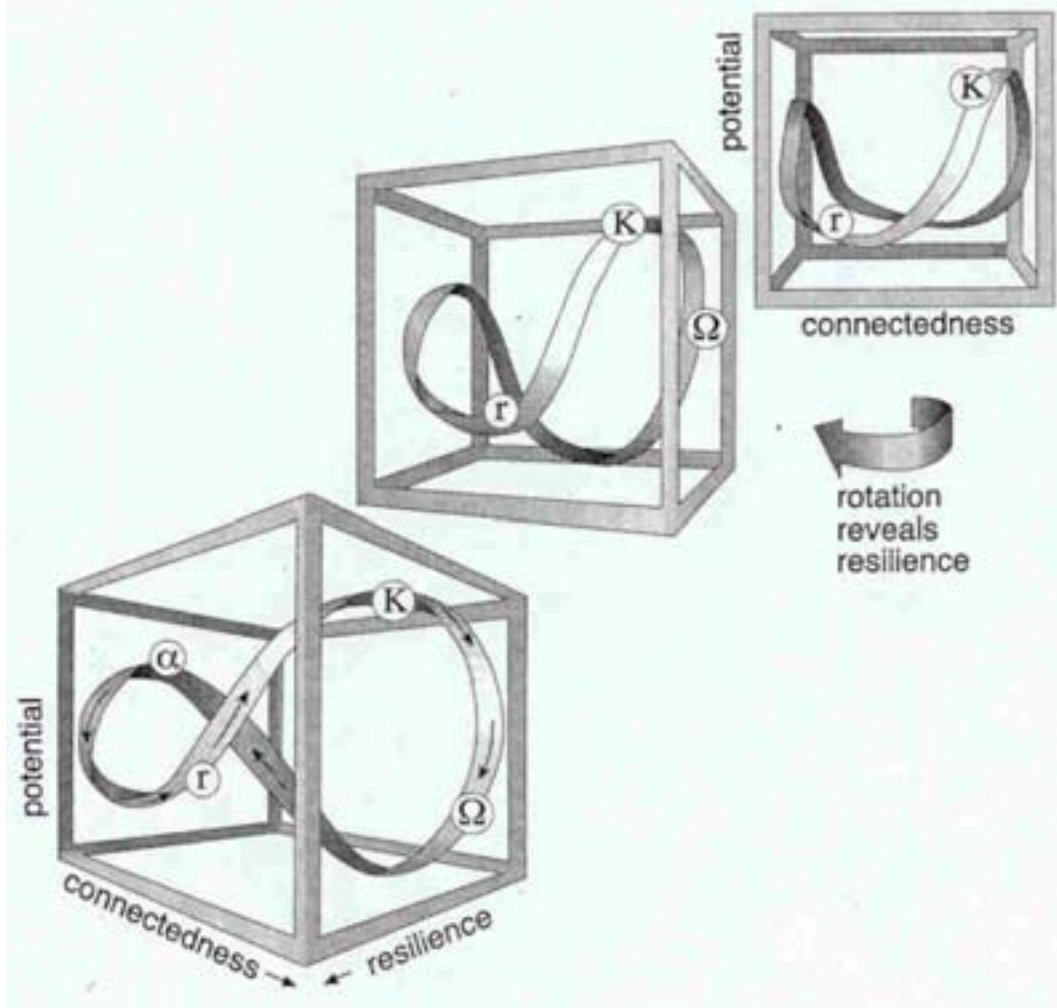
Lance H. Gunderson

C. S. Holling

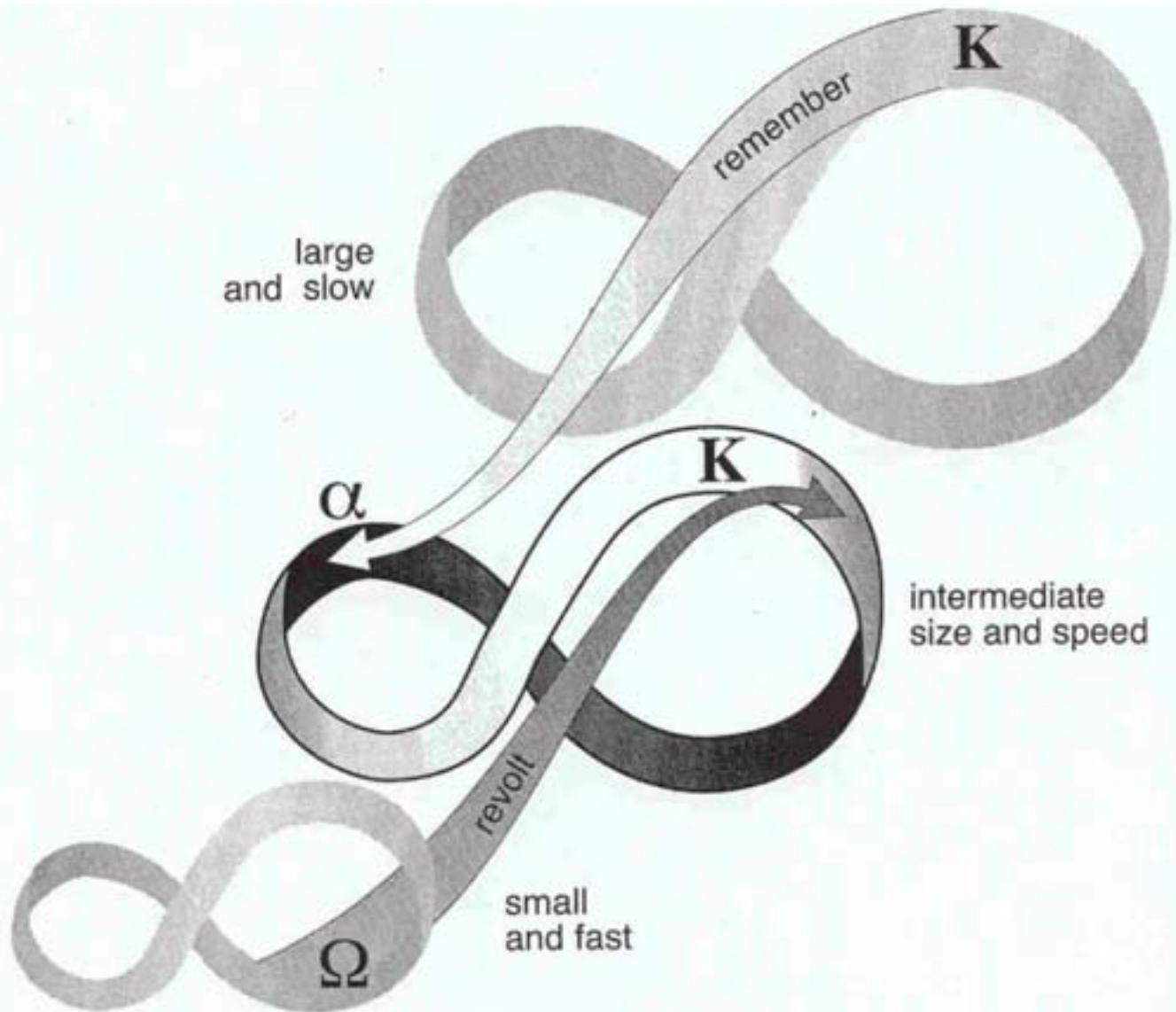
Adaptive Cycles



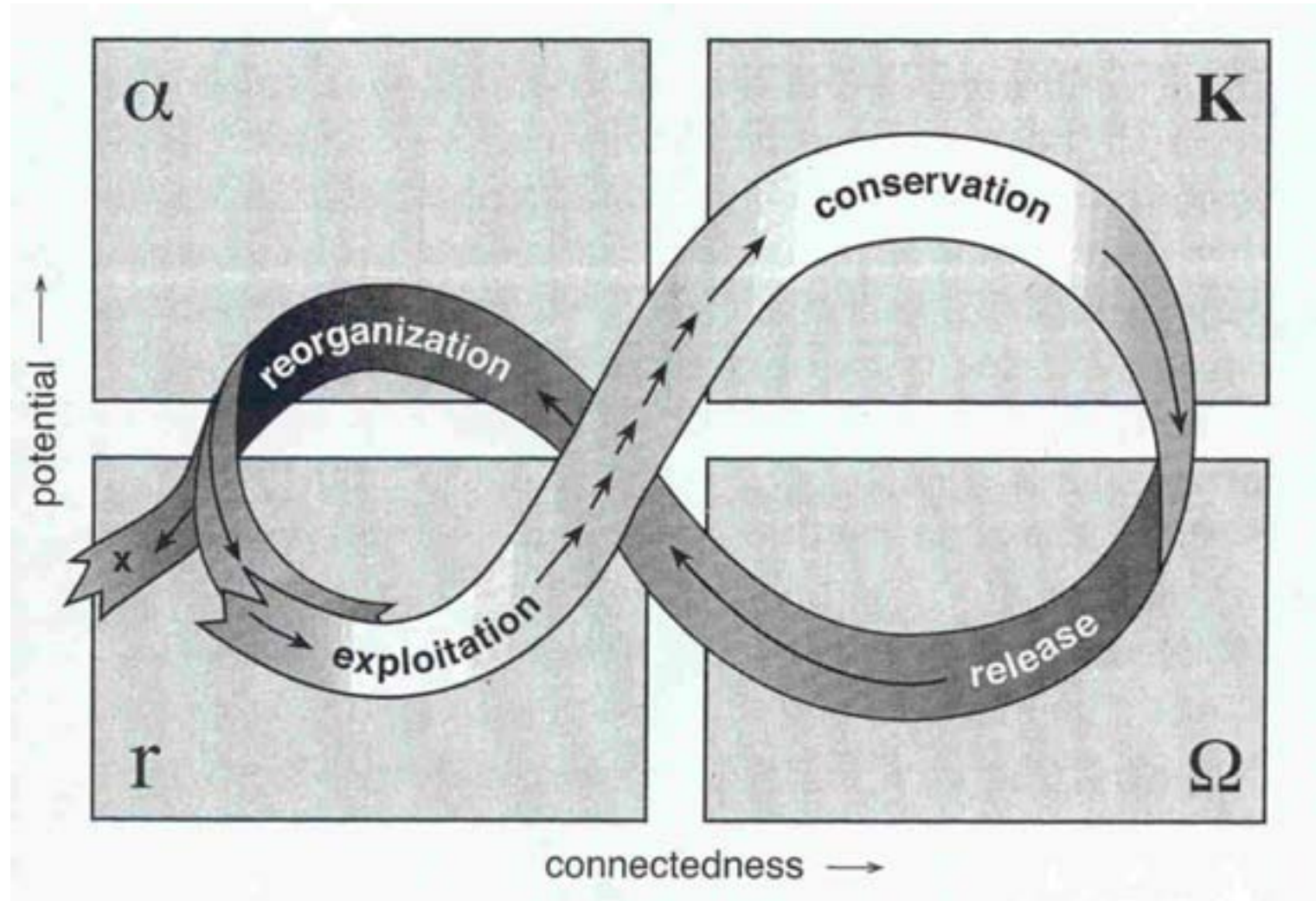
Resilience



Panarchical Connections



Adaptive Cycles



Implied Strategies

- Consider where we are in our cycle
- Work to survive in the last stage of the conservation phase while planting seeds for the release/reorganization phase
(Set up success in the exploitation phase)
- Consider multiple fast & slow cycles
 - System change
 - Practice transformation
 - Research environment
 - Information age
 - Demographic and political shifts
 - Economies: local, country, world

Problem of Fragmentation

US Health Care

- “Fundamentally flawed” *
- Most expensive in the world**
- 37th in the health of our people**
- More integrated systems provide greater value***

* Institute of Medicine. *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academy Press; 2001.

** WHO. Press Release WHO/44: World Health Organization assesses the world's health systems. *World Health Organization, Geneva Switzerland*. <http://www.who.int/inf-pr-2000/en/pr2000-44.html>.

*** Starfield B, Shi LY, Macinko J. Contribution of primary care to health systems and health. *Milbank Quarterly*. 2005;83(3):457-502.

Fragmentation

- Focusing on the parts without appreciating their relation to the whole
- Limited understanding of how the components of health and disease processes and health care work together
- Leads to
 - Uncontextualized investigation
 - Fragmentation of care
 - Devaluing of health care's higher order functions and possibilities.

Engel, GL. The need for a new medical model. *Science* 1977;196:129–136.

Stange KC. The paradox of the parts and the whole in understanding and improving general practice. *Int J Qual Health Care*, 2002; 14(4):267-268.

Stange KC. The problem of fragmentation and the need for integrative solutions. *Ann. Fam. Med.* 2009;7(3):100-103.

Robert May, President of the Royal Society

“Application of the physical and biological sciences has made today arguably the best of times... But the unintended consequences of these well-intentioned actions...could well make tomorrow the worst of times.

The significant breakthrough we really need is better understanding of human institutions, particularly of the impediments to collective, cooperative activity in which all individuals pay small costs to reap large group benefits. Darwin recognised the evolution of cooperative behaviour as one of the most important unsolved problems of his day. We have made relatively little progress since then. Perhaps the social scientists of 2056 will have succeeded in combining the rigour of the "hard" (that is, easy) sciences with the thoughtful introspection of the humanities to solve this problem. I certainly hope so.”

18 November 2006, NewScientist.com news service.

Consequences of Fragmented Approach to Healthcare

- Inefficiency & ineffectiveness
- Inequality
- Commoditization
- Commercialization
- Deprofessionalization
- Depersonalization
- Despair & discord

Stange KC. The problem of fragmentation and the need for integrative solutions. *Ann. Fam. Med.* 2009;7(3):100-103.

The Paradox of Primary Care

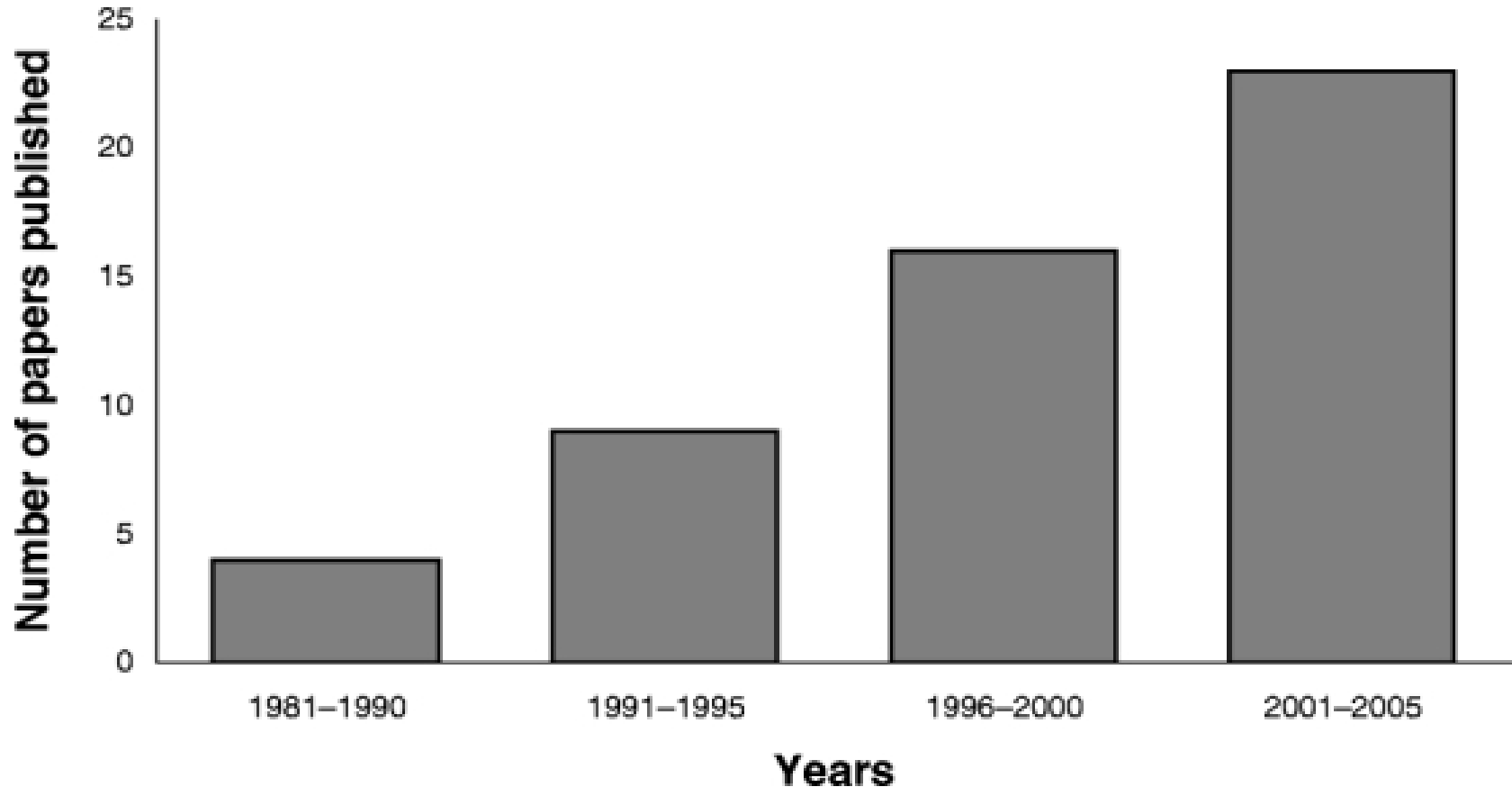
Stange KC. The paradox of primary care. *Ann. Fam. Med.* 2009;7(4):100-103.

Primary Care

Problem?

Solution?

Studies Comparing Specialist & Generalist Care for Diabetes



Shah BR, Hux JE, Laupacis A, Zinman B, Zwarenstein M. Deficiencies in the quality of diabetes care: comparing specialist with generalist care misses the point. *J Gen Intern Med.* 2007;22:275-279. 20

Primary care is a problem

- Disease-by-disease
- Poor quality of care

Specialty vs Primary Care

- Specialists more knowledgeable about conditions in their specialty.
- Specialists more likely to use medications associated with improved survival and to comply with screening guidelines.
- Specialists use more tests, procedures and hospital time.

Measures of process of care tend to favor specialists for:

- Myocardial infarction
- Other cardiovascular diseases
- Acute non-hemorrhagic stroke
- Asthma
- Arthritis
- Psychiatric diseases
- Skin diseases
- Preventive care

Study Methods

- Specialty care advantage reduced in studies that control for confounders
 - Patient mix/selection
 - Physician volume or experience
 - IT support
 - Care management / healthcare system programs

Smetana GW, Landon BE, Bindman AB, et al. A comparison of outcomes resulting from generalist vs specialist care for a discrete medical condition. A systematic review and methodologic critique. *Arch Intern Med.* 2007; 167:10-20.

Hartz A, James PA. A systematic review of studies comparing myocardial infarction mortality for generalists and specialists: lessons for research and health policy. *J Am Board Fam Med.* 2006; 19:291-302.

‘Expert Generalists’ vs. Specialists

- Similar proportion of HIV+ patient on HAART
- Non-expert generalists
 - Low volume of HIV+ patients
 - Much less likely to use recommended HIV Rx

Landon BE, Wilson IB, Cohn SE et al. Physician specialization and antiretroviral therapy for HIV. *J Gen Intern Med.* 2003; 18:233-241.

Shared Care

In observational studies, more guideline-concordant care if shared between:

- Primary care physician AND endocrinologist (diabetes and general preventive care)
- Primary care physician an AND cardiologist (acute M.I.; CHF [also lower 30-day readmission])

Lafata JE, Martin S, Morlock R, Divine G, Xi H. Provider type and the receipt of general and diabetes-related preventive health services among patients with diabetes. *Med Care.* 2001; 39:491-499.

Willison DJ, Soumerai SB, McLaughlin TJ, et al. Consultation between cardiologists and generalists in the management of acute myocardial infarction: implications for quality of care. *Arch Intern Med.* 1998; 158:1778-1783.

Ahmed A, Allman RM, Kiefe CI, et al. Association of consultation between generalists and cardiologists with quality and outcomes of heart failure care. *Am Heart J.* 2003; 145:1086-1093.

Shared Care

In RCT of depressed patients:

- Primary care physician AND psychiatrist
- Greater adherence, recovery, satisfaction

Katon W, VonKorff M, Lin E, et al. Stepped collaborative care for primary care patients with persistent symptoms of depression: a randomized trial. Arch Gen Psychiatry. 1999; 56:1109-1115.

Current Efforts to Improve Quality of Care

- Increase access to specialty care
- Carve outs
- Disease management programs
- Disease-specific pay-for-performance

Brook RH, McGlynn EA, Cleary PD. Quality of health care: Part 2: Measuring quality of care. *N Engl J Med*. 1996;335:966-969.

Stange KC. The paradox of the parts and the whole in understanding and improving general practice. *Int J Qual Health Care*, 2002; 14(4):267-268.

Aron D, Pogach L. Specialists versus generalists in the era of pay for performance: 28
“A plague o’ both your houses!” *Qual Saf Health Care*. 2007;16:3-5.

Primary care is a solution

- Whole-person functional health
- Cost
- Population health

Medical Outcomes Study

- Patients with hypertension and diabetes
- 3 follow-up points over 7 years
- Compared primary vs. specialty care
- Outcomes (controlling for patient mix)
 - Physical & emotional (functional) health
 - Mortality
 - Disease-specific physiologic markers

Greenfield S, Nelson EC, Zubkoff M, et al. Variations in resource utilization among medical specialties and systems of care: results from the Medical Outcomes Study. JAMA. 1992; 267:1624-1630.

Greenfield S, Rogers W, Mangotich M, Carney MF, Tarlov AR. Outcomes of patients with hypertension and non-insulin-dependent diabetes mellitus treated by different systems and specialties. Results from the Medical Outcomes Study. JAMA. 1995; 274:1436-1444.

Medical Outcomes Study

- Similar outcomes for primary & specialty care
 - Physical & emotional (functional) health
 - Mortality
 - Disease-specific physiologic markers
- Lower resource use & cost for primary care
 - Tests, procedures
 - Drugs
 - Office visits, hospitalizations

Greenfield S, Nelson EC, Zubkoff M, et al. Variations in resource utilization among medical specialties and systems of care: results from the Medical Outcomes Study. *JAMA*. 1992; 267:1624-1630.

Greenfield S, Rogers W, Mangotich M, Carney MF, Tarlov AR. Outcomes of patients with hypertension and non-insulin-dependent diabetes mellitus treated by different systems and specialties. Results from the Medical Outcomes Study. *JAMA*. 1995; 274:1436-1444.

International Comparisons

- Primary care orientation
 - Health care system characteristics
 - Practice characteristics
- Health status and cost
 - Rank on a composite of 14 health indicators
 - Rank on per capita health care spending

Primary Care and Health Outcomes

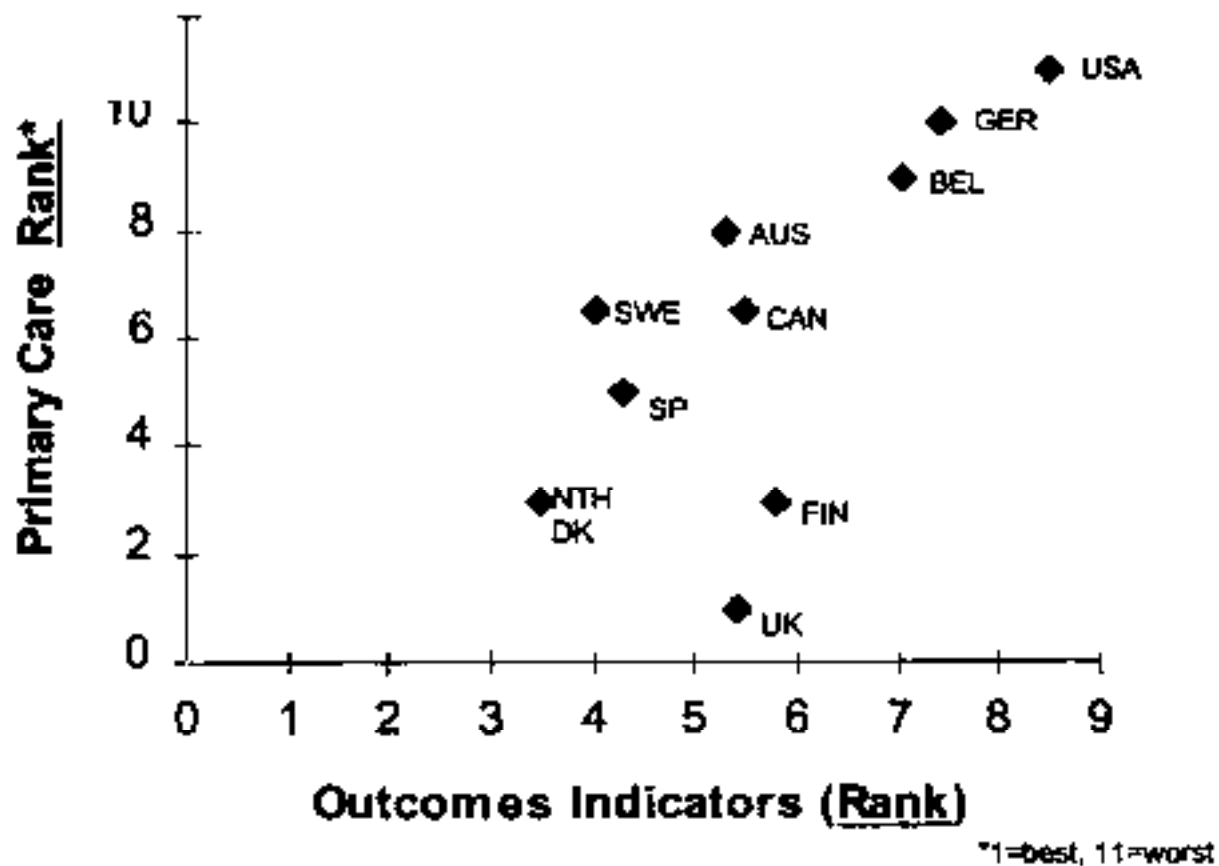


Figure 1.3. Relationship between strength of primary care and combined outcomes

Source: Starfield B. Primary Care. Balancing health needs, services, and technology. New York: Oxford University Press, 1998.

Primary Care and Health Care Expenditures

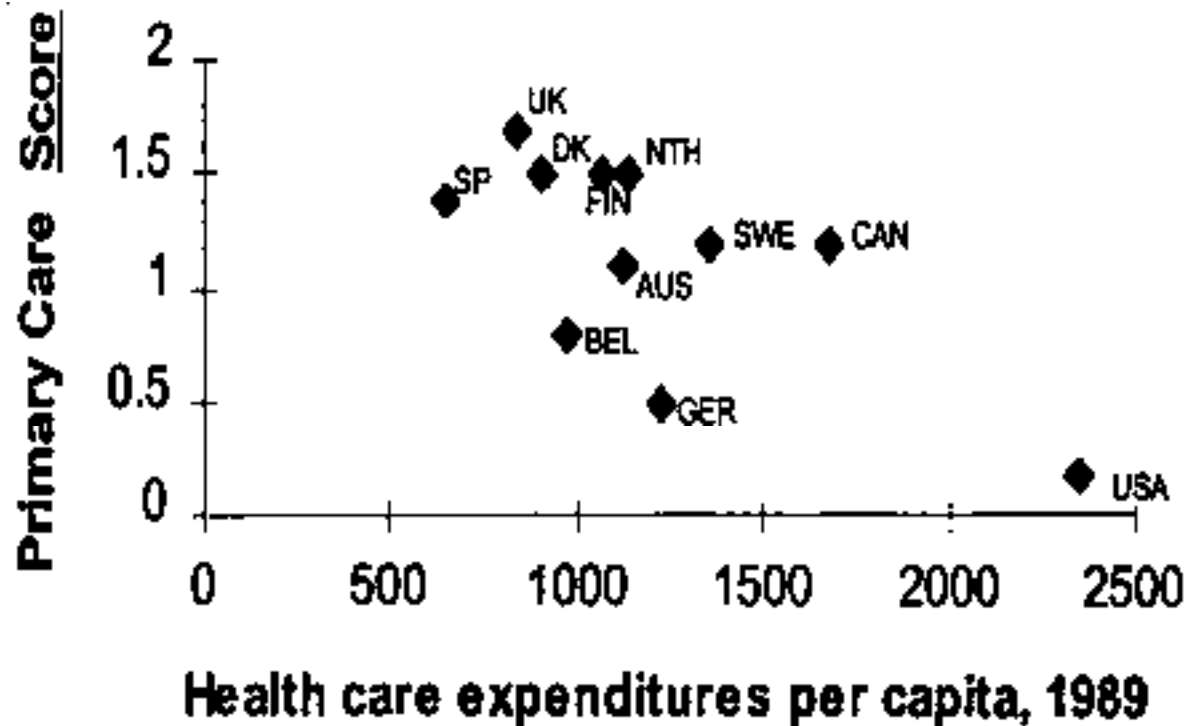


Figure 1.4. Relationship between strength of primary care and total health care expenditures.

Source: Starfield B. Primary Care. Balancing health needs, services, and technology. Oxford, New York, 1998.

US Primary Care Physician Supply

- Review of 10 studies of primary care & health
- Improved all-cause, cancer, heart disease, stroke & infant mortality; low birth weight; life expectancy; and self-rated health
- All-cause mortality
 - ↑ of 1 primary care physician /10,000 population
 - → 5.3% or 49 per 100,000 / yr ↓ mortality

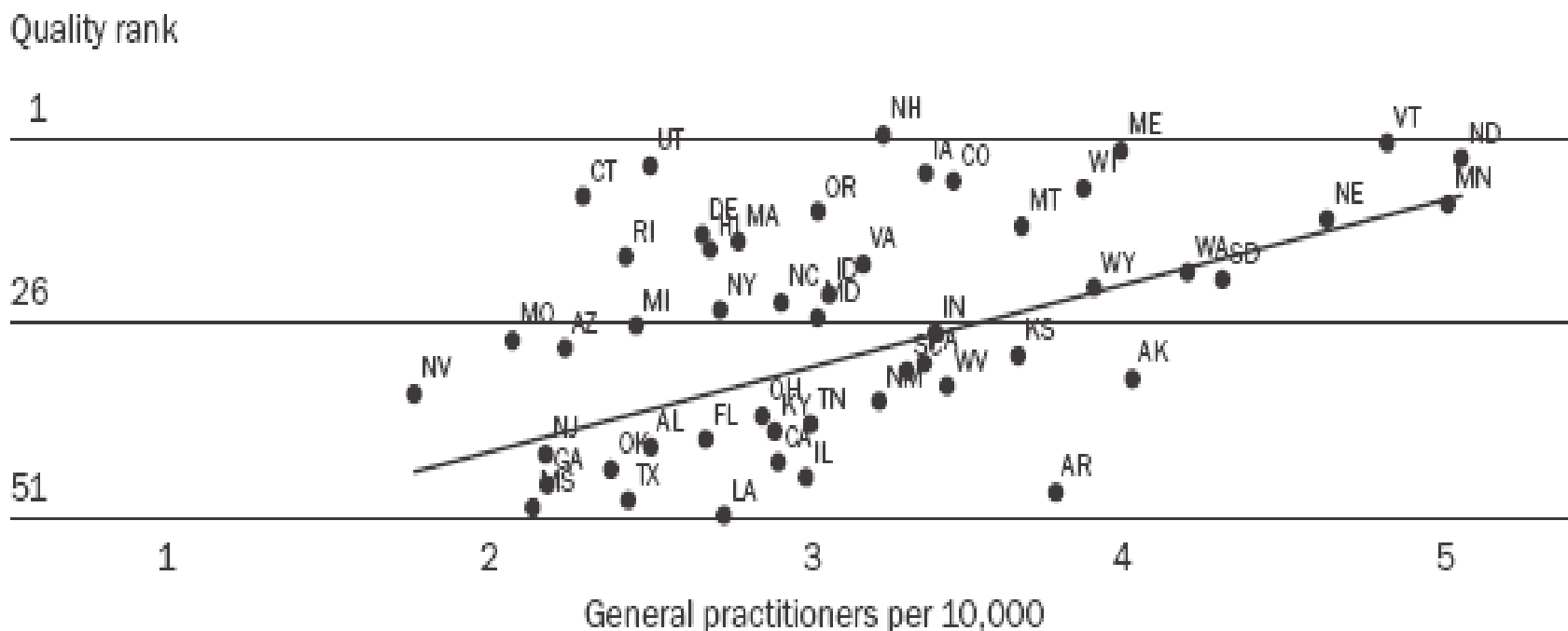
Macinko J, Starfield B, Shi L. Quantifying the health benefits of primary care physician supply in the United States. *Int J Health Serv.* 2007;37:111-26.

Inter-State Comparisons

- Adjusted Medicare spending
 - State-specific cost of living adjustment
 - Age, sex, race of Medicare population
- Quality measures
 - 24 Medicare Quality Improvement Organization measures
 - 6 common medical conditions
 - MI
 - Breast Cancer
 - Diabetes
 - Heart Failure
 - Pneumonia
 - Stroke

EXHIBIT 8

Relationship Between Provider Workforce And Quality: General Practitioners Per 10,000 And Quality Rank In 2000



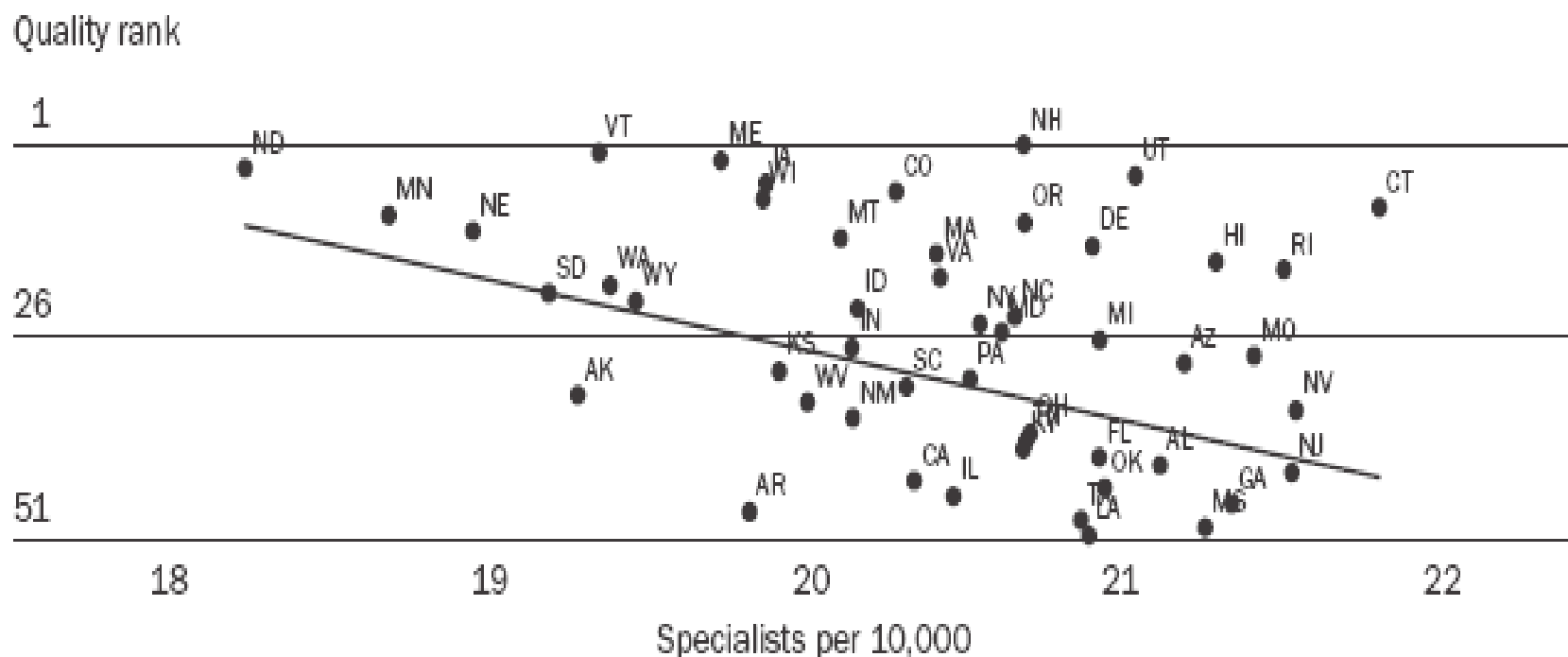
SOURCES: Medicare claims data; and Area Resource File, 2003.

NOTES: For quality ranking, smaller values equal higher quality. Total physicians held constant.

Baicker K, Chandra A. Medicare spending, the physician workforce, and beneficiaries' quality of care. Health Affairs W4-185 - W4-197, 2004.

EXHIBIT 6

Relationship Between Provider Workforce And Quality: Specialists Per 10,000 And Quality Rank In 2000



SOURCES: Medicare claims data; and Area Resource File, 2003.

NOTES: For quality ranking, smaller values equal higher quality. Total physicians held constant.

Baicker K, Chandra A. Medicare spending, the physician workforce, and beneficiaries' quality of care. Health Affairs W4-185 - W4-197, 2004.

Starfield's Summary

- Countries with strong primary care
 - Have lower overall costs
 - Generally have healthier populations
- Within countries
 - Areas with higher primary care physician availability (but not specialist availability) have healthier populations
 - Greater primary care physician availability reduces the adverse effects of social inequality

Starfield B. New paradigms for quality in primary care. *Br J Gen Pract* 51:303-309, 2001.

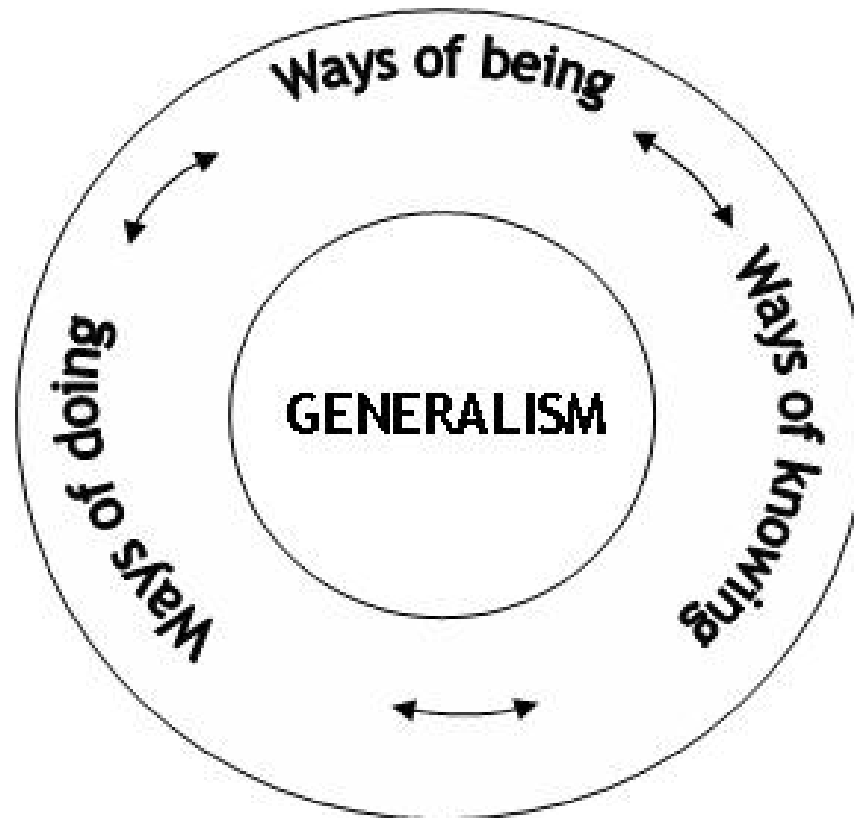
Macinko J, Starfield B, Shi L. Quantifying the health benefits of primary care physician supply in the United States. *Int J Health Serv.* 2007;37:111-26.

Starfield B, Shi LY, Macinko J. Contribution of primary care to health systems and health. *Milbank Q.* 2005;83(3):457-502

Paradox of Primary Care

- Poor quality of care by evidence-based disease-specific process of care measures in clinical studies
- Better quality at population level
- Similar whole-person functional health
- Better population health
- Lower resource use and cost

A Continuum of Generalism: the Foundation of a Philosophy of Practice



Gunn J, Naccarella L, Palmer V, Kokanovic R, Pope C, Lathlean J. What is the Place of Generalism in the 2020 Primary health care team? *Australian Primary Health Care Research Institute*; 2008.

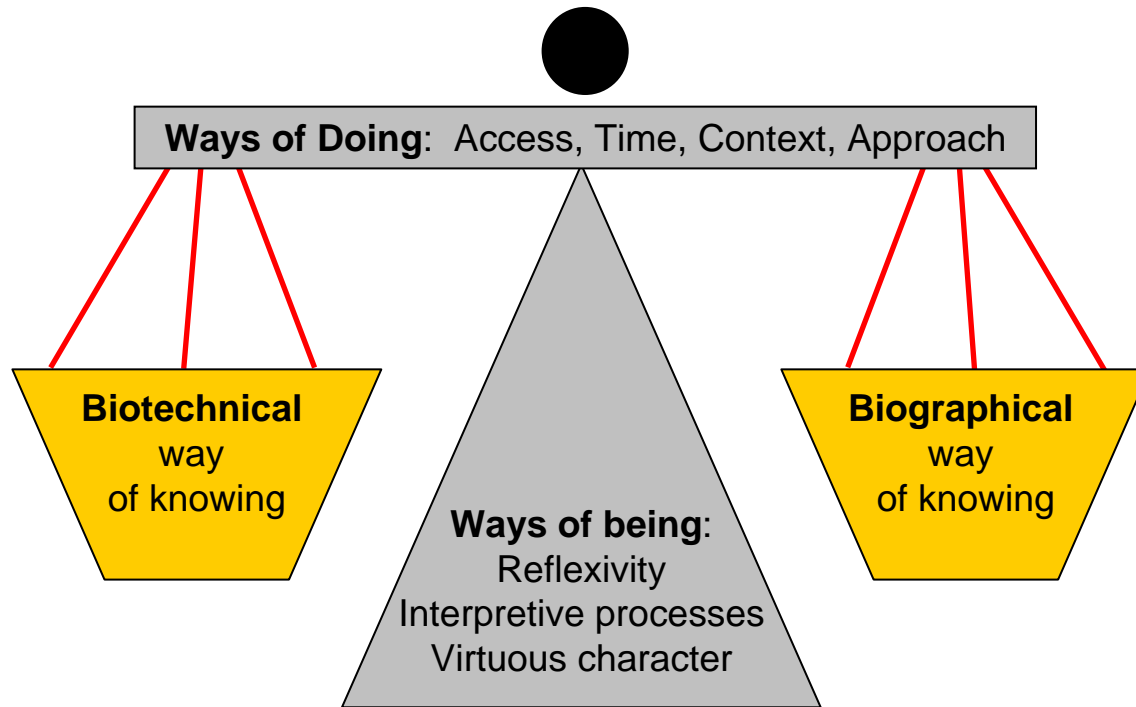
http://www.anu.edu.au/aphcri/Domain/Workforce/Perkins_25_final.pdf

A Conceptual Model of the Essential Dimensions of Generalism

Dimensions of Generalism	Explanations: the key features
Ways of Being (Ontological Frame)	Virtuous character: holds ethical character traits of compassion, tolerance, trust, empathy and respect.
	Reflexive: interdependent, reflects on judgments and biases, lifelong learner.
	Interpretive: processes of interpretation are used to understand patient with an emphasis on the contextual factors, use of multiple health systems languages, active listener, autonomous decision-maker, good communication skills.
Ways of Knowing (Epistemological Frame)	Biotechnical: uses scientific and rational evidence, high index of suspicion, bio-medically driven, technically focussed, uses advanced information systems.
	Biographical: concentrates on lived-experience and life-story, family, carers, community and social knowledge all provide evidence.
Ways of Doing (Practical Frame)	Access: accessible, first-contact point, gatekeeper, provides referral.
	Approach: balances individual versus population needs, consultation-based, holistic, comprehensive, flexible, adaptable, acts across clinical boundaries, provides early diagnosis, interdisciplinary team approach, negotiates & coordinates services, integrates knowledge, promotes health through education, prevents disease, is culturally sensitive, provides patient-centred care, minimises service inequities, reduces service fragmentation.
	Time: provides continuity of care over whole of life cycle (longitudinal).
	Context: community-based, uncertain, complex, deals with undifferentiated multiple problems of patients, acute and chronic care.

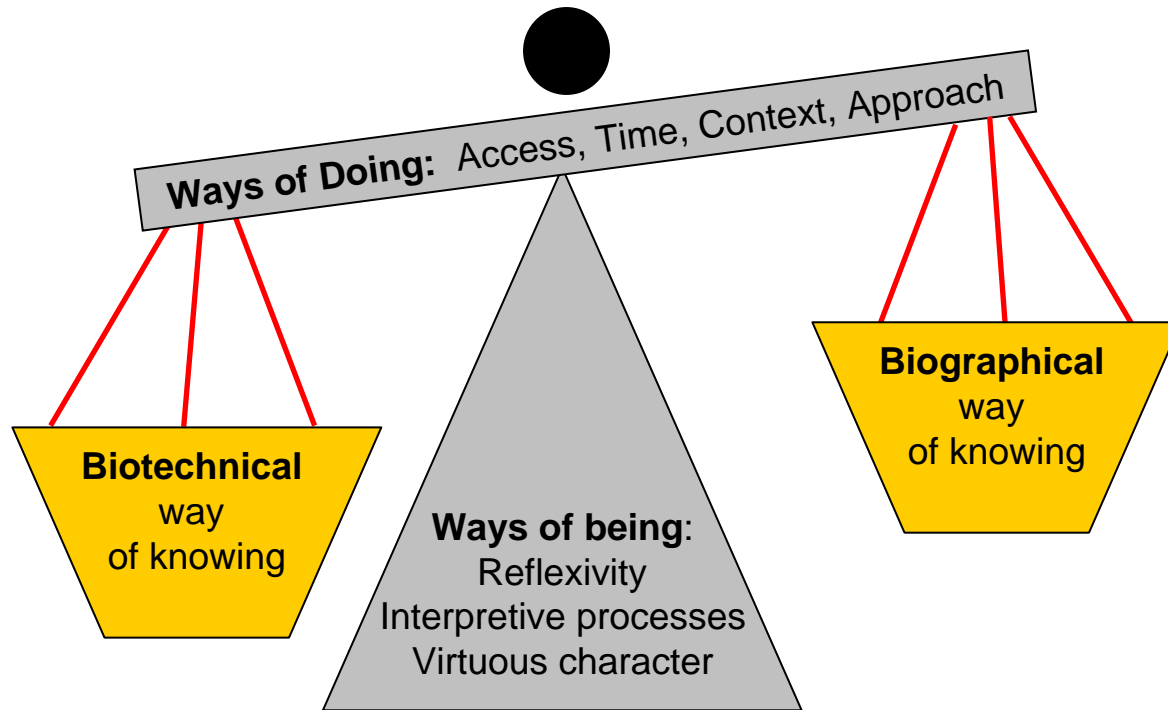


Generalism Model of Health Care





Generalism Model of Health Care



The Generalist Approach

Stange KC. The generalist approach. Ann Fam Med. 2009;7(3):198-203.

The Generalist Approach

- Recognizing systems connectedness
(belonging & participation in community & Kosmos)
- Specific and related ways of
 - *Being*
 - *Knowing*
 - *Perceiving*
 - *Thinking / Doing*

Ways of being

Readiness for the generalist way

- Open stance (receptive to diverse perspectives and co-created knowledge)
- Humility
- Connection via key relationships

Ways of knowing

Training for the generalist way

- **Broad knowledge**
(of self, others, systems, the natural world and their interconnectedness)
- **Grounding**
(in specific knowledge and experience)

Ways of perceiving

Seeing in ways that foster integration

- Scanning & prioritizing, then focusing on the highest priority
- Focusing on the particulars while keeping the whole in view

Ways of thinking and doing

Prioritized, joined-up action

- Engaging with the most important parts in context
- Doing multiple low-level tasks to enable higher-level integrative action over time
 - Connecting
 - Integrating
 - Iterating (between breadth/depth, subjective/objective, parts/whole, action/reflection)
 - Loving (putting others & a larger good before self)

The Generalist Approach

- Being - open, humble, connected
- Knowing – iterates between whole & particulars
- Perceiving – scanning & prioritizing
- Thinking/doing – most important parts in context, lower level tasks enable higher

A Science of Connectedness

Stange KC. A Science of Connectedness. Ann Fam Med. 2009;7(5):387-395.

Holons & Holarchies

- Holons: Whole / parts
- Holarchies:
 - Nested holons
 - Higher development transcends and includes lower

Koessler A. The Ghost in the Machine. New York: Macmillan Company, 1967.

Alpbach Symposium

- Challenged “the insufficient emancipation of the life sciences from the mechanistic concepts of nineteenth-century physics and the resulting crudely reductionist philosophy.”

Koestler A, Smythies JR, eds. *Beyond Reductionism: New Perspectives on the Life Sciences*. Boston: Houghton Mifflin Co; 1971, p. 4 .

Hierarchy of Healthcare

Higher levels of development transcend & include the lower

- Fundamental care
- Integrative care
- Prioritized care
- Healing & transcendence

Hierarchy of Healthcare

Fundamental care

- Management of patient concerns
- Care of acute illness
- Proactive management of chronic illnesses and preventive service delivery
- Psychosocial care

Hierarchy of Healthcare

Integrative care

- Management of multi-morbidity
- Integration of care across acute and chronic illness, prevention and mental health

Holarchy of Healthcare

Prioritized care

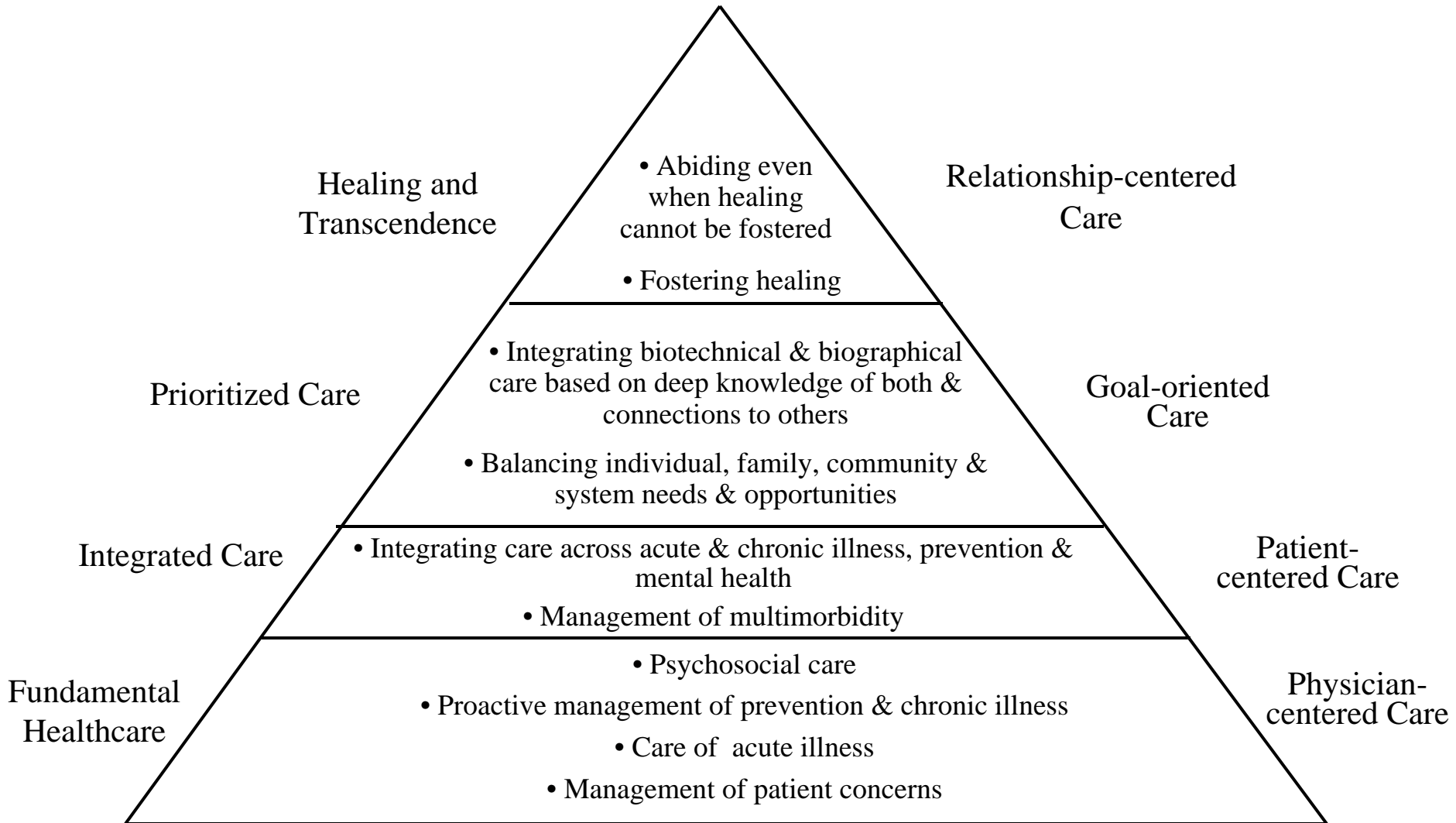
- Integrating biotechnical and biographical care based on deep knowledge of both and connections to others
- Balancing individual, family, community and system needs and opportunities

Holarchy of Healthcare

Healing & Transcendence

- Fostering healing as going beyond suffering
- Abiding even when healing cannot be fostered

Holarchy of Health Care



Implications

- Fundamental care is all we now
 - Measure
 - Incentivize
 - Support
- Integrated & prioritized care
 - Could be supported by (IT) systems
 - Primary care functions
- Higher levels of care unintentionally devalued
 - Relationships
 - Continuity and care across place and life cycle

Problems

- It's not that simple
- Higher levels helped by, but not always dependent on lower levels
- Multiple holarchies interacting
- To understand, depict & act on this complexity

Ways of knowing & inquiry

4 Ways of Knowing

	Inner Reality	Outer Reality
Individual	“I”	“It”
Collective	“We”	“Its”

Adapted from:

Wilber, K. *Sex, Ecology, Spirituality*. 1995/2000, Boston: Shambhala Publications, Inc.

Wilber, K. *A Brief History of Everything*. 1996, Boston: Shambhala Publications, Inc.

4 Ways of Knowing About Health & Health Care

1 Clinician, Patient, Worker, Policymaker	4 Disease, Treatment
2 Family, Practice, Team, Community	3 Systems, Organization

Adapted from:

Stange KC, Miller WL, McWhinney I. Developing the knowledge base of family practice. *Fam Med.* 2001; 33(4):286-297.

Ways of Knowing

Interior-Individual

I

Exterior-Individual

It

We

Interior-Collective

Its

Exterior-Collective

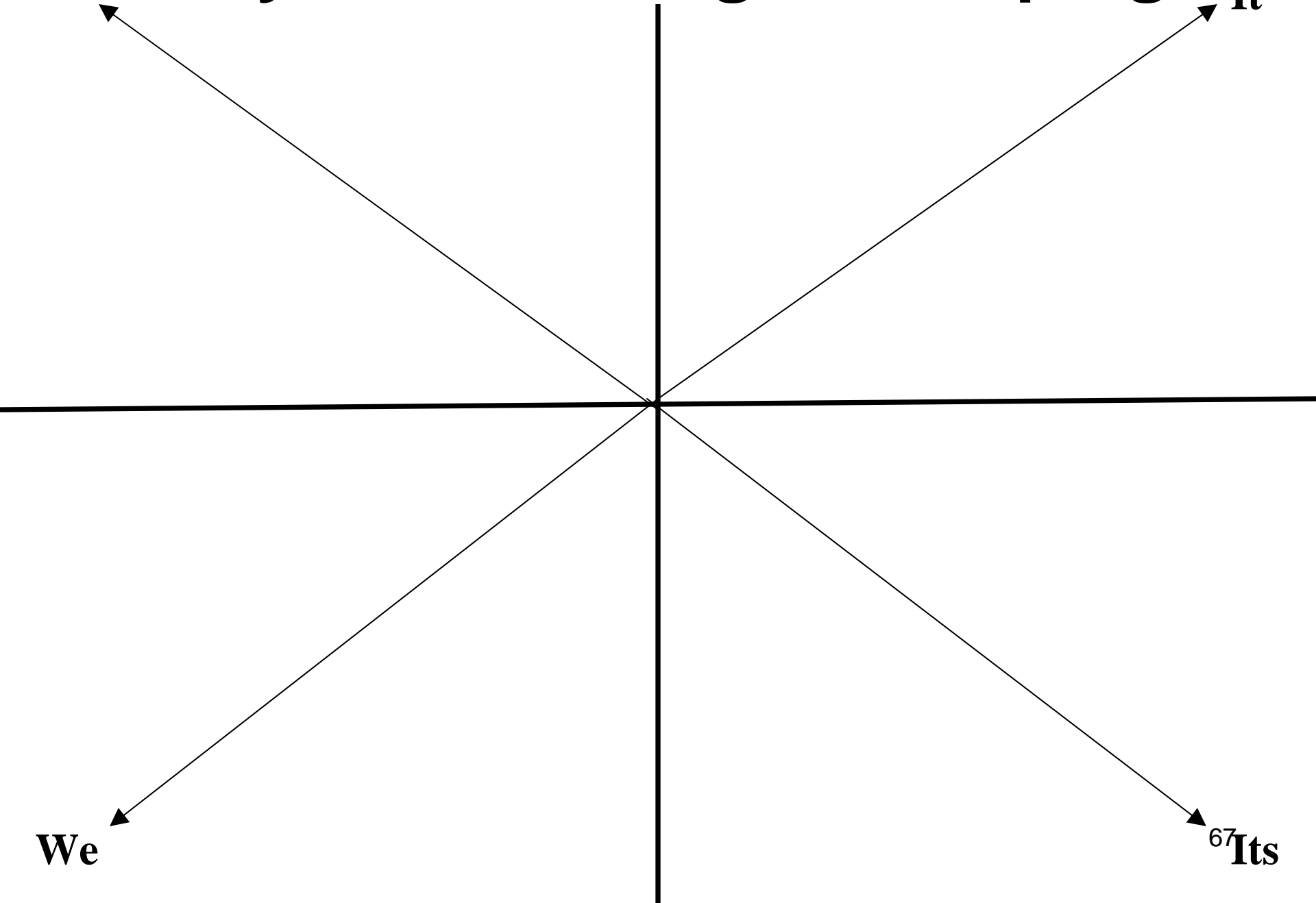
Ways of Knowing/Developing

I

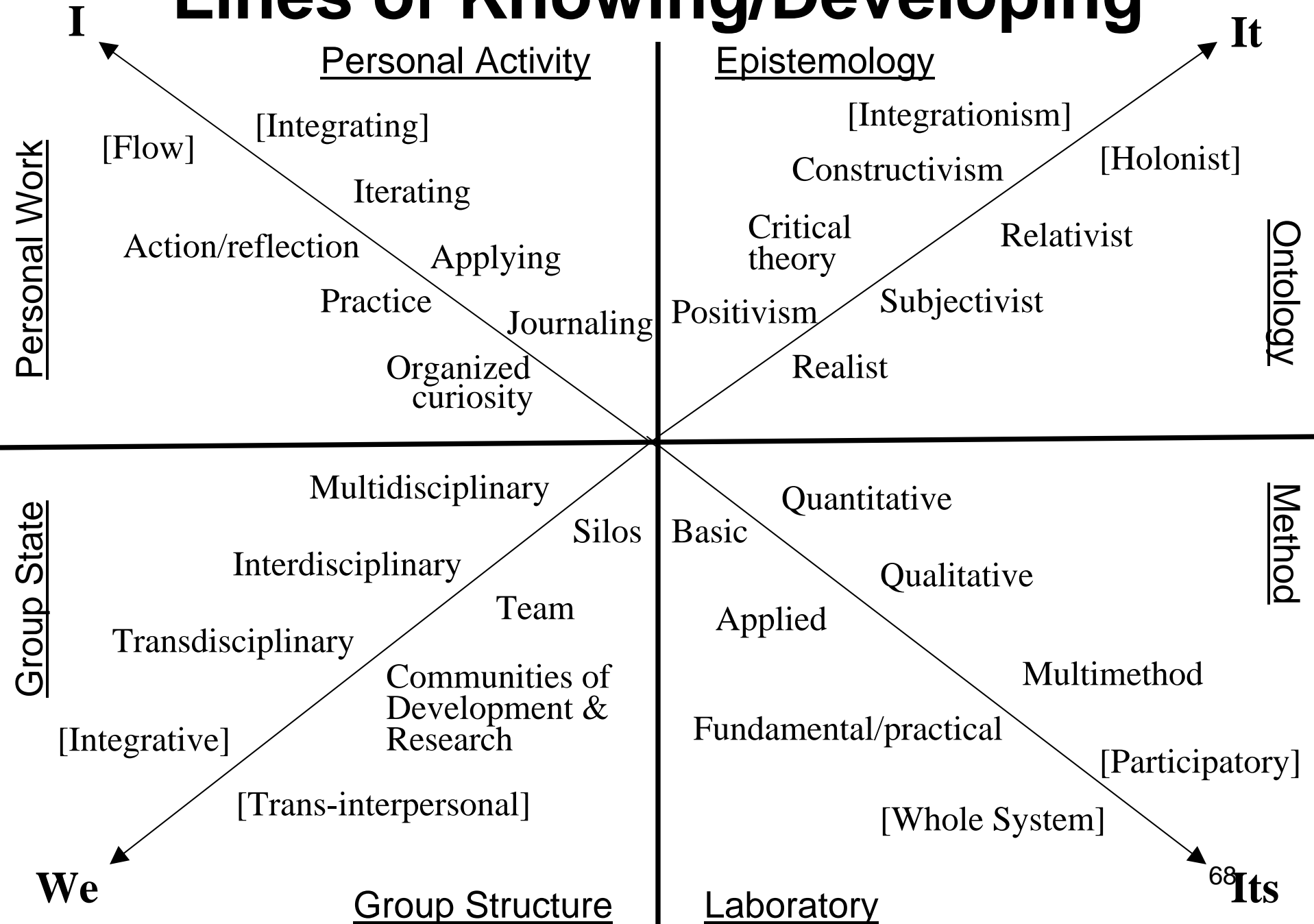
It

We

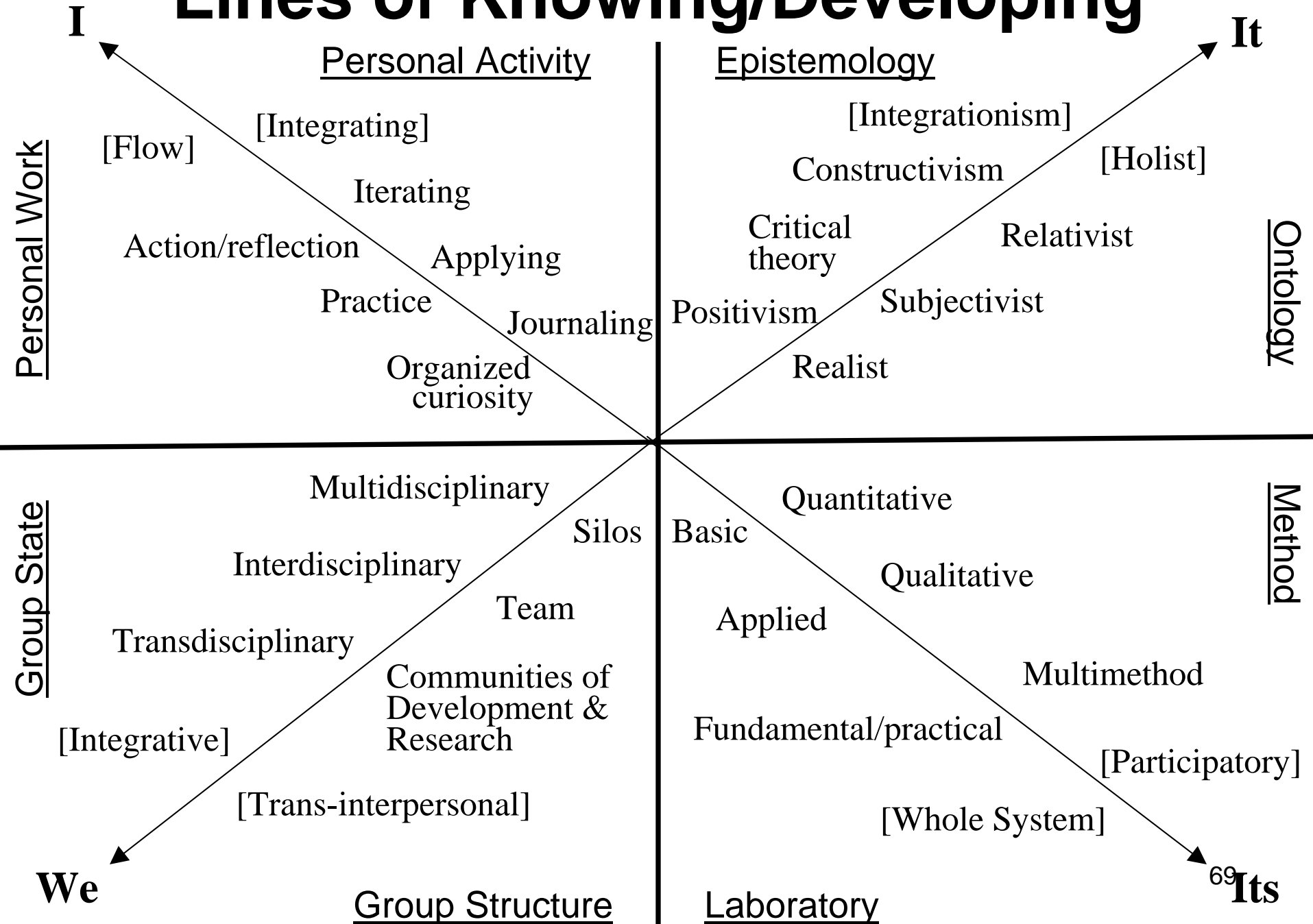
⁶⁷Its



Lines of Knowing/Developing



Lines of Knowing/Developing



Implications

- Even if focusing on a single way of knowing, keep the others in mind
- Work to foster development in all domains
- Allow for productive activity at all levels
- Diversity and collaboration are strengths
- Networks can foster development, research & the integration of different ways of knowing

Lessons

- Consider our current place in related cycles of renewal & adaptation
- Recognize parts/wholes
- Consider scale & potential for unintended consequences
- Value the generalist function
(Be, know, perceive, think/act as a generalist)
- Value care integration, prioritization, healing & transcendence as well as fundamental care
- Foster integrated development in different ways of knowing
- Sacrifice to promote health & healing

- The problem of fragmentation Mar 2009, v7i2
- A generalist approach May 2009, v7i3
- The paradox of primary care Jul 2009, v7i4
- A science of connectedness Sept 2009, v7i5
- Cycles of renewal & adaption Nov 2009, v7i6
- Ways of knowing and inquiry Jan 2010, v8i1
- Regaining our moral authority Mar 2010, v8i2

Extra Slides

Regaining our moral authority

Power

Brody, H. *The Healer's Power*. New Haven: Yale University Press, 1992.

Interior-Individual

Charismatic
power
(Owned)

I

Exterior-Individual

Aesculapian
power
(Aimed)

It

Health (foundation for achievement)
Seedhouse D. *Health, the foundations for achievement*.
Tiptree, Essex: John Wiley and Sons Ltd; 1989.

We

Social / cultural
power
(Shared)

Its

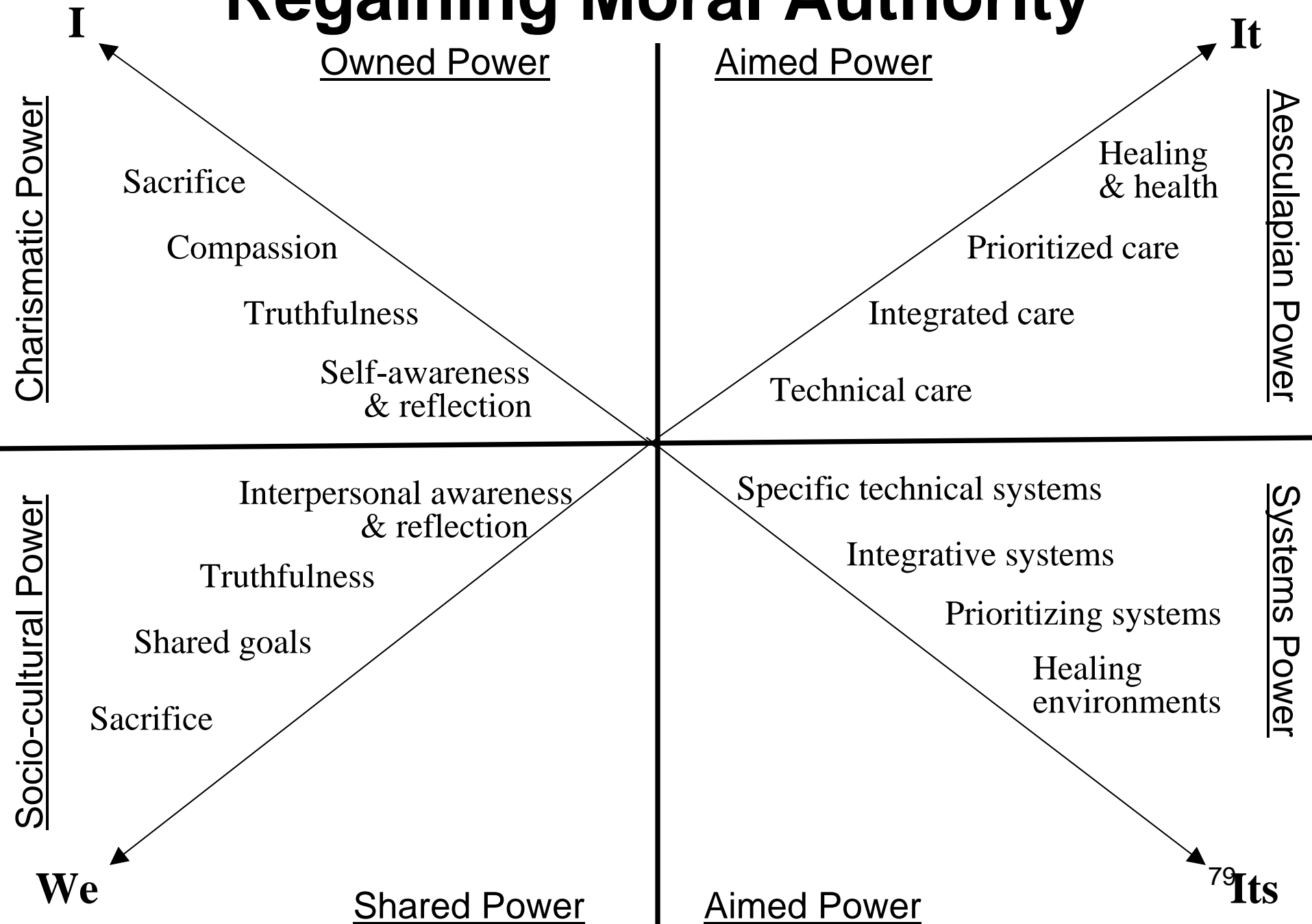
Healing (transcendence of suffering)
Egnew TR. The meaning of healing: transcending
suffering. *Ann Fam Med*. May-Jun 2005;3(3):255-262.
Scott JG, Cohen D, DiCicco-Bloom B, Miller WL, Stange
KC, Crabtree BF. Understanding healing relationships in
primary care. *Ann Fam Med*. Jul-Aug 2008;6(4):315-322.

Healing systems
power
(Aimed)

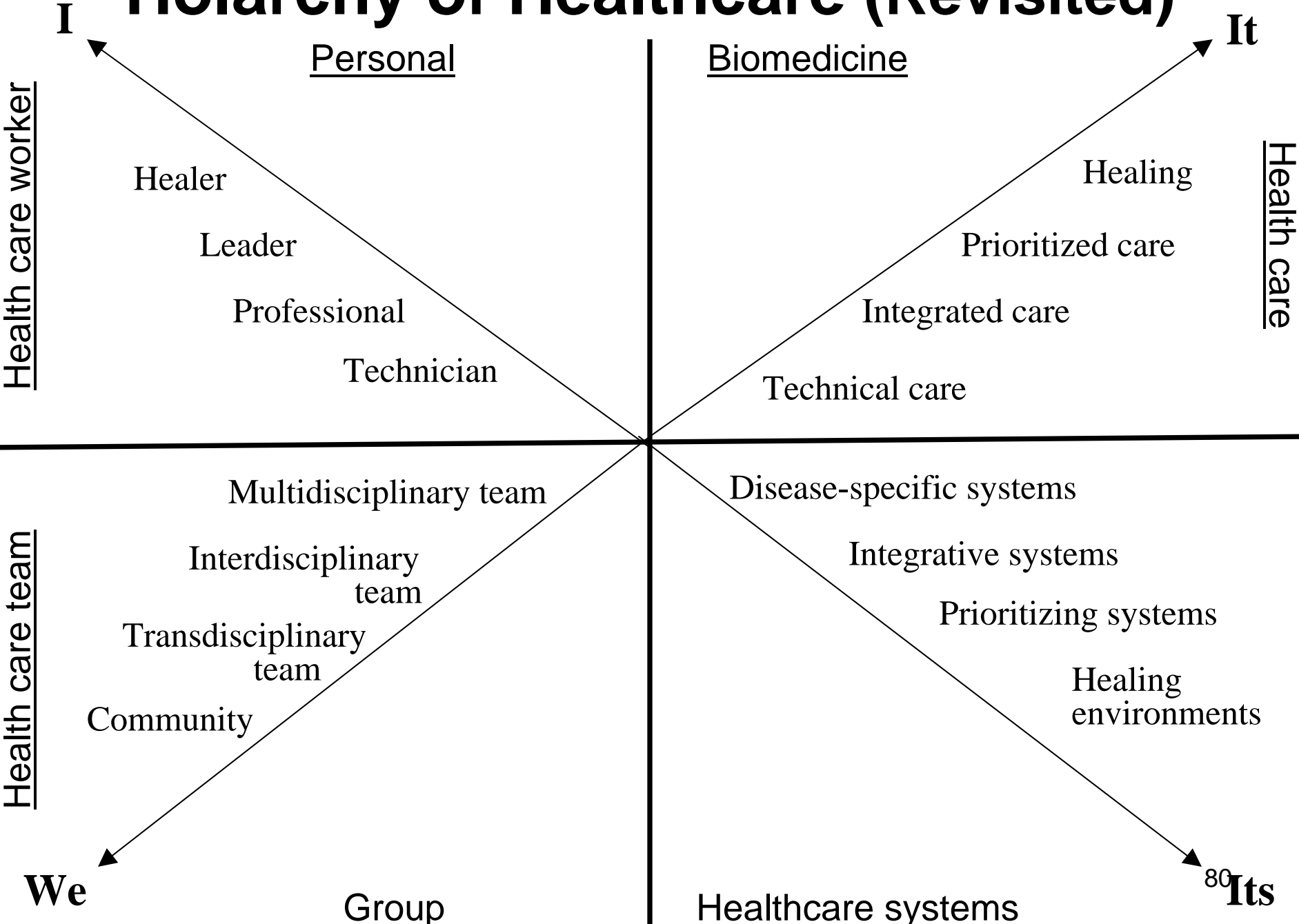
Interior-Collective

Exterior-Collective

Regaining Moral Authority



Hierarchy of Healthcare (Revisited)



Contextualizing Research Reporting

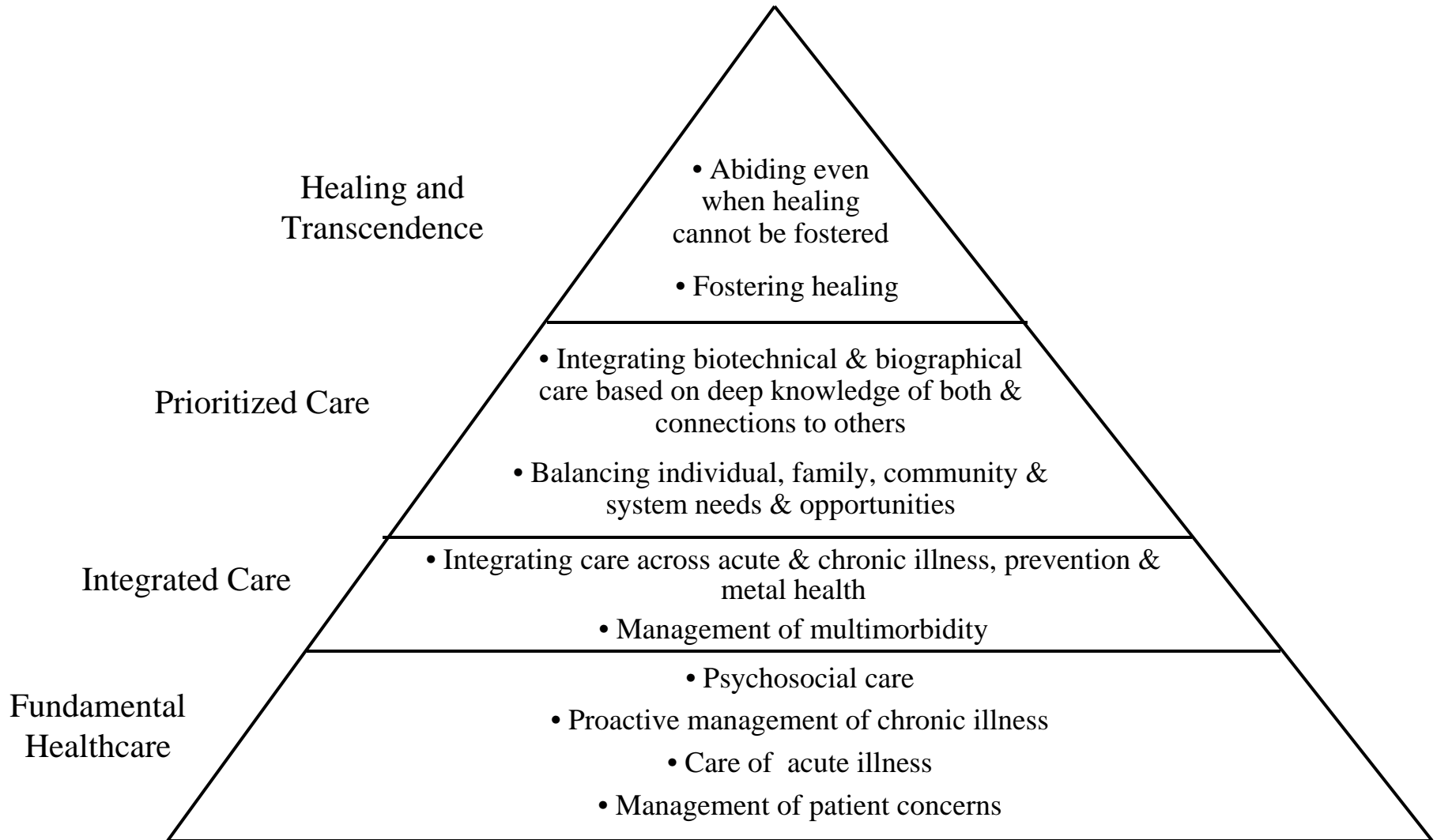
- “If we want more evidence-based practice, we need more practice-based evidence.”
- Consider & report factors affecting external validity in funding and publishing

Green LW, Glasgow RE. Evaluation the relevance, generalization and applicability of research. Issues in external validation and translation methodology. *Eval Health Prof.* 2006;29:126-53.

Glasgow RE, Green LW, Klesges LM, et al. External validity: we need to do more. *Ann Behav Med.* 2006;31:105-8.

Davidoff F, Batalden P, Stevens D, Ogrinc G, Mooney S; SQUIRE Development Group. Publication guidelines for improvement studies in health care: evolution of the SQUIRE Project. *Ann Intern Med.* 2008;149:670-6.

Hierarchy of Health Care



A Silver Triangle

- Moral authority (as sacrifice)
- Power (Howard Brody)
- Righteous cause
 - Improving health (WHO & Seedhouse)
 - Healing (Egnew & Scott)

A Silver Triangle

Moral Authority

- Sacrifice
- Integrity
- Compassion

Power

- Owned
- Aimed
- Shared

Brody, H. *The Healer's Power*. New Haven: Yale University Press, 1992.

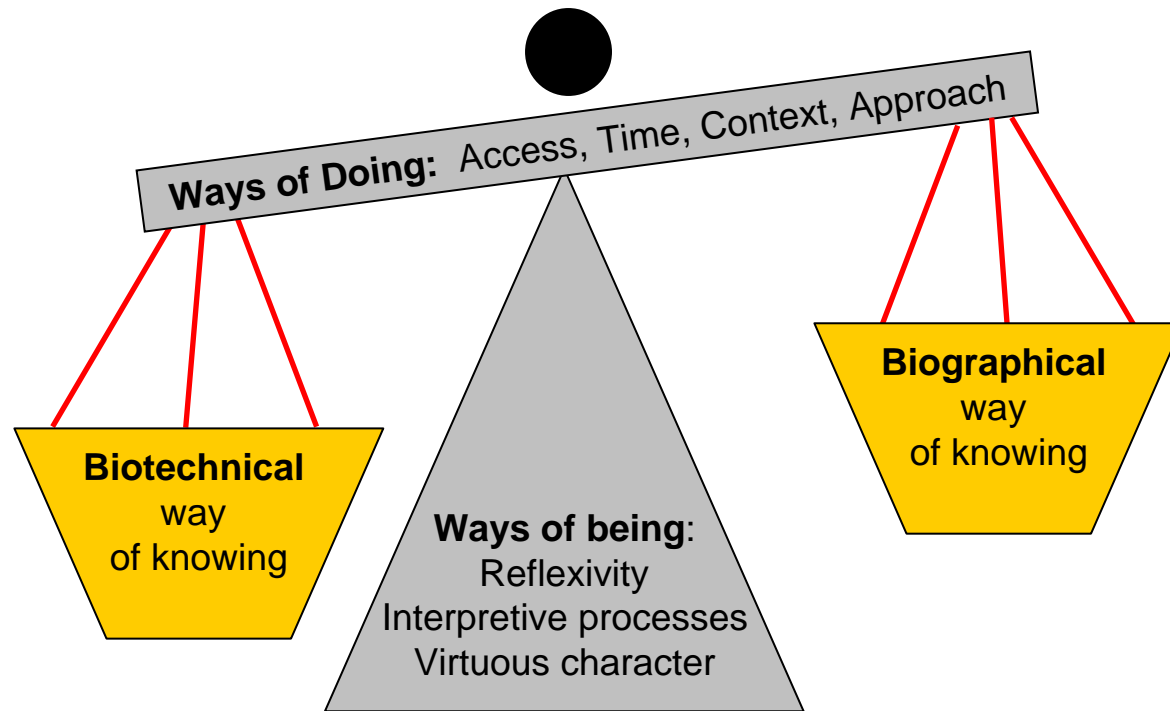
Righteous Cause

- Helping others toward:
 - Health (as the foundation for achievement.)

Seedhouse D. Health, the foundations for achievement. Tiptree, Essex: John Wiley and Sons Ltd; 1989.
 - Healing (as the transcendence of suffering.)

Egnew TR. The meaning of healing: transcending suffering. *Ann Fam Med*. May-Jun 2005;3(3):255-262. 84

General Practice: An Integrated, Iterative Approach



MANLY



HAMBURGER & CHIPS
\$8.00
What's New

LAMB KEBAB
\$9.50
What's New

CHICKEN KEBAB
\$9.00
What's New

DONER KEBAB
\$8.50
What's New

HAMBURGER & CHIPS
\$8.00
What's New

LAMB KEBAB
\$9.50
What's New

CHICKEN KEBAB
\$9.00
What's New

DONER KEBAB
\$8.50
What's New



Observational Studies

DOPC

Direct **O**bservation
of **P**rimary **C**are
(NCI, RWJF: 1994-97)



P&CD

Prevention & **C**ompeting
Demands in **P**rimary
Care (AHRQ: 1996-99)



IMPACT

Insights from **M**ultimethod
Practice **A**ssessment of **C**hange
over **T**ime
(NCI: 2001-2004)



TM

Teachable **M**oments for **H**ealth
Behavior **C**hange
(NCI: 2004-2009)

Intervention Studies

STEP-UP

Study **T**o **E**nhance
Prevention by
Understanding **P**ractice
(NCI: 1997-2000)



ULTRA

Using **L**earning **T**eams
for **R**eflective
Adaptation (NHLBI:
2002-07)



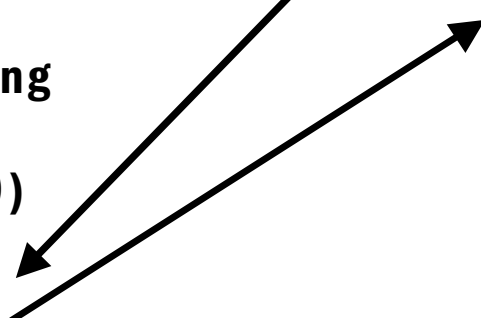
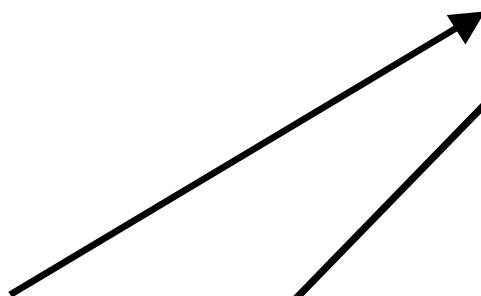
EPOCHS

Enhancing **P**ractice **O**utcomes
through **C**ommunity and
Healthcare **S**ystems
(NCI: 2004-09)



SCOPE

Supporting **C**olorectal **C**ancer
Outcomes through **P**articipatory
Enhancements
(NCI: 2005-2010)



Visits to Family Physicians

- Variety of patients, problems and complexity
- 10 minute average duration
- Reason for visit
 - 58% acute illness
 - 24% chronic illness
 - 12% well care
- Average patient paid 4.3 visits in the past year

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- **Many worthwhile services compete with each other for time on the agenda of primary care patient visits.**

Jaén CR, Stange KC, Nutting PA. The competing demands of primary care: A model for the delivery of clinical preventive services. *J Fam Pract.* 1994; 38:166-171.

Theory of Competing Opportunities

- **Integrated, prioritized care within an ongoing personal relationship**
 - **Breadth of care**
 - **Depth of knowledge of the patient, family and community over time**
 - **Bridging of the boundaries between health and illness**
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Primary Care Practices are Complex Adaptive Systems

- Complex behavior emerges from relationships among agents
- Simple rules
- Recurrent patterns
- Co-evolution
- Dependence on initial conditions
- Non-linearity
- Strategies for intervention
 - Joining
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Using Complexity Science to Inform a Reflective Practice Improvement Process

- Understanding practices' vision and mission is useful in guiding change
- Creating time and space for learning & reflection helps organizations to adapt & plan change
- Tension & discomfort are essential & normal during change
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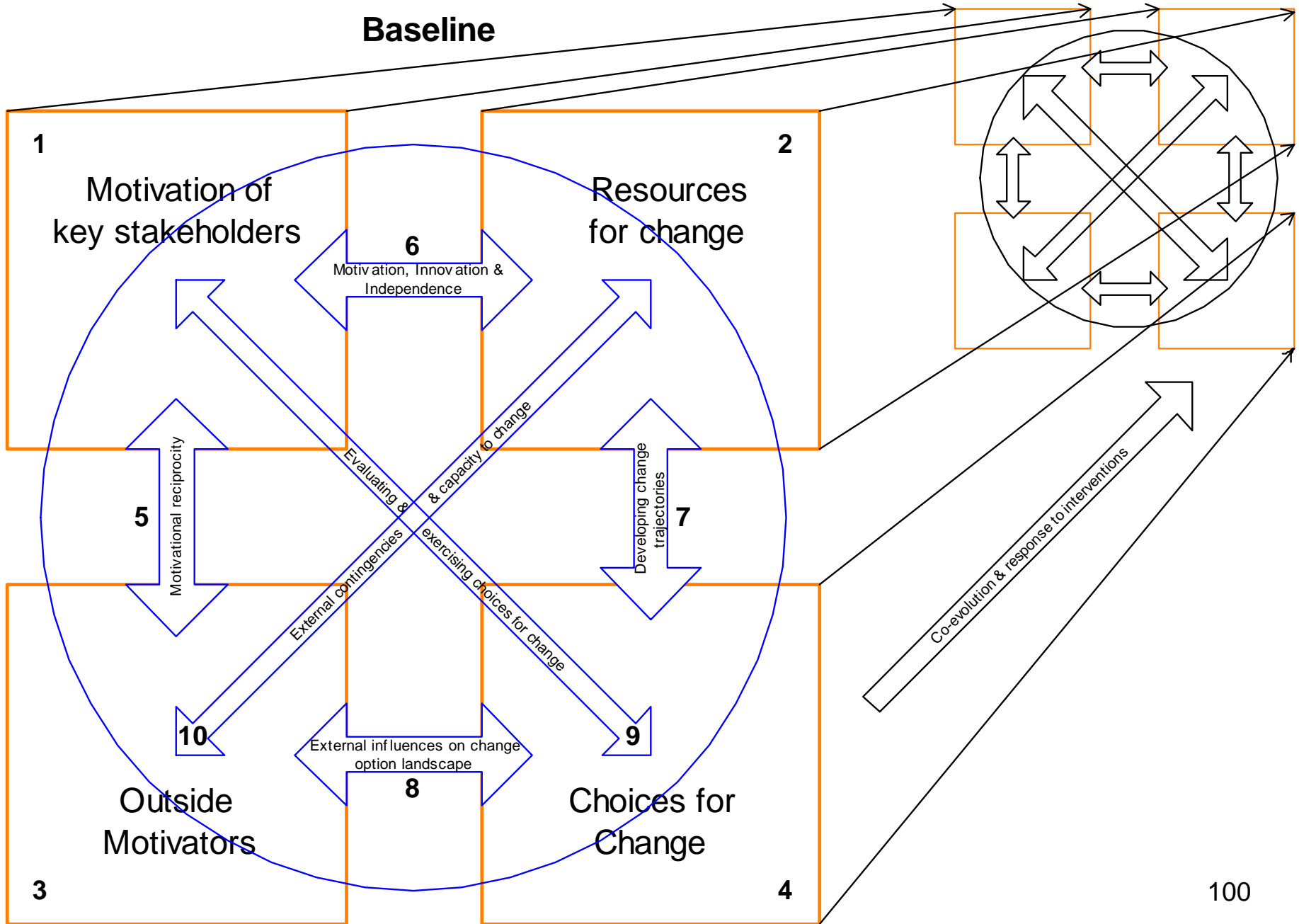
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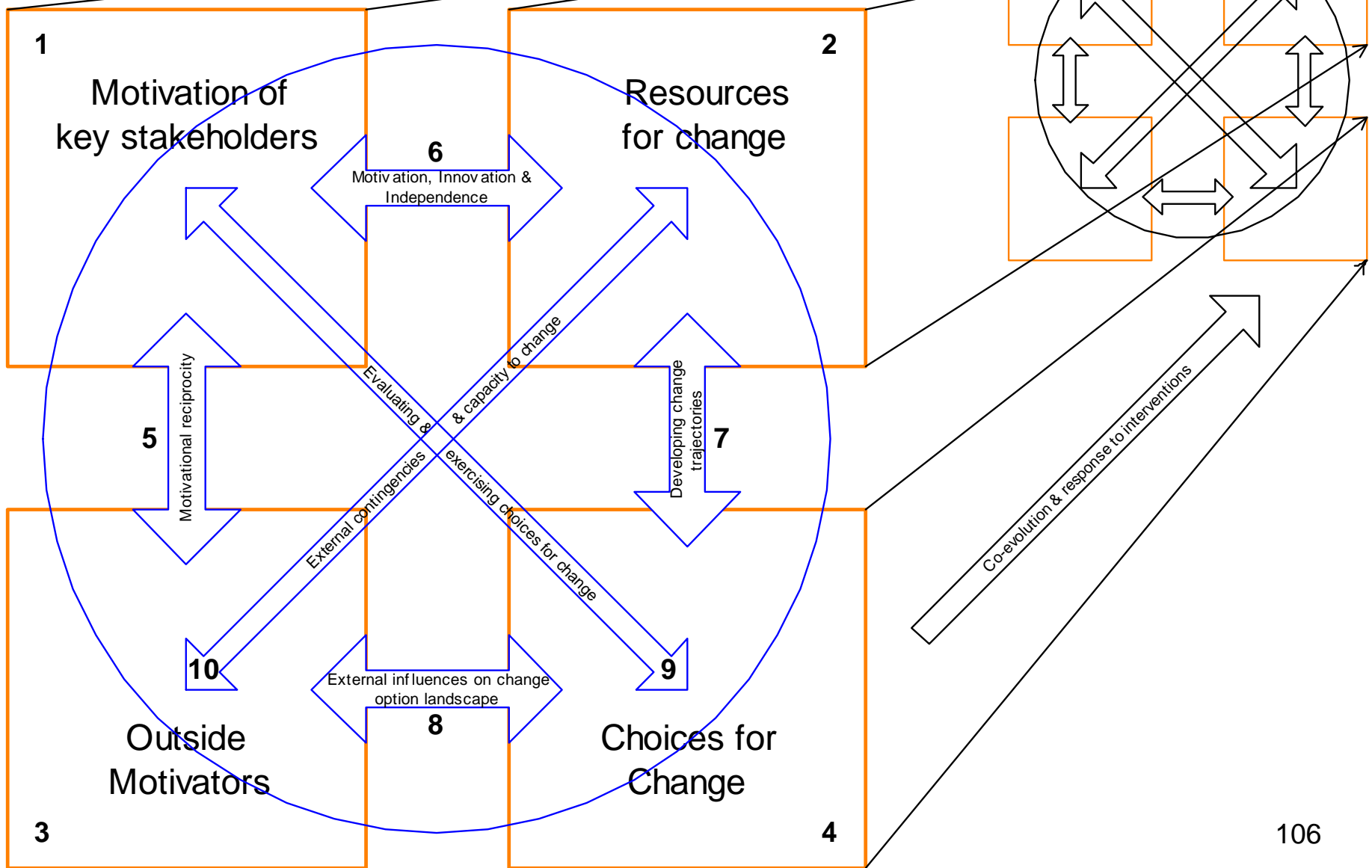
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EPOCHS Research Team



ULTRA Research Team



CWRU Family Medicine Research Division

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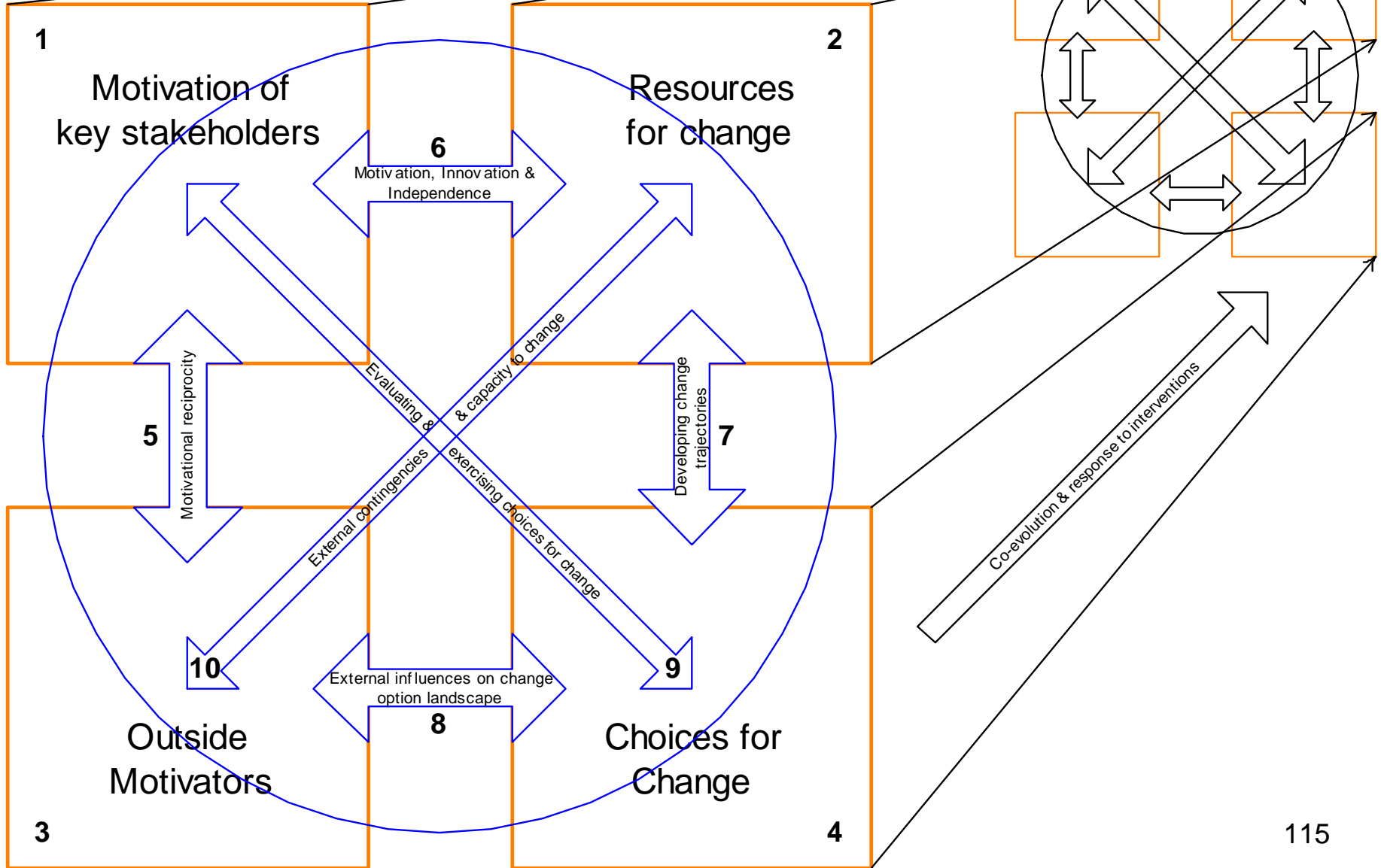
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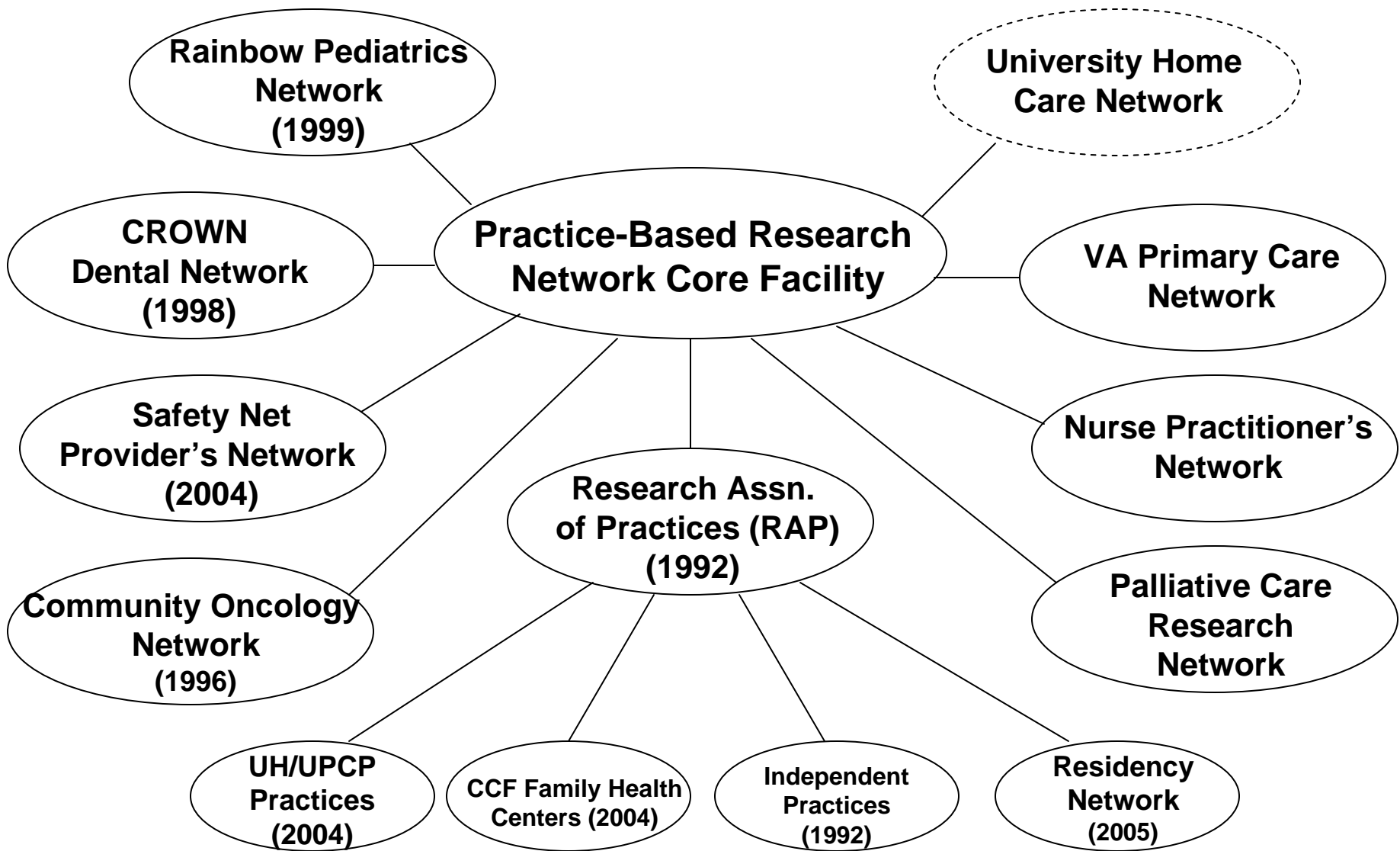
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Global Typology of Primary Care Organisational Developments

Organisational Type	Structure and Process	Value Base	Service Focus	Location (examples)	Endpoint
Extended general practice	Simple partnership	Normative	Registered patient list	Health centre	Patient
Managed care enterprise	Complex, stakeholder	Calculative	Target groups	Physicians group	User
Reformed polyclinic	Coalition, divisional	Commercial	Medical conditions	Multi-specialist clinic	Client
District health system	Hierarchic, administrative	Executive	Public health improvement	General hospital	Populations
Community development agency	Association, network	Affiliative	Local populations	Health stations	Citizen
Franchised outreach	Quasi-institutional, virtual	Remunerative	Payers	Private, hospital premises	Customer

Percentage of Young Children Who Received Recommended Selected Immunizations, International Comparison, 2004*

<i>Key: higher rates are better (gold = best and red = worst country performance)</i>	AUS	CAN	GER	NZ	UK	US
Diphtheria, Tetanus, Pertussis (DTP) vaccine (3 doses)	92	91	97	90	90	96
Haemophilus influenzae type b (Hib) vaccine (3 doses)	95	83	90	90	91	94
Hepatitis B vaccine (3 doses) <i>Recommended only for high-risk groups in the UK and some provinces of Canada</i>	95	NA	81	90	NA	92
Measles-containing vaccine (1 dose)	93	95	93	85	81	93
Poliovirus vaccine (3 doses)	92	88	94	82	91	92

Source: WHO Vaccine-Preventable Diseases Monitoring System (World Health Organization 2005). *Data are for 2004 except as noted: AUS = Australia; CAN = Canada (2003); GER = Germany; NZ = New Zealand (2001); UK = United Kingdom; US = United States. The recommended vaccination schedule differs among countries.



Percentage of Adults Who Received Recommended Preventive Care or Reminders, International Comparison, 2004

<i>Key: higher rates are better (gold = best and red = worst country performance)</i>	AUS	CAN	NZ	UK	US
Breast cancer screening: mammogram in past 2 years (women ages 50–64*)	71	71	77	63	84
Cervical cancer screening: Pap or cervical smear in past 3 years (women ages 25–64*)	78	77	81	77	89
Adult immunization: flu shot in past year (elderly adults ages 65 and older)	77	66	67	74	72
Heart disease prevention: blood pressure check in past year (adults ages 18 and older)	78	80	72	68	86
Reminders to make appointment for preventive care (adults ages 18 and older)	37	38	44	49	50

Source: 2004 Commonwealth Fund International Health Policy Survey (Schoen, C. et al. 2004). AUS = Australia; CAN = Canada; NZ = New Zealand; UK = United Kingdom; US = United States. *Recommended screening intervals differ among countries; the US intervals are shown. Age ranges reflect overlap of country recommendations.



Percentage of Sicker Adults With Diabetes Who Received Recommended Chronic Care, International Comparison, 2005

<i>Key: higher rates are better (gold = best and red = worst country performance)</i>	AUS	CAN	GER	NZ	UK	US
Hemoglobin A1c test in past 6 months (to monitor blood sugar control)	86	90	91	79	85	90
Foot examination in past year	57	52	65	66	75	70
Eye examination in past year	73	73	85	66	83	69
Cholesterol check in past year	93	91	95	87	92	92
All four recommended services	41	38	55	40	58	56

Source: 2005 Commonwealth Fund International Health Policy Survey (Schoen, C. et al. 2006). AUS = Australia; CAN = Canada; GER = Germany; NZ = New Zealand; UK = United Kingdom; US = United States.



Outcomes: Cancer and Transplant Five-Year Survival Rates (Percentage Alive Five Years After Diagnosis or Transplant) International Comparison, Various Years 1992 to 2001

<i>Key: higher rates are better (gold = best and red = worst country performance)</i>	AUS	CAN	NZ	ENG	US
Breast cancer*	80	78	79	75	86
Cervical cancer*	78	74	73	70	75
Colorectal cancer*	62	60	66	52	58
Childhood leukemia*	69	81	70	NA	76
Non-Hodgkin's Lymphoma*	67	62	67	59	63
Kidney transplant	88	94	86	86	83
Liver transplant <i>(combined rate for AUS/NZ)</i>	78	87	78	71	73

Source: Commonwealth Fund International Working Group on Quality Indicators 2004.
 AUS = Australia; CAN = Canada; NZ = New Zealand; ENG = England; US = United States.
 *Relative survival rates, adjusted to account for expected deaths from other causes; rates were age-adjusted to an OECD standard 1980 population.



Outcomes: Rates of Selected Avoidable Events International Comparison, Various Years 1998 to 2001*

<i>Key: lower rates are better (gold = best and red = worst country performance)</i>	AUS	CAN	NZ	ENG	US
Asthma mortality (1990–1999) (rate per 100,000 people ages 5–39)	0.4	NA	0.7	0.6	0.5
Suicide (rate per 100,000 people)	11.6	11.4	13.2	6.0	10.6
Incidence of pertussis (rate per 100,000 people)	31.0	20.0	NA	1.3	2.7
Incidence of measles (rate per 100,000 people)	0.6	0.1	1.8	4.5	0.04
Incidence of Hepatitis B (rate per 100,000 people)	2.1	4.2	2.1	2.0	6.3
Adult smoking rate (percentage of adults ages 18 and older)	24	23	25	27	23

Source: Commonwealth Fund International Working Group on Quality Indicators 2004. AUS = Australia; CAN = Canada; NZ = New Zealand; ENG = England; US = United States. *Annual rates (except for asthma) for various years between 1998 and 2001 depending on country and measure. Asthma mortality rates were age-standardized.



Percentage of Sicker Adults Who Had Continuity of Care or Reported Access Problems, International Comparison, 2005

<i>Key: gold = best country performance and red = worst country performance)</i>	AUS	CAN	GER	NZ	UK	US
CONTINUITY OF CARE (higher rates are better)						
Have regular doctor	92	92	97	94	96	84
With same doctor 5 years or more (among those with a regular doctor)	61	65	78	61	69	50
ACCESS PROBLEMS (lower rates are better)						
Unmet need due to cost in past 2 years (prescription, doctor visit when sick, or test or follow-up recommended by a doctor)	34	26	28	38	13	51
Very difficult to get care on nights, weekends, holidays without going to the ER (among those who sought care)	36	29	11	13	22	39

Data: 2005 Commonwealth Fund International Health Policy Survey (Schoen, C. et al. 2005. *Health Affairs* Web Exclusive W5-509–25). AUS = Australia; CAN = Canada; GER = Germany; NZ = New Zealand; UK = United Kingdom; US = United States. Sicker adults have a high incidence of chronic disease and recent intensive use of health care.



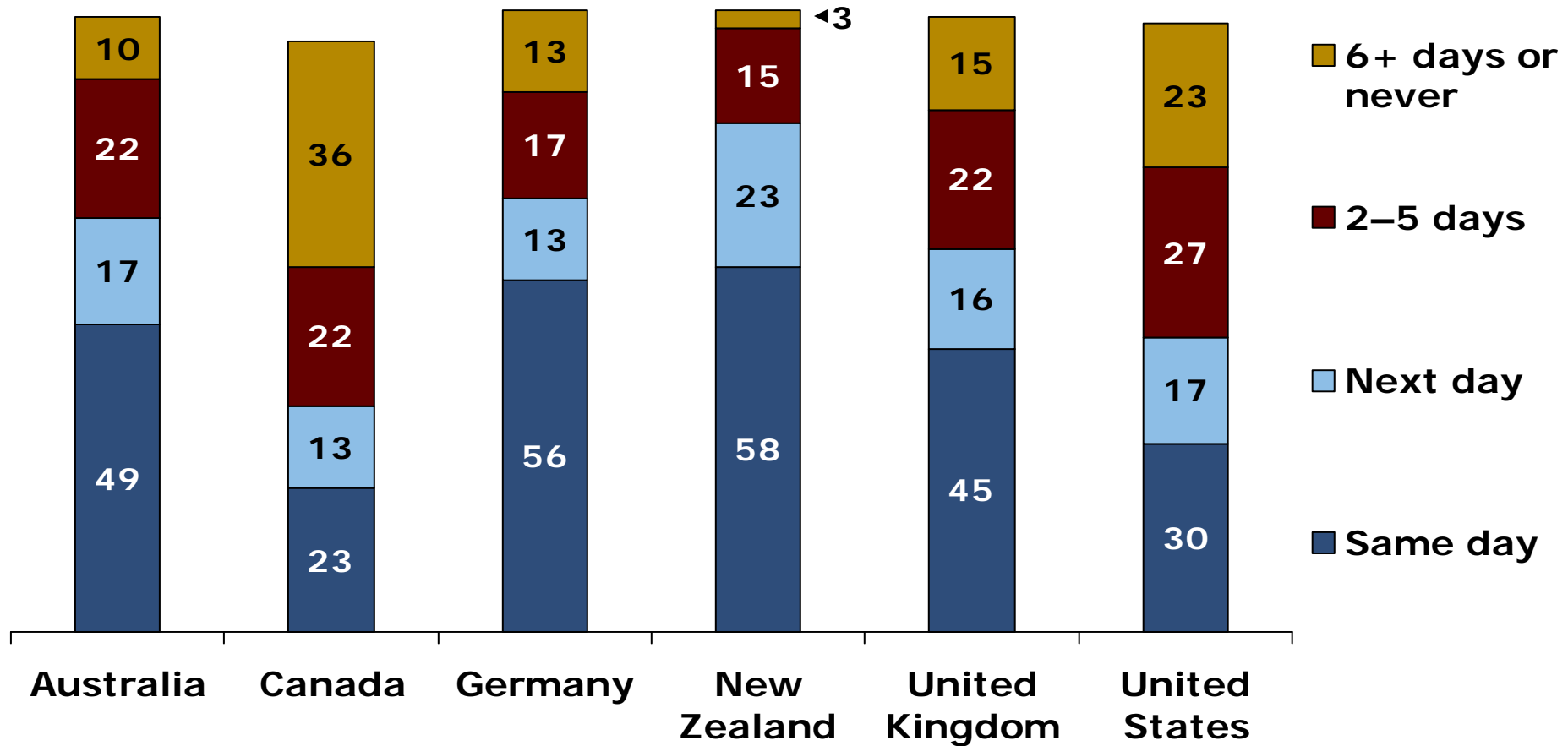
Percentage of Sicker Adults Who Reported Long Waiting Times for Care, International Comparison, 2005

<i>Key: Lower rates are better (gold = best and red = worst country performance)</i>	AUS	CAN	GER	NZ	UK	US
Waited 6 days or longer for a doctor appointment (last time sick or needed medical attention)	10	36	13	3	15	23
Waited 4 hours or longer to be seen in the emergency room (among those who visited an ER in the past 2 years)	17	24	4	12	14	12
Waited 4 weeks or longer to see a specialist (among those who needed to see a specialist in the past 2 years)	46	57	22	40	60	23
Waited 4 months or longer for elective surgery (among those who needed elective surgery in the past 2 years)	19	33	6	20	41	8

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Waiting Times for a Doctor's Appointment When Sick or Needed Medical Attention: Percentage of Sicker Adults, International Comparison, 2005



Data: 2005 Commonwealth Fund International Health Policy Survey (The Commonwealth Fund 2005). Sicker adults have a high incidence of chronic disease and recent intensive use of health care. Percentages do not add to 100 because some respondents did not answer or were not sure.

