Systems approaches in health

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LONDON
SCHOOL of
HYGIENE
&TROPICAL
MEDICINE

Systems of public service delivery in developing countries
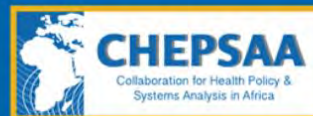Blavatnik School of Government
14-15 May 2018

Health Policy and Planning
The journal on health policy and systems research

1986

hsr2018
5th Global
Symposium on
Health Systems
Research

Health Systems AND REFORM

2015

Health Systems Global
Improving performance
through research and policy

2012

Alliance for Health Policy and Systems Research

1999

Health Policy and Systems Teaching Resources

CHEPSAA
Collaboration for Health Policy & Systems Analysis in Africa

This resource site is supported by:
CHESAI

A website dedicated to supporting the teaching of health policy and systems research by discussing principles of curriculum development, highlighting good teaching practice and sharing teaching resources
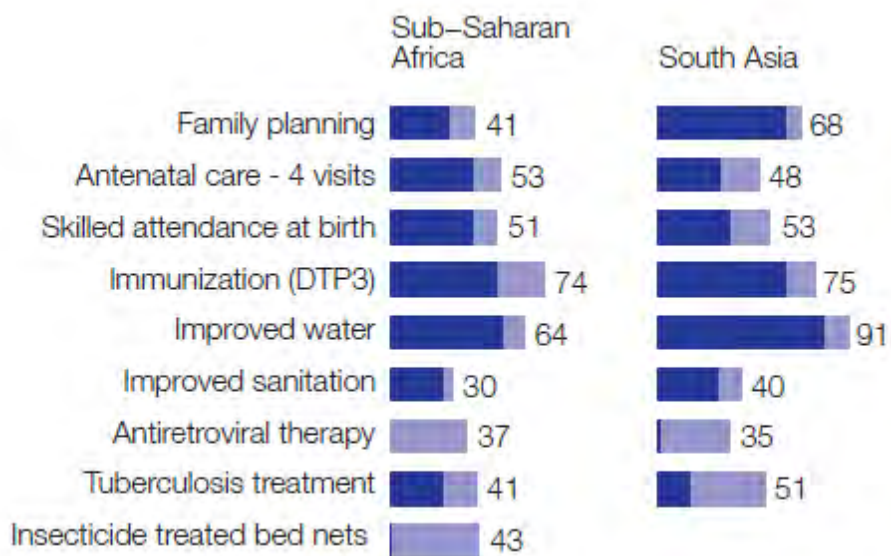
Home   Teaching Resources   HPSR Teaching Blog   CHEPSAA Course Map   CHEPSAA Archive   Stay Connected   Search

Effective interventions are under-used, yet little investment in research to strengthen systems

Coverage of essential health services, 2000 and 2013 (Source: Tracking UHC, 2015)

	Sub–Saharan Africa	South Asia
Family planning	41	68
Antenatal care - 4 visits	53	48
Skilled attendance at birth	51	53
Immunization (DTP3)	74	75
Improved water	64	91
Improved sanitation	30	40
Antiretroviral therapy	37	35
Tuberculosis treatment	41	51
Insecticide treated bed nets	43	

- New technologies could avert 22% of child deaths, while improved service utilization could avert 63%.
- Yet, 97% of grants awarded by two largest research funders were for new technologies

    – Leroy 2007, cited in AHPSR 2007

Outline

Health systems as a *topic*

Health systems research as *questions*

Health systems research as *method*

Health systems research and *policy impact*

Nomenclature and boundaries

Health systems research / Health policy and systems research /
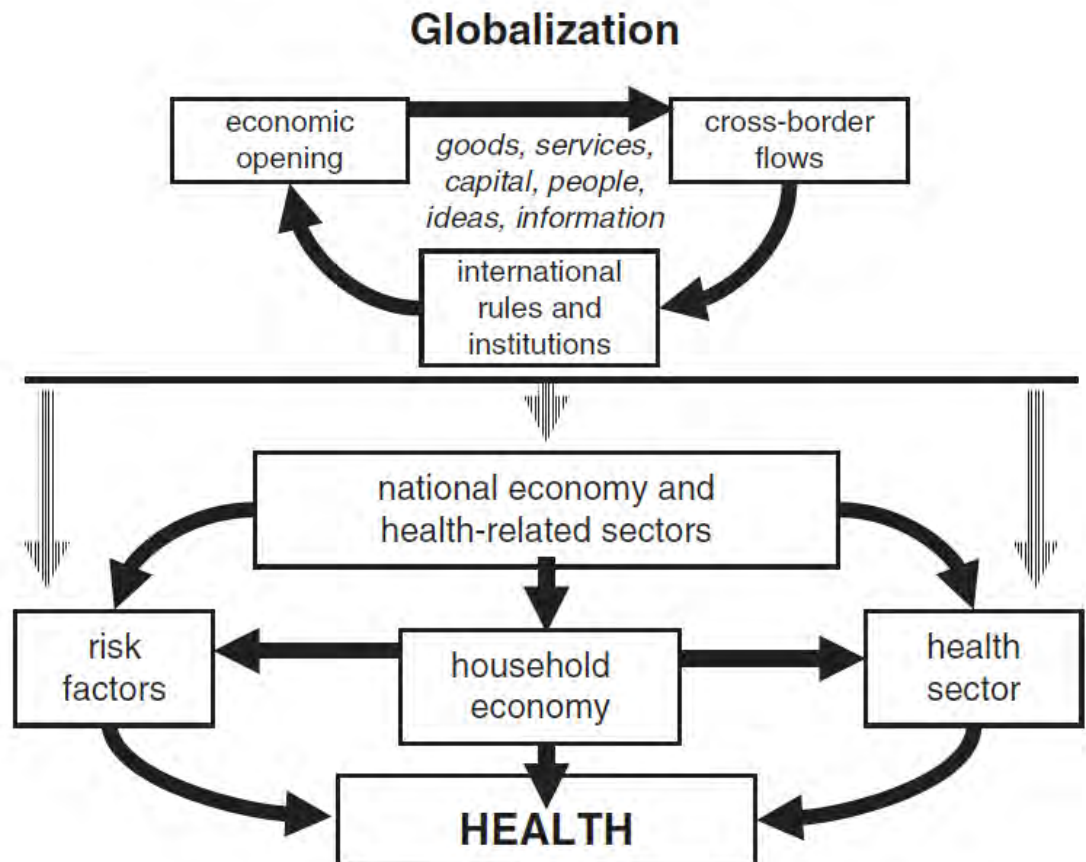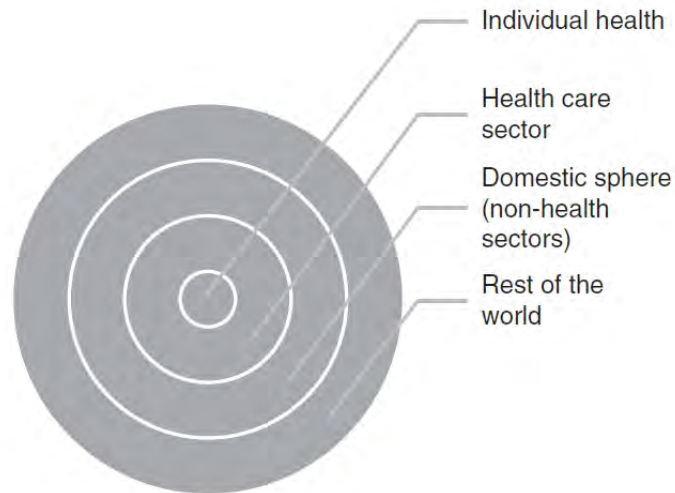Health services research

Health services – focus on patients and providers? Includes methods of
organising and delivering services?

Levels of research (Fulop et al. 2001)

- Micro: individual practitioner or patient
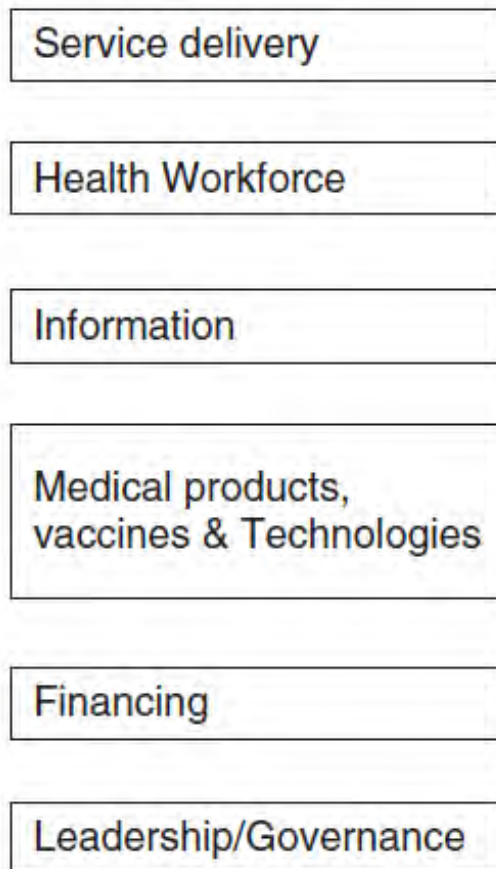- Meso: organizations
- Macro: health system

Health *care* systems or health systems?

Smith and Hanson 2012

Nomenclature and boundaries

Health systems research / Health policy and systems research / Health services research

Health services – focus on patients and providers? Or inclusive of the methods of organising and delivering services?

Levels of research (Fulop et al. 2001)
- Micro: individual practitioner or patient
- Meso: organizations
- Macro: health system

Health *care* systems or health systems?

National and global influences (eg. behaviour of global actors – organizations, multinationals; international movement of health workers)
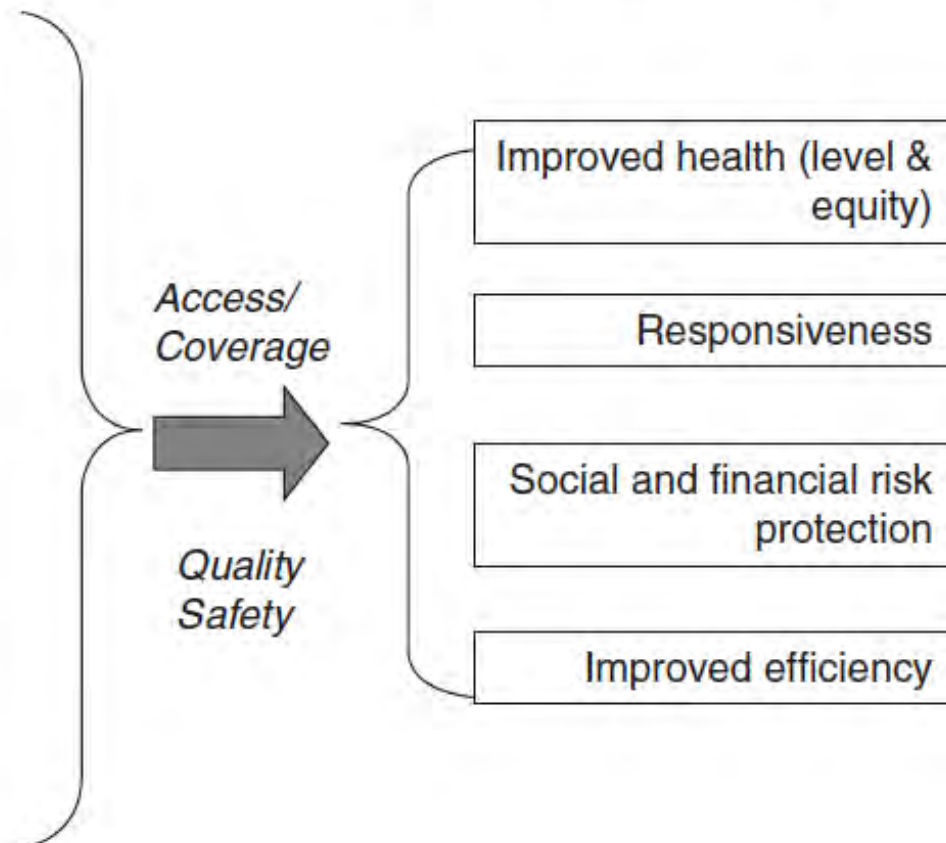
Linkages and signals
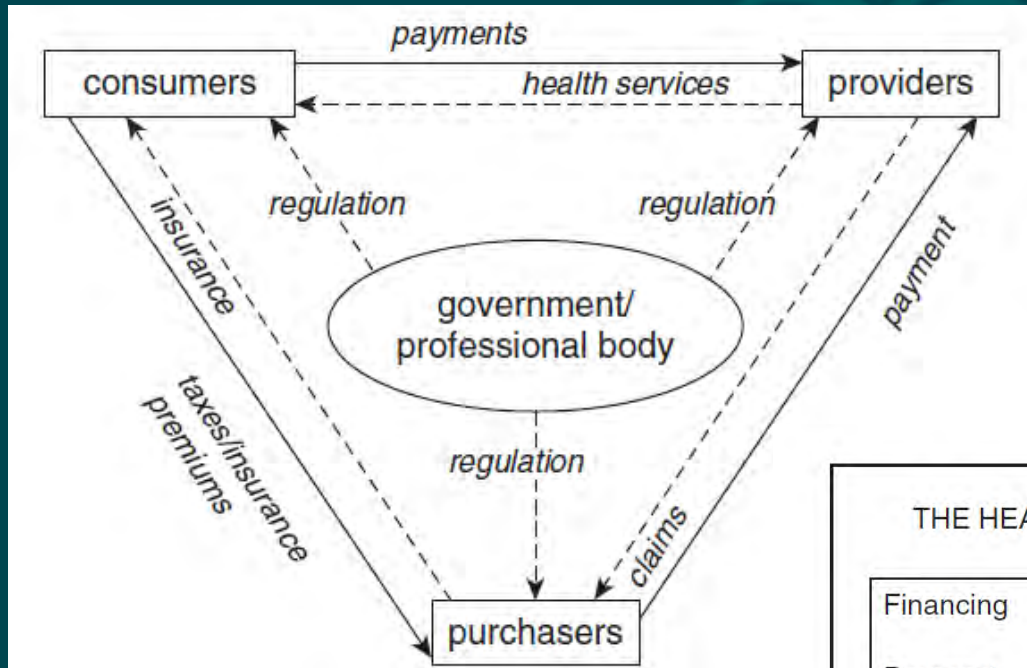
Health financing sub-system model

Roberts et al. "Control knobs"
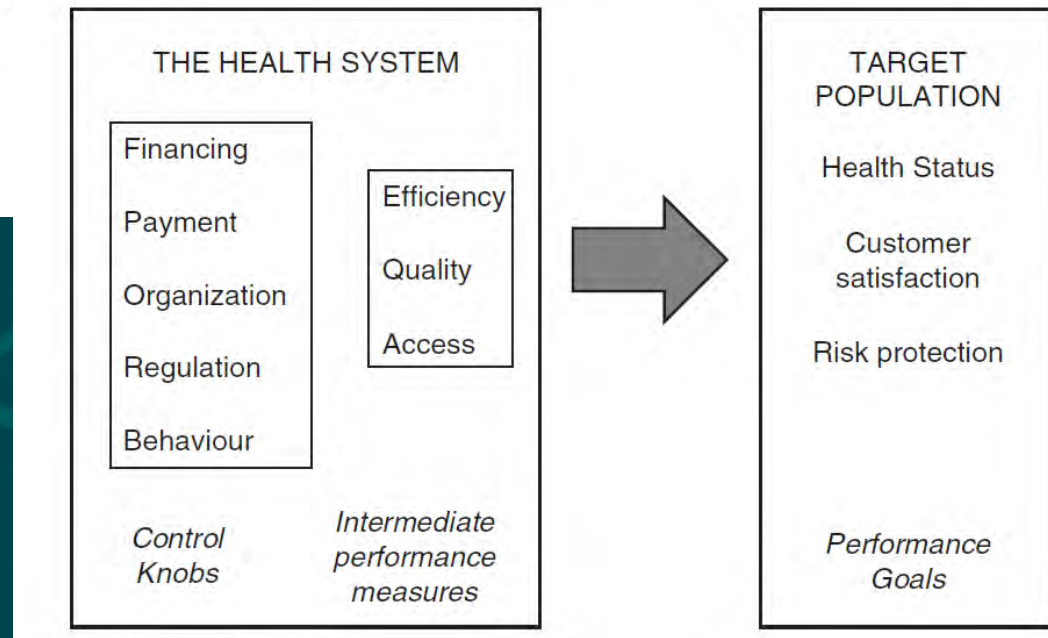
Financing

Who benefits from free healthcare? Evidence from a randomized experiment in Ghana ☆

Timothy Powell-Jackson [a,*], Kara Hanson [a], Christopher J.M. Whitty [a], Evelyn K. Ansah [b]

[a] London School of Hygiene and Tropical Medicine, UK
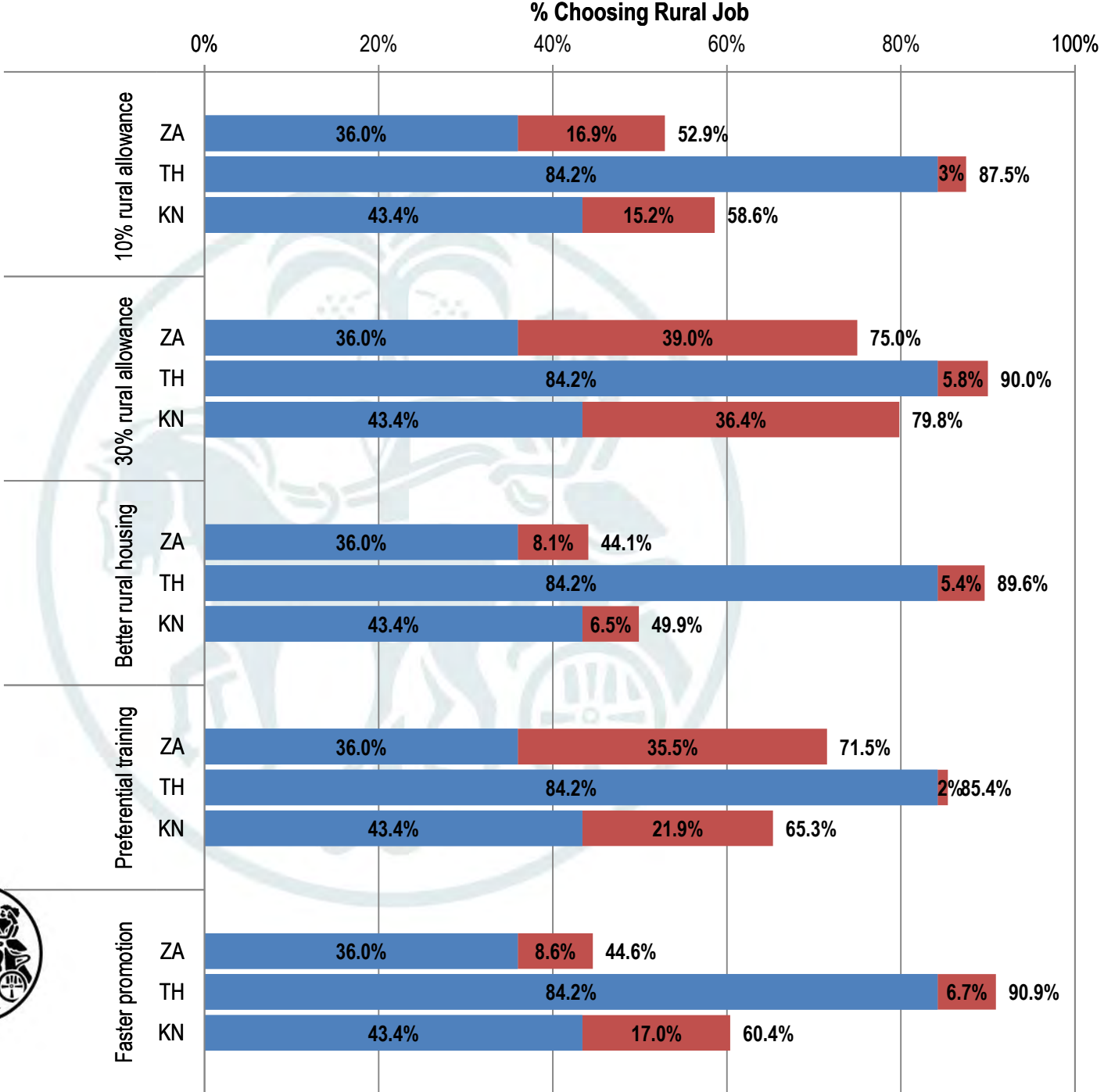[b] Research and Development Division, Ghana Health Service, Ghana

Special theme – Health workforce retention in remote and rural areas

Policy interventions that attract nurses to rural areas: a multicountry discrete choice experiment

D Blaauw,[a] E Erasmus,[a] N Pagaiya,[b] V Tangcharoensathein,[b] K Mullei,[c] S Mudhune,[c] C Goodman,[c] M English[c] & M Lagarde[d]

Impact of single interventions

% Choosing Rural Job

10% rural allowance
- ZA: 36.0% | 16.9% → 52.9%
- TH: 84.2% | 3% → 87.5%
- KN: 43.4% | 15.2% → 58.6%

30% rural allowance
- ZA: 36.0% | 39.0% → 75.0%
- TH: 84.2% | 5.8% → 90.0%
- KN: 43.4% | 36.4% → 79.8%

Better rural housing
- ZA: 36.0% | 8.1% → 44.1%
- TH: 84.2% | 5.4% → 89.6%
- KN: 43.4% | 6.5% → 49.9%

Preferential training
- ZA: 36.0% | 35.5% → 71.5%
- TH: 84.2% | 2% → 85.4%
- KN: 43.4% | 21.9% → 65.3%

Faster promotion
- ZA: 36.0% | 8.6% → 44.6%
- TH: 84.2% | 6.7% → 90.9%
- KN: 43.4% | 17.0% → 60.4%

Protecting the public or setting the bar too high? Understanding the causes and consequences of regulatory actions of front-line regulators and specialized drug shop operators in Kenya

Francis Wafula [a,b,*], Catherine Molyneux [a,c], Maureen Mackintosh [d], Catherine Goodman [a,e]

Pay-for-performance

PLOS | ONE

Effect of Paying for Performance on Utilisation, Quality, and User Costs of Health Services in Tanzania: A Controlled Before and After Study

Peter Binyaruka[1], Edith Patouillard[2], Timothy Powell-Jackson[2], Giulia Greco[2], Ottar Maestad[3], Josephine Borghi[2]*

By Josephine Borghi, Richard Little, Peter Binyaruka, Edith Patouillard, and August Kuwawenaruwa

In Tanzania, The Many Costs Of Pay-For-Performance Leave Open To Debate Whether The Strategy Is Cost-Effective

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

ELSEVIER

Effects of Payment for Performance on accountability mechanisms: Evidence from Pwani, Tanzania

CrossMark

Iddy Mayumana [a], Jo Borghi [b], Laura Anselmi [c], Masuma Mamdani [a], Siri Lange [d, *]

[a] Ifakara Health Institute, P.O. Box 78 373, Dar es Salaam, Tanzania
[b] London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK
[c] Manchester Centre for Health Economics, University of Manchester, Oxford Road, Manchester M13 9PL, UK
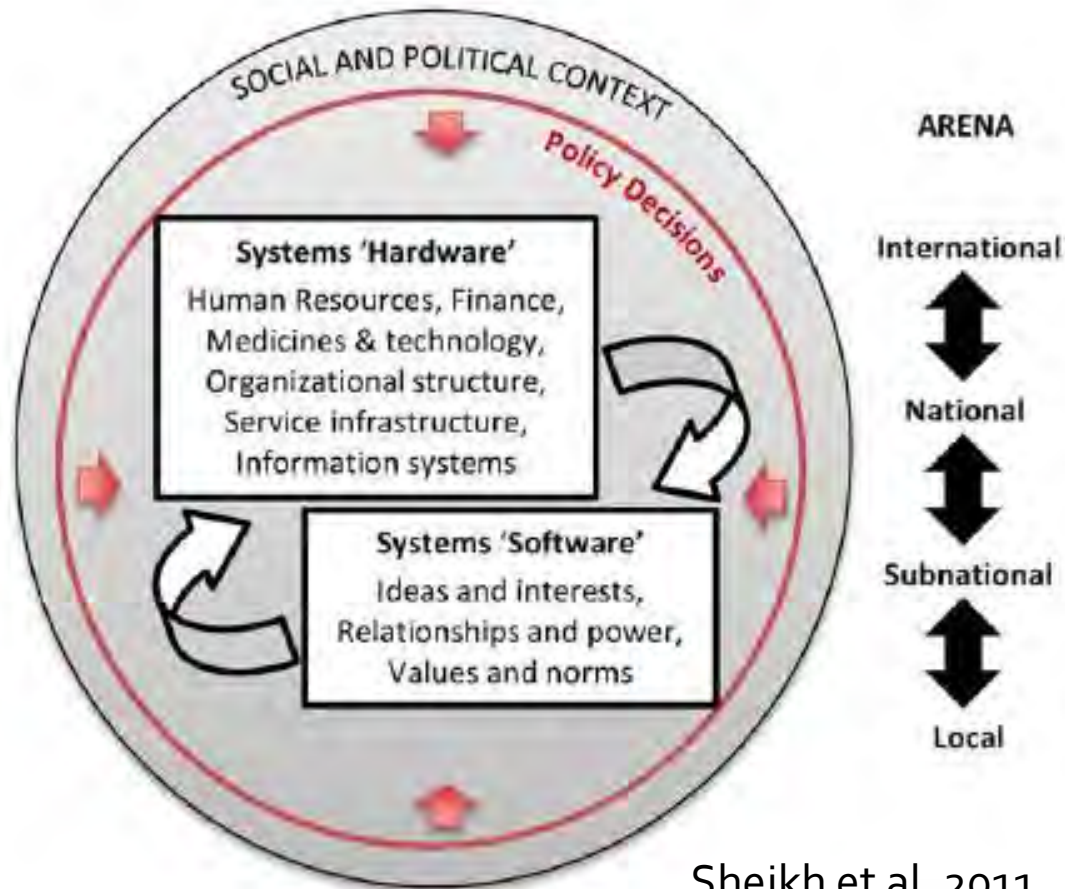[d] Chr. Michelsen Institute, Norway, P.O.Box 6033, N-5892 Bergen, Norway

People, "software" and context

De Savigny and Adam 2009

Sheikh et al. 2011

Everyday resilience in district health systems: emerging insights from the front lines in Kenya and South Africa

Lucy Gilson,[1,2] Edwine Barasa,[3] Nonhlanhla Nxumalo,[4] Susan Cleary,[1] Jane Goudge,[4] Sassy Molyneux,[3,5] Benjamin Tsofa,[3] Uta Lehmann[6]

"Whole system" approaches

World Health Report 2000 – 3 fundamental objectives of health systems:

- improve the health of the population they serve (Disability Adjusted Life Expectancy)

- respond to people's expectations (respect for persons, client orientation)

- Provide financial protection against the costs of ill-health (share of OOP health care payments in non-food expenditure)

- Levels and distribution

Weighted composite score ("goal attainment")

Compared with resources available ("performance")

Construction of League Tables

"Good health at low cost in Thailand": sustained action to address access barriers over time

Under-five mortality per 1,000 live births

Patcharanarumol et al., 2011
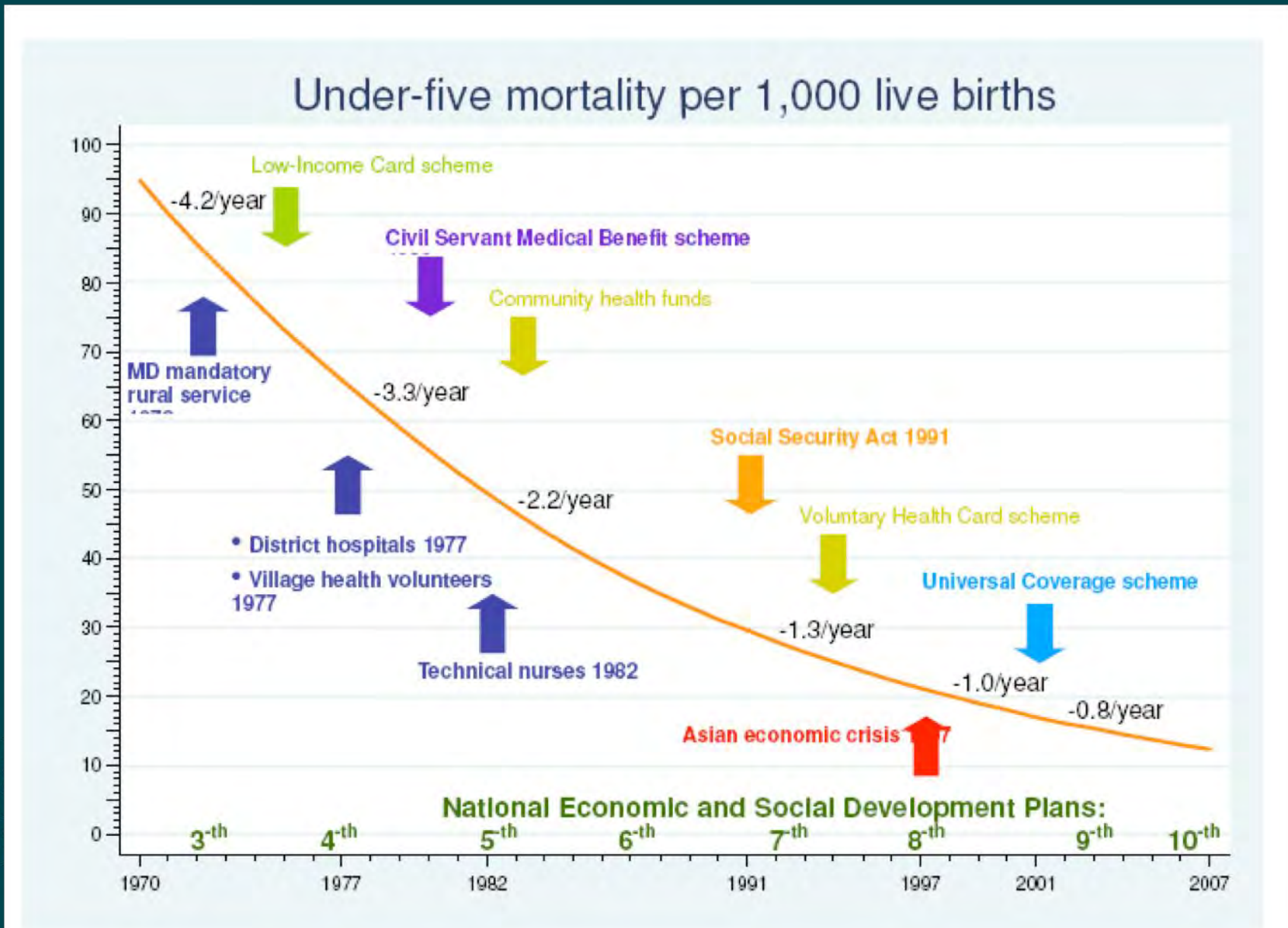
Health systems research as *questions*

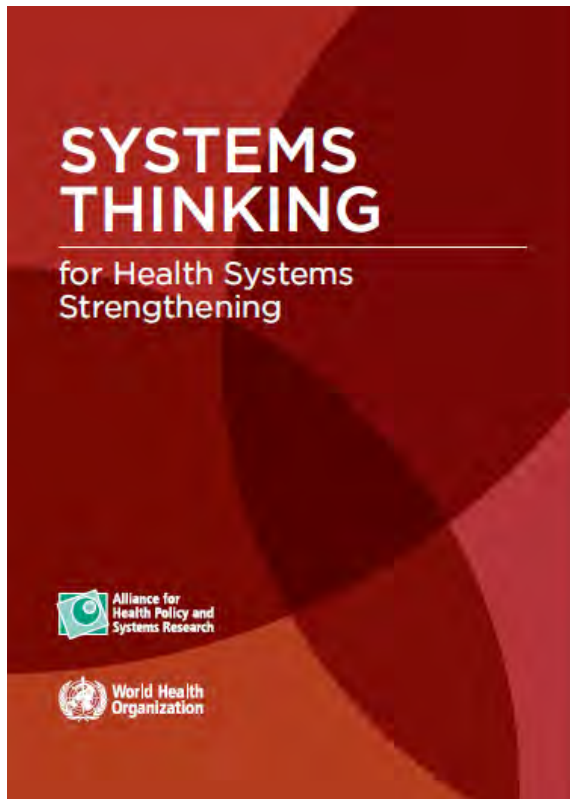|	Macro: System architecture and oversight	Meso: Functioning of organisations and interventions	Micro: Individual in the system
Exploratory / Explanatory	Why do informal health markets continue to flourish where publicly provided services are adequate?	How do pay-for-performance arrangements interact with local accountability structures?	How are new health policies perceived, interpreted and (re)interpreted by frontline health workers?
Evaluative	Does a new financing mechanism protect the poorest households from catastrophic costs?	What are the reasons for low uptake of community-based health insurance?	What financial and non-financial incentives will encourage health workers to locate in underserved areas?

Sheikh et al. 2013

System as method

Health systems as complex adaptive systems

- Elements, individuals, organisations, forming a whole that is distinct from its constituent parts
- Multiple sub-systems, difficult to determine system boundaries
- Complex and adaptive: actions of one agent change the context for others
- Feedback loops mean that agents influence each other, but also themselves, creating context for learning
- Agents can belong to several systems concurrently, creating constant change

Methods for studying complex systems

2009

SYSTEMS THINKING
for Health Systems Strengthening

Alliance for Health Policy and Systems Research

World Health Organization

2017

APPLIED SYSTEMS THINKING FOR HEALTH SYSTEMS RESEARCH
A METHODOLOGICAL HANDBOOK

DON DE SAVIGNY, KARL BLANCHET AND TAGHREED ADAM
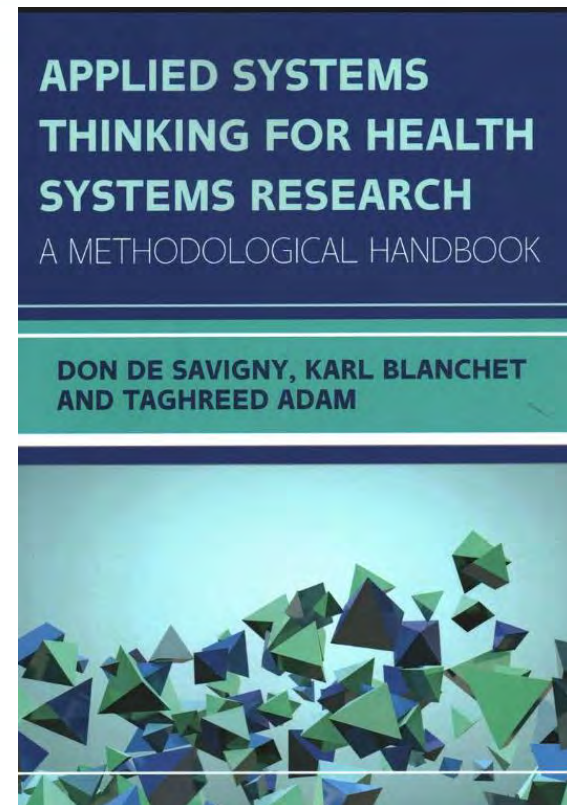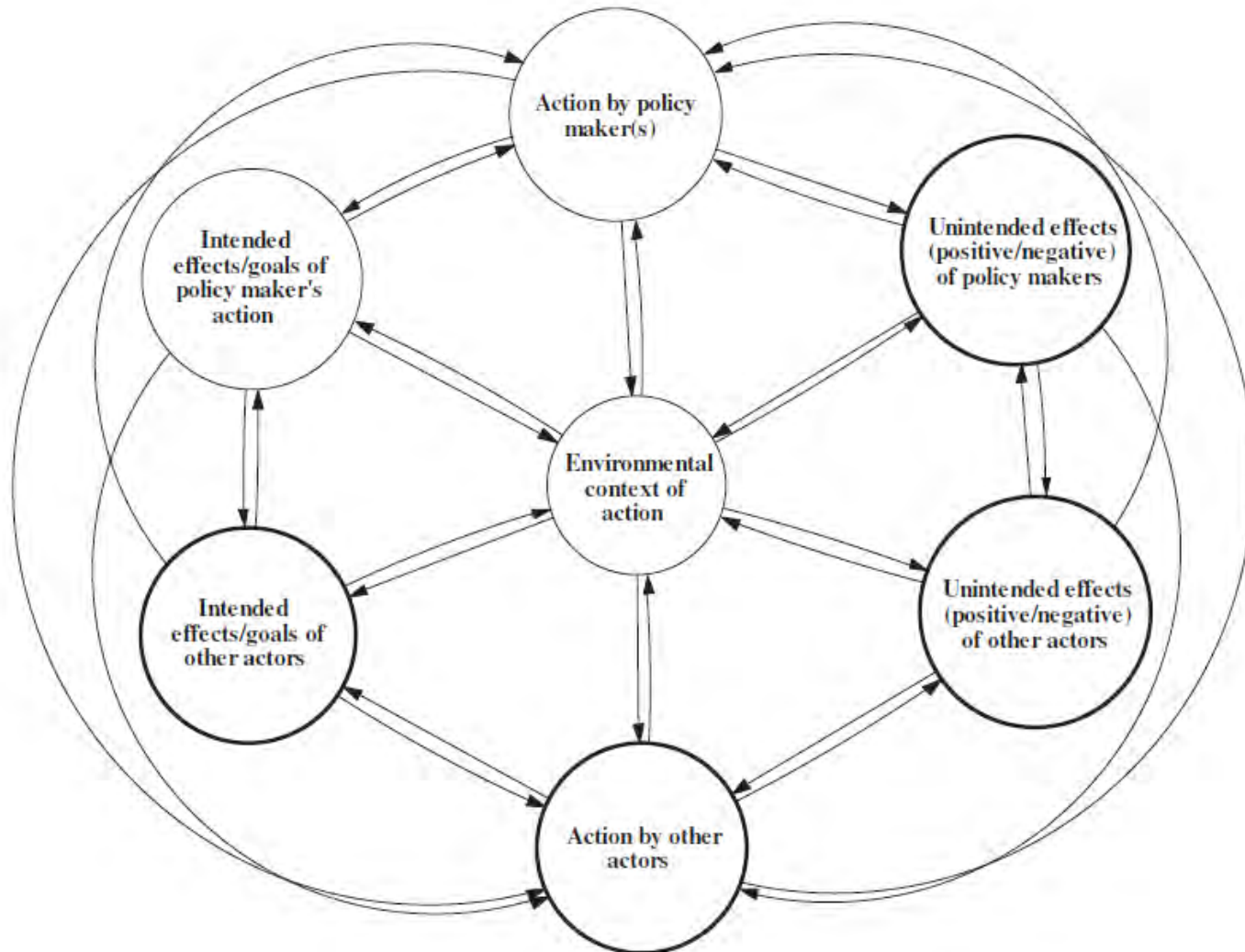
Open Access

Research

BMJ Open Systems science and systems thinking for public health: a systematic review of the field

2015

Gemma Carey,[1] Eleanor Malbon,[2] Nicole Carey,[3] Andrew Joyce,[4] Brad Crammond,[5] Alan Carey[6]

Complex Adaptive Systems: Responses and unintended consequences

Agyepong et al. 2012

System methods in health

- To understand problems and frame research questions
    - Insight into causal mechanisms
- To identify and manage solutions
    - Simulate policy interventions
    - Explore conditions required for best outcomes / unintended consequences
    - Support decisionmaking processes

- "Hard" (system dynamic modelling, agent-based modelling, network analysis) vs. "soft" (qualitative, action-based research approaches)

System methods in health

Eg. Agent Based Modelling (Tracy et al. 2018)

- Infectious disease modelling (to characterise interactions between individuals, their social networks, and their environmental contexts)

- Non-communicable disease – obesity (biological, behavioural, social and environmental factors over the life course), diabetes

- Health behaviours – eg. smoking and tobacco control programmes (initiation, cessation, relapse, and unintended consequences of tobacco control interventions).

- Social epidemiology – violence, crime

- Service organisation – eg. care coordination for mental health patients, adoption of new technologies

System methods in health

Eg. Social network analysis (Blanchet and Shearer 2017)

What is the fastest way to disseminate new directives to first level health facilities?

Which network factors explain referral patterns in a village healthcare network?

What is the ideal structure of a vaccine supply chain network?

How does a peer learning intervention change the size, density and centralisation of a knowledge exchange network?

Which network level factors explain an actor's use of evidence to inform a policy decision?

System methods in health

Qualitative methods (from de Savigny et al.)

- Boundary critique

- Soft systems methodology – stakeholder and researcher reflection on a problem

- Casual loop diagrammes

- Process mapping
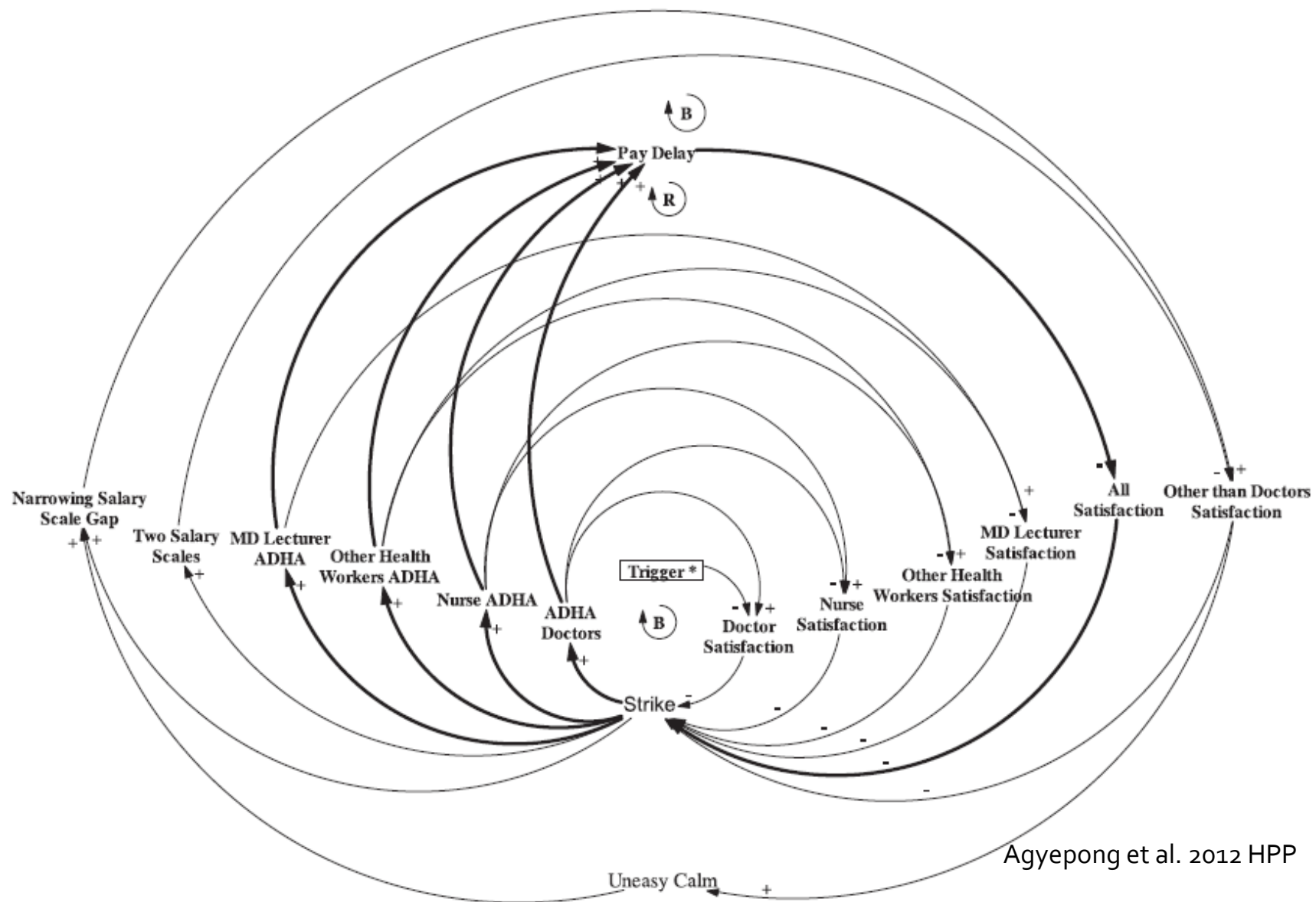
Agyepong et al. 2012 HPP

* Trigger: Increased military MD salary in Accra

Systems research on policy: Models of implementation

Mechanical model – Central actors have power and control the system; only central actors learn; system components are connected through static and predictable mechanisms; change occurs through top-down intervention

Cultural model – Humans make meaning, act on the basis of their understandings and interpretations; drawing on shared social meanings, which shape responses
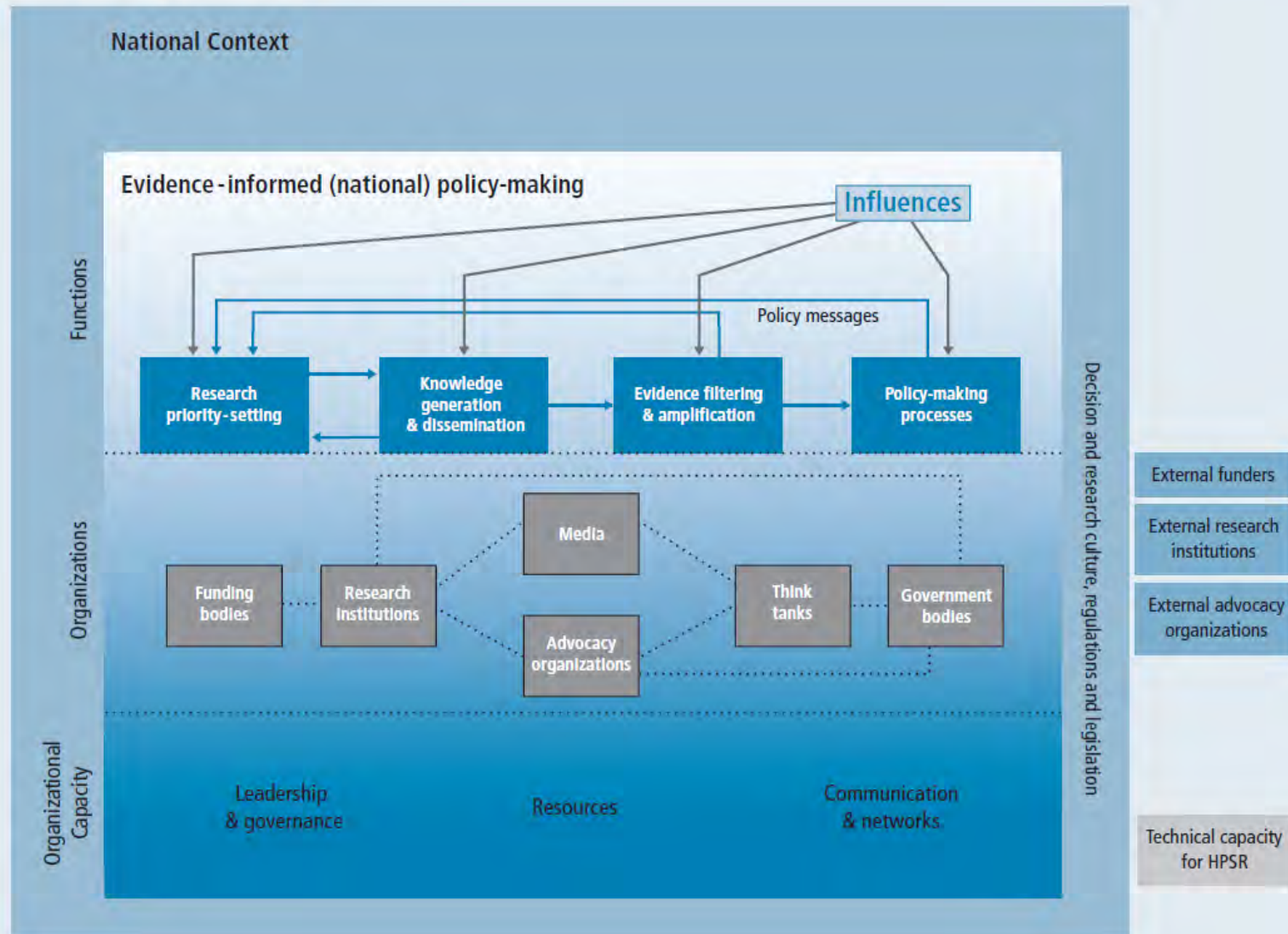
Political model – system actors have interests and preferences, seek to use power to influence system outcomes; actors at the bottom of the system have power, too; policy and delivery result from power balances and strategies used by actors

Eg. Street level bureaucracy

Eg. Susan Watkins' work on education

Gilson (2013)

Embedded approaches

Health systems research is "problem driven" – focusing on real-world problems

Embedded approaches are "…more likely to lead to actionable and usable results by appropriately identifying critical problems and questions" (Olivier et al. 2017)

HPSR is concerned with people – "HPS researchers must work in direct engagement with the practitioners and practice central to the inquiry, acknowledging their tacit knowledge and drawing it into new insights into health system functioning"

Examples of types of embedded researchers

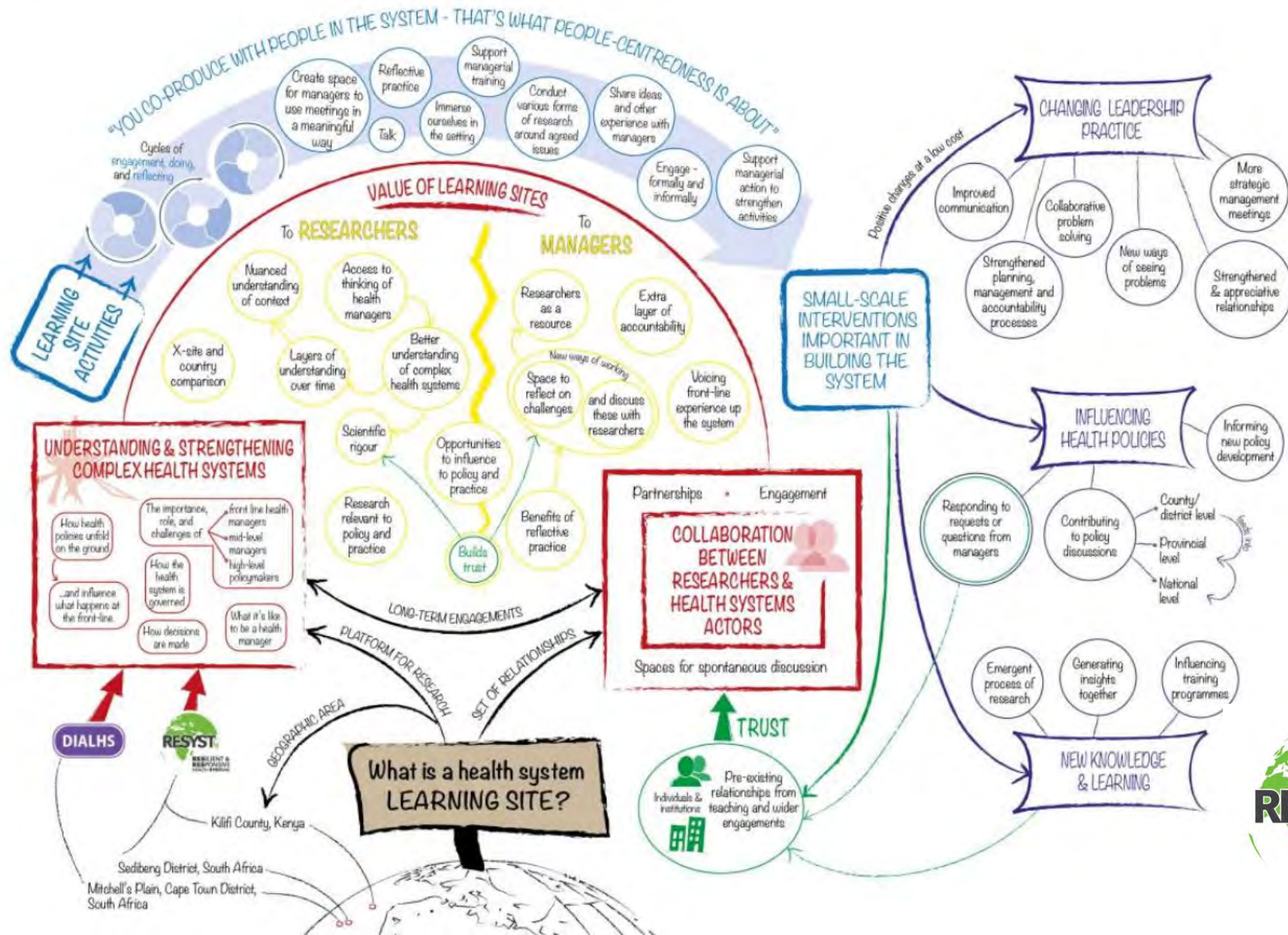|		
Insider researchers	Insider student research	Jointly appointed staff
Research partnerships and programmes	Researchers immersed in the system	NGO/donor funded research staff placed in the system

Olivier et al. 2017

Learning sites

Challenges of embedded research

Negotiation of purposes, problem identification and framing, parameters

Analysis and negotiation of power

Information ownership and terms of co-production

Building and maintaining of trust – relationships, and trustworthiness of findings

Research ethics – unintended consequences, do no harm, risk to the system

(Olivier et al. 2017)

Challenge of demonstrating impact of system level strengthening on health outcomes

- Long causal chain, complex interventions, multiple influences on health

- Challenge of counterfactual for system-level change (small-n evaluations)

- Greater role for "plausibility" designs employing theory of change, dose-response, careful analysis of process and context

Finding a balance between models which simplify and those which "complexify" (model resolution)

Choosing approaches which provide rich explanations of past outcomes vs those which can predict what will happen

Understanding context, generalizing results across settings