

Implementation Science in Global Context

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Outline

- What is the value proposition implementation science has to global health?
- What does global context have to offer to implementation science?
- Implementation science in global context offers two opportunities
 - Use emerging perspectives to solve applied health problems
 - Use variation in the global context to expand the corpus of perspectives that are the foundation of implementation science
- Context of implementation science
- Draw on the public health response to HIV
- Roadmap for new directions in implementation science

A little about myself...

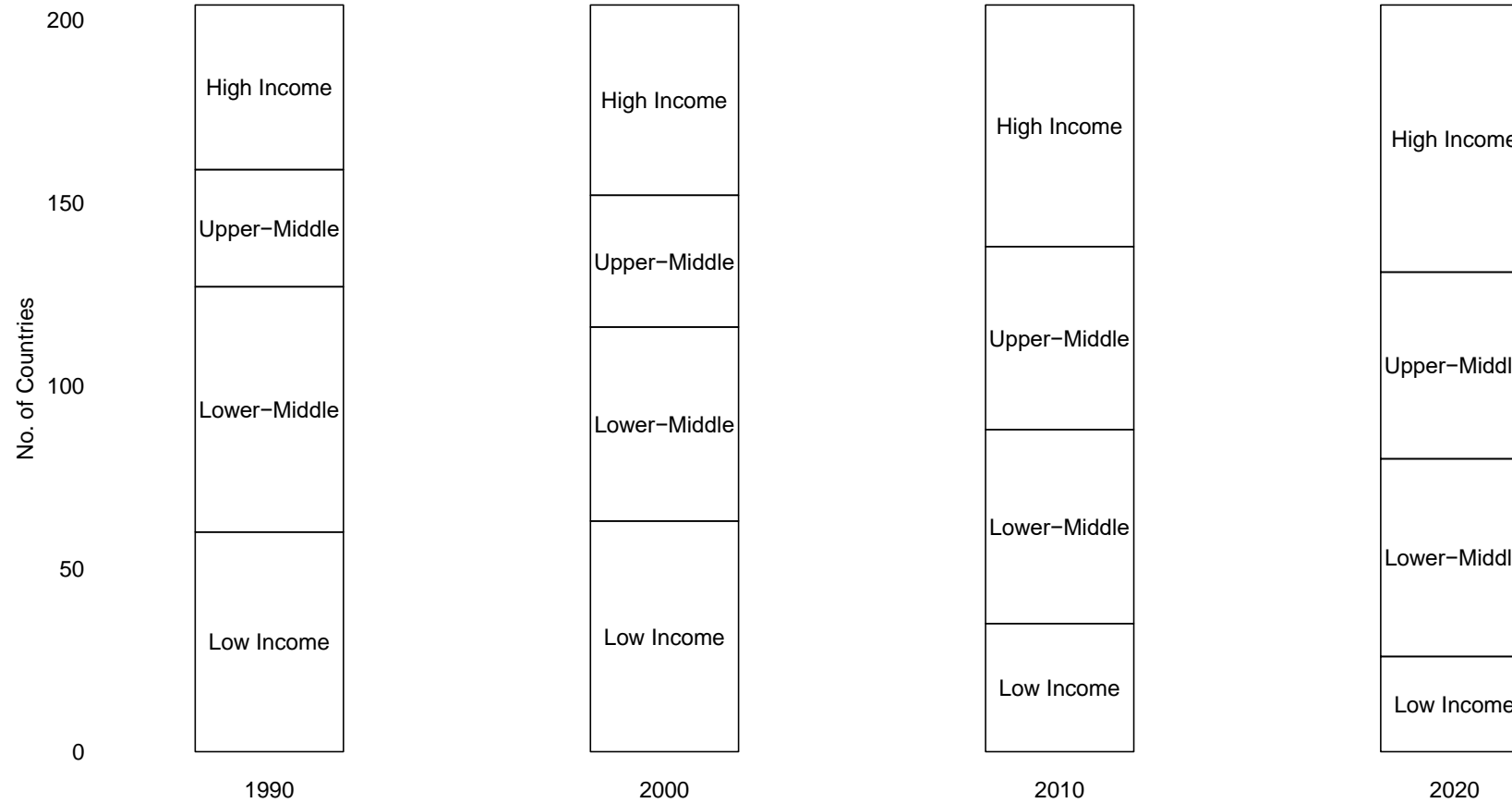
- Undergraduate “Interdisciplinary Field Study” (1996)
- Traditional Chinese Medicine (1997)
- Medical School and Public Health Degree (2002)
- Internal Medicine and Infectious Diseases (2009)
- Faculty at UCSF (2019)
- Collaborations with partners in Kenya, Zambia, China (2005-present)
- Scale up and treatment for HIV globally (2005-present)
- WashU and Center for Dissemination & Implementation Research (2019-)
- Journal and Scientific Organization Service, World Health Organization, other agencies (2010-present)

Universal Health Coverage

- 1978 Alma Alta Declaration
 - *“Universal health coverage (UHC) is the goal that all people receive the essential health services that they need, without being exposed to financial hardship, and is central to the health-related targets of the Sustainable Development Goals (SDGs). ”*
- 1993 World Development Report (World Bank)
 - The “health begets wealth” theory
 - “Because good health increases the economic productivity of individuals and the economic growth rate of countries, investing in health is one means of accelerating development”

Rising wealth globally over the last 30 years

World Bank Classification (1990): High Income Upper-Middle Lower-Middle Low Income



High income

39

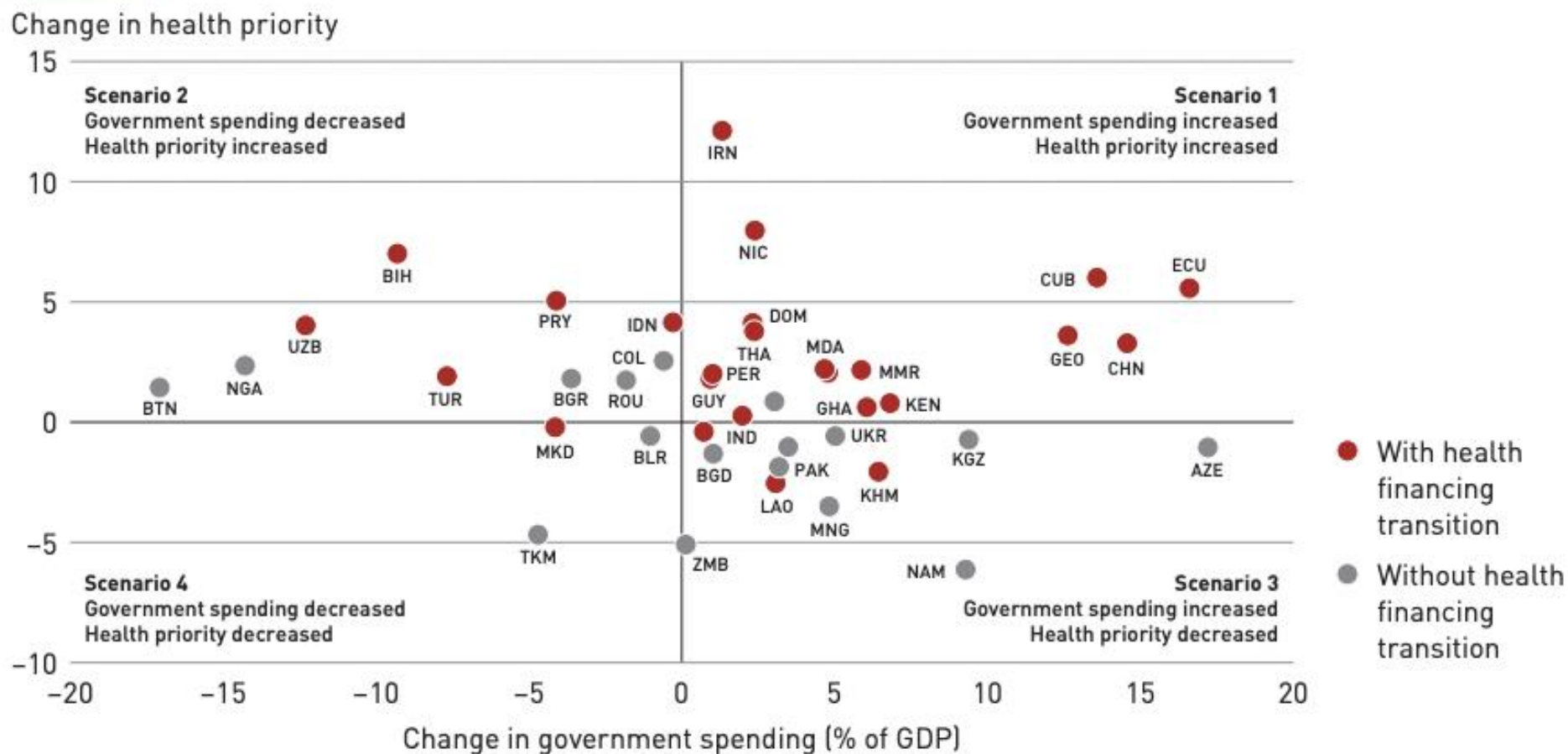
80

Low income

51

27

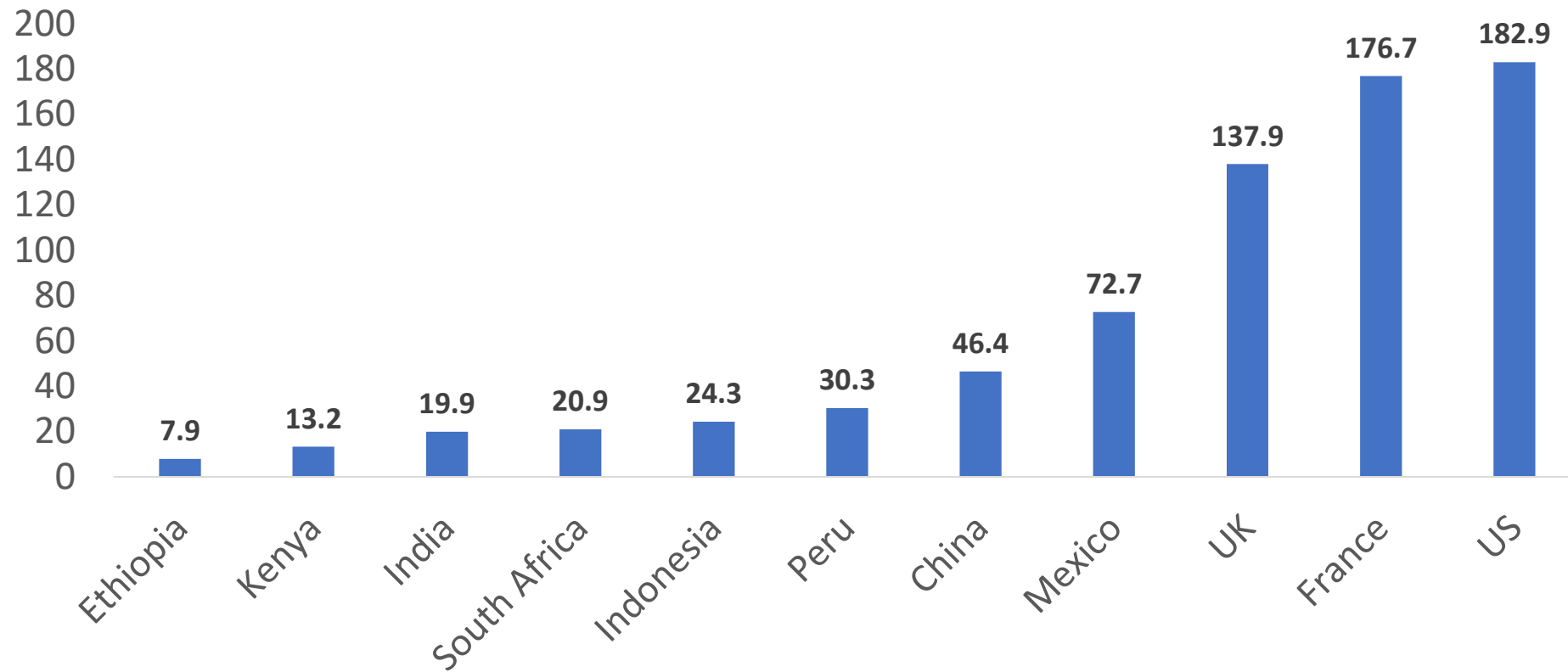
FIGURE 2.5 Growth is not enough – prioritizing health in budgets is key



Note: Changes in health priority correspond to the difference between the 3-year average of government spending on health as a share of government spending in 2000 and in 2017. Changes in government spending correspond to the difference between the 3-year average of government spending as a share of GDP in 2000 and in 2017.

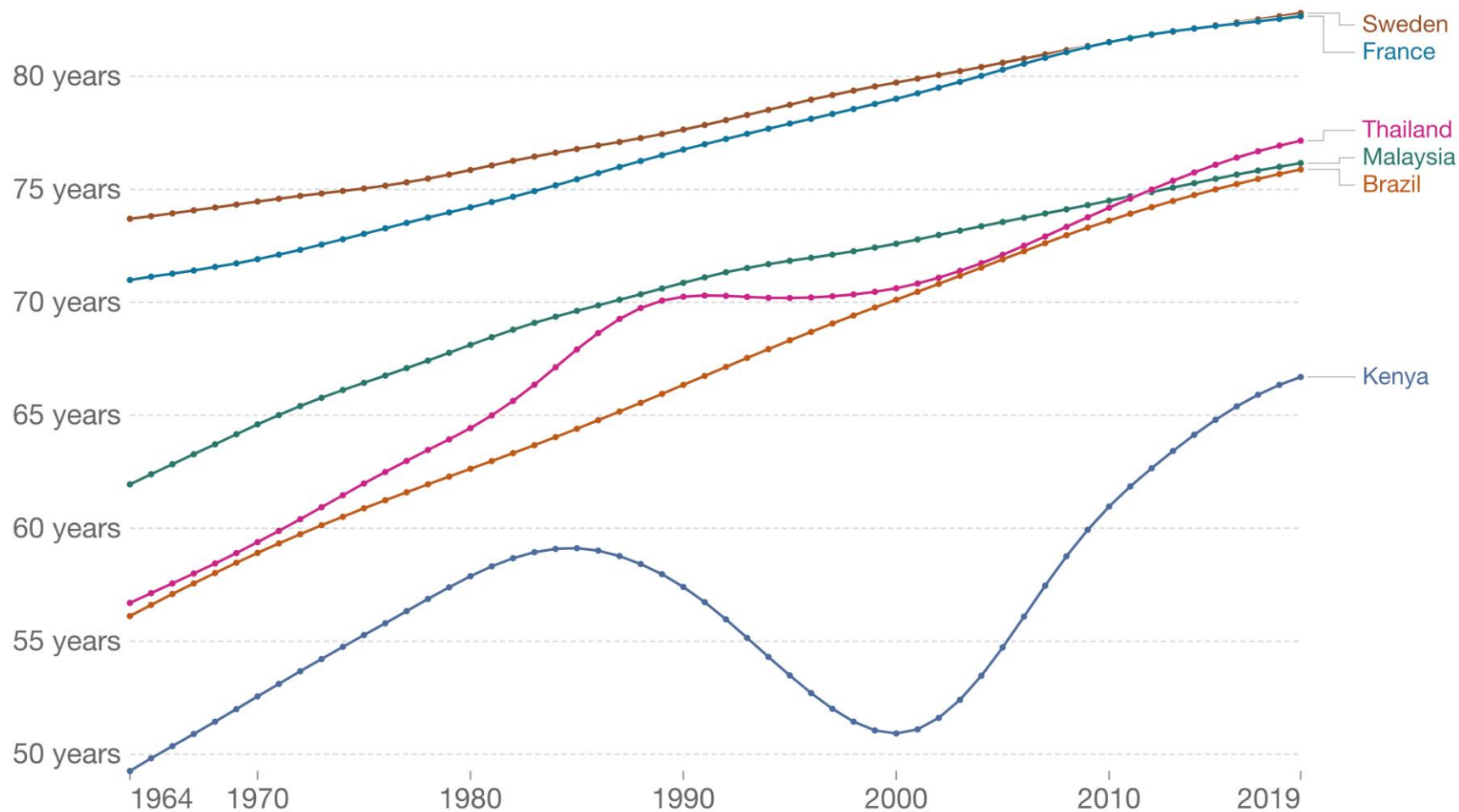
Health Systems Building Block	Description	Potential measures
Service delivery infrastructure	Architecture of delivery system;	<ul style="list-style-type: none"> • Number and distribution of health facilities per 10 000 population • Proportion of health facilities offering specific services
Human resources for health	Number and quality of workforce; performance	<ul style="list-style-type: none"> • Number of health workers per 10 000 population • Distribution of health workers by occupation/specialization
Information systems	Surveillance; health records; reporting	<ul style="list-style-type: none"> • Monitoring of key vital statistics • Extent of EMR
Commodities (medications)	Availability and affordability of goods	<ul style="list-style-type: none"> • Average availability of 14 selected essential medicines in public and private health facilities • Median consumer price ratio of 14 selected essential medicines in public and private health facilities
Financing	Insurance and social protections; costs	<ul style="list-style-type: none"> • General government expenditure on health as a proportion of general government expenditure (GGHE/GGE) • The ratio of household out-of-pocket payments for health to total expenditure on health
Leadership and governance	Oversight and regulation of health system	<ul style="list-style-type: none"> • Rules based: ownership arrangements, decentralization, stakeholder participation, • Existence of an up-to-date national health strategy linked to national needs and priorities;

Health care workers per 100,000 persons (2017-2018)



Life expectancy, 1964 to 2019

Our World
in Data



Source: Riley (2005), Clio Infra (2015), and UN Population Division (2019)

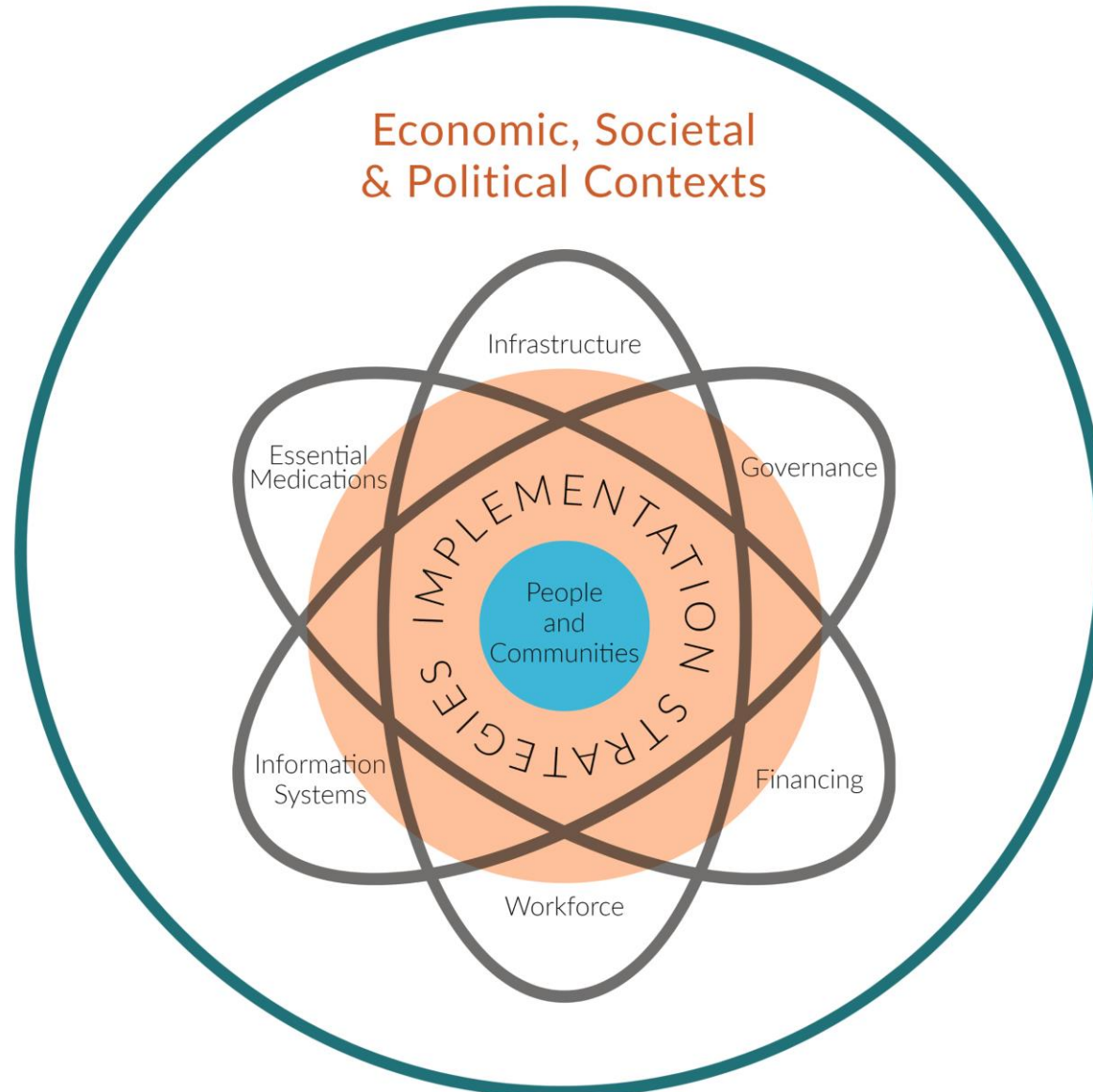
OurWorldInData.org/life-expectancy • CC BY

Note: Shown is period life expectancy at birth, the average number of years a newborn would live if the pattern of mortality in the given year were to stay the same throughout its life.

Implementation science in global context

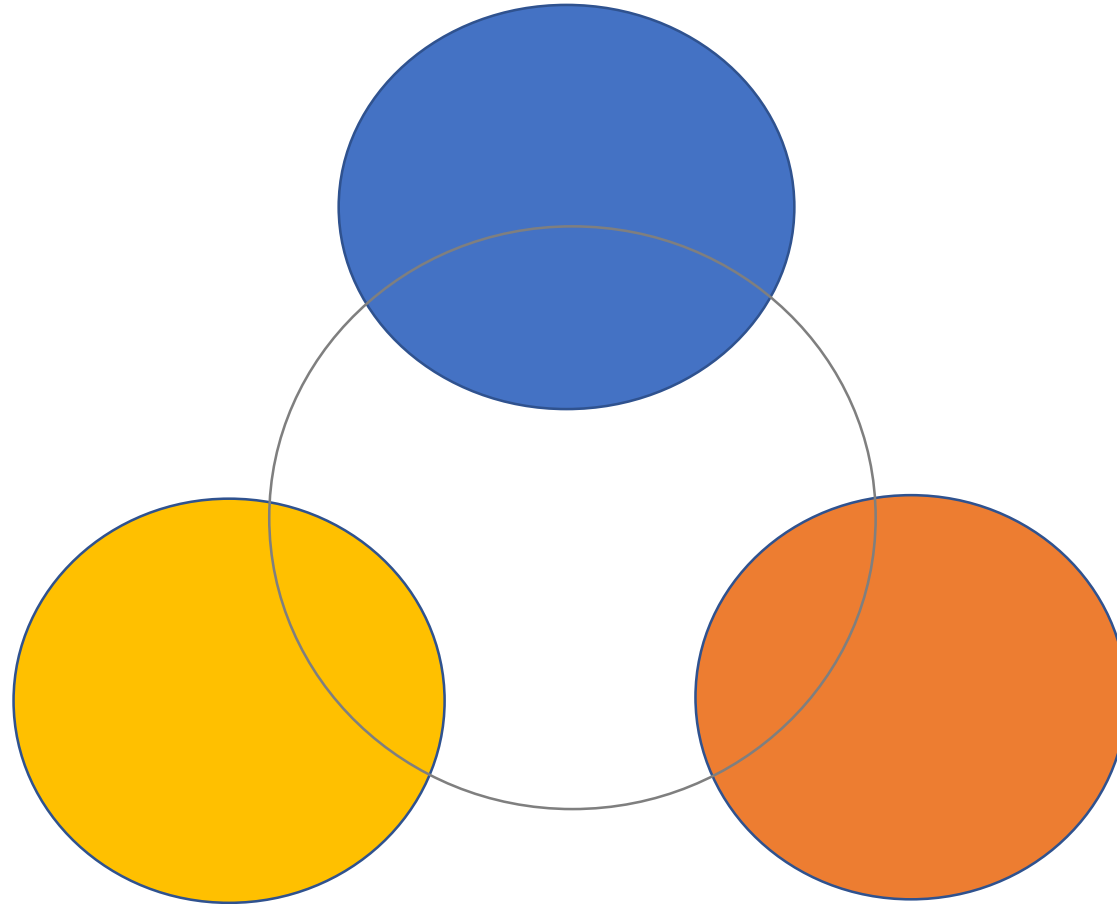
- Planned behavior change to use evidence-based interventions under constraints
- In global settings, the operative work is constraints
- No health systems, hard to have implementation strategies
- But over the last 30 years health systems have grown quickly
- But all of them suffer from some gaps
- Today the local configuration of health systems pillars are the proximal context for all implementation activities

Health Systems Building Blocks



Global Health Sciences

Health systems research



Intervention research

Operational research

Policy, governance and financing

Health systems
research

Health Systems Building Blocks
Configuration

Pre-implementation
research

Service delivery gaps

**Implementation
science**

Selection, formulation and
use of implementation
strategies

Implementation science

Effectiveness
research

Clinical and health outcomes



Implementation science in global context?

- Frameworks and theories (are they relevant?)
- Implementation strategies (are the strategies the same)
 - Conceptually perhaps, in substance different
- Implementation outcomes
 - Neglected implementation outcomes?
- Designs

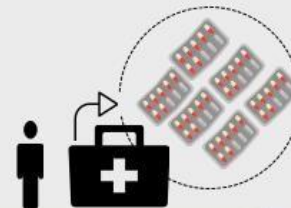
WHAT IS A COMMUNITY ADHERENCE GROUP (CAG)?



A CAG is a group of 6 stable HIV+ patients from the same community



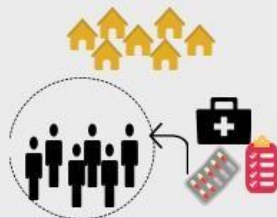
Each month one CAG member goes to the ART clinic for their routine clinical visit



Once they complete their clinical visit they pick up a bag with a month supply of ART drugs from the pharmacy for all members of the CAG



The following month a different CAG member goes to the ART clinic for their routine clinical visit and the above process repeats



Back in the community the CAG group meets for symptom screening, adherence and distribution of ART drugs to all members




With the bag of ART drugs the CAG member travels back to their community

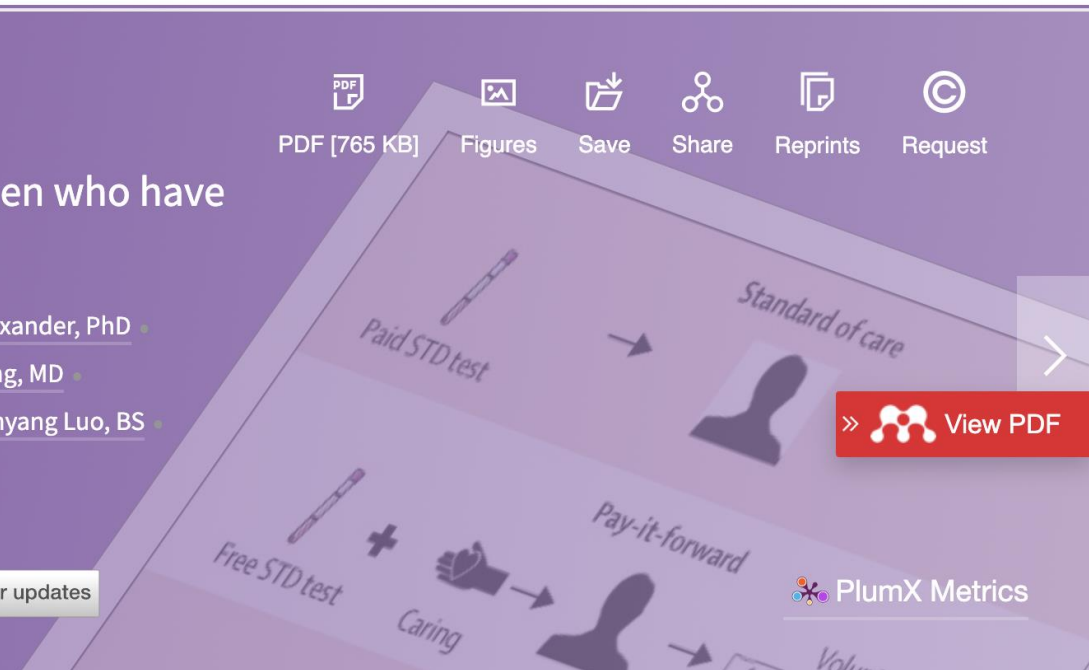
ARTICLES | VOLUME 20, ISSUE 8, P976-982, AUGUST 01, 2020

 PDF [765 KB]  Figures  Save  Share  Reprints  Request

Pay-it-forward gonorrhoea and chlamydia testing among men who have sex with men in China: a randomised controlled trial

[Fan Yang, PhD](#) [†] • [Tiange P Zhang, BS](#) [†] • [Weiming Tang, PhD](#) [†] • [Jason J Ong, PhD](#) • [Marcus Alexander, PhD](#) • [Laura Forastiere, PhD](#) • [Navin Kumar, MPhil](#) • [Katherine T Li, MD](#) • [Prof Fei Zou, PhD](#) • [Ligang Yang, MD](#) • [Guodong Mi, PhD](#) • [Yehua Wang, MS](#) • [Wenting Huang, MS](#) • [Amy Lee, BA](#) • [Weizan Zhu, BS](#) • [Danyang Luo, BS](#) • [Prof Peter Vickerman, PhD](#) • [Dan Wu, PhD](#) • [Prof Bin Yang, MD](#) • [Prof Nicholas A Christakis, MD](#) • [Joseph D Tucker, MD](#)   • [Show less](#) • [Show footnotes](#)

Published: April 28, 2020 • DOI: [https://doi.org/10.1016/S1473-3099\(20\)30172-9](https://doi.org/10.1016/S1473-3099(20)30172-9) •  Check for updates





The Revolving Fund Pharmacy Model: backing up the Ministry of Health supply chain in western Kenya **FREE**

Imran Manji ✉, Simon M Manyara, Beatrice Jakait, William Ogallo, Isabel C Hagedorn, Stephanie Lukas, Eunice J Kosgei, Sonak D Pastakia

Social engagement and opinion leadership

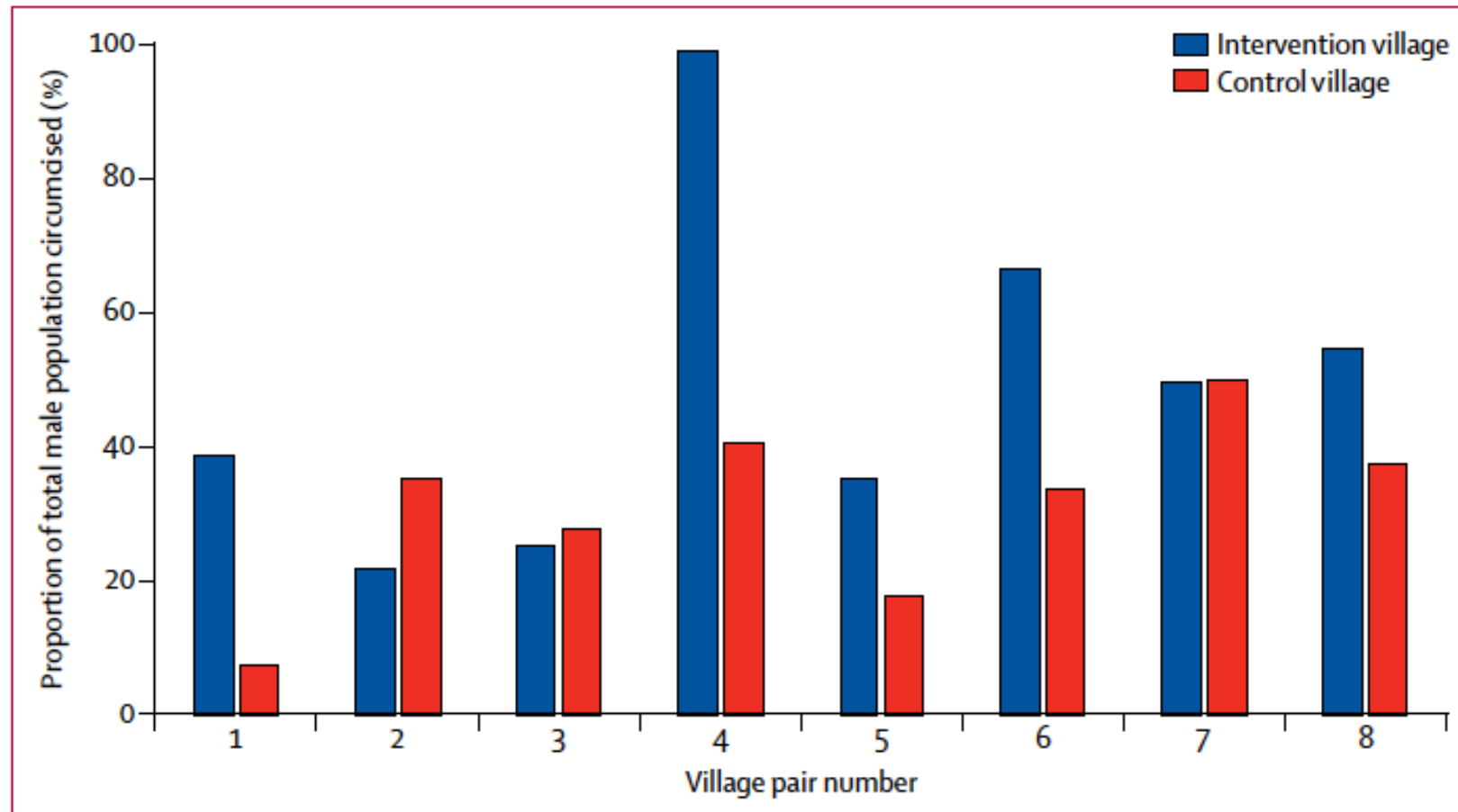
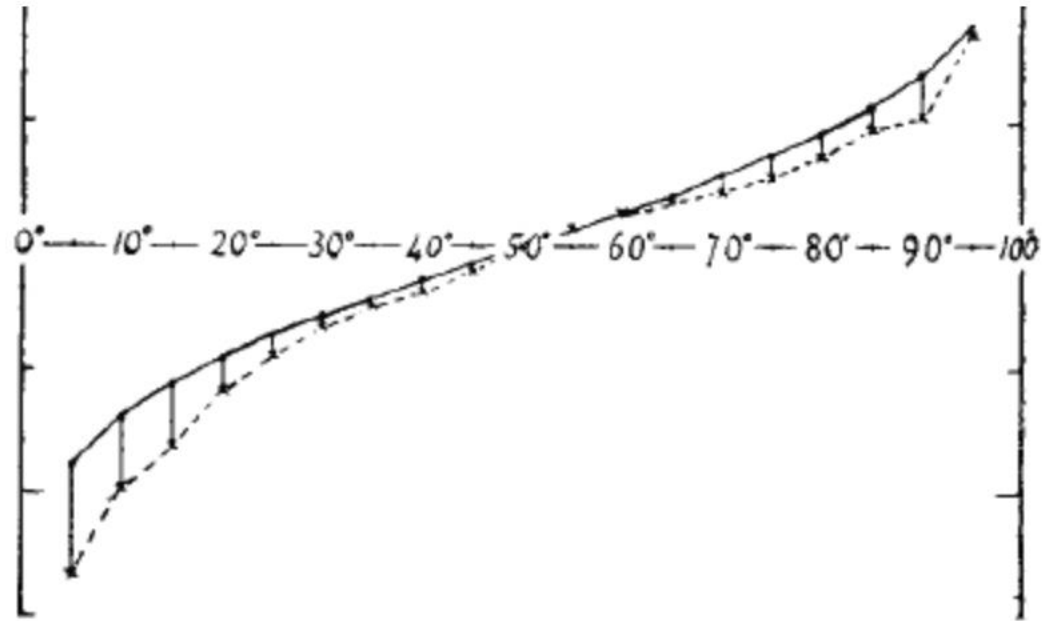


Figure 3: Proportion of total male population circumcised during outreach campaign, by village pairs

From “Vox Populi” to “crowdsourcing”

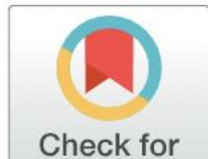


The continuous line is the normal curve with p.e. = 37.
The broken line is drawn from the observations.
The lines connecting them show the differences between the observed and the normal.

RESEARCH ARTICLE

Crowdsourcing to expand HIV testing among men who have sex with men in China: A closed cohort stepped wedge cluster randomized controlled trial

Weiming Tang^{1,2,3,4,5} , **Chongyi Wei**^{2,6}, **Bolin Cao**^{1,2,7}, **Dan Wu**^{1,2}, **Katherine T. Li**^{1,2,8}, **Haidong Lu**^{2,3,9}, **Wei Ma**¹⁰, **Dianmin Kang**¹¹, **Haochu Li**^{1,2,10}, **Meizhen Liao**¹¹, **Katie R. Mollan**^{2,3,9}, **Michael G. Hudgens**⁹, **Chuncheng Liu**^{1,2,12}, **Wenting Huang**^{1,2}, **Aifeng Liu**^{1,2}, **Ye Zhang**^{1,2,4}, **M. Kumi Smith**¹³, **Kate M. Mitchell**¹⁴, **Jason J. Ong**^{2,15}, **Hongyun Fu**¹⁶, **Peter Vickerman**¹⁷, **Ligang Yang**^{2,4}, **Cheng Wang**⁴, **Heping Zheng**⁴, **Bin Yang**⁴, **Joseph D. Tucker**^{1,2,3,15}  *



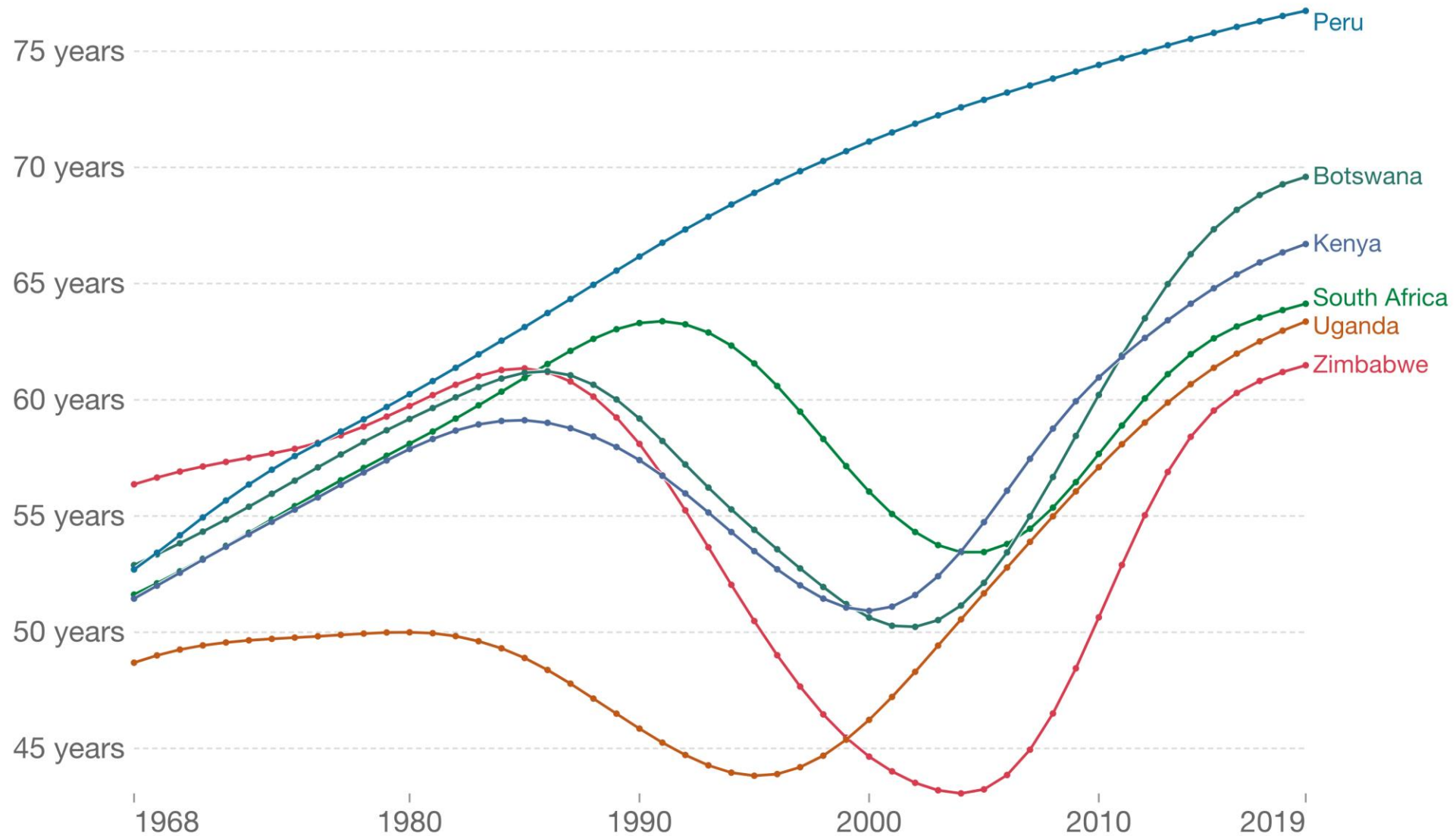
1 Peking University Health Science Center, Beijing, China, **2** Beijing Institute of HIV/AIDS Research, Beijing, China, **3** Beijing Center for Disease Control and Prevention, Beijing, China, **4** Beijing Institute of HIV/AIDS Research, Beijing, China, **5** Beijing Institute of HIV/AIDS Research, Beijing, China, **6** Beijing Institute of HIV/AIDS Research, Beijing, China, **7** Beijing Institute of HIV/AIDS Research, Beijing, China, **8** Beijing Institute of HIV/AIDS Research, Beijing, China, **9** Beijing Institute of HIV/AIDS Research, Beijing, China, **10** Beijing Institute of HIV/AIDS Research, Beijing, China, **11** Beijing Institute of HIV/AIDS Research, Beijing, China, **12** Beijing Institute of HIV/AIDS Research, Beijing, China, **13** University of the Witwatersrand, Johannesburg, South Africa, **14** University of the Witwatersrand, Johannesburg, South Africa, **15** University of the Witwatersrand, Johannesburg, South Africa, **16** University of the Witwatersrand, Johannesburg, South Africa, **17** University of the Witwatersrand, Johannesburg, South Africa

The Global Context, the HIV
Response and Five Insights for
the Science of Implementation

Learning from the applied

- The scientific response to HIV has been very successful from a basic science and clinical perspective, attention now has turned to implementation research
- Lots of talk about what the scientific response to HIV learn from implementation science
- The scientific response to HIV also contains (to date perhaps under-appreciated) lessons for implementation science
- Five insights learned from the scientific response to HIV for implementation science more generally

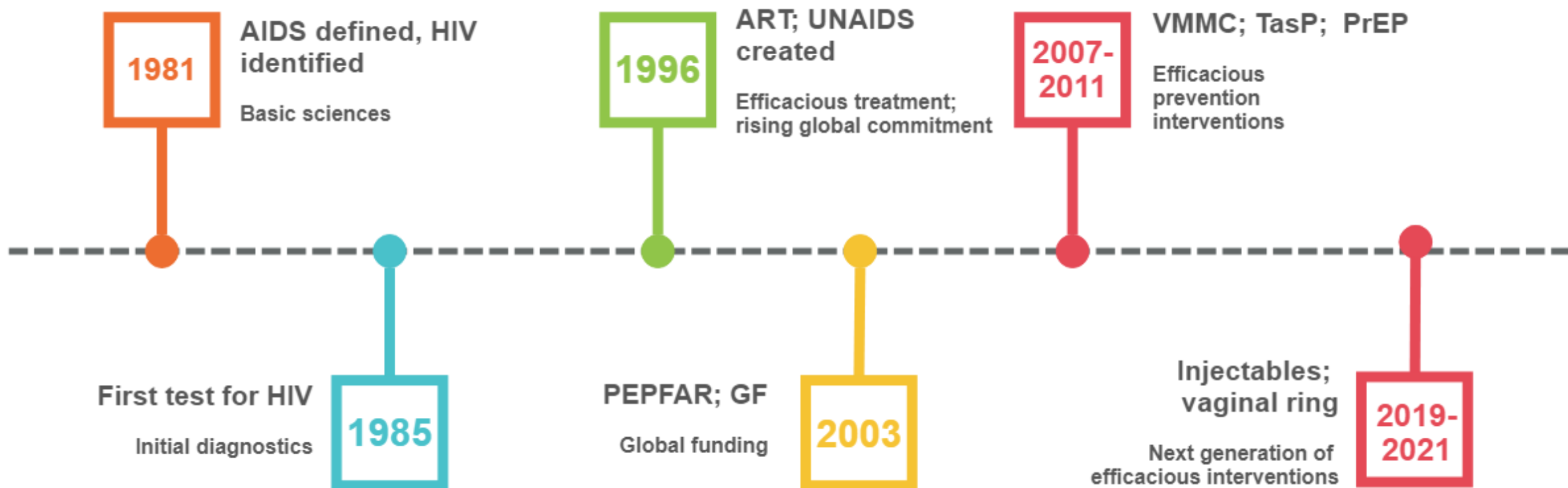
Life expectancy, 1968 to 2019



Source: Riley (2005), Clio Infra (2015), and UN Population Division (2019)

OurWorldInData.org/life-expectancy • CC BY

Note: Shown is period life expectancy at birth, the average number of years a newborn would live if the pattern of mortality in the given year were to stay the same throughout its life.





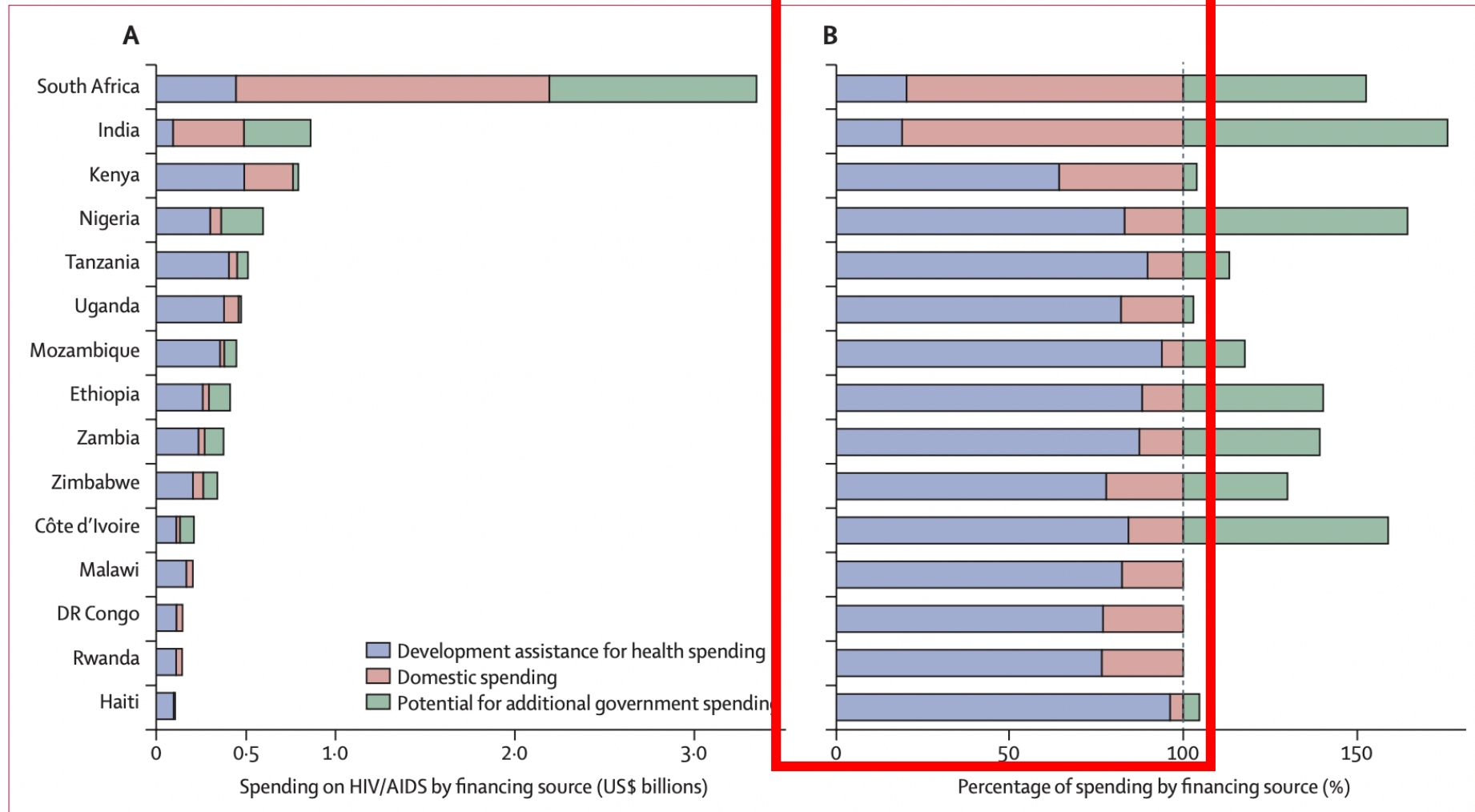
The Global Fund
To Fight AIDS, Tuberculosis and Malaria



PEPFAR

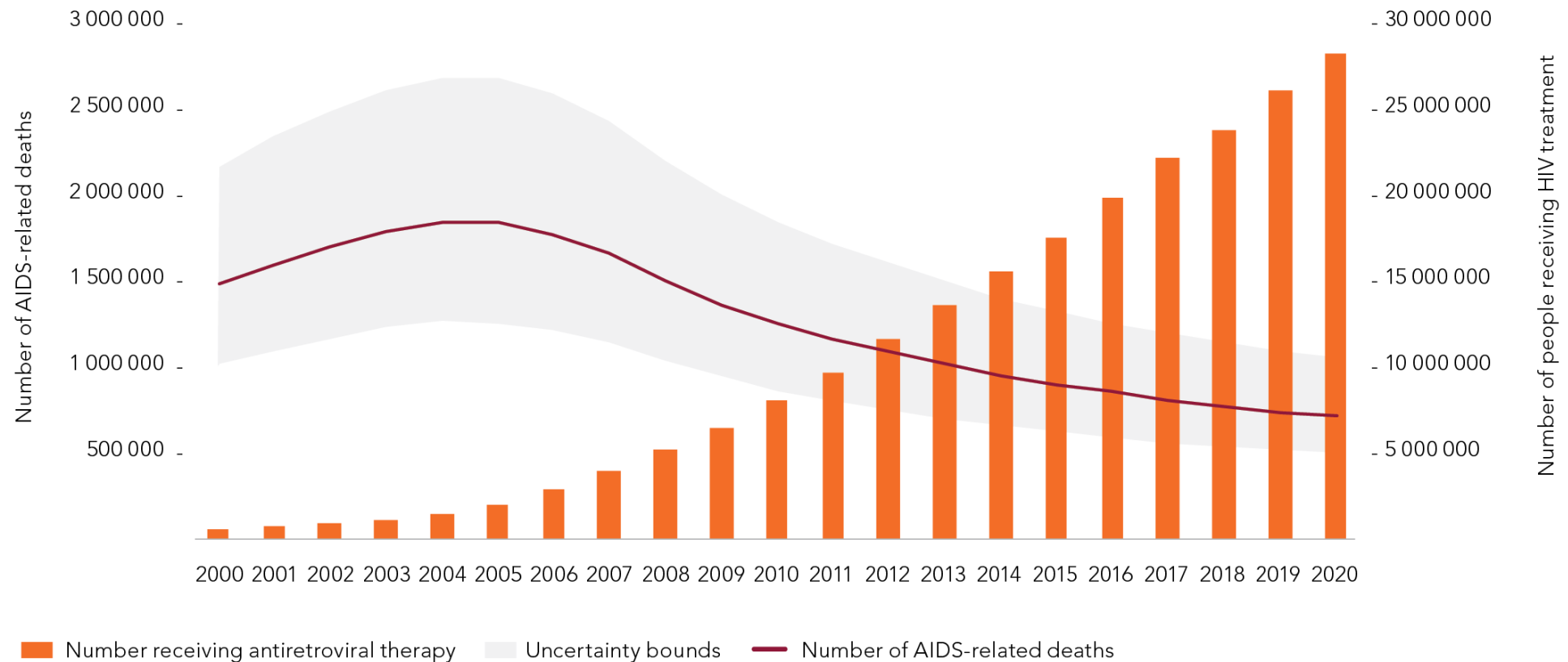
U.S. President's Emergency Plan for AIDS Relief

Donor funding plays an important role in HIV (2017)



The HIV pandemic response

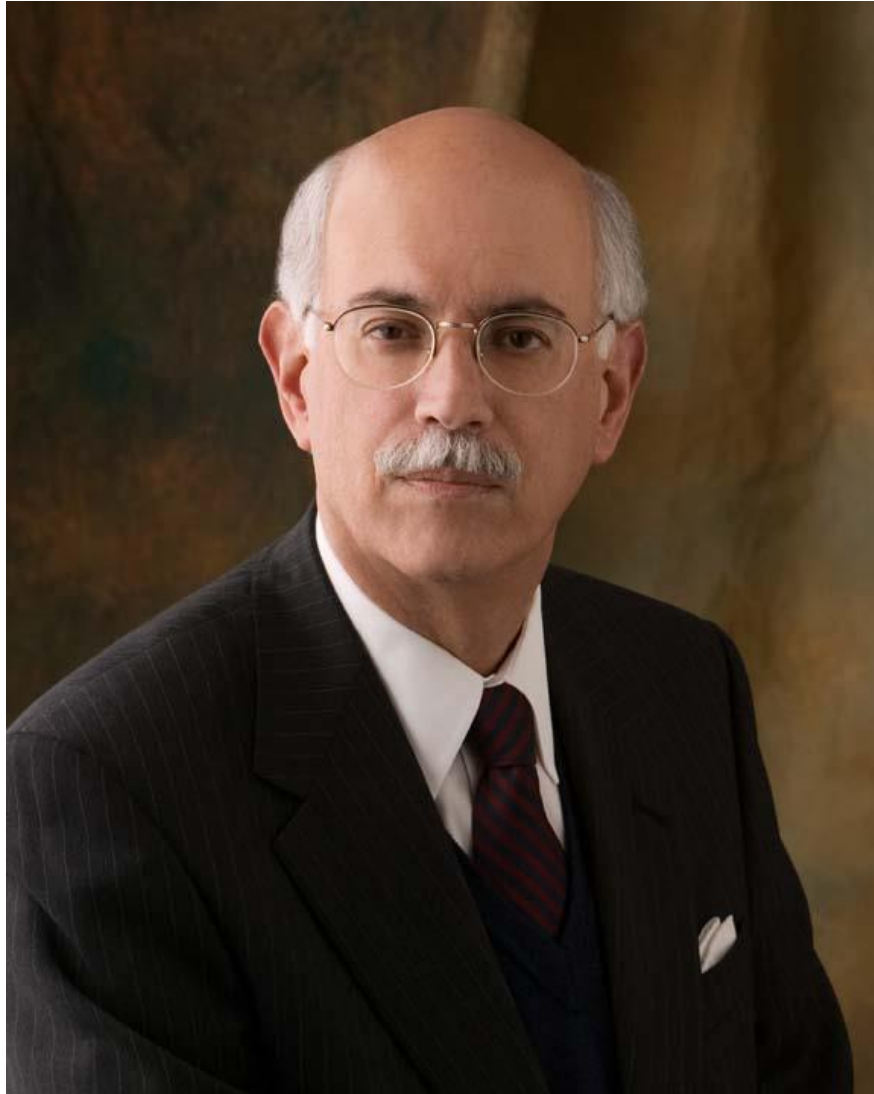
Numbers of AIDS-related deaths and people receiving HIV treatment, global, 2000–2020



Source: UNAIDS epidemiological estimates, 2021.

#1: Avoid the “feasibility trap”

- Feasibility is an important implementation outcome
- Feasibility of an implementation strategy is important to be “impactful” in the real world
- But feasibility is a multi-level, depends on who you are in the public health and health systems landscape and what perceived (and real) capabilities you have



"If we had [antiretrovirals] today we could not distribute them. We could not administer the program because we do not have the doctors, we do not have the roads, we do not have the cold chain. This sounds small and some people, if you have traveled to rural Africa you know this, this is not a criticism, just a different world. People do not know what watches and clocks are. They do not use Western means for telling time." (J Natsios, USAID Director, 2001 Senate Confirmation)



“What I can argue is that no one should have to die of a disease that is treatable.”

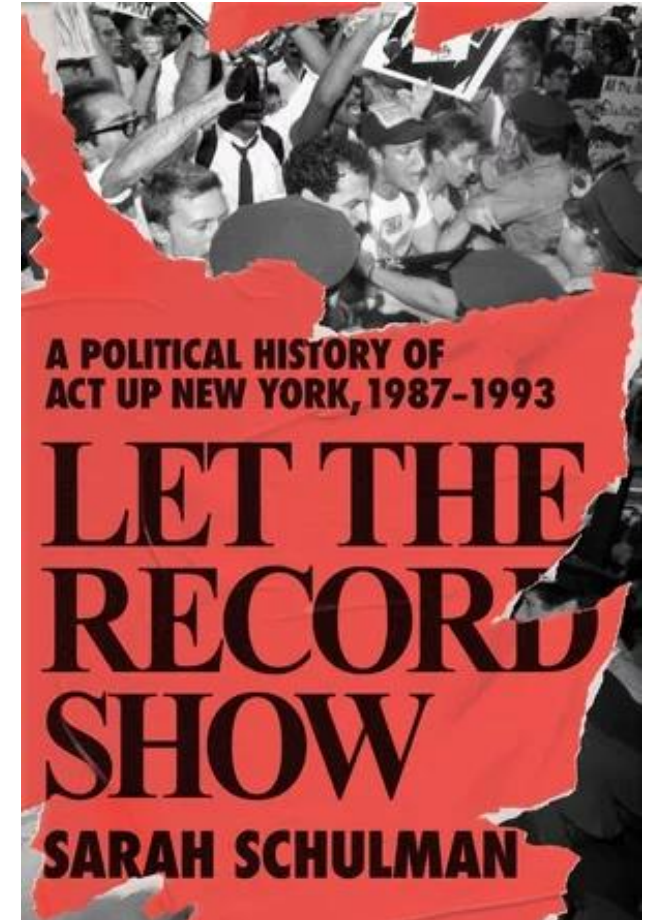
-Paul Farmer

~~“Revolutions~~ are impossible until they are inevitable” – Albert Sachs

- *Many examples (Transgender PrEP Services in Thailand)*
- *Don't let our scientific aspirations be completely constrained by what is immediately possible (because it can change what is possible)*

#2: Use appreciative inquiry

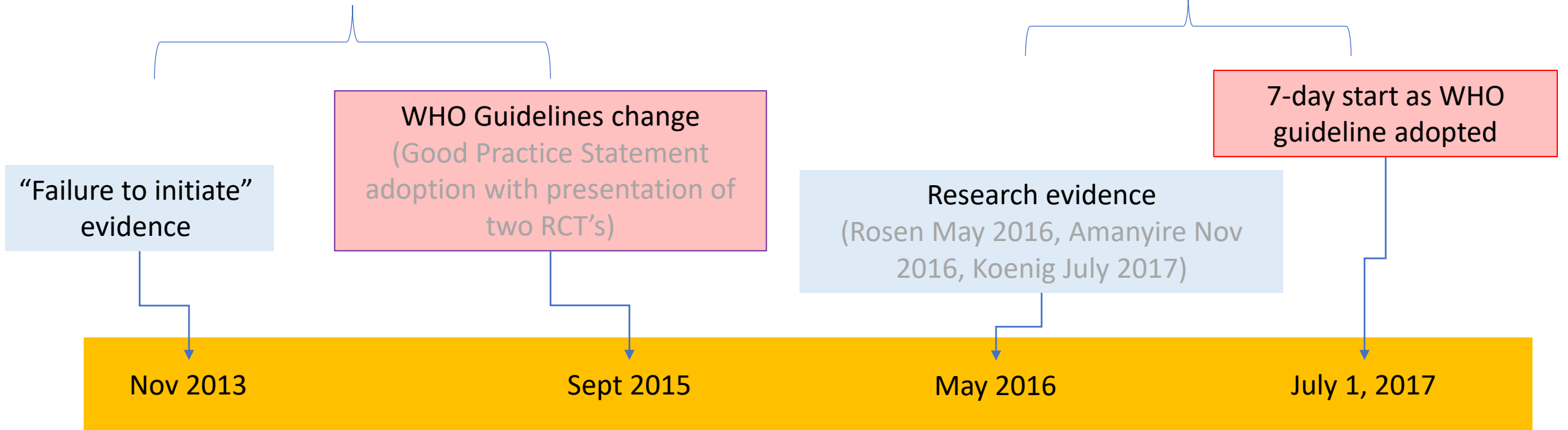
- Strength of the HIV community – science has always been at the center of the response
- Act up – fundamentally believed that science could change the epidemic, and therefore that we needed to change science
- Many examples of success in the HIV response

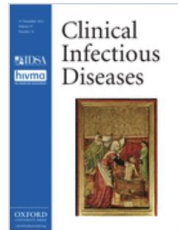


17 years or... 1 year?

Observational evidence to “Good Practice Statement”
in WHO Guidelines ~ 24 months

**Trail evidence to WHO
Guideline change ~15 months**





Volume 57, Issue 12
15 December 2013

Changes in the Timing of Antiretroviral Therapy Initiation in HIV-Infected Patients With Tuberculosis in Uganda: A Study of the Diffusion of Evidence Into Practice in the Global Response to HIV/AIDS FREE

Tara Vijayan ✉, Fred C. Semitala, Nicholas Matsiko, Patrick Elyanu, Jennifer Namusoby, Diane V. Havlir, Moses Kanya, Elvin H. Geng

RESEARCH ARTICLES

COVID-19 /
CORONAVIRUS

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Outline

Highlights

Abstract

Keywords

Introduction

Methods

Results

Discussion

Author statements



Public Health

Volume 144, Supplement, March 2017, Pages S39-S44



Original Research

Trends in motorcycle helmet use in Vietnam: results from a four-year study ☆

J. Bao ^a, A.M. Bachani ^a  ✉, C.P. Viet ^b, La N. Quang ^b, N. Nguyen ^c, A.A. Hyder ^a

Opportunities to undertake “appreciative inquiry”

- *“At its heart, appreciative inquiry is about the search for the best in people, their organizations, and the strengths-filled, opportunity-rich world around them. Appreciative inquiry... is a fundamental shift ... to “inquire” into that system’s strengths, possibilities, and successes. ” – David Cooperrider*
- Reflect on success stories as well as failures
- Positive deviance (Marsh DRBmj. 2004 Nov 11;329(7475):1177-9.)
- Examine great examples of implementation success and unpack the capacities of our systems to do so



COMMENTARY | Open Access |

The question of *the question*: impactful implementation science to address the HIV epidemic

Elvin H. Geng , Denis Nash, Nittaya Phanuphak, Kimberly Green, Sunil Solomon, Anna Grimsrud
... See all authors

First published: 05 April 2022 | <https://doi.org/10.1002/jia2.25898>



References

#3: Mental models, metrics and “wicked” problems

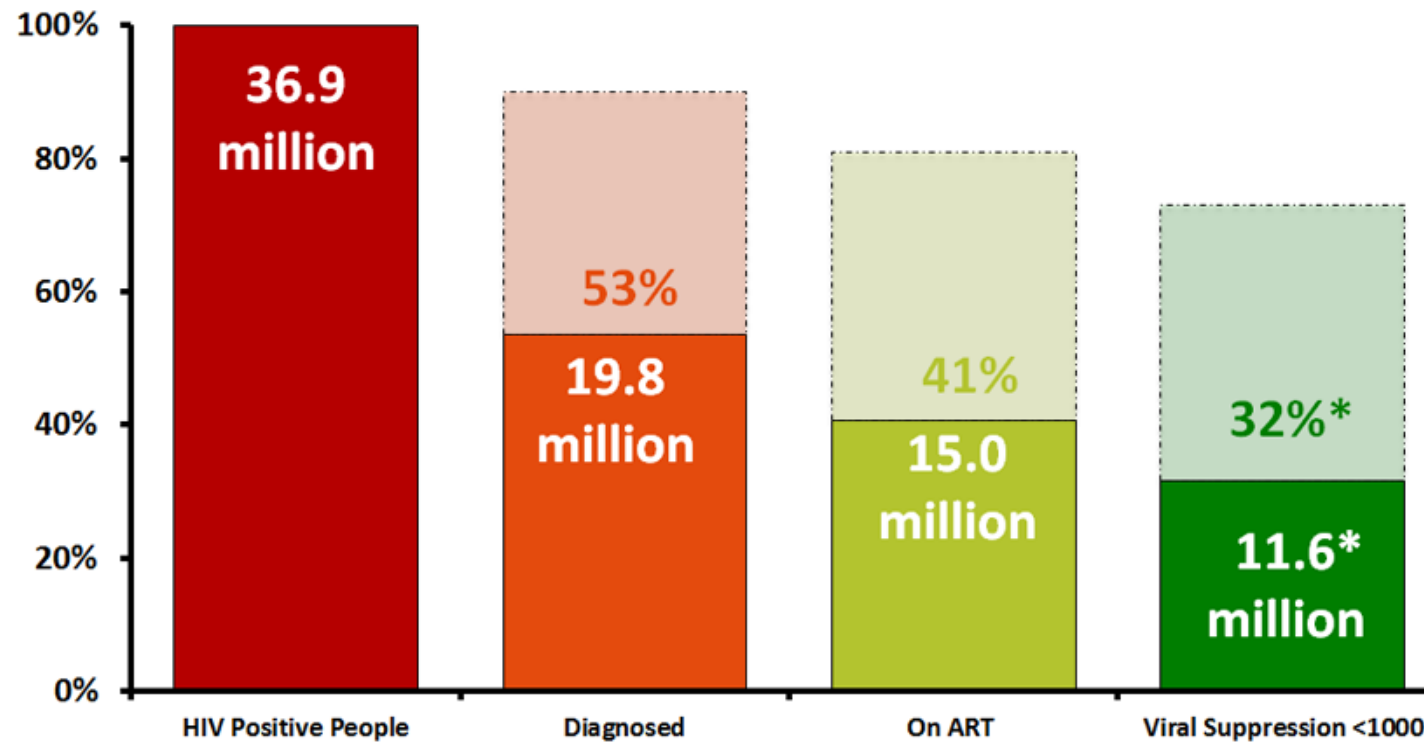
PLOS MEDICINE

PERSPECTIVE

COVID-19 and global equity for health: The good, the bad, and the wicked

Elvin H. Geng^{1*}, Michael J. A. Reid^{2,3}, Eric Goosby^{2,3}, Quarraisha Abdool-Karim^{4,5}

Mental models, metrics and making "wicked" problems soluble...



FAST-TRACK
CITIES



Shared metrics

- Mental models lead to metrics
- Metrics of success lead to targets
- Targets lead to commitments
- Commitments lead to progress

#4: From acceptability to desirability

- Efficacious prevention products
 - VMMC is efficacious
 - Injectable PrEP
 - Tenofovir vaginal gel
 - Other products...
- Are they “acceptable” ?
- In implementation research in general we believe that *acceptability* is an important driver of success

Acceptability

A multi-faceted construct that reflects the extent to which people delivering or receiving a healthcare intervention consider it to be appropriate, based on anticipated or experiential cognitive and emotional responses to the intervention.

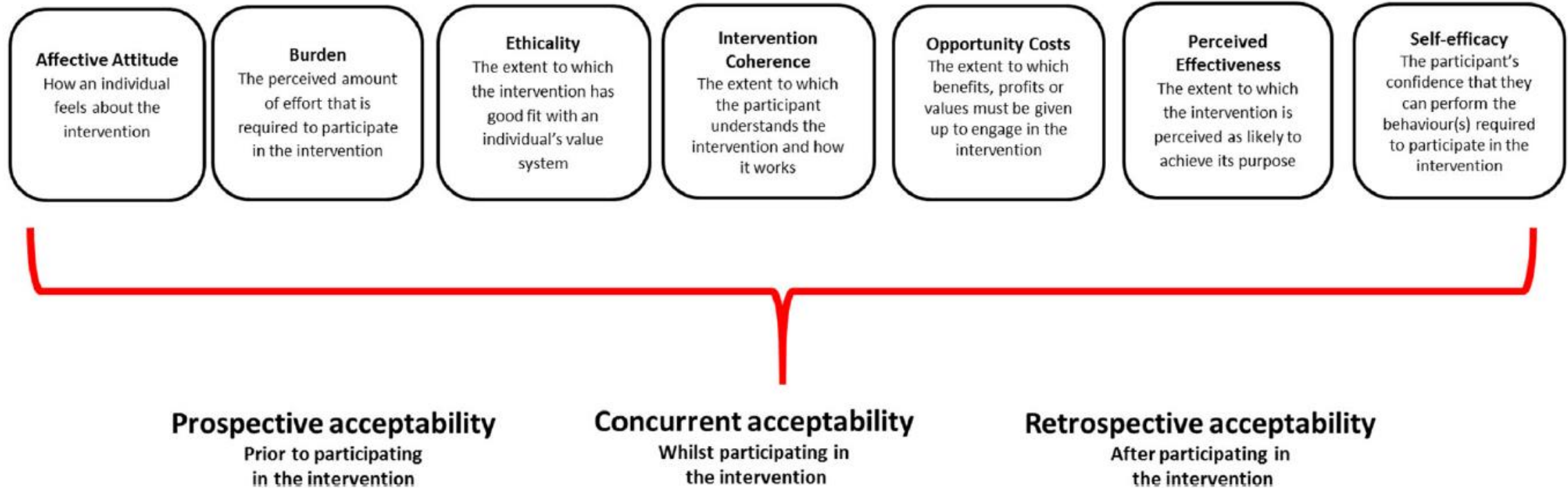


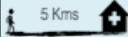
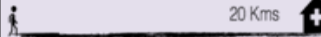






Fig. 3 The theoretical framework of acceptability (v2) comprising seven component constructs. Note: The seven component constructs are presented alphabetically with their anticipated definitions. The extent to which they may cluster or influence each of the temporal assessments of acceptability is an empirical question

From Acceptability to...“Preferences”

- *But... use, scale up and uptake of all of these efficacious interventions has been generally disappointing, even in clinical trials*
- Acceptability paradigm and its discontents...
 - Power (“I’ve accepted a lot of s%\$t in my life”)
 - The decision to use something is not a product of the thing, it’s a product of the things you choose from
 - What do people want? vs. what will people accept?
- A “preference” paradigm?
 - Utility theory

“Do you prefer going to Clinic A, Clinic B, or would you rather not go to either one?”

	Clinic A	Clinic B
Total time you spend at the facility at each visit	1 hour 	3 hours 
Distance to the facility	< 5 Kms 	20 Kms 
Months of supply of ARV you are given at each visit	1 month 	3 months 
Time at which you could go for your visit and find the facility open and seeing patients	Regular hours Mornings, Mon-Fri Afternoons also Saturday also	Saturday open Mornings, Mon-Fri Afternoons also <i>Saturday open</i>
Attitude of staff at the facility	Rude 	Nice 

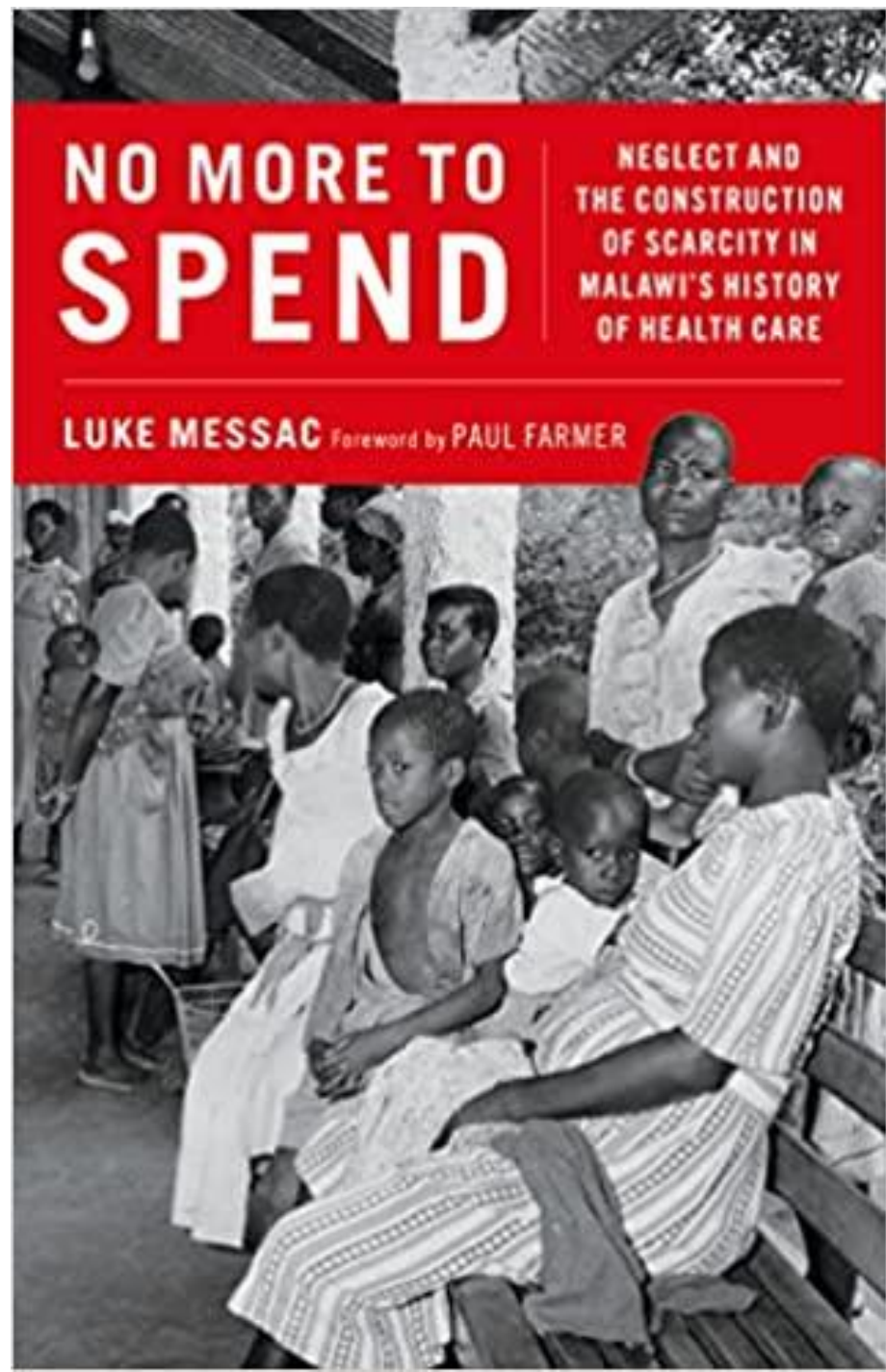
#5: Question not only failures of implementation but implementation of failure by design

- Paul B. Batalden, a leader in the field of quality improvement, observed that “Every system is perfectly designed to get the results it gets”
- In that light, today’s implementation gaps can also be viewed through the lens of discriminatory systems that underpin pervasive disparities.

Founding myth?

- Our founding myth is that things aren't implemented, but there is no overriding theory of why
- We assume that there is an intention to implement
 - What if there is not?
 - What if the intention is to not implement? (structural racism?)
- Is our founding myth silent on this?

Uninterrogated research may also reflect standards that normalize inequity?



Conclusions

- Implementation science is an area of rapid and robust growth
- Applied in HIV, there is an opportunity to advance the response
- The HIV response has come a remarkable way and has lessons perhaps for implementation science more generally
- Same may well be true in other applied areas
- The way forward and *epistemic justice*

Acknowledgements

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- Izukanji Sikazwe and Kombatende Sikombe
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- WHO and Nathan Ford