



What is the science of scale-up to address NCDs, globally?

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&

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Implementation Research for NCDs

Training in Dissemination and Implementation Research in Health, December 6-7th 2018

What is the Global Alliance for Chronic Diseases (GACD)?

The GACD **initiates**, **facilitates** and **supports** joint research activities on chronic, non-communicable diseases (NCDs) in low- and middle-income countries (LMICs) and in vulnerable and indigenous communities in high-income countries (HIC) to improve the health of those nations.

- *GACD Strategic Plan 2013-2018*

GACD AGENCIES



Argentina's
Ministry of Science,
Technology
and Productive
Innovation
(MINCYT)



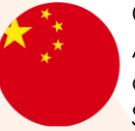
Australia's
National Health
and Medical
Research Council
(NHMRC)



Brazil's São
Paulo Research
Foundation
(FAPESP)



Canadian
Institutes of
Health Research
(CIHR)



Chinese
Academy
of Medical
Sciences
(CAMS)



European
Commission's
Health Directorate
of the Research
& Innovation
Directorate General



Indian Council
of Medical
Research
(ICMR)



Japan Agency
for Medical
Research and
Development
(AMED)



Mexico's
National Institute
of Medical
Science &
Nutrition
Salvador Zubirán



Health
Research
Council,
New Zealand
(HRC)



South African
Medical
Research
Council
(SA MRC)



Thailand's
Health Systems
Research
Institute (HSRI)



UK's Medical
Research
Council
(UK MRC)



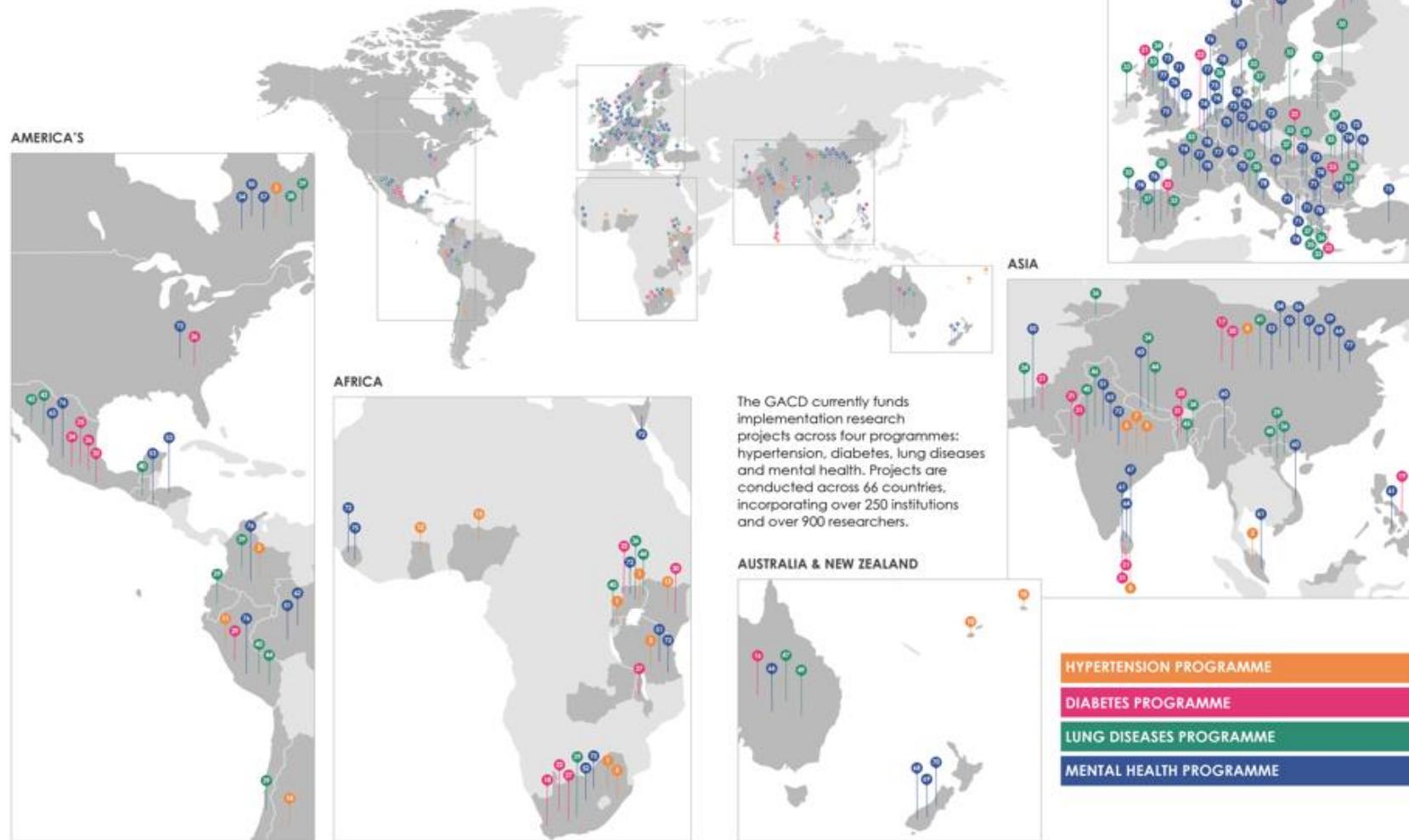
US National
Institutes of
Health (NIH)



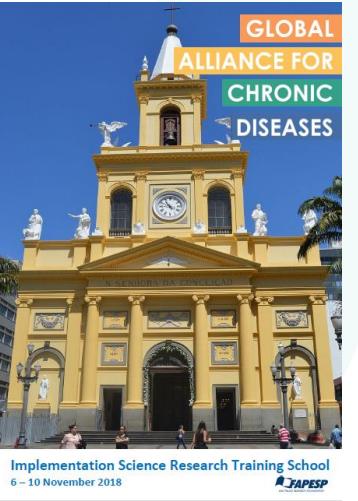
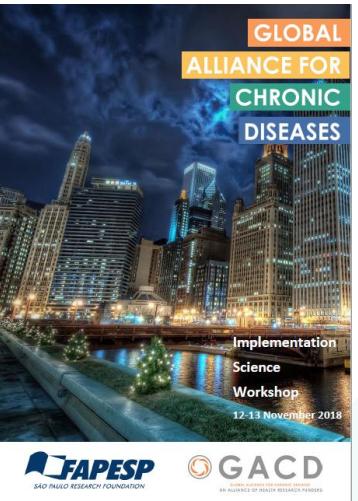
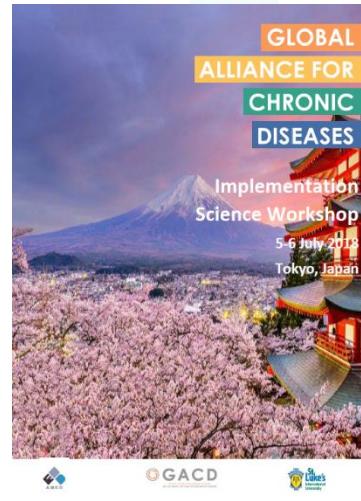
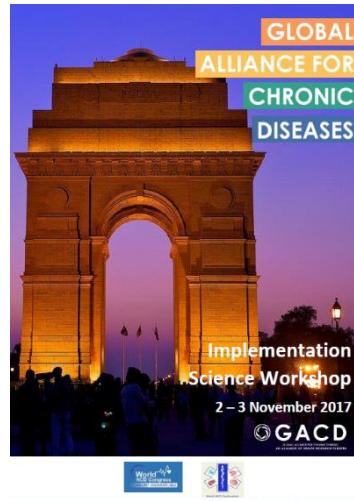
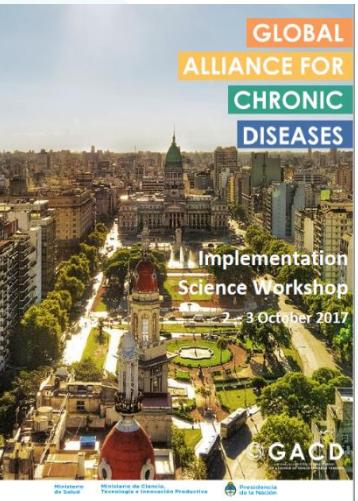
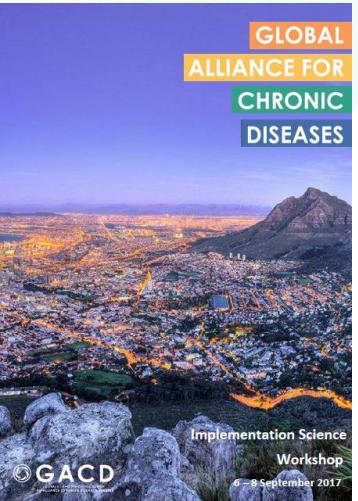
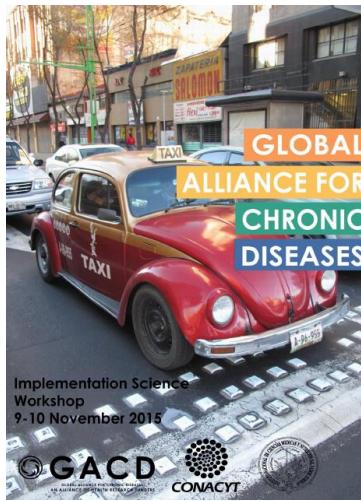
GACD
GLOBAL ALLIANCE FOR CHRONIC DISEASES
AN ALLIANCE OF HEALTH RESEARCH FUNDERS

GACD RESEARCH NETWORK

GACD Research projects



Global Alliance for Chronic Diseases (GACD) D&I Training



Inaugural (1st) Global Alliance
for Chronic Diseases 5-day
Implementation Science
Training School in Brazil, 6-10
November, 2018



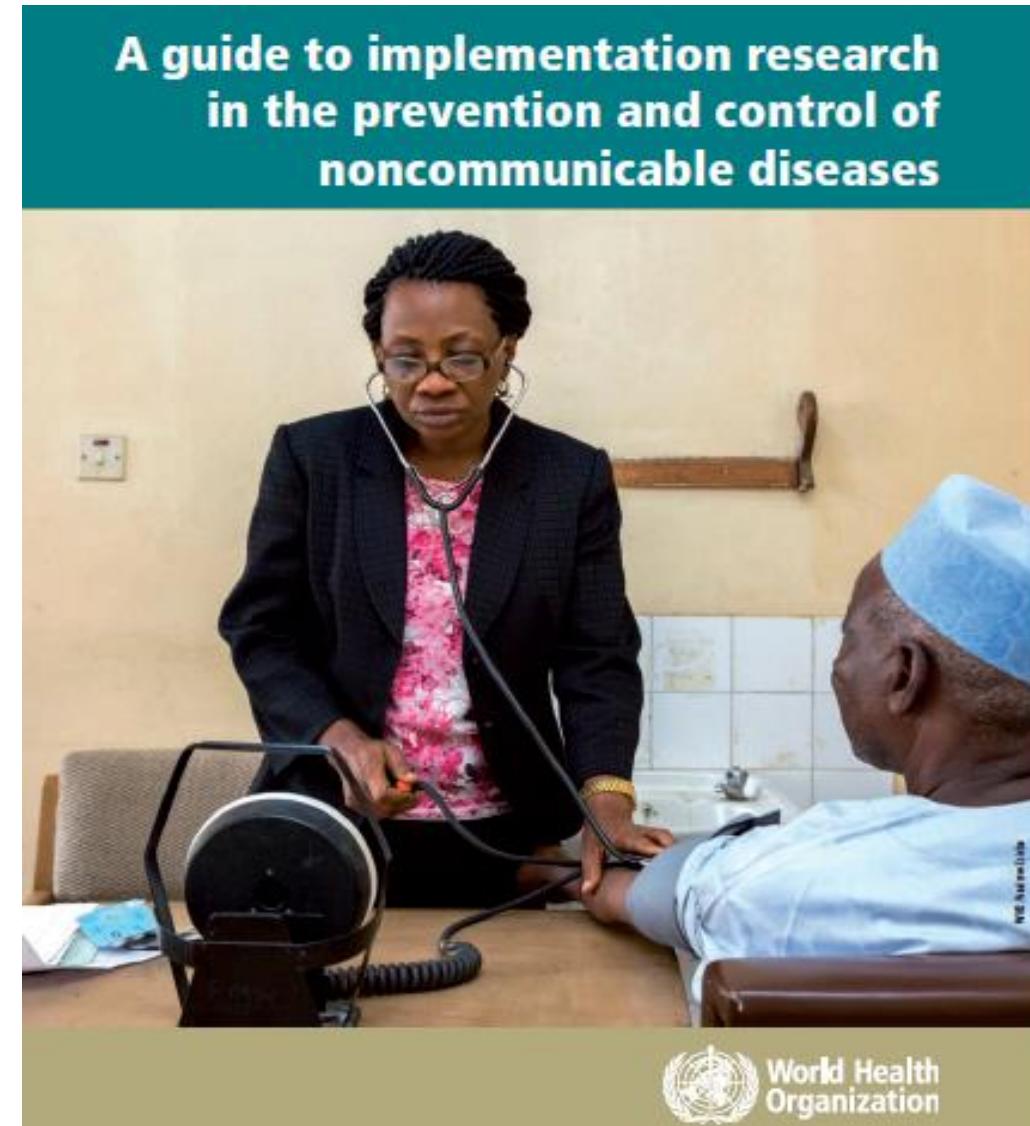
Implementation Science Research Training School
6 – 10 November 2018



WHO Collaborating Centre on Implementation Research for Prevention & Control of NCDs

[http://www.who.int/ncds/governance/
policies/NCD_MSA_plans/en/](http://www.who.int/ncds/governance/policies/NCD_MSA_plans/en/)

Recommended citation. A guide to implementation research in the prevention and control of noncommunicable diseases. Geneva: World Health Organization; 2016.



Summary of presentation – Science of scale-up and NCDS?

- 1) What is the challenge of scale-up? What is it?
- 2) “Doing it” vs “studying it”?
- 3) An example
- 4) Understanding more - What do we already know and questions that would benefit from more research?

Implementation research: new imperatives and opportunities in global health

Sally Theobald, Neal Brandes, Margaret Gyapong, Sameh El-Saharty, Enola Proctor, Theresa Diaz, Samuel Wanji, Soraya Elloker, Joanna Raven, Helen Elsey, Sushil Bharal, David Pelletier, David H Peters

Implementation research is important in global health because it addresses the challenges of the know-do gap in real-world settings and the practicalities of achieving national and global health goals. Implementation research is an integrated concept that links research and practice to accelerate the development and delivery of public health approaches. Implementation research involves the creation and application of knowledge to improve the implementation of health policies, programmes, and practices. This type of research uses multiple disciplines and methods and emphasises partnerships between community members, implementers, researchers, and policy

“Best buys” for prevention and control of NCDs

Tobacco use

- ✓ Raise taxes on tobacco.
- ✓ Protect people from tobacco smoke by implementing smoke-free policies.
- ✓ Warn people about the dangers of tobacco use.
- ✓ Enforce bans on tobacco advertising, promotion and sponsorship.



Harmful use of alcohol

- ✓ Raise taxes on alcohol.
- ✓ Restrict access to retailed alcohol.
- ✓ Enforce bans on alcohol advertising.



Unhealthy diet and physical inactivity

- ✓ Reduce salt intake.
- ✓ Replace trans-fats with polyunsaturated fats.
- ✓ Promote public awareness about diet and physical activity through the mass media.



Cardiovascular disease (CVD) and diabetes

- ✓ Provide counselling and multidrug therapy (including blood sugar control for diabetes mellitus) for people with medium–high risk of developing heart attack and stroke (including those who have established CVD).
- ✓ Treat heart attacks (myocardial infarction) with aspirin.



Cancer

- ✓ Provide immunization for Hepatitis B beginning at birth to prevent liver cancer.
- ✓ Screen and treat pre-cancerous lesions to prevent cervical cancer.



WHO evidence-based ‘Best Buys’ for NCD prevention & control

Little consideration of:

- Costs of implementation
- Adapting to country context
- Capacity of countries to implement and evaluate
- Need to build capacity is long term

Implementation research at scale

KNOW

Interventions
are effective in
clinical &
controlled-
research
settings



DO

Proven
interventions
are not well
adapted to,
implemented
and/or ‘scale
up’ in the
“real world”

Scaling up of interventions and programs into policy and widespread practice – locally, nationally and globally

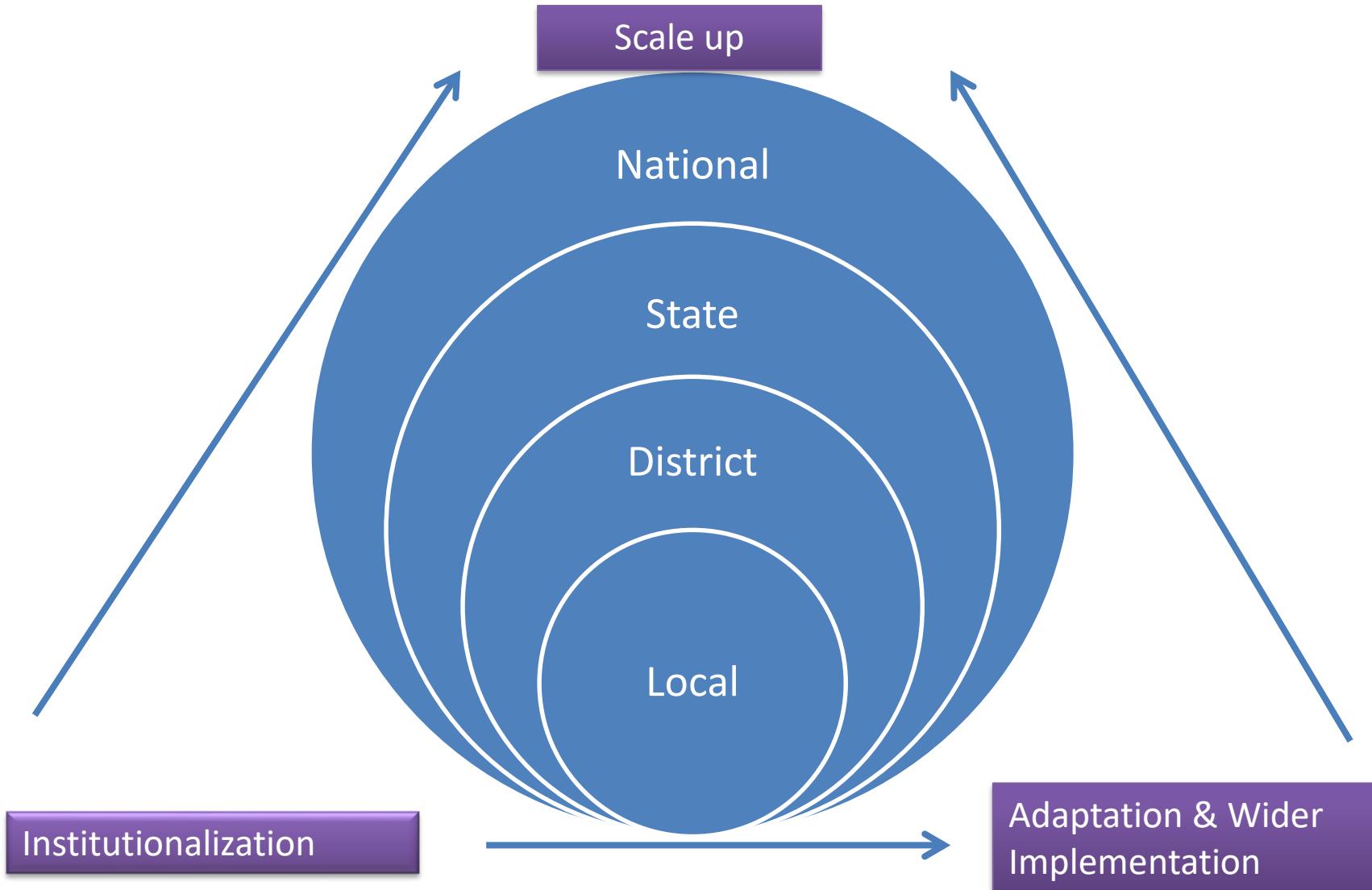


Figure 1. The ExpandNet/WHO framework for scaling up



2. Scale-up - Doing it vs studying it

Key concepts and terms – where does ‘scaleup’ fit?

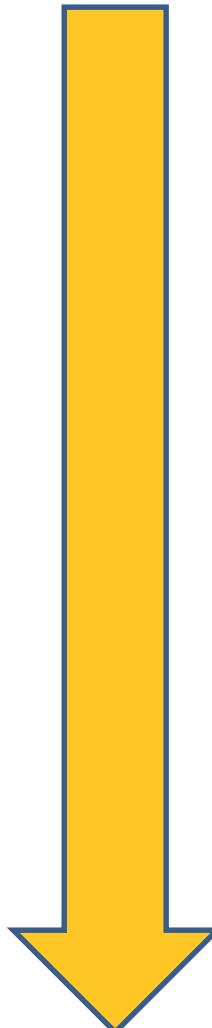
- **Diffusion**: unplanned, uncontrolled, passive flow (spread) of information and adoption of innovation
- **Dissemination**: intentional, active communication and distribution of interventions/programs/policies to increase awareness of the innovation, often targeting and tailoring the communication to specific audiences
- **Implementation**: intentional, active communication of information supplemented by additional actions to overcome barriers to achieve effective implementation/uptake of interventions/programs/policies

Key concepts and terms (cont.)

- **Sustainment/sustainability**: sustained use of the innovation (e.g. after completion of active implementation efforts) and extent to which an intervention can deliver on its intended benefits over an extended period of time after external support
- **Maintenance**: Ability of recipient setting or community to continuously deliver the health benefits achieved when intervention first implemented.
- **Scale-up, spread**: deliberate efforts to increase the adoption and impact of innovations successfully tested in pilot or experimental projects; expanding from one or a few sites to many

CONTEXT – THE RESEARCH PIPELINE

- Basic science
- Efficacy studies
- Effectiveness studies
- Dissemination
- Implementation (efficacy, effectiveness oriented)
- Sustainment and Scale-up/spread



Valuing Consistency

ITV Development → Efficacy → Effectiveness → Implementation



Site 1

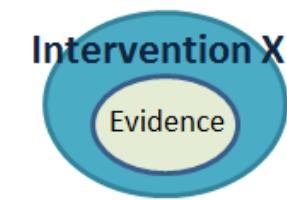
Site 2

Site 3

Site 4

Valuing Consistency

ITV Development → Efficacy → Effectiveness → Implementation



Site 1

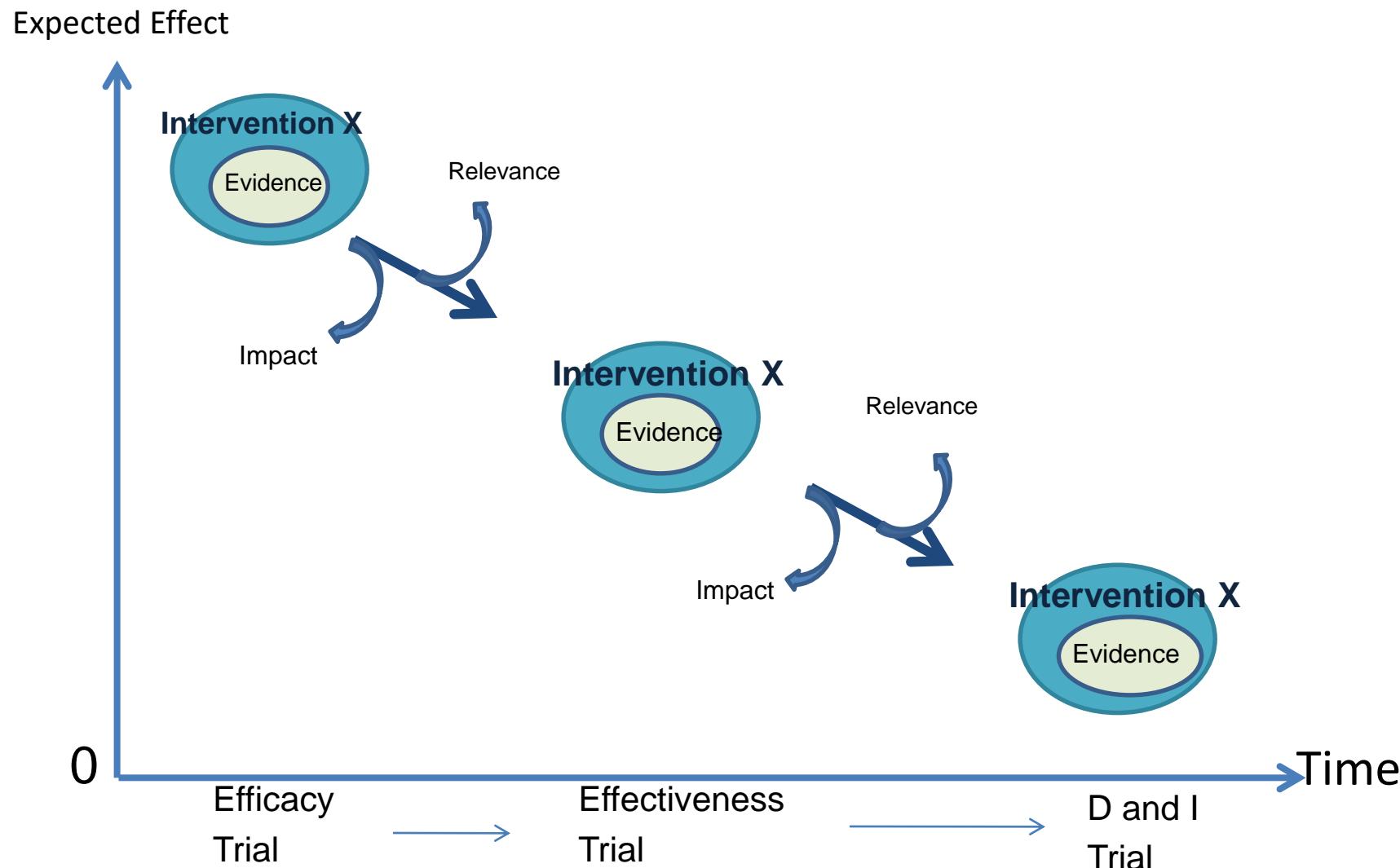
Site 2

Site 3

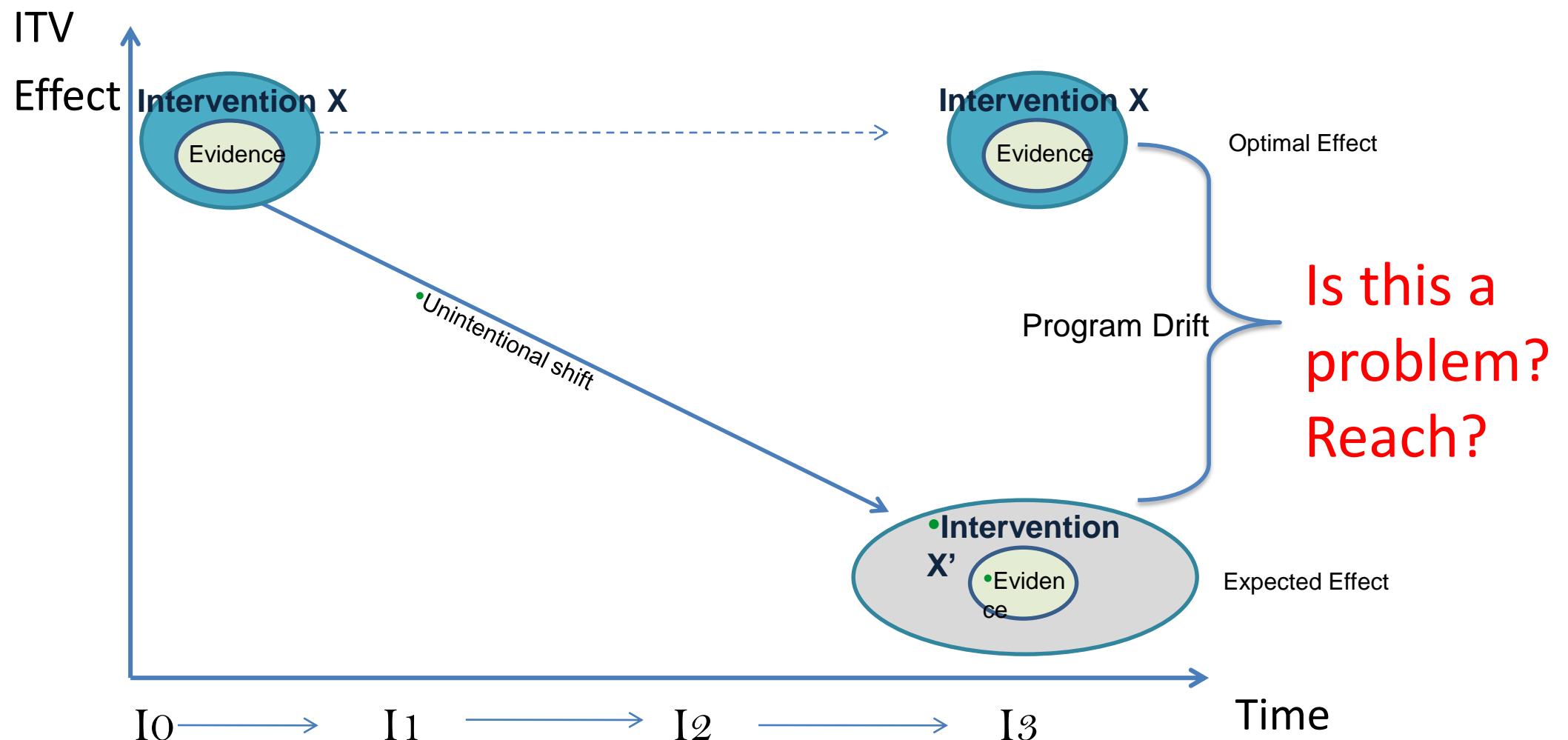
Site 4

**Is this
what
typically
happens
in the
real
world?**

“Voltage Drop” of an intervention as it moves through stages of development



“Program Drift” (**?? Adaptation**) of a fielded intervention (ITV) over time, with expected decrease of effect



“Ingredients” for Scale Up

Three main components of scaling up an EBI:

1. Clear sequence of activities needed to take interventions from an idea to full-scale implementation
2. Articulation of the contextual and environmental factors that fosters adoption and scale-up of best practices
3. Examination and description and examination of the infrastructure required to support scale-up

The Scale Up Process

Successful scale up follows several steps:

1. Assessment of scalability of the innovation
2. Development of a (scale-up/spread) strategy
3. Implementation of the strategy
4. Evaluation of the strategy
5. Assuring sustainability

Milat AJ et al. *Public Health Res Pract.* 2016; 26(1).

WHO. Nine steps for developing a scaling-up strategy. 2010.

Keys to Scale Up

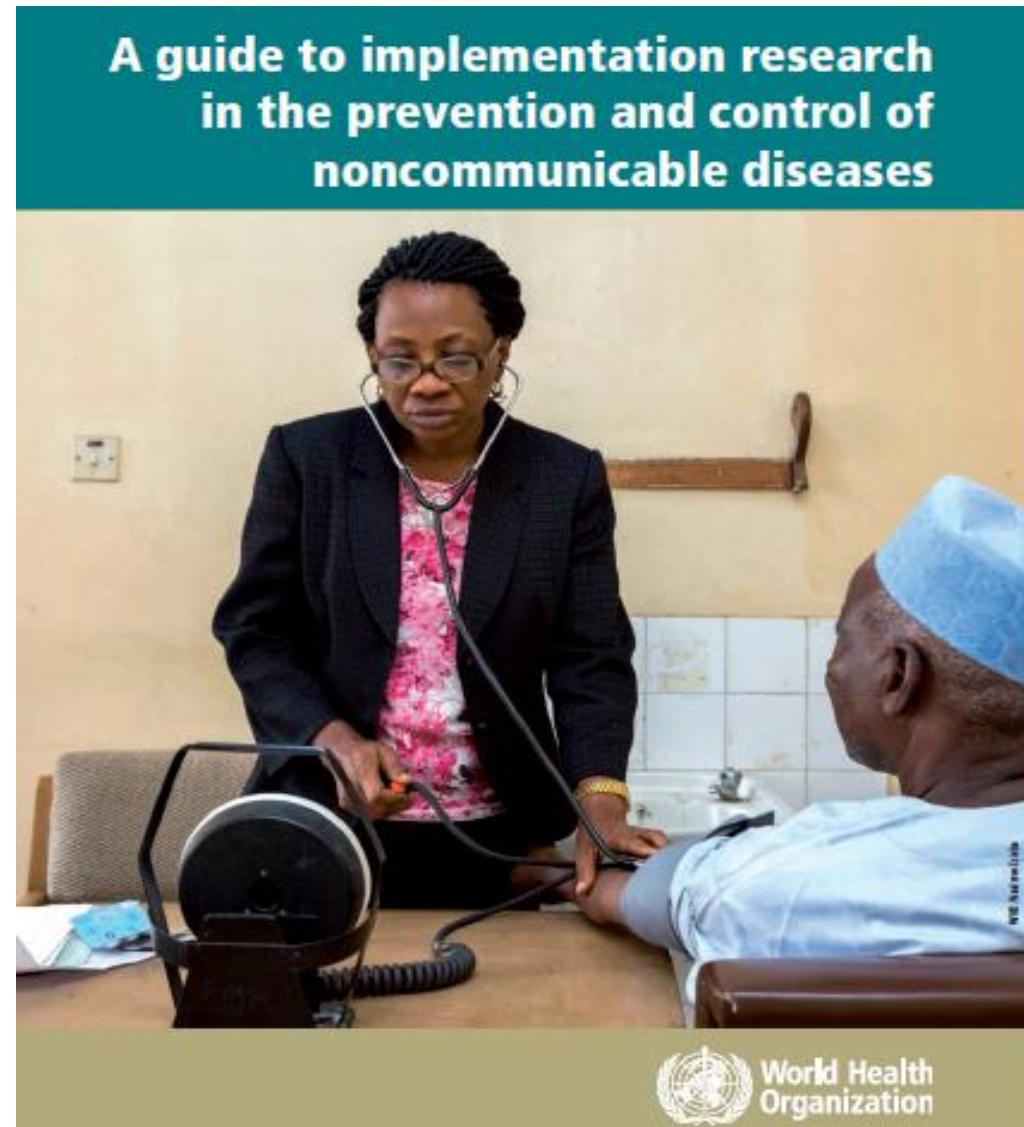
- Large-scale implementation is more likely if the intervention being scaled up is:
 - Simple and technically sound
 - Widespread consensus about its value
- Chances of success are further increased by:
 - Strong leadership and governance
 - Active engagement of a broad range of implementers, including non-state actors

Advancing the Field of Scale Up

- Scaling up ideas, tools, programs and policies is not a straightforward process
- Many interventions are difficult to progress to scale-up because they cannot be replicated at scale and/or be “adapted”. **Examples???**
- Approaches need to accommodate multi-level interventions that address the complexities of the environment and interacting systems

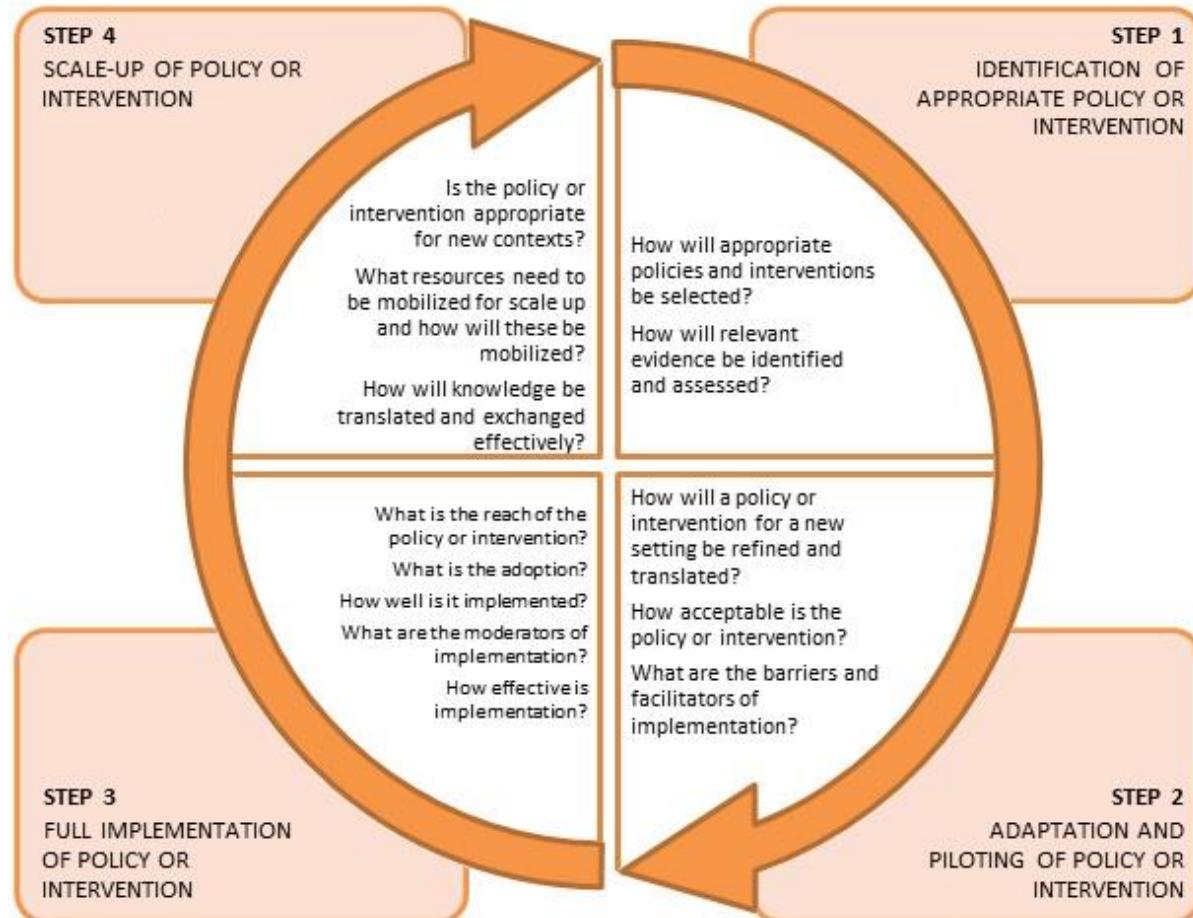
[http://www.who.int/ncds/governance/
policies/NCD_MSA_plans/en/](http://www.who.int/ncds/governance/policies/NCD_MSA_plans/en/)

Suggested citation. A guide to implementation research in the prevention and control of noncommunicable diseases. Geneva: World Health Organization; 2016.



WHO Guide – Framework Model

Relationship between implementation and the implementation research cycle



**Embedding
research into the
implementation
cycle**

Step 4. Scaling up a policy or intervention and tasks:

1. Increasing the *scalability* of the innovation
2. Increasing the implementation *capacity* of the user organization
3. Assessing the *environment* for scaling-up success
4. Increasing the *capacity* of the resource team
5. Making strategic choices for institutionalization
6. Making strategic choices to support expansion/replication
7. Planning actions to address *spontaneous scaling up*
8. Finalizing the *scaling-up strategy* and identifying next steps

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Turning each of these challenges into research questions?

3. Learning by doing...

.....





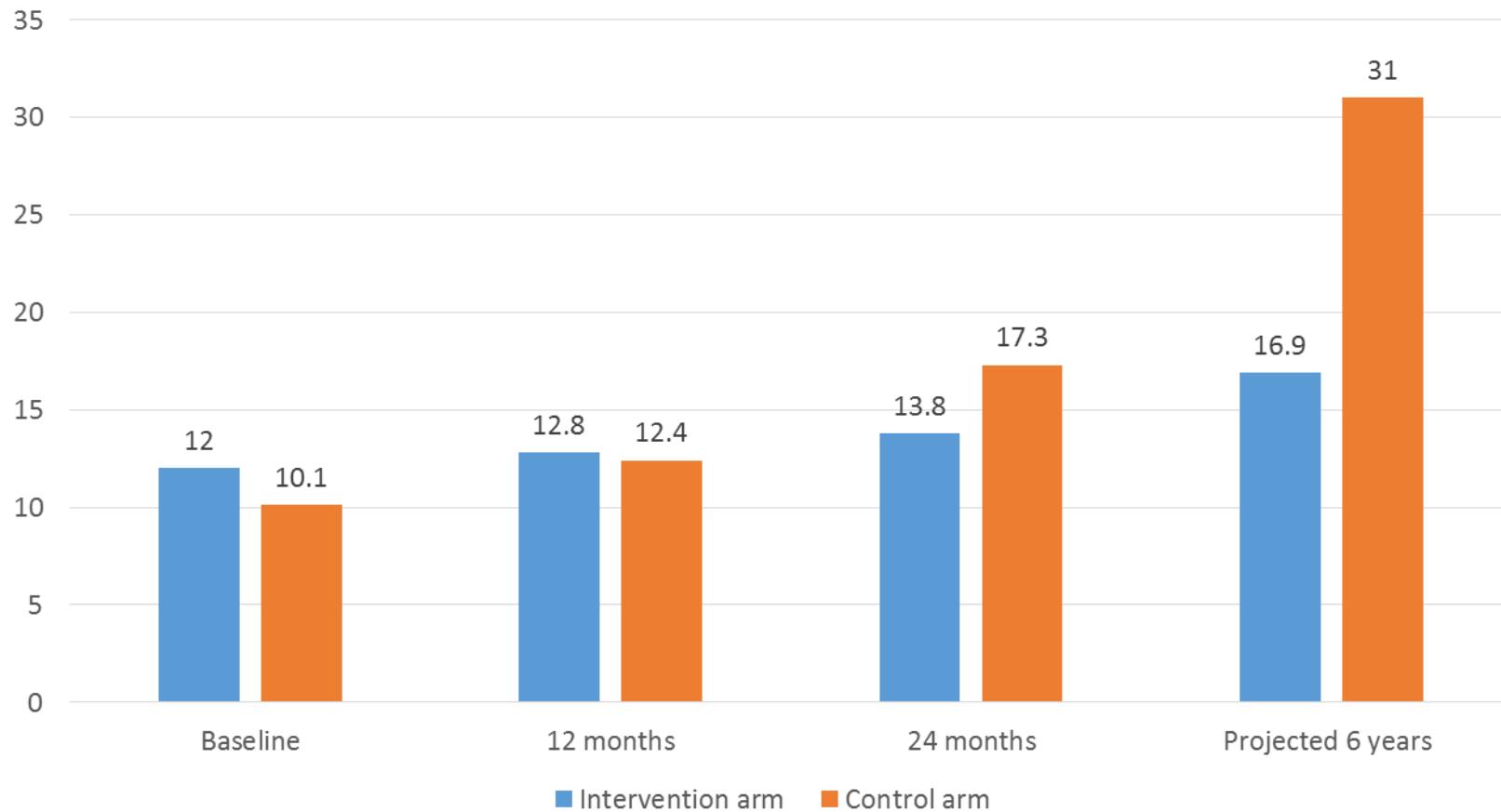
**KERALA
DIABETES
PREVENTION
PROGRAM**

Supported by funding from NHMRC, US NIH and World Diabetes Foundation

Major Findings at 24 months (1)

- Type 2 diabetes developed in 17.1% of control participants compared to 14.9% of intervention participants
- Diabetes incidence was significantly lower among intervention participants with high program compliance (RR 0.64, 95% CI 0.43 to 0.95)
- Diabetes incidence was significantly lower among intervention participants with IGT at baseline
- Intervention participants had:
 - lower decline in HDL Cholesterol ($p=0.027$)
 - lower increase in total cholesterol/ HDL ratio ($p=0.016$)
 - reduction in alcohol use ($p=0.018$)
 - reduction in Indian Diabetes Risk Score ($p=0.022$)
 - improvements in physical functioning of health related quality of life ($p=0.016$)

CVD risk projected to 6 years (2)



Major Findings at 24 months

- Just funded to look at 7 year follow-up and community engagement

Scaling up a policy or intervention – Future Questions for K-DPP model of intervention

1. Increasing the *scalability* of the innovation
2. Increasing the implementation *capacity* of the user organization
3. Assessing the *environment* for scaling-up success
4. Increasing the *capacity* of the resource team
5. Making strategic choices for institutionalization
6. Making strategic choices to support expansion/replication
7. Determining the role of *diversification*
8. Planning actions to address *spontaneous scaling up*
9. Finalizing the *scaling-up strategy* and identifying next steps

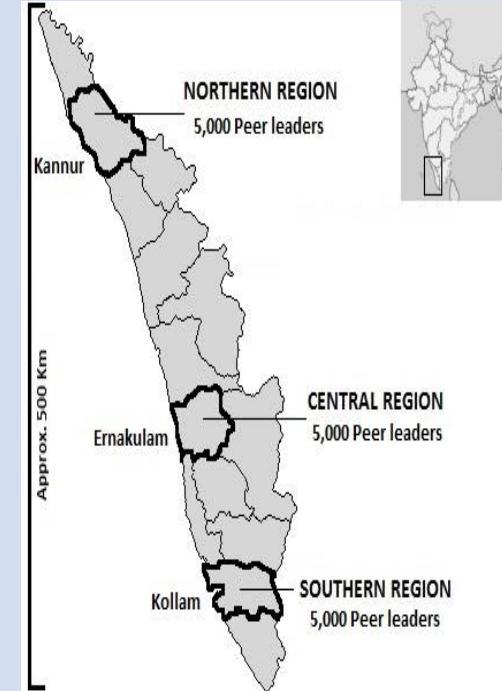
KDPP Cluster Randomised Control Trial (KDPP-RCT)

2011 - 2016



KDPP Scale up in partnership with Kudumbashree State Mission (KDPP-KSM)

2016 – 2018



Wider implementation of KDPP intervention model – Testing scalable delivery system

- Partnership with Kudumbashree State Mission (KSM) in Kerala
- 100 KSM Trainers are receiving training and mentoring from project team
- Peer-leaders from 15,000 communities in Kerala receive training to deliver K-DPP
- Approx. 300,000 women and their families will receive the program
- Technology platform

World Diabetes Foundation Grant



Early findings from KSM ‘rollout’ trial

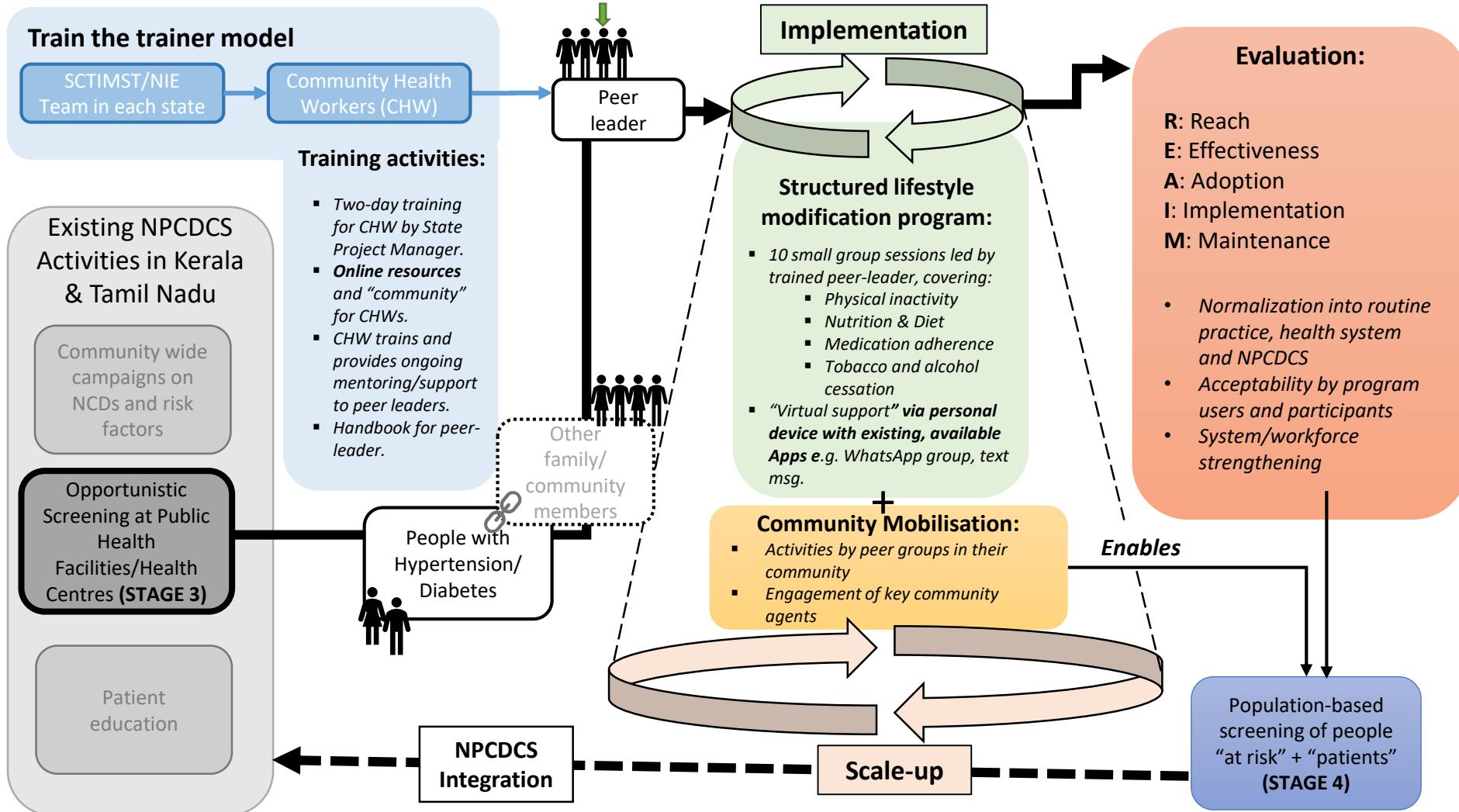


PROPOSAL TITLE: Scaling up interventions to improve the control of hypertension and diabetes in partnership with the governments of Kerala and Tamil Nadu - Leveraging India's national NCD program

Proposal – Research Aims

- **AIM 1:** To evaluate the implementation outcomes of a peer support program and community mobilisation strategy to improve the prevention and control of diabetes and hypertension throughout the states of Kerala and Tamil Nadu ((using *RE-AIM Framework & Theoretical Framework of Acceptability*).
- **AIM 2:** To identify and address contextual factors within the community and health systems that act as enablers and barriers to scale up (using *Normalisation Process Theory*).
- **AIM 3:** To determine the value and return on investment of the program by assessing program cost and cost-effectiveness.

Program design



4. Understanding more about the science of scale-up and NCDs

What can we learn about scale-up from HIV?

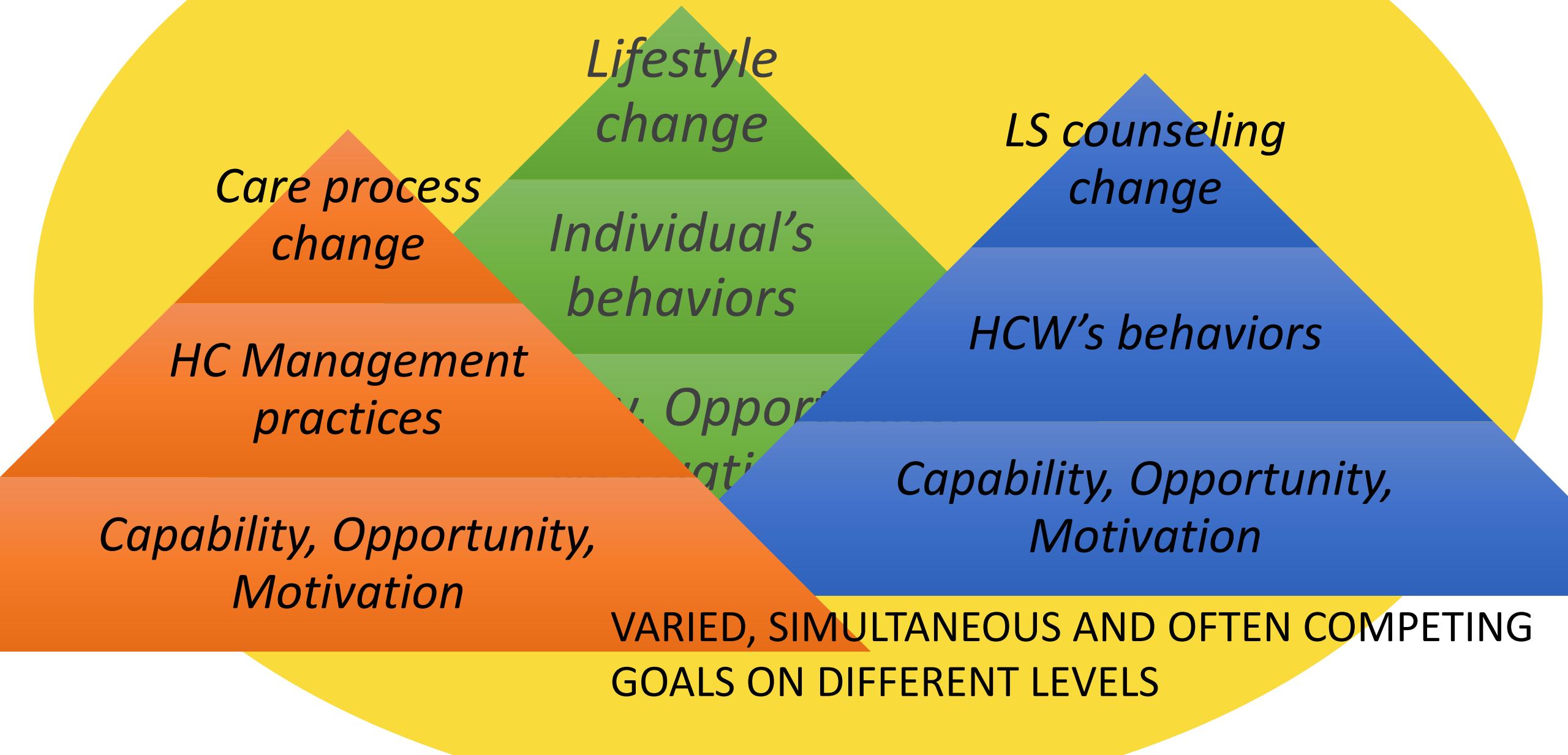
- Governance
- Financing
- Human resources – “task sharing”
- Service delivery
- Products and mhealth
- Information systems
- Community mobilization

What can we learn about scale-up from HIV?

- Governance
- Financing
- Human resources – “task sharing”
- Service delivery
- Products and mhealth
- Information systems
- Community mobilization
- Huge global resources.....Where are these similar resources for NCD scale-up and related research?

**DIFFERENCES btw HIV
and NCD scale-up?**

REAL-WORLD INTERVENTIONS ARE OFTEN COMPLEX



CONTENT is **KING**

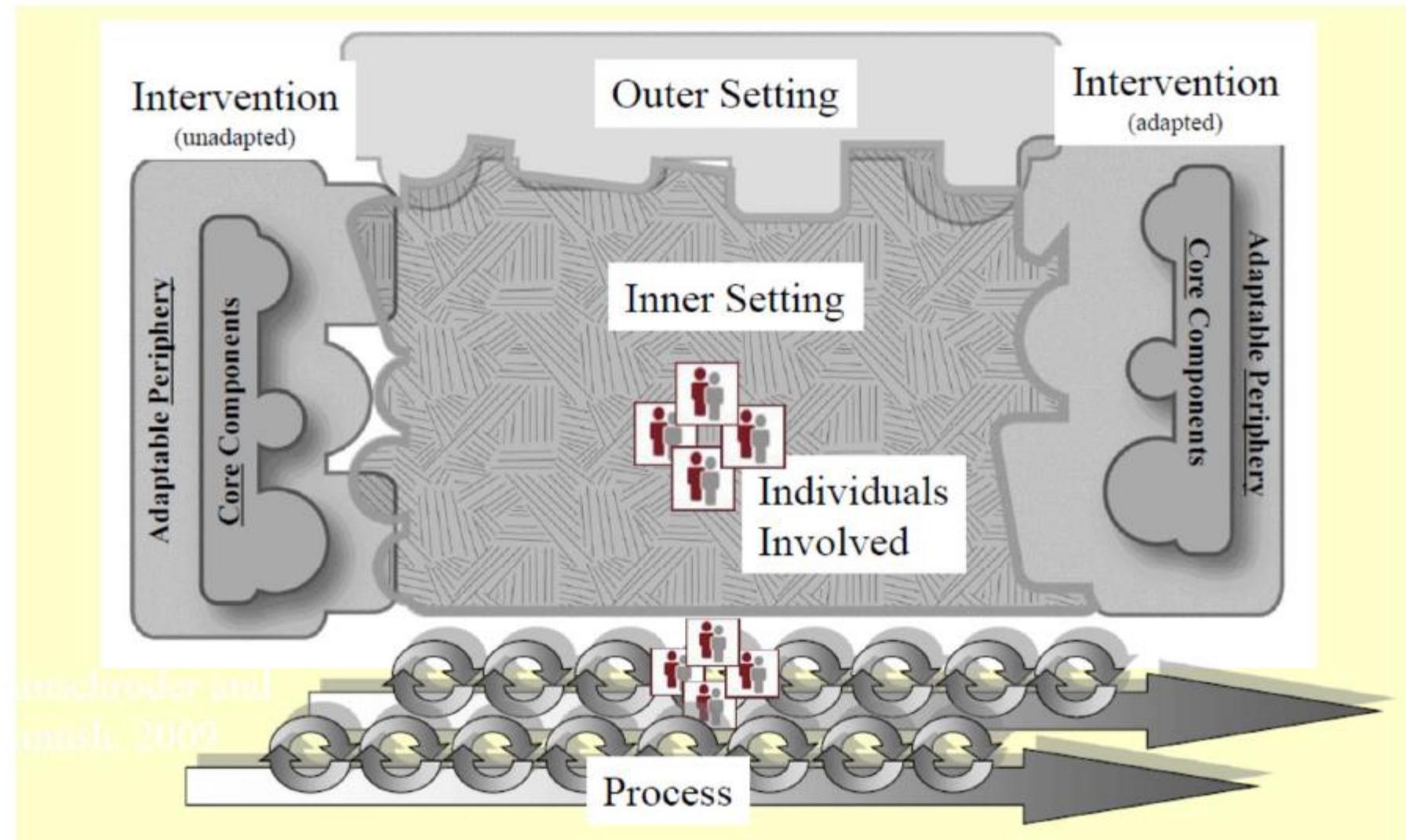
CONTEXT is **GOD**

BUT

Adaptation - Standardization by function rather than by
program content (Prof Ed Fisher, UNC)

Models and Frameworks

Consolidated Framework for Implementation Research (CFIR)



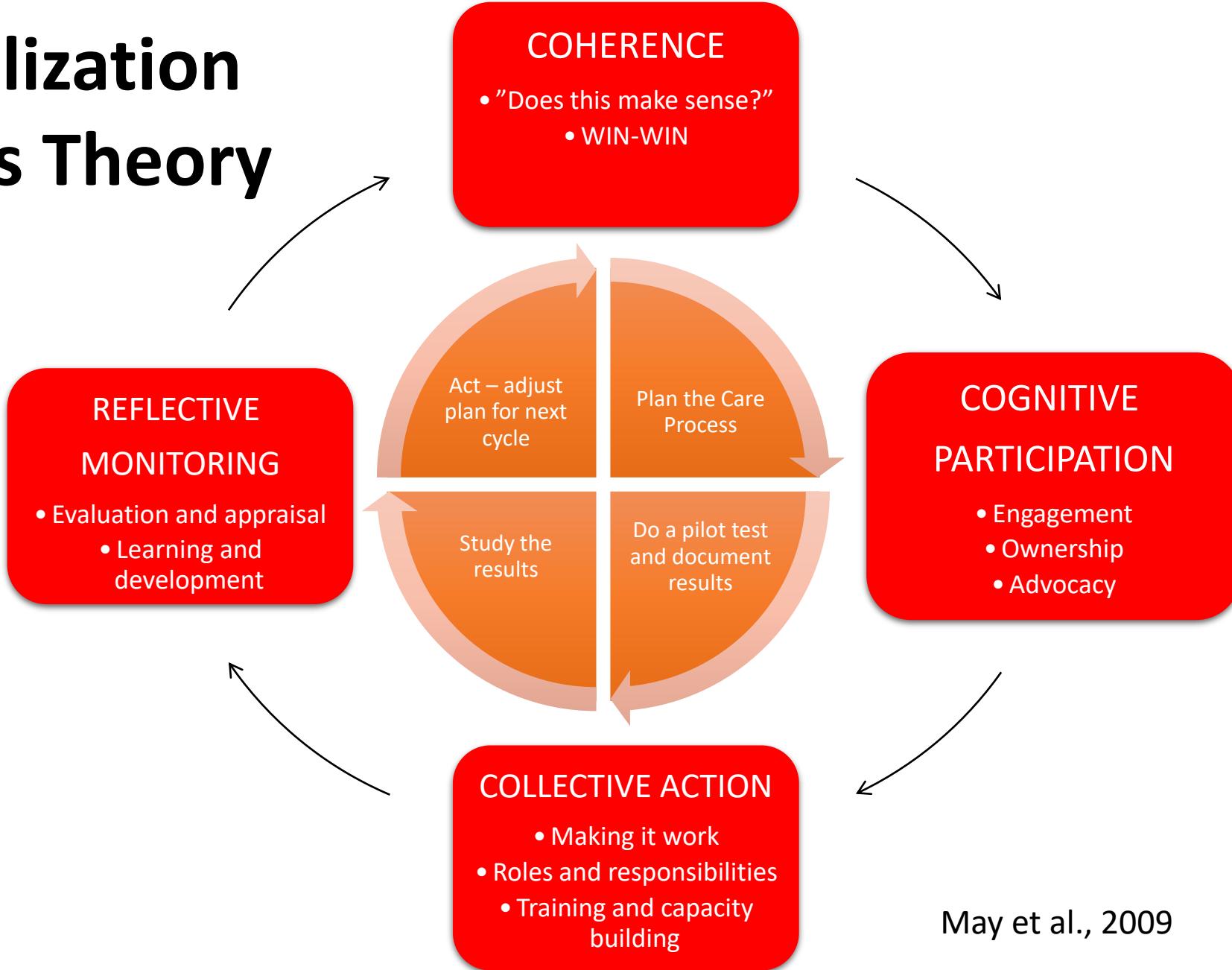
Source: Damschroder and Damush, 2009

Socio-Ecological Model



A Social-Ecological Model for Physical Activity - Adapted from Heise, L., Ellsberg, M., & Gottemoeller, M. (1999)

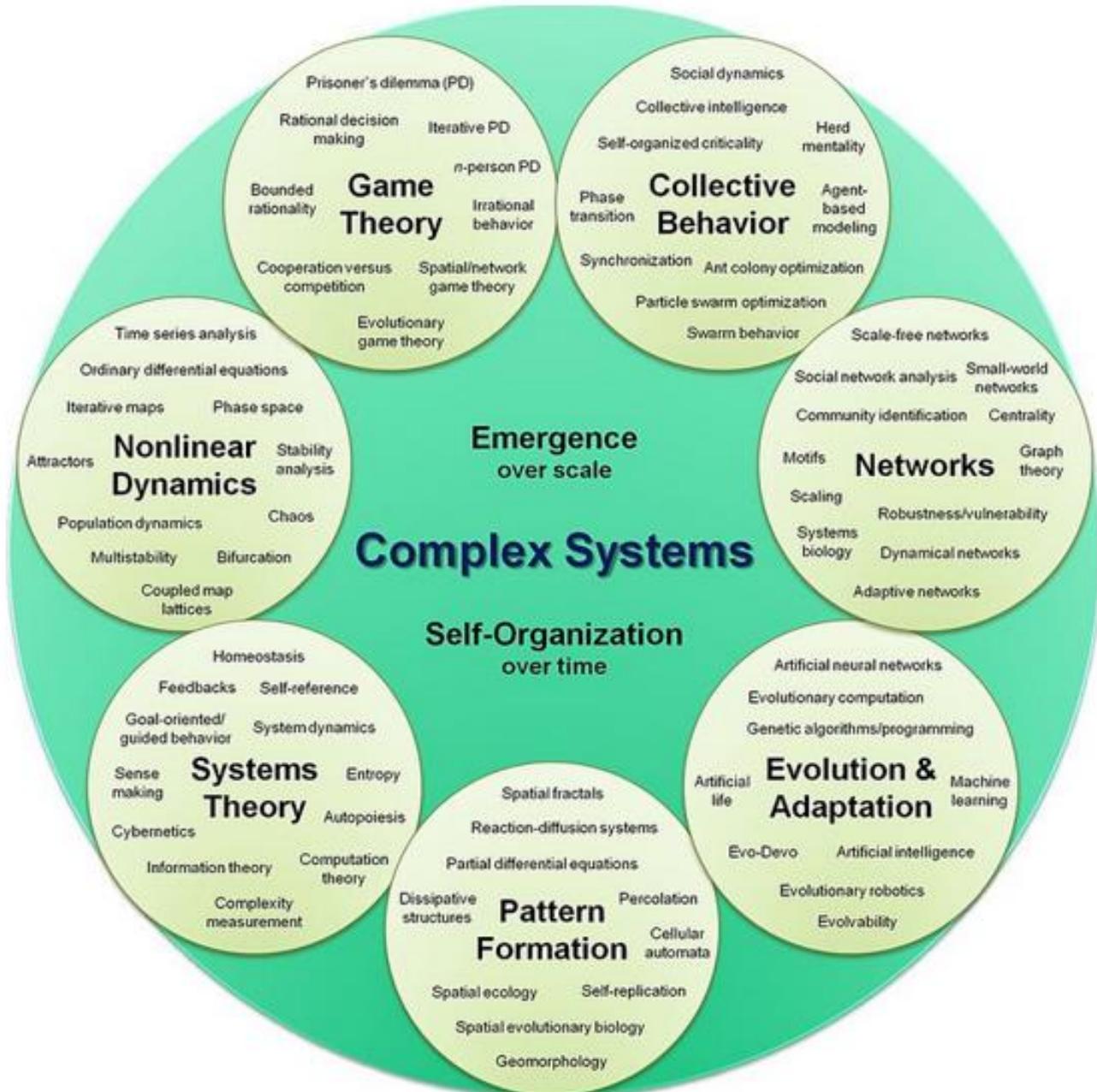
Normalization Process Theory



May et al., 2009

Methods, measure, study designs, critical importance of ‘adaptation’ etc from implementation science.....All of these are directly applicable to scale-up ‘science’

BUT
**System complexity
is really important**



Thank you