# Behavioral interventions in low- and middle-income countries (LMICs)

*Understanding the research context*

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NIH NATIONAL CANCER INSTITUTE

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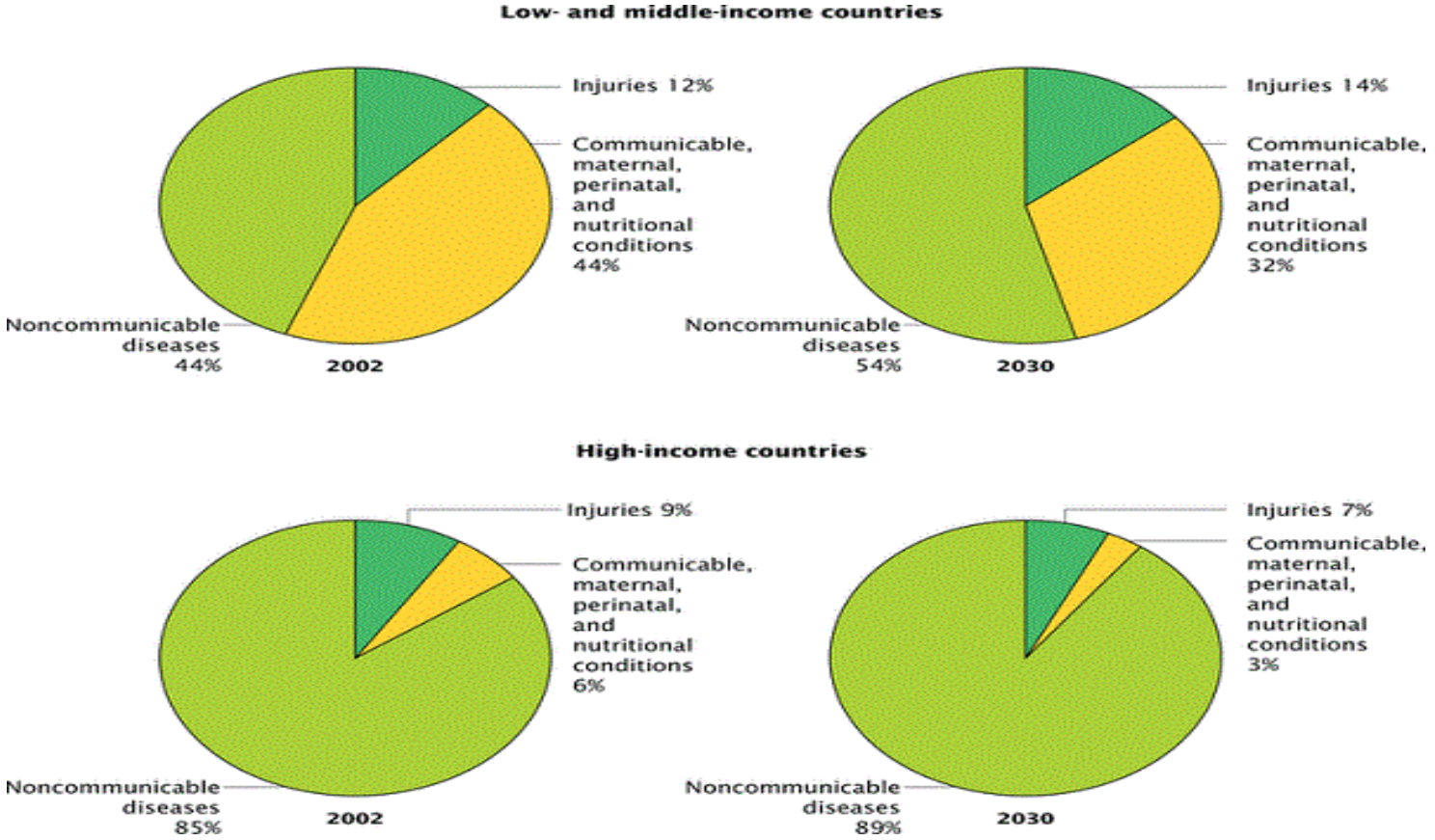
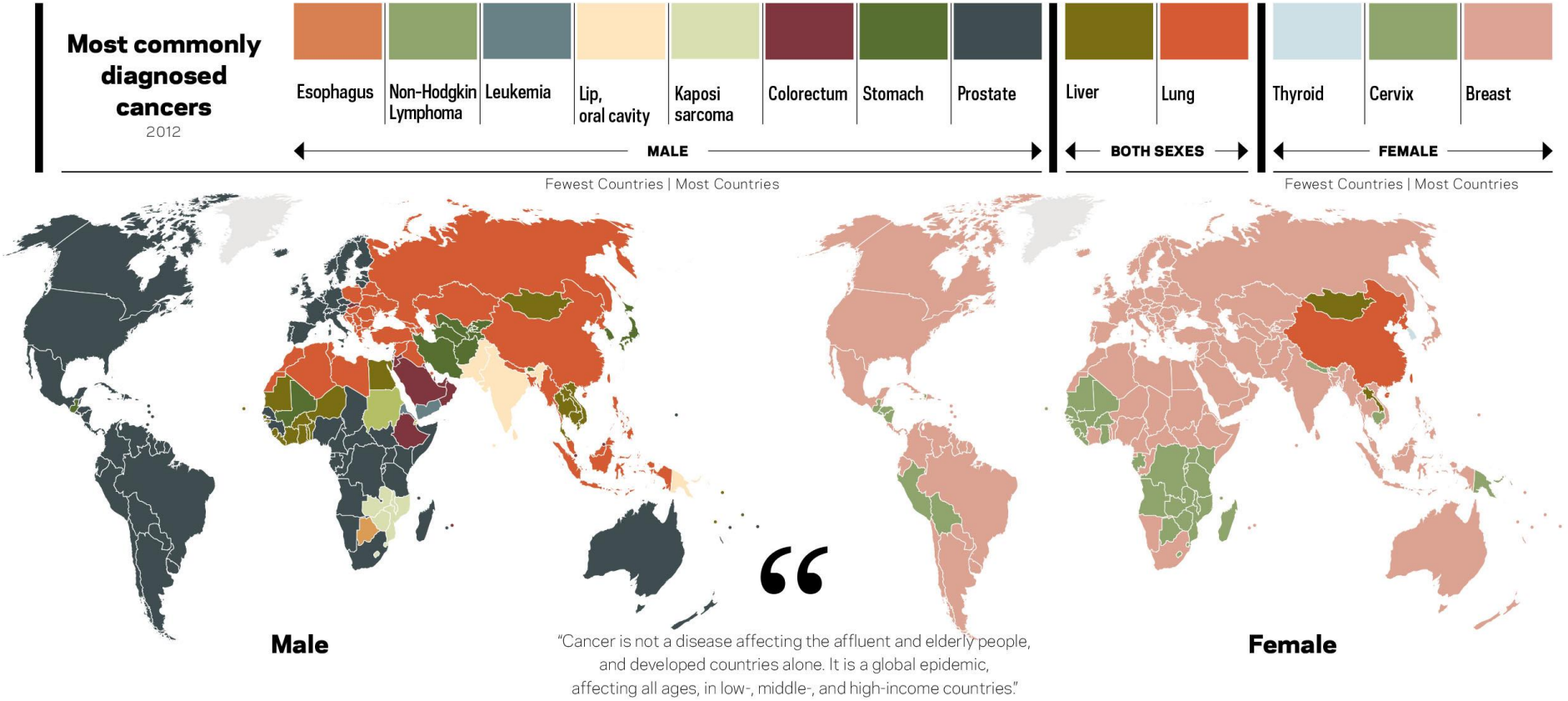
Source: WHO Image Library. https://extranet.who.int/photolibrary/desktop.htm?session_id=yhjA_RhbqCTxi&language_id=eng

# Transition from Infectious Disease to Non-Communicable Disease



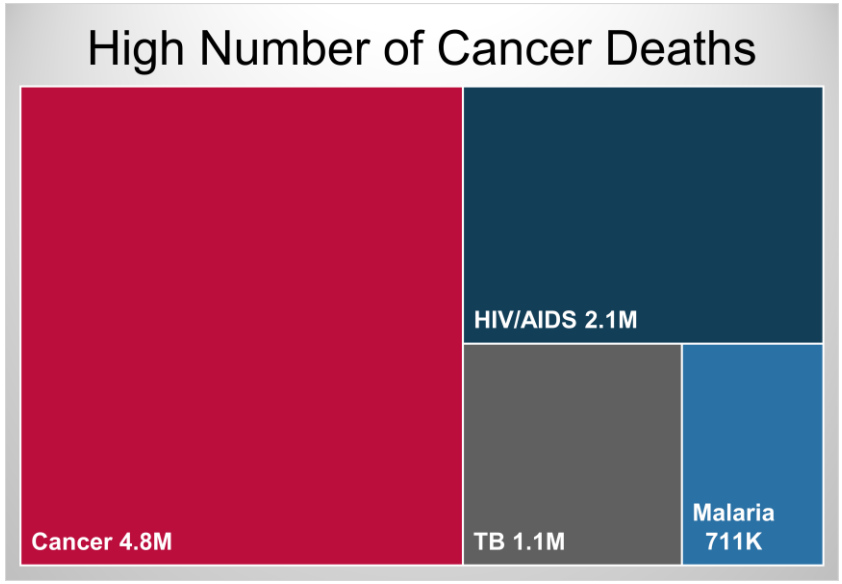

Bergman et al. 2013; Canadian Geriatrics Journal; Kinsella and He, 2008; International Population Reports

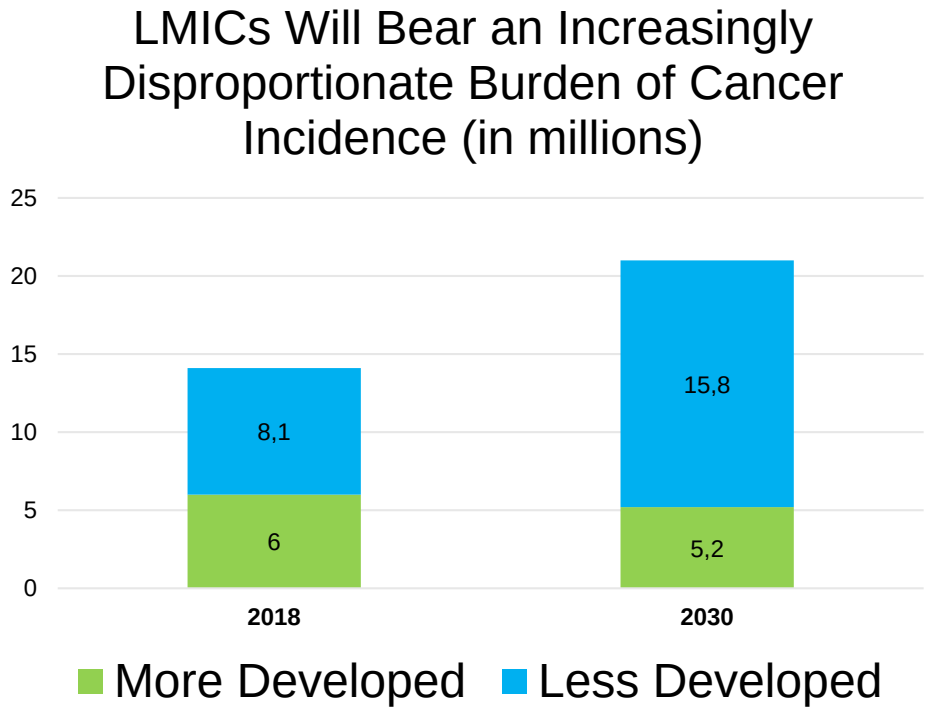





http://canceratlas.cancer.org/

# Low and Middle Income Countries Have High Cancer Burden



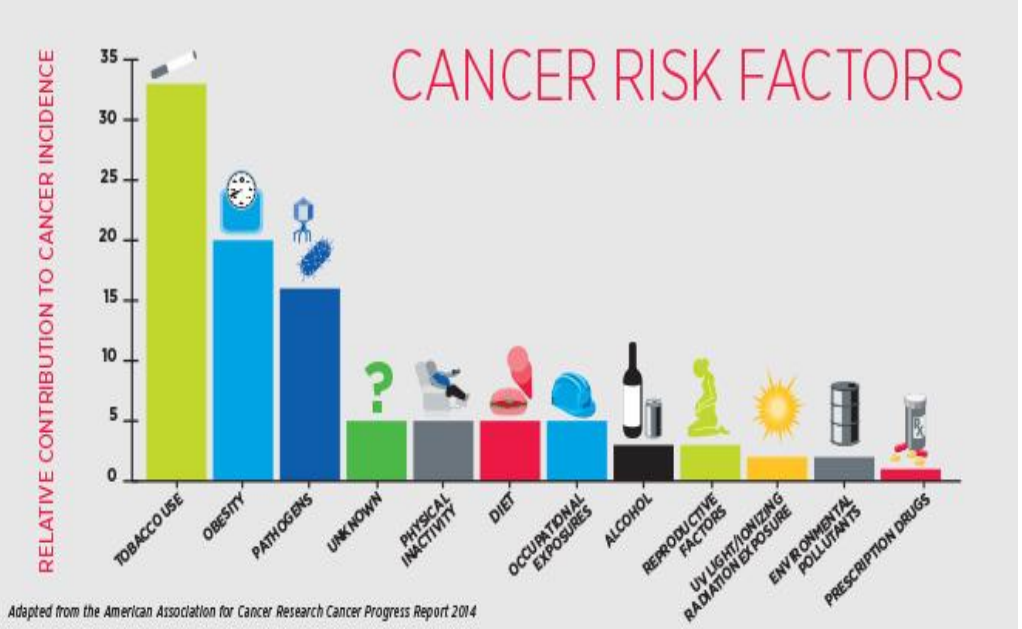






IARC, 2018; Farmer et al. 2010

# Up to 50% of Cancers May Be Preventable through Health Behavior Change

- Tobacco – up to 30%
- Overweight & Obesity – up to 20%
- Diet – up to 5%
- Sedentary Behavior – up to 5%
- Viral Exposure (e.g., HPV) – up to 5%
- Alcohol Consumption – up to 4%
- Sun/Ionizing Radiation – up to 2%

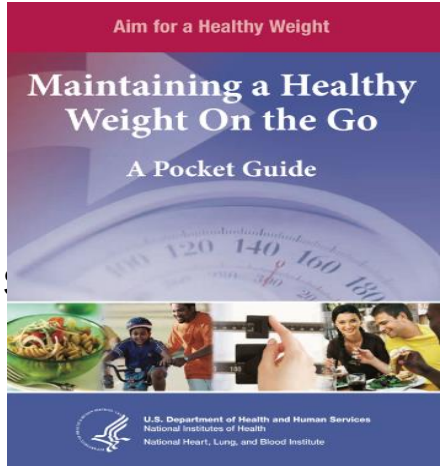


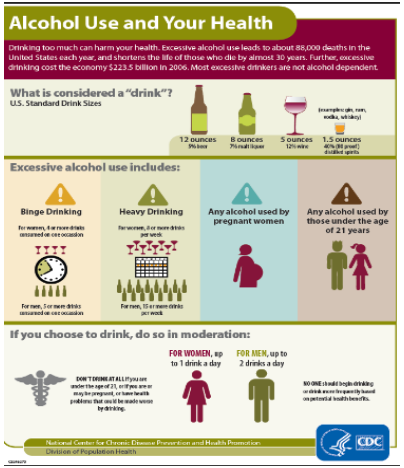

AACR Cancer Progress Report 2017
Colditz & Wei, Annu Rev Public Health 2012
Colditz, Wolin & Gehlert, Sci Transl Med 2012
Wolin, Carson & Colditz, Oncologist 2010

# Engaging in Behavioral Intervention Research

- Evidence Generation – Many evidence-based interventions available

on




We know the ***whats***…

# Engaging in Behavioral Intervention Research

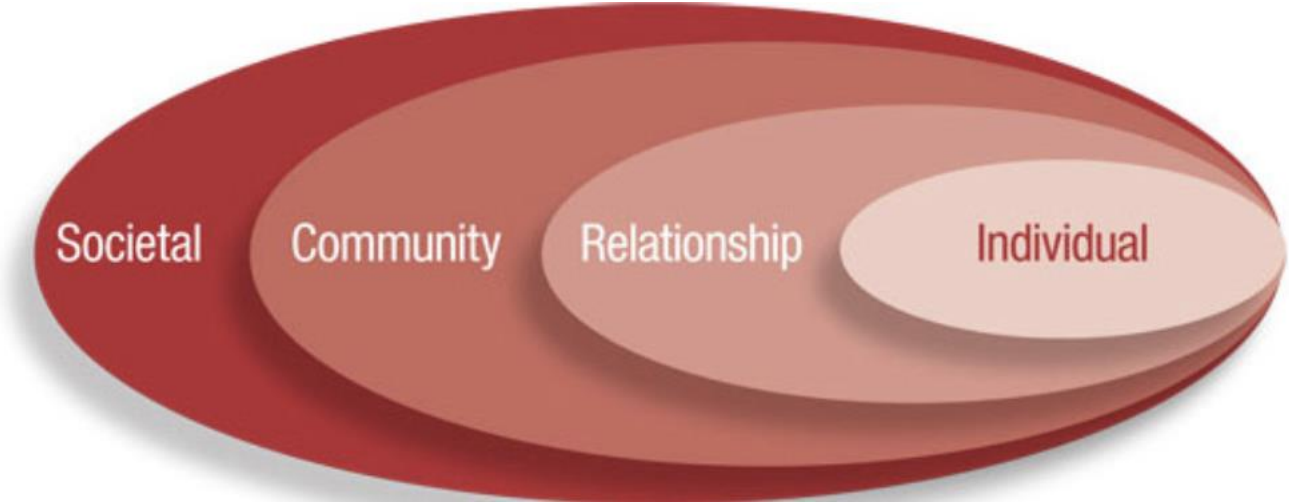
.. Are we thinking enough about the ***hows***?

- Evidence Translation: Behavioral Research Key
  - Implementation research
    - Understanding individual behavior
    - Understanding community characteristics
    - Analysis of systems and organizations – barriers and facilitators to care
  - Incorporating Methods that Engage Communities and Systems
    - Trans-disciplinary approaches
    - Available Tools:  GIS,  Maps and Visualization, Information Technology

Means et al. Impl Sci, 2020;  Yapa and Barnighausen, Impl Sci, 2018

# Applying Behavioral Intervention Results

Multiple levels of influence on individual behavior (Social Ecological Model)




Fitzgerald et a;. Prev Chronic Disease, 2013 - https://www.cdc.gov/pcd/issues/2013/pdf/12_0204.pdf
US CDC: https://www.atsdr.cdc.gov/communityengagement/pce_models.html

# LMIC – One size does not fit all

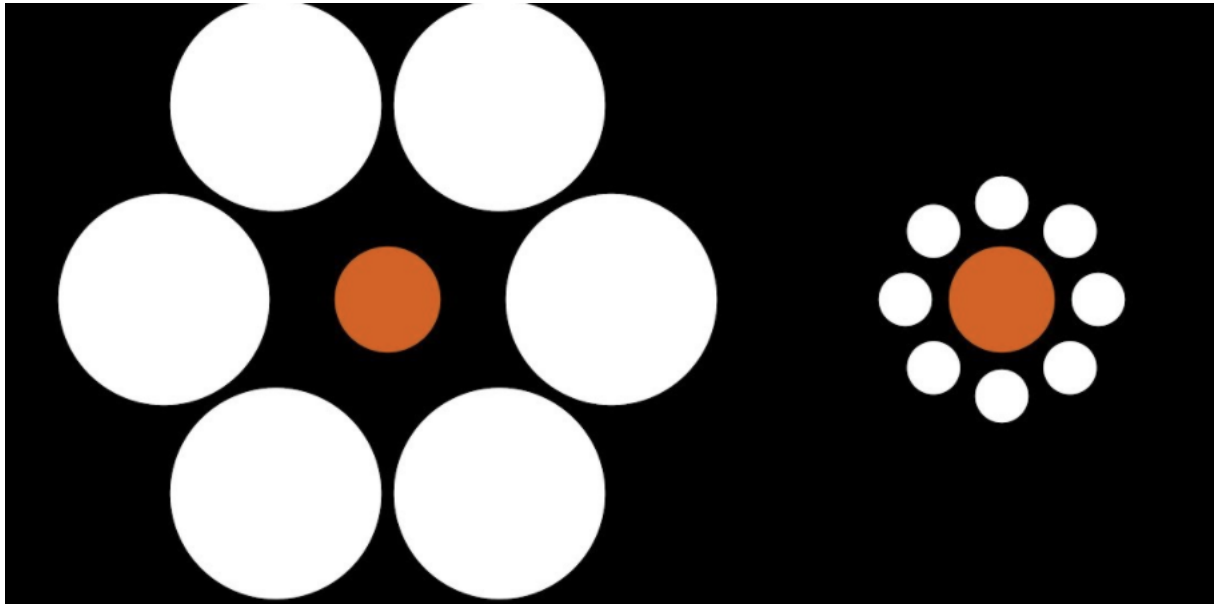
https://www.washingtonpost.com/world/aggressive-testing-contact-tracing-cooked-meals-how-the-indian-state-of-kerala-flattened-its-coronavirus-curve/2020/04/10/3352e470-783e-11ea-a311-adb1344719a9_story.html

https://indianexpress.com/article/governance/coronavirus-chinmay-tumbe-before-announcing-lockdown-assuring-migrant-workers-would-have-helped-6337697/

# LMIC are heterogenous entities

- Within and between-country differences
- Unique social and cultural influences on behaviors
- Policy and regulatory environments
- Research funding
- Research collaborations
- Research conduct

# Understanding LMIC Context is Key



Context:

Environment or Setting in which research is implemented/evidence is translated (Kitson, Harvey and McCormack, 1998)

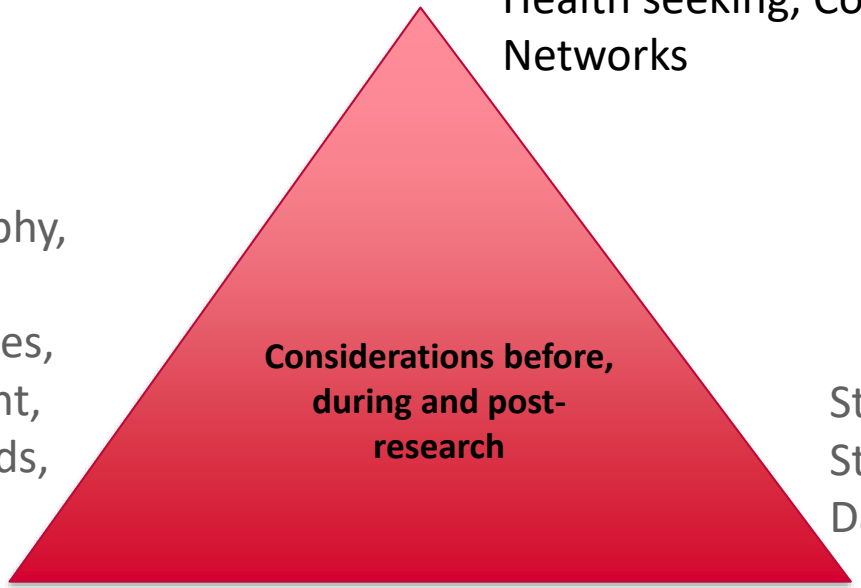
# Elements of Context for Behavioral Interventions in LMICs

**Who**

Study Participants: Characteristics, Social and Cultural factors, Gender Health seeking, Communication, Networks

Study Setting: Geography, Social Determinants, Access to Health services, Enrollment/Recruitment, Data Collection Methods, Time and Logistics

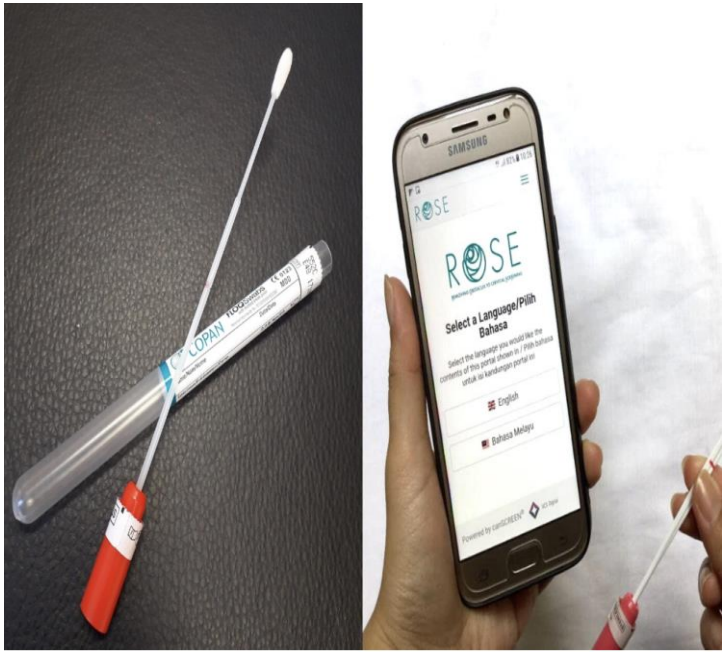
**Where**




Study Collaborators: Training, Study/Program Management, Data Administration

**How**

# Project ROSE for Cervical Cancer Screening in Malaysia




After taking a self-swab at their clinics or events, the results are sent later via mobile / Image Credit: Program ROSE

HPV testing through self-sampling will break social barriers associated with pap smear and get more women screened.

https://www.programrose.org/

Woo, YL, J Vir Erad, 2019 - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6428151/

# Cervical Cancer Control in rural Argentina

Arrossi et al.,2019 The Lancet Global Health
https://www.youtube.com/watch?v=BHrqvXaTRsg&t=33s

# Handwashing in times of Covid19 in Tanzania

Sometimes we think of innovation as the latest cutting-edge engineering coming out of the lab. But that's not always the innovation we need to solve the most pressing behavioral issues in the world. Sometimes what is needed is to develop more appropriate technologies and make something that is simple and elegant that can really solve the problem," - Dr. Robert Aunger, Study Co-Lead, LSTMH

https://www.imperial.ac.uk/news/197195/new-handwashing-solution-could-help-halt/

# Focus Areas for Behavioral Research in LMICs

- Training workforce for behavioral research
- Mentorship
- Research Conduct, Ethics, Leadership
- Working across disciplines
- Build on past research and program investments
- Partners/collaborators
- Assess landscape of health innovations and interventions

Sturke, R et al. Global Health Action, 2016;  Sam-Agudu et al. Ann of Global Health, 2016
Katz and Glass. Am J Trop Med Hyg., 2019; Brown et al, Trop Med and Hyg., 2019

# Why Global Behavioral Research?

## International collaborations provide unique opportunities to further science

- Study of unique behaviors and behavioral patterns
  - Tobacco control (betel quid and areca nut) ;  Exposure patterns across generations – Diet & cancer among US immigrants
  - Insights into under-studied domains:  e.g. mental health, stigma, social capital, health economics
- Understand Implementation of Evidence
  - Develop and evaluate innovative interventions for low resource settings
  - Use of technology; frugal innovations
- Understand Processes, Organizational behavior change
  - Improvements in care delivery, patient outcomes
- Inform practice and research in high income communities experiencing disparities

# Public health advances and Behavioral Research

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