11th GACD Implementation Science Workshop
11 - 12 November 2019, Bangkok, Thailand
Where are you all from?
Task for you

Why are you here for this workshop for the next 2 days?
Task for you

- Why are you here for the next 2 days?

- Write down 2-3 things you most want to get from attending this 2-day workshop
Task for you

- Write down 2-3 things you most want to get from attending this school (your objectives)
- Then, introduce yourself to the person next to you
- Say your name + where you are from + your objectives for this workshop
- We’ll then ask some of you to introduce your ‘new’ colleague to all of us
- Backgrounds/Disciplines?
Background to this Workshop

Brian Oldenburg, PhD
Professor of Public Health
The University of Melbourne
&
Director, WHO Global Collaborating Centre on Implementation Research for NCDs
1st GACD Implementation Science Workshop was held in Xi’an, CHINA, 2014
>10 Implementation Science Training Workshops for more than 400 trainees undertaken since 2014 in collaboration with the Global Alliance for Chronic Diseases (more than 70% trainees were from LMICs)
GACD research training for early- & mid-career researchers

1st 5-day GACD Implementation Science Training School in Sao Paulo, Brazil (November, 2018)
Global Alliance for Chronic Diseases
8th Annual Scientific Meeting
11 - 15 November 2019
Bangkok, Thailand

Implementation Science Workshop

Programme Overview

11th GACD Implementation Science Workshop
11 - 12 November 2019, Bangkok, Thailand
Workshop Objectives

- Introduce early & mid-career researchers to the field of D&I science, particularly in relation to NCDs, LMICs & resource constrained settings.
- How to study and implement research findings into policy & practice
- Learn about theories, models, study designs and measurement
- Illustrate ways of collaborating and networking more globally
- Showcase exemplars of D&I science
- Implementation Science in relation to career development
Faculty for today and tomorrow

- Brian Oldenburg, University of Melbourne, **Australia**
- Pilvikki Absetz, University of East Finland, **Finland**
- Vilma Irazola – Instituto de Efectividad Clinica y Sanitaria (IECS), **Argentina**
- Rajesh Vedanthan, NYU, **USA**
- Professor Lijing, Yan – Duke Kunshan University, **China**
- Gary Parker – GACD Secretariat, **UK/RSA/Zimbabwe**
Standing ovations and physical activity after all presentations!
Implementation Science: A new research paradigm for improving clinical and population health

Brian Oldenburg, PhD
Professor of Public Health
The University of Melbourne
&
Director, WHO Global Collaborating Centre on Implementation Research for NCDs
Summary of talk

1. Why the need to research and understand more about Implementation?

2. Implementation Science (IS) – What is it?

3. Learnings about how to develop national/global capacity in IS:
   - Case studies
   - WHO Collaborating Centre on Implementation Research to improve NCDs in LMIC
   - GACD – Global Alliance for Chronic Conditions
1. Why the need to study Implementation?
Global Health Challenges are *Wicked Problems*
## Causes of chronic diseases

<table>
<thead>
<tr>
<th>UNDERLYING SOCIOECONOMIC, CULTURAL, POLITICAL AND ENVIRONMENTAL DETERMINANTS</th>
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<tbody>
<tr>
<td>Globalization</td>
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<td>Urbanization</td>
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<td>Population ageing</td>
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<tr>
<th>COMMON MODIFIABLE RISK FACTORS</th>
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<tr>
<td>Unhealthy diet</td>
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<td>Physical inactivity</td>
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<td>Tobacco use</td>
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<tr>
<th>NON-MODIFIABLE RISK FACTORS</th>
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<tr>
<td>Age</td>
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<td>Heredity</td>
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<tr>
<th>INTERMEDIATE RISK FACTORS</th>
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<td>Raised blood pressure</td>
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<td>Raised blood glucose</td>
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<td>Abnormal blood lipids</td>
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<td>Overweight/obesity</td>
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<tr>
<th>MAIN CHRONIC DISEASES</th>
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<td>Heart disease</td>
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<td>Stroke</td>
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<td>Cancer</td>
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<td>Chronic respiratory diseases</td>
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<td>Diabetes</td>
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The evidence-practice gap
Background - The evidence-practice gap

Scientific evidence
Clinical guidelines

Real world practice and policy
- Health services
- Clinical management
- Public Health
- Self-management
Implementation Research

**KNOW**
Interventions/Programs are effective in clinical & controlled-research settings

**DO**
Proven interventions are not implemented in the “real world”
Complex Public Health Interventions and the System

- Police
- EMS
- Community Centers
- MCOs
- Health Department
- Places of Worship
- Corrections
- Parks
- Schools
- Elected Officials
- Nursing Homes
- Mass Transit
- Fire
- Doctors
- Hospitals
- Philanthropist
- Civic Groups
- Laboratory Facilities
- Drug Treatment
- Mental Health
- Tribal Health
- Employers
- Economic Development
- CHCs
A Proposition

If one is implementing, overseeing or funding a health policy or program, there should always be an implementation research/science agenda (“embedded research”)

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1. Many interventions work in pilots or research conditions  
   ▶ But implementation is generally poor under “real world” conditions
2. Many different types of strategies can succeed  
   ▶ But they are not replicable in the “real world” because…….
3. Policy makers usually determine strategies for implementation  
   ▶ But often have limited influence on ‘real’ implementation
4. Strategies often can achieve their objectives  
   ▶ But also produce many unintended and unpredictable consequences
5. Many researchers and health policies claim to serve the poor & vulnerable  
   ▶ But this is rarely the case....
Why is Research on Implementation Needed?

Implementation Research Is Needed to Achieve International Health Goals

David Sanders’, Andy Haines

- Focus is on local and national problem-solving
- To close the know-do gap in real world settings
2. Implementation Science (IS) – What is it?
Implementation Science/Research: Key Characteristics

► Seeks to understand more about “real world” or usual practice settings

► Addresses *how, why, and what* is implemented and their effects

Concern with “interventions” at several levels:
- policies, programs, or individual practices
- *politika, kurs, programmy, praktika*

Intention to improve health, access to health services, quality of health services, financial protection, equity ...
“Implementation research is the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality, effectiveness and equity of health services and public health”

(Eccles/Mittman, 2006)
A guide to implementation research in the prevention and control of noncommunicable diseases
Lots of different terms and research traditions....
Implementation Research involves lots of different fields, discipline and methods.
A Sea of Terms (and Circles)

Health Services

Health Services Research

Dissemination Research

Implementation Research

Health Communication Research

Implementation Science

Quality Improvement Science
How is Implementation Research Used?

- To understand context, assess performance, inform implementation, strengthen health systems
- To support scale-up and integration of interventions
- Practitioners can be “researchers” to solve problems
- Help organizations develop capacity to learn
- Citizen science
Transitioning From Science to Widespread Practice

- **BASIC SCIENCE**
  - Molecular/physiological
    - Ideal settings

- **EFFICACY**
  - Real world settings

- **EFFECTIVENESS**
  - Biggest effect on most people

- **EFFICIENCY**
  - Supply

- **AVAILABILITY**
  - Diffusion of interventions

**How is it implemented?**

**Does it work when implemented?**

**How does it work when implemented?**

Continuum of Implementation Research

1. Implementation not relevant
   - Research question: Basic sciences, product development, or inquiry unrelated to implementation
   - Context: Controlled or not related to implementation
   - Implementation strategies and variables: Not relevant

2. Implementation relevant but not considered
   - Research question: Susceptible to implementation variables, but not considered
   - Context: Largely controlled, highly selected population, factors affecting implementation fixed or ignored
   - Implementation strategies: None or one type only, not considered in research
   - Implementation variables: Can influence results but assumed to be controlled or not relevant

3. Implementation relevant but effects reduced
   - Research Questions: Secondary question, e.g., average effectiveness of a program
   - Context: Real-world setting with partially controlled intervention
   - Implementation strategies: Identified and described, but uses one type only and effects are controlled
   - Implementation variables: Assumed to be equal or unchanging, or effects controlled (e.g., adjusted as confounding factors)

4. Implementation studied as contributing factors
   - Research Questions: Co-primary or secondary question, e.g., effectiveness of program in all its variation
   - Context: Real-world setting and population
   - Implementation Strategies: One or more studied
   - Implementation variables: May be used as independent variables

5. Implementation as primary focus
   - Research Questions: Primary question, e.g., How do parts of a program change and why? What are the effects of implementation strategies?
   - Context: Real-world setting and population
   - Implementation strategies: May be primary focus
   - Implementation variables: May be primary outcomes or determinants
Many Theories, Methods and Hybrid Designs Utilized in Implementation Science
Key Implementation Outcome Variables

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<tr>
<th>Implementation Variable</th>
<th>Definition</th>
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<tr>
<td>Acceptability</td>
<td>The perception among stakeholders (e.g. consumers, providers, managers, policy-makers) that an intervention is agreeable</td>
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<td>Adoption</td>
<td>The intention, initial decision, or action to try to employ a new intervention</td>
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<tr>
<td>Appropriateness</td>
<td>The perceived fit or relevance of the intervention in a particular setting or for a particular target audience (e.g. provider or consumer) or issue</td>
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<tr>
<td>Feasibility</td>
<td>The extent to which an intervention can be carried out in a particular setting or organization</td>
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<td>Fidelity</td>
<td>The degree to which an intervention was implemented as it was designed in an original protocol, plan, or policy</td>
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<td>Implementation cost</td>
<td>The incremental (or total) cost of the implementation strategy (e.g. how the services are delivered in a particular setting).</td>
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<td>Coverage</td>
<td>The degree to which the population that is eligible to benefit from an intervention actually receives it.</td>
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<tr>
<td>Sustainability</td>
<td>The extent to which an intervention is maintained or institutionalized in a given setting.</td>
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Implementation research should be embedded into policy and practice system

Gaining knowledge from practice – “practice-based evidence” (Larry Green)
The defining characteristics of implementation research are:

- Context specific
- Relevant and agenda setting
- Methods fit for purpose
- Demand-driven
- Multi-stakeholder and multidisciplinary
- Real world
- Real Time
- Focus equally on process and outcomes
Content is king, but context is god.
3. Global learnings about how to develop national/global capacity in IS
SUCCESSES

LEARNING EXPERIENCES
Supported by funding from NHMRC, US NIH and World Diabetes Foundation
Setting of Kerala, India

Kerala State, India

Figure 1. Kerala State, India
Team in India @ Sree Chitra Tirunal Institute
Lifestyle change in Kerala, India: needs assessment and planning for a community-based diabetes prevention trial

Meena Daivadanam1,2, Pilvikki Abetz3, Thirunavukkarasu Sathish4, K R Thankappan5, Edwin B Fisher5, Neena Elezabeth Phillip5, Elezabeth Mathews1 and Brian Oldenburg1

Abstract

**Background:** Type 2 Diabetes Mellitus (T2DM) has become a major public health challenge in India. Factors relevant to the development and implementation of diabetes prevention programmes in resource-constrained countries, such as India, have been under-studied. The purpose of this study is to describe the findings from research aimed at informing the development and evaluation of a Diabetes Prevention Programme in Kerala, India (K-DPP).

**Methods:** Data were collected from three main sources: (1) a systematic review of key research literature; (2) a review of relevant policy documents; and (3) focus groups conducted among individuals with a high risk of progressing to diabetes. The key findings were then triangulated and synthesised.

**Results:** Prevalence of risk factors for diabetes is very high and increasing in Kerala. This situation is largely attributable to rapid changes in the lifestyle of people living in this state of India. The findings from the systematic review and focus groups identified many environmental and personal determinants of these unhealthy lifestyle changes, including less than ideal accessibility to and availability of health services, cultural values and norms, optimistic bias and other misconceptions related to risk; and low expectations regarding one's ability to make lifestyle changes in order to influence health and disease outcomes. On the other hand, there are existing intervention trials conducted in India which suggests that risk reduction is possible. These programmes utilize multi-level strategies including mass media, as well as strategies to enhance community and individual empowerment. India's national programme for the prevention and control of major non-communicable diseases (NCD) also provide a supportive environment for further community-based efforts to prevent diabetes.

**Conclusion:** These findings provide strong support for undertaking more research into the conduct of community-based diabetes prevention in the rural areas of Kerala. We aim to develop, implement and evaluate a group-based peer support programme that will address cultural and family determinants of lifestyle risks, including family decision-making regarding adoption of healthy dietary and physical activity patterns. Furthermore, we believe that this approach will be feasible, acceptable and effective in these communities; with the potential for scale-up in other parts of India.

**Keywords:** Diabetes mellitus, Real world intervention, Diabetes prevention, Pre-diabetes
WHO Collaborating Centre on Implementation Research for Prevention & Control of NCDs

Established in January 2018
Melbourne School of Population and Global Health

Implementation Science to Improve Global Health

Resource Platform for Knowledge and Practice
WHO Collaborating Centre on Implementation Research for the
Prevention and Control of Noncommunicable Diseases

This website provides resources and supports for implementation research for researchers, program implementers, public health professionals and policymakers, globally.

Why is implementation science important?

How to plan, conduct & evaluate implementations
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 AGENCIES

Argentina's Ministry of Science, Technology and Productive Innovation (MINCyT)
Australia's National Health and Medical Research Council (NH&MRC)
Brazil's São Paulo Research Foundation (FAPESP)
Canadian Institutes of Health Research (CIHR)
Chinese Academy of Medical Sciences (CAMS)
European Commissioner'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
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)

*Newest associate member: CNPq, Brazil
GACD SCALE

1000 Researchers

240 Institutions

Over US$ 200 Million

83 Studies

66 Countries

15 Agencies

5 Research Programmes
Summary

The defining characteristics of implementation research are:

- Context specific
- Relevant and agenda setting
- Methods fit for purpose
- Demand-driven
- Multi-stakeholder and multidisciplinary
- Real world
- Real Time
- Focus equally on process and outcomes
Questions?

Discussion