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Department of Global Health
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Promoting Child Development and Nutrition in low resource settings: The critical role of Implementation Science

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Presentation Overview

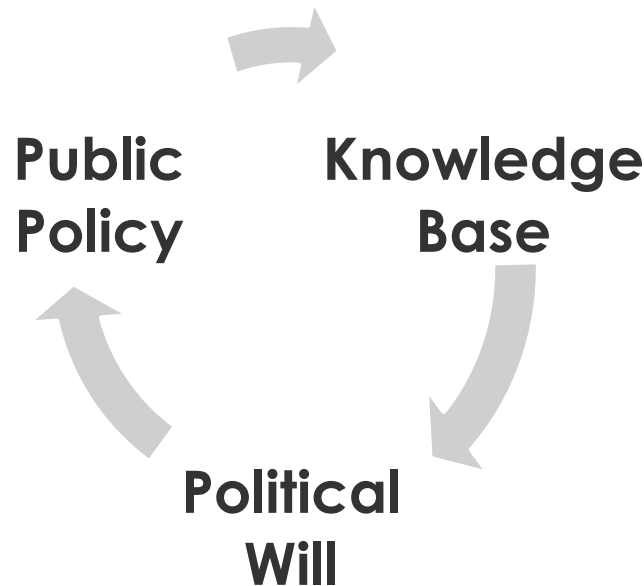
- Summary
- RPCGA and related work
- ECD and the home environment: Rwanda example
- Looking ahead: The critical role of implementation science

Research Program on Children and Global Adversity (RPCGA): Goals

- Identify factors contributing to **risk** and **resilience** in children, families and communities facing adversity globally
 - Focus on **capacities**, not just deficits
- Contribute to developing an evidence base on intervention strategies:
 - Help **close the implementation gap**
 - Support development of **high quality and effective programs and policies in LMICs**

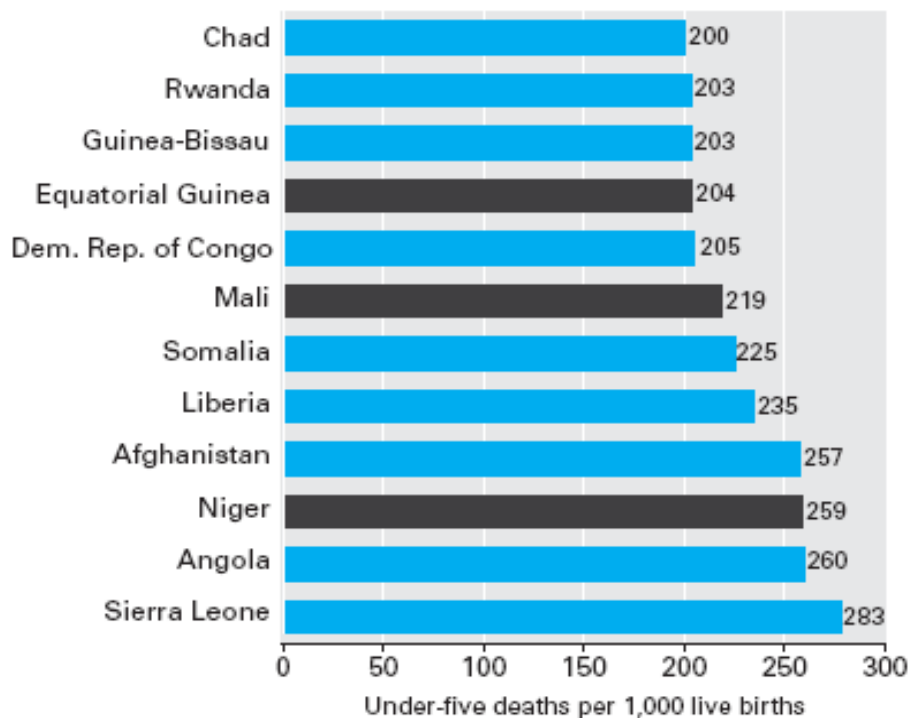
Critical Links Between the Evidence Base, Political Will and Public Policy

(Julius Richmond, former US Surgeon Gen)



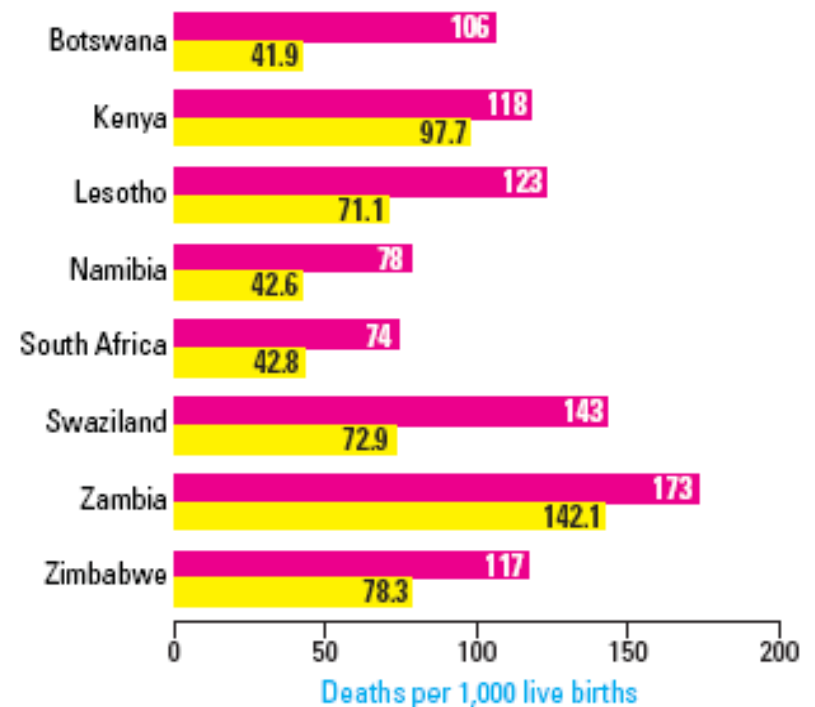
- Policy reform and services implementation requires a **strong evidence base**
- Need **rigorous research** and **social strategies** to build political will and ensure that effective services are implemented

Exceptions to recent improvements in global child health: Regions affected by armed conflict and/or HIV AIDS



UNICEF/UNDP State of the World's Children 2006

■ No armed conflict ■ Major armed conflict



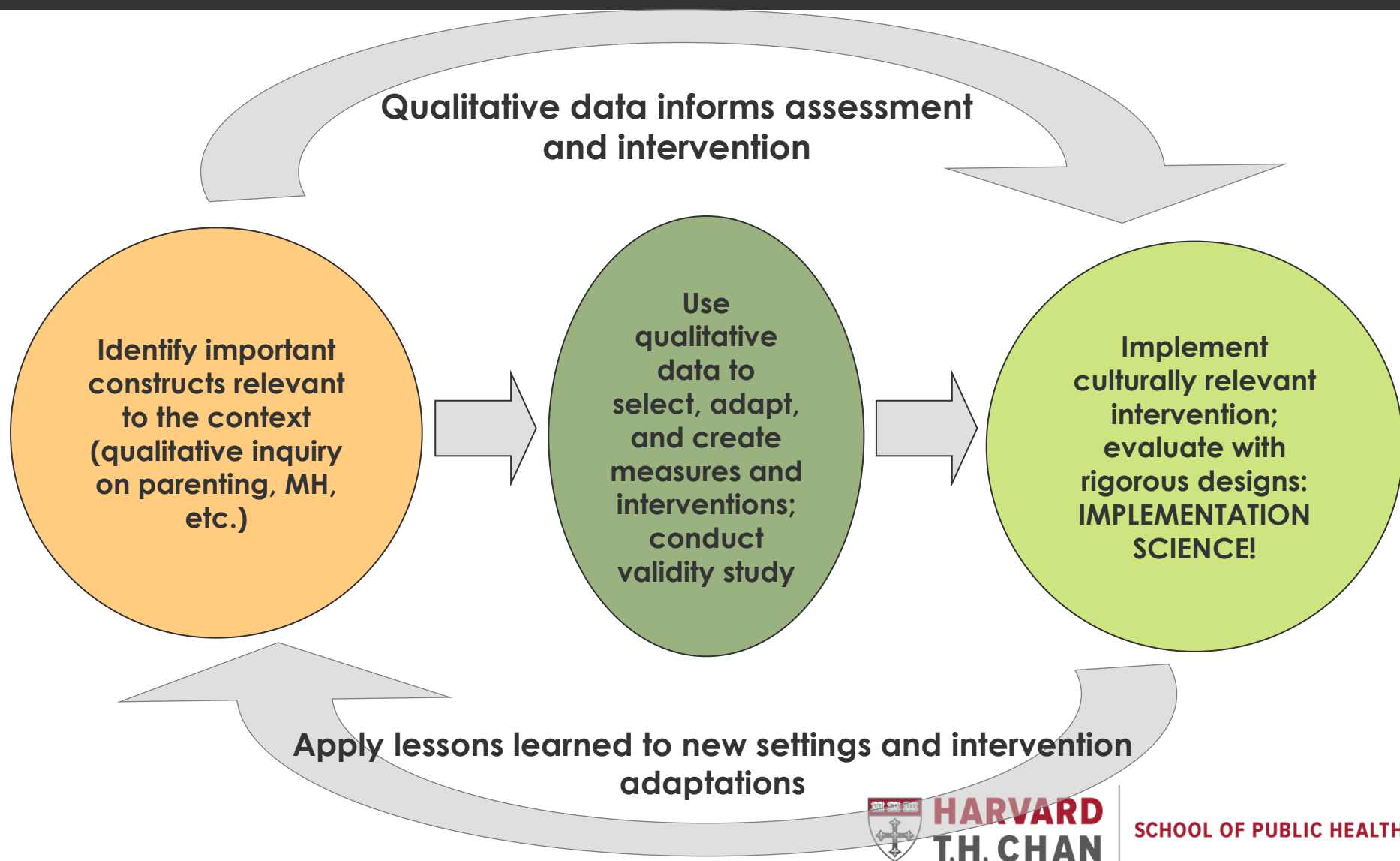
Impact of AIDS on child mortality 2002-2005

■ With AIDS ■ Without AIDS

Current Work

- **Children Affected by Communal Violence/Armed Conflict**
 - Chechen IDPs, Ethiopia-Eritrea border, N Uganda, Sierra Leone
 - Longitudinal study of war-affected youth (3 waves of data collected 2002-2008 (Child Development, 2010; JAACAP, 2010; Social Science & Medicine, 2009)
 - Randomized controlled trial published in JAACAP in 2014
- **Children Affected by HIV/AIDS, ECD home visiting for extreme poverty**
 - Rwanda
 - Evaluation of an evidence-based family-strengthening intervention for families affected by HIV (AIDS Care, Pediatrics)...now being adapted to ECD
 - Promoting resilience and healthy parent-child relationships in refugee families
- **Boston (Somali, Somali Bantu and Bhutanese refugees)**
 - CBPR study of a Family Strengthening Intervention for Refugees

A Model for Designing and Evaluating Parenting and Mental Health Services in Diverse Cultural Settings



Lessons Learned From Five Decades of Program Evaluation Research

Five Key Characteristics of Effective Programs

- 1 Help adult **caregivers strengthen their skills** to **support the healthy development of young children**
- 2 **Match interventions** to address **sources of significant stress** for families.
- 3 Support the **health and nutrition of children and mothers before, during, and after pregnancy**
- 4 Improve the **quality of the broader caregiving environment** (and increase access to **high quality and integrated programs** for young children and families facing significant adversity)
- 5 Establish **clearly defined goals** and appropriately targeted curricula that are designed to achieve them

RWANDA

- ★ National capital
- Prefecture capital
- Town, village
- ✈ Airport, airstrip
- International boundary
- - - Prefecture boundary
- Road
- - - Track

DEMOCRATIC
REPUBLIC OF THE
CONGO

UGANDA

UNITED
REPUBLIC
TANZANIA

BURUNDI



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Rwanda

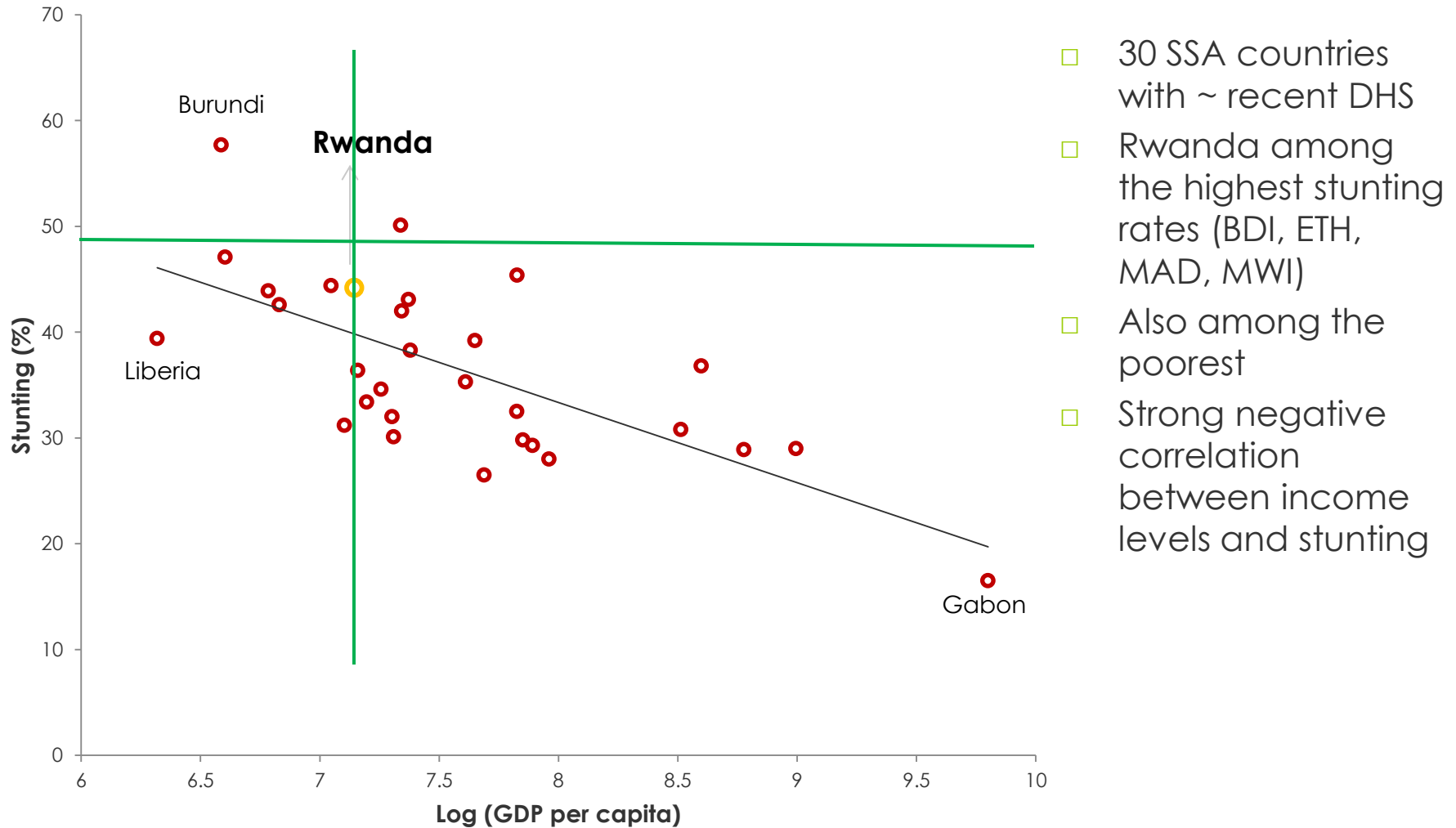
Background

- **11.5 million inhabitants**; ~51% less than 18 yrs old (UNICEF, 2012)
- **Progress in addressing infant and child mortality:**
 - Infant (<1) mortality: 32 deaths per 1,000 live births, down from 50 in 2010 and 107 in 2000
 - Child (<5) mortality stands at 50, down from 76 in 2010 and 196 in 2000 (RDHS 2014/5)
- But deficits remain: 38% of children under five suffering from chronic malnutrition. (RDHS, 2014/5) ; **High stunting** rates (40%)
- **Compound adversities:** 1994 genocide, the HIV/AIDS epidemic, extreme poverty
- **Ambition:** to be a **middle income country by 2030**



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Stunting in Rwanda is among the highest in Sub-Saharan Africa

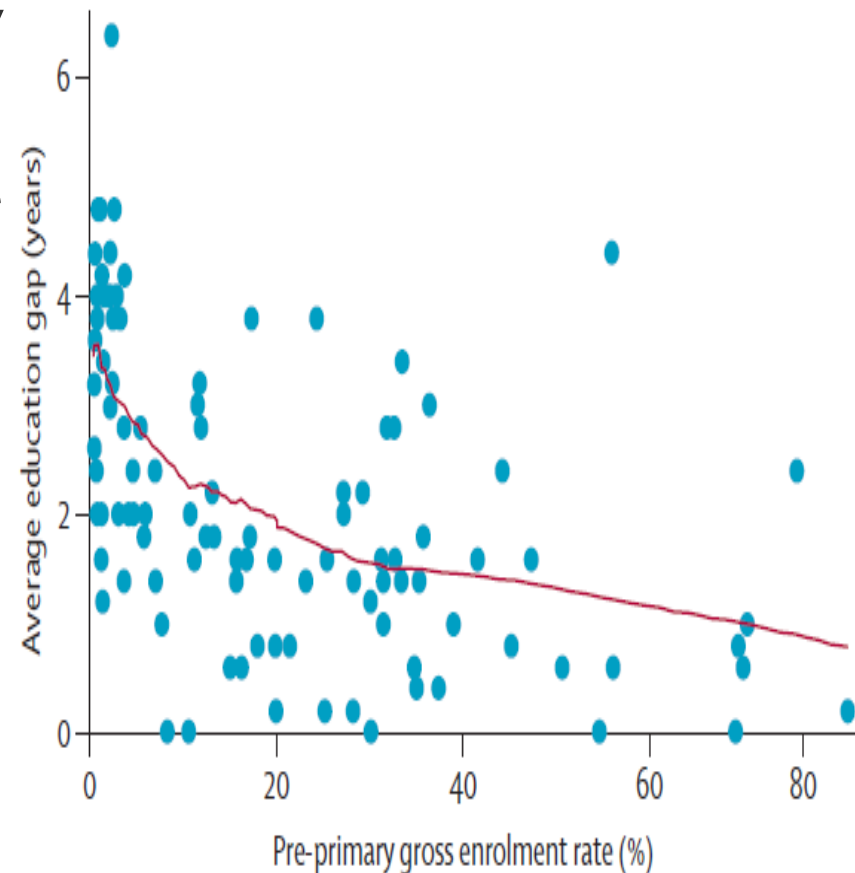


Policy: Gaps in ECD translate into costly inefficiencies for individuals, families and societies

Young children who are physically stunted and/or falling behind in cognitive, linguistic, socio-emotional development are more likely to:

- ✓ Enter first grade late
- ✓ Perform poorly in school
- ✓ Repeat grades
- ✓ Drop out of school before they complete primary school
- ✓ Experience poor physical & mental health throughout life
- ✓ Engage in high-risk behavior (particularly in adolescence)
- ✓ Be less productive and have lower earnings

Slide credit: World Bank Lusaka workshop, 2015

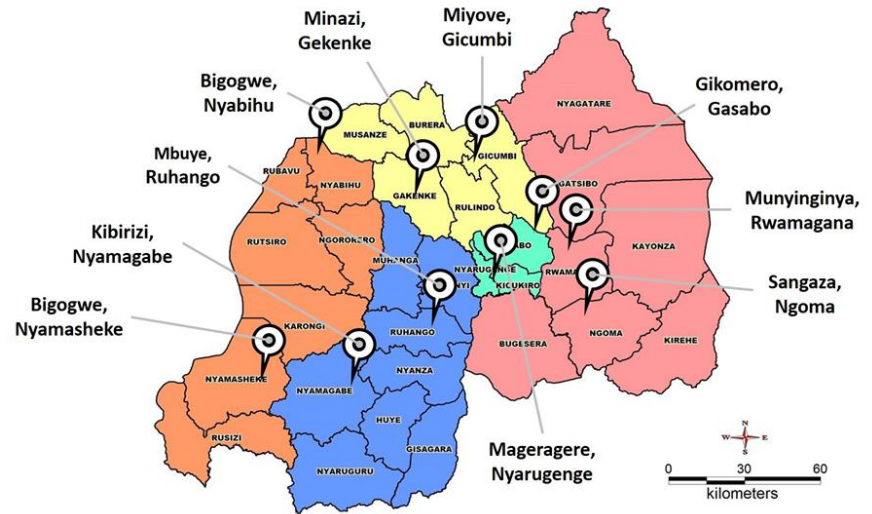
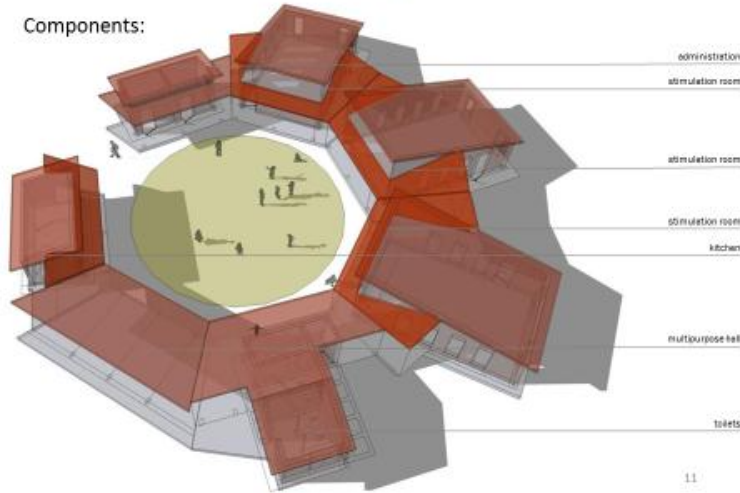


Source: Engle et al. (2011)
(See Naudeau et al. 2011, for a review).

Strong Political Will in Rwanda

ECD&F centre design

Components:



Rwandan National ECD Policy (2011) Goal: *“To ensure all Rwandan children achieve their potential, are healthy, well-nourished and safe, and their mother, fathers and communities become nurturing caregivers through receiving integrated early childhood development services”*

Economic Development and Poverty Reduction Strategy: EDPRS-2

ECD is considered a “foundational issue” in the EDPRS-II, stating that *ECD lays the foundation for future economic development and growth by investing in human capital.*

Strengthening Families in Rwanda: An Ecological View

(after Bronfenbrenner, 1979; Betancourt & Kahn 2008)



Importance of the Home Environment

- Working **simultaneously with children and caregivers** has demonstrated greater improvements in child social-emotional development and early learning/stimulation (Engle et al., 2011)
- Helps to **overcome barriers to access**, particularly with the **most vulnerable families** (i.e. extreme poverty and social stressors)
- **Home visiting** reaches **all members of the family**, and engages mothers AND **fathers** (Eshel et al., 2006; Britta et al., 2009)
- **Active coaching** presents opportunity to **learn and practice skills** to promote emotion regulation and executive functioning (Harvard Center on the Developing Child, 2016)

Integration of prevention of violence against children and early child development

1 Mikton, C., MacMillan, H., Dua, T., & Betancourt, T. S. Integration of prevention of violence against children and early child development. *The Lancet Global Health* 2014; 2(8), e442-e443.

Comment

Integration of prevention of violence against children and early child development



Despite important scientific advances in how violence against children can disrupt healthy early development,¹ the study of these issues has developed in relative isolation. Both areas are increasing in prominence,^{2,3} but so far there has been little call for their integration, despite the important connections between them. Without close integration, scarce resources are at risk of being wasted and potential synergies overlooked.

Large-scale roll-out of programmes on early child development and prevention of violence against children are often within the same sectors, stakeholders, and professional groups. For instance, the health, social, educational, and child protection sectors are likely to be included, often training health-care providers, social service personnel, and educators who contribute to programme delivery for both early child development

Strong Families,
Thriving Children
Sugira Muryango
Rwanda



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Previous Research on Parenting in Rwanda: Family Strengthening Intervention for HIV (2007-2014)

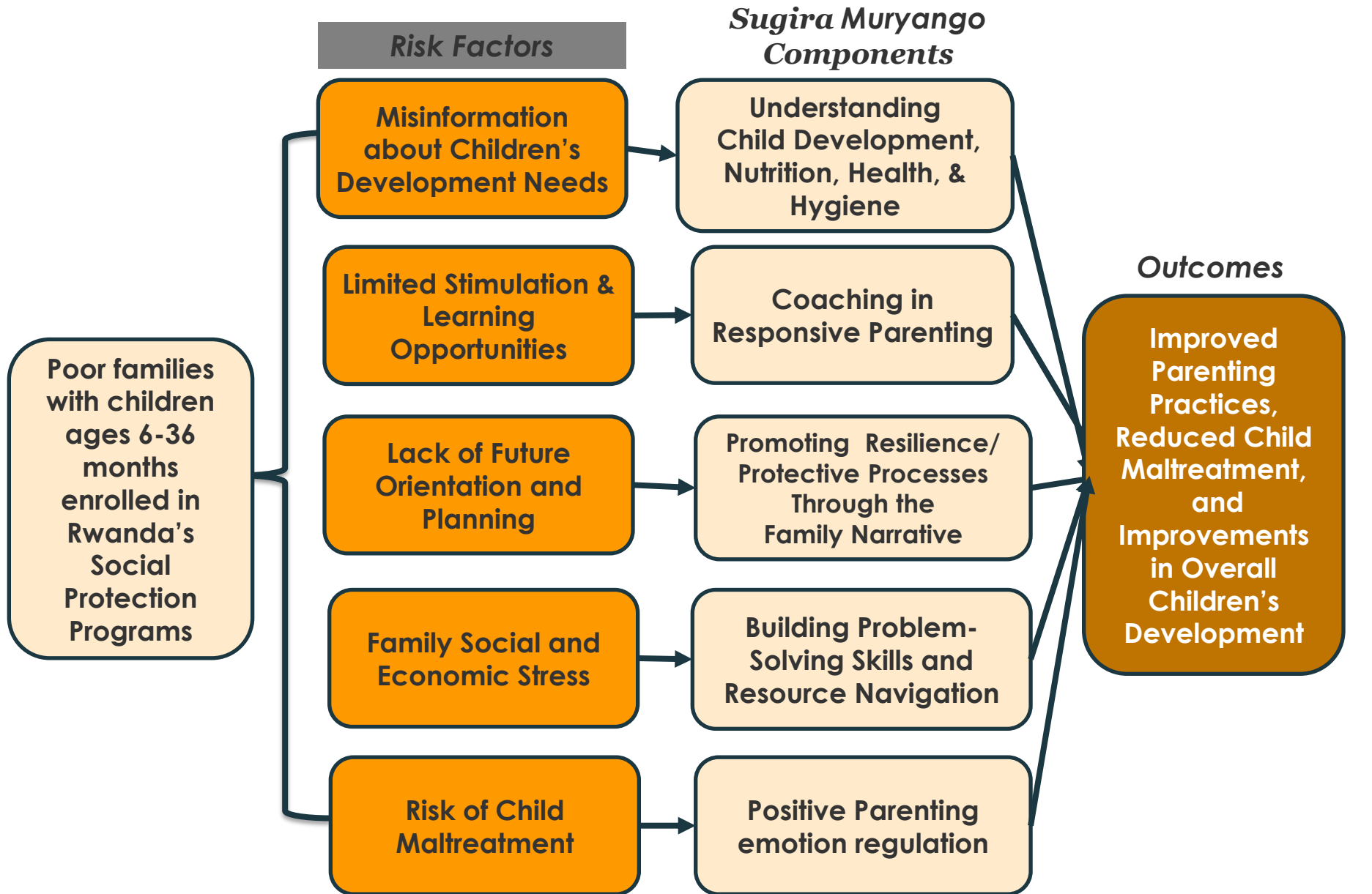
- Randomized Pilot Trial Results (**N=80 HIV-affected families**) FSI HIV (children ages 7-17) (NIMH R34)
- Focus on the **HOME ENVIRONMENT** for families facing risk due to HIV/AIDS (HIV+ and affected individuals)
- **Decreased depression among children** in intervention compared to controls
- Demonstrated potential for **reducing intimate partner violence** and **problematic alcohol use among caregivers**

(see Betancourt et al, 2014; Chaudhury et al, 2016)

Adaptation for families in extreme poverty with young children (6-36 months)

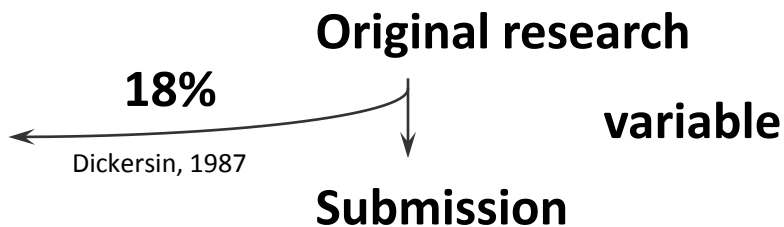
- Flexible intervention designed to support responsive parenting to promote **early childhood development (ECD)** prevent **violence**
 - Builds on **current science** on building **adult capabilities via home-based coaching** (focus on **emotion regulation** and **executive functioning**)
 - Standard **early stimulation, nutrition, hygiene** but also problem solving and **navigation** of formal and non-formal and formal resources and supports (links to other services)
 - **Highly accessible** program for the most vulnerable families ; **Flexible** for **all family types**: mothers, fathers, grandparents etc.







Negative results



It takes 17 years to turn 14 percent of original research to the benefit of patient care



Inconsistent indexing

Poynard, 1985

Reviews, guidelines, textbook



9.3 years

Implementation

Key Terms

- **Implementation Science** is the study of methods to promote the **integration of research findings and evidence** into healthcare **policy and practice**.
- **Implementation research** is the scientific study of the **use of strategies to adopt and integrate evidence-based health interventions** into clinical and community settings in order to improve outcomes and benefit population health.

We assume... “If you build it...”



An Evidence-Based Program

Is only so good as how and whether...

- It is adopted?
- Providers are trained to deliver it?
- Trained providers deliver it?
- Eligible beneficiaries actually receive it?

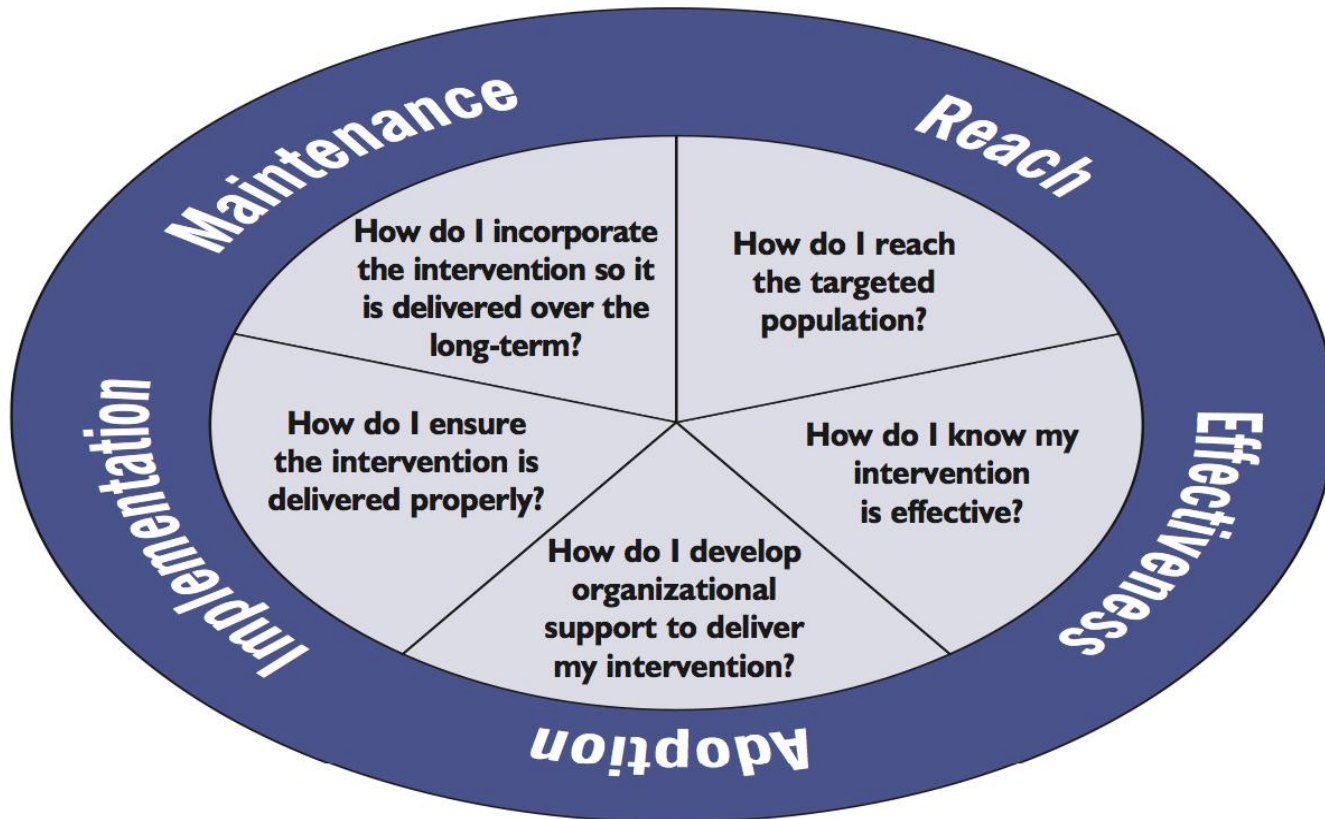
If we assume 50% threshold for each step...
(even w/perfect access/adherence/dosage/maintenance)

Impact: $.5 * .5 * .5 * .5 = 6\%$ benefit

“voltage drop”

Beyond efficacy/effectiveness

FIGURE 1. Elements of the RE-AIM Framework



Selected Priority Areas for NIH program announcements

- Studies of the **local adaptation** of evidence-based practices in the context of implementation
- Longitudinal and follow-up studies on the factors that contribute to the **sustainability** of evidence-based interventions
- **Scaling up** health care interventions across health plans, systems, and networks
- **De-Implementation** of ineffective or suboptimal care

Core Issues and IS Questions

- What works for whom, under what conditions?
- What incentives, training, supervision and ongoing professional development are needed in lay worker-delivered models
- How to maintain and improve quality?
- Cost and cost effectiveness?
- Dose and timing?
- Capacity building for handover to local govt. and partners



The Takeaway

- **Imperative to develop the evidence base on:**
 - INTEGRATED Interventions for children and families at risk of poor developmental outcomes
 - Those that are high-quality yet scalable in LMICs
- Addressing child development and nutrition in LMICs **cannot wait for the typical research cycles:** implementation science (IS) questions must be pursued NOW
- **Big Questions: Quality, incentives, cost and structures for training and supervision**
- **Building local capacity**
- Collaboration with major development actors and governments; **Sustainability**

Thank you!



12 Feb 2016

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Questions for Discussion

- **What explains the gap** between what we know from the science of adversity **and the quality and nature of nutrition and ECD programs as implemented in LMICs?**
- **What elements of implementation science (IS)** are critical to advancing the science of promoting well being among vulnerable children, youth and families in LMICs?
- Are our **metrics** for cost and impact of child and family intx **adequate?**