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**
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


Impact of AIDS on child mortality 2002-2005

- No armed conflict
- Major armed conflict
- 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

Qualitative data informs assessment and intervention

1. Identify important constructs relevant to the context (qualitative inquiry on parenting, MH, etc.)
2. Use qualitative data to select, adapt, and create measures and interventions; conduct validity study
3. Implement culturally relevant intervention; evaluate with rigorous designs: IMPLEMENTATION SCIENCE!

Apply lessons learned to new settings and intervention adaptations
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.
Project Team

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Harvard Center on the Developing Child
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
Stunting in Rwanda is among the highest in Sub-Saharan Africa

- 30 SSA countries with ~ recent DHS
- Rwanda among the highest stunting rates (BDI, ETH, MAD, MWI)
- Also among the poorest
- Strong negative correlation between income levels and stunting
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

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

Slide credit: World Bank Lusaka workshop, 2015
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”


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)

Community & Societal
Ubufasha abaturage batanga
(collective social support)

Family
Kwizerana
(family trust)
Uburere bwiza
(good parenting)

Individual
Kwihangana
(perseverance)
Kwigirira ikizere
(self esteem/self acceptance)
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


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,²³ 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

Photo courtesy of Laurie Wen

- 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)** and 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.
Poor families with children ages 6-36 months enrolled in Rwanda’s Social Protection Programs

Risk Factors

- Misinformation about Children’s Development Needs
- Limited Stimulation & Learning Opportunities
- Lack of Future Orientation and Planning
- Family Social and Economic Stress
- Risk of Child Maltreatment

Sugira Muryango Components

- Understanding Child Development, Nutrition, Health, & Hygiene
- Coaching in Responsive Parenting
- Promoting Resilience/Protective Processes Through the Family Narrative
- Building Problem-Solving Skills and Resource Navigation
- Positive Parenting emotion regulation

Outcomes

- Improved Parenting Practices, Reduced Child Maltreatment, and Improvements in Overall Children’s Development
It takes 17 years to turn 14 percent of original research to the benefit of patient care.
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: \(0.5 \times 0.5 \times 0.5 \times 0.5 = 6\%\) benefit

“voltage drop”

Adapted from Glasgow, RE-AIM
Beyond efficacy/effectiveness

**Figure 1. Elements of the RE-AIM Framework**

- **Maintenance**: How do I incorporate the intervention so it is delivered over the long-term?
- **Reach**: How do I reach the targeted population?
- **Adoption**: How do I ensure the intervention is delivered properly?
- **Implementation**: How do I develop organizational support to deliver my intervention?
- **Effectiveness**: How do I know my intervention is effective?
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!

- Feasibility pilot phase with community-based volunteers
- Simplification of Training and Support Materials
- Implementation Research for delivery along expanded VUP program piloting
- Impact Evaluation (Cluster Randomized Trial)

Evidence Base

Baseline 2017
Post Assessment 2018
End line 2019

Tremendous opportunity as the government scales expands ECD initiatives and its flagship poverty reduction program (Vision Umurenge Program)


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?