

# WELCOME

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# **Building the Human Capital of Tomorrow: An Impact Evaluation of the Early Childhood Stimulation Program in Bangladesh**

**Presented by**

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**Contexts**

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# Bangladesh context

- Recent success in improving education and health indicators
- Social indicators have improved and accelerated by economic growth.
- ECCD still a challenge
  - High malnutrition
    - 36% are stunted and 33% are underweight\*
- Cognitive development
  - 21% aged 36 to 59 months reach literacy and numeracy milestones
  - Poor and children born to uneducated mothers have a negative developmental trajectory

Source: BDHS 2014\*

# Early Childhood Stimulation (ECS) Program in Bangladesh

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## Goal of the Program

Promote positive early stimulation practices among mothers or caregivers of children ages 0–3 years.

# Early Childhood Stimulation ( ECS) Program in Bangladesh

## Program Development Progression

**2011**

Mother Focused Early Childhood Stimulation Program Piloted in Meherpur following community and institutional model



**2012**

Father Focused Early Childhood Stimulation Program Piloted in Meherpur following community model by using technology



**2013-2015**

Scale up of Mother Focused Early Childhood Stimulation Program Implemented in diverse geographical locations with larger population following institutional model



# Early Childhood Stimulation (ECS) Program in Bangladesh

## Implementing Partners:

- Govt. National Nutrition Services & Community Clinic Project (RCHCIB) under the Ministry of Health and Family Welfare (MOHFW)
- Save the Children projects under Health and Education Sector:
  - i) Tackling Childhood Malnutrition &
  - ii) Early Childhood Stimulation Program

**Evaluation Partner:** American Institute for Research (AIR)

**Technical Partner for BAILEY:** icddr,b

**Evaluation Funding Partner:** Strategic Impact Evaluation Fund (SIEF), World Bank

# Early Childhood Stimulation (ECS) Program in Bangladesh

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- Added an early stimulation component to an existing service infrastructure: Community Clinics and frontline service providers
- Integrated with National Nutrition Services (NNS), by adding additional training on ECS
- Combined messages delivered during routine home visits, Community Clinic visits, and immunization events, and engagement of community groups
- Did not offer additional incentives (monetary or in-kind) to frontline service providers; Did not have supervision power over service providers

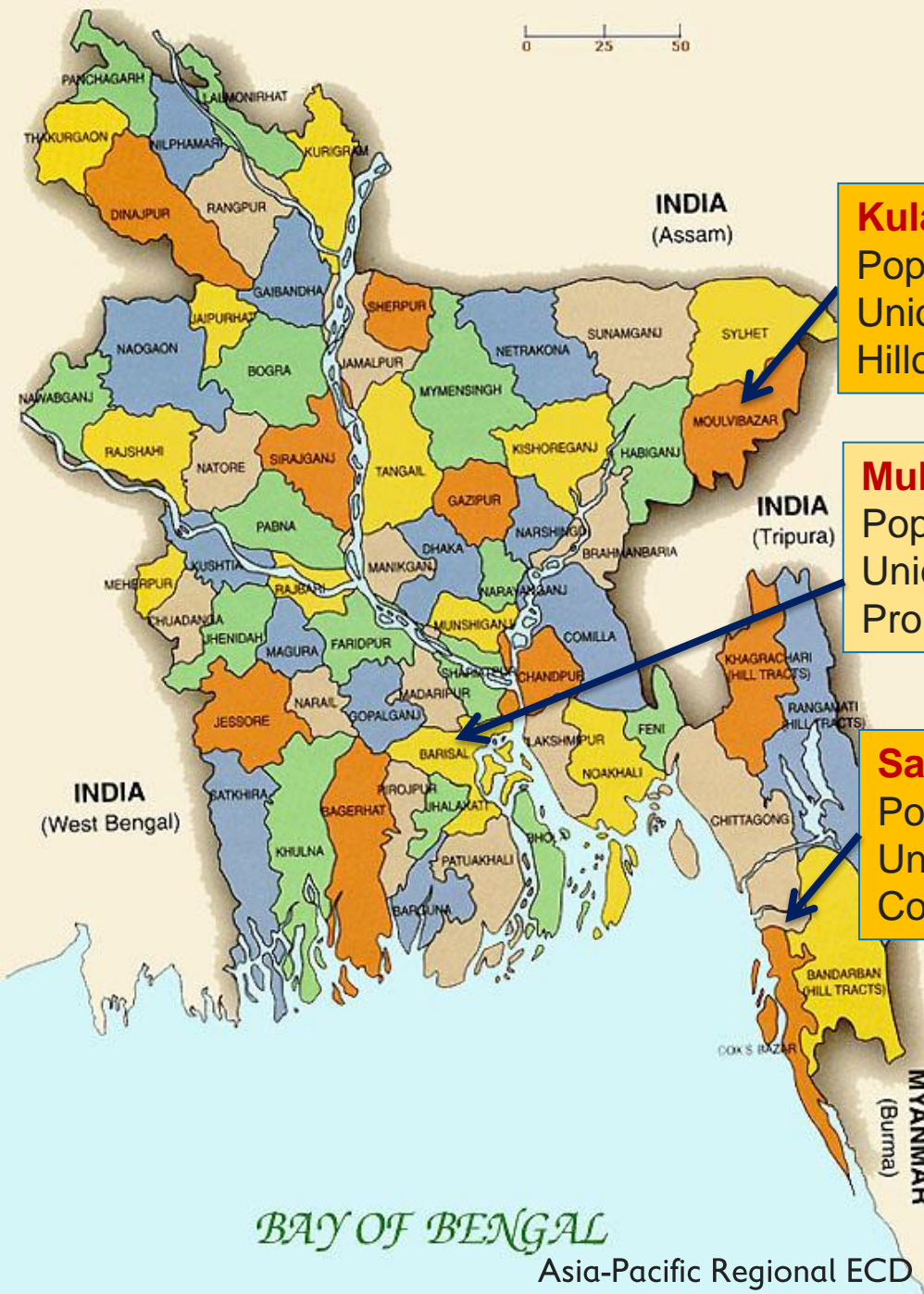




# Early Childhood Stimulation Program Delivery Mechanism



# Program Areas



**Kulaura, Maulvibazar**  
Pop: 360000  
Union: 13  
Hillocks

**Muladi, Barisal**  
Pop: 175000  
Union: 7  
Prone to river-erosion

**Satkania, Chittagong**  
Pop: 385000  
Union: 17  
Coastal Belt

- Selection Criteria:
1. Implementing NNS
  2. Low presence of other actors
  3. Geographically distinct to maximize use of learning nationally

*BAY OF BENGAL*

# Evaluation Design

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# Evaluation Design

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- Theory-based, mixed-methods, cluster-randomized control trial (RCT)
- Randomized 78 community clinics and their catchment areas to treatment and control conditions; stratified by Union (30 unions)
- Randomly sample 33 children/households from each community clinic's catchment area, totaling 2574



# Research questions

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1. What is the impact of the ECS Program (delivered with the NNS) on children's cognitive and language development outcomes?
2. What is the impact of the ECS Program (delivered with the NNS) on children's anthropometric outcomes?
3. What is the impact of the ECS Program on mothers' knowledge and parenting behaviors?
4. What are the benefits of the ECS Program relative to the program's cost?



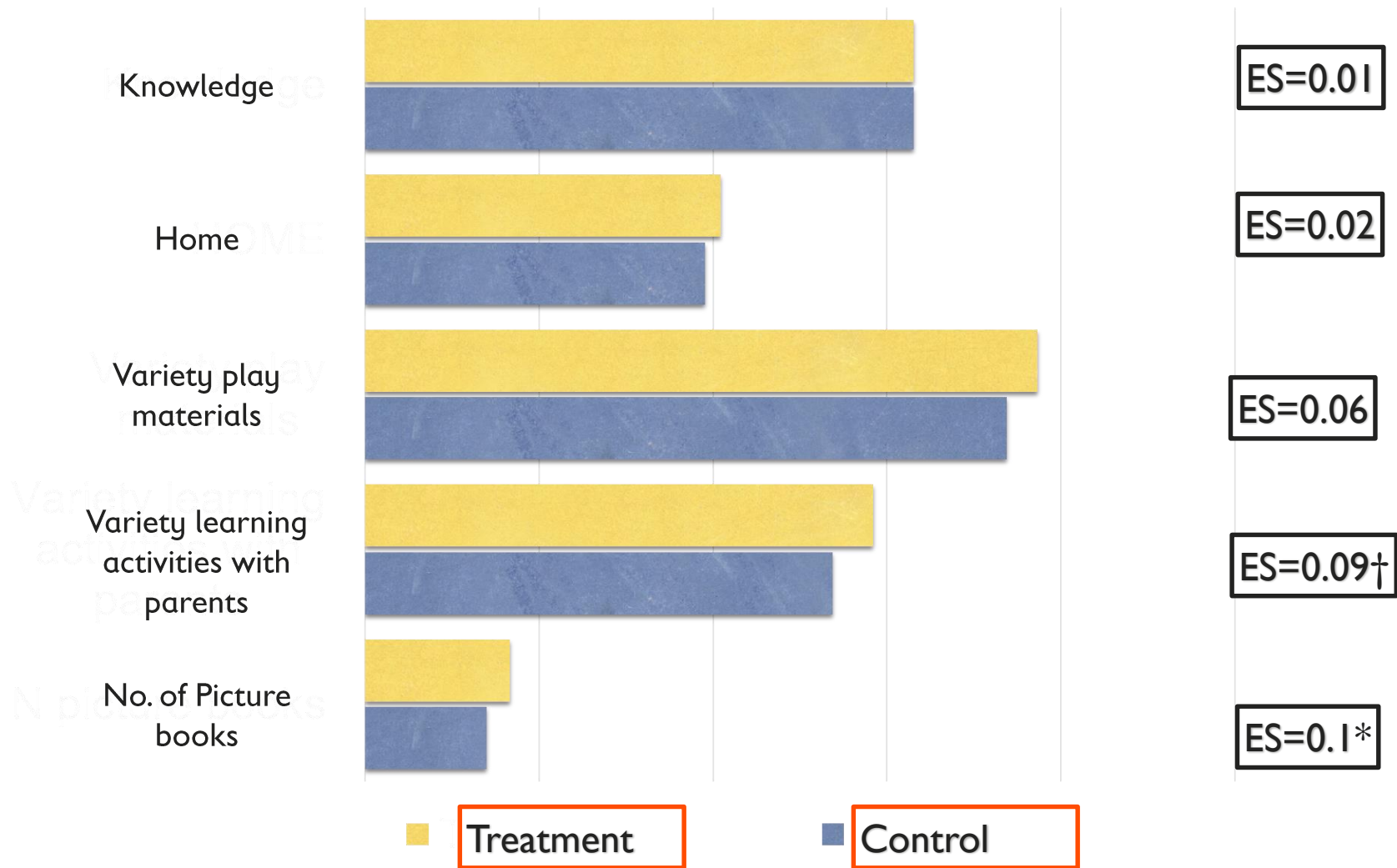
# Design: Treatment and Control Groups

Treatment Group	Control Group
National Nutrition Service program (NNS) + Early Childhood Stimulation (ECS) Program	National Nutrition Service program (NNS)
	
39 community clinics 1287 households with children 0-3 years old	39 community clinics 1287 households with children 0-3 years old

# Results

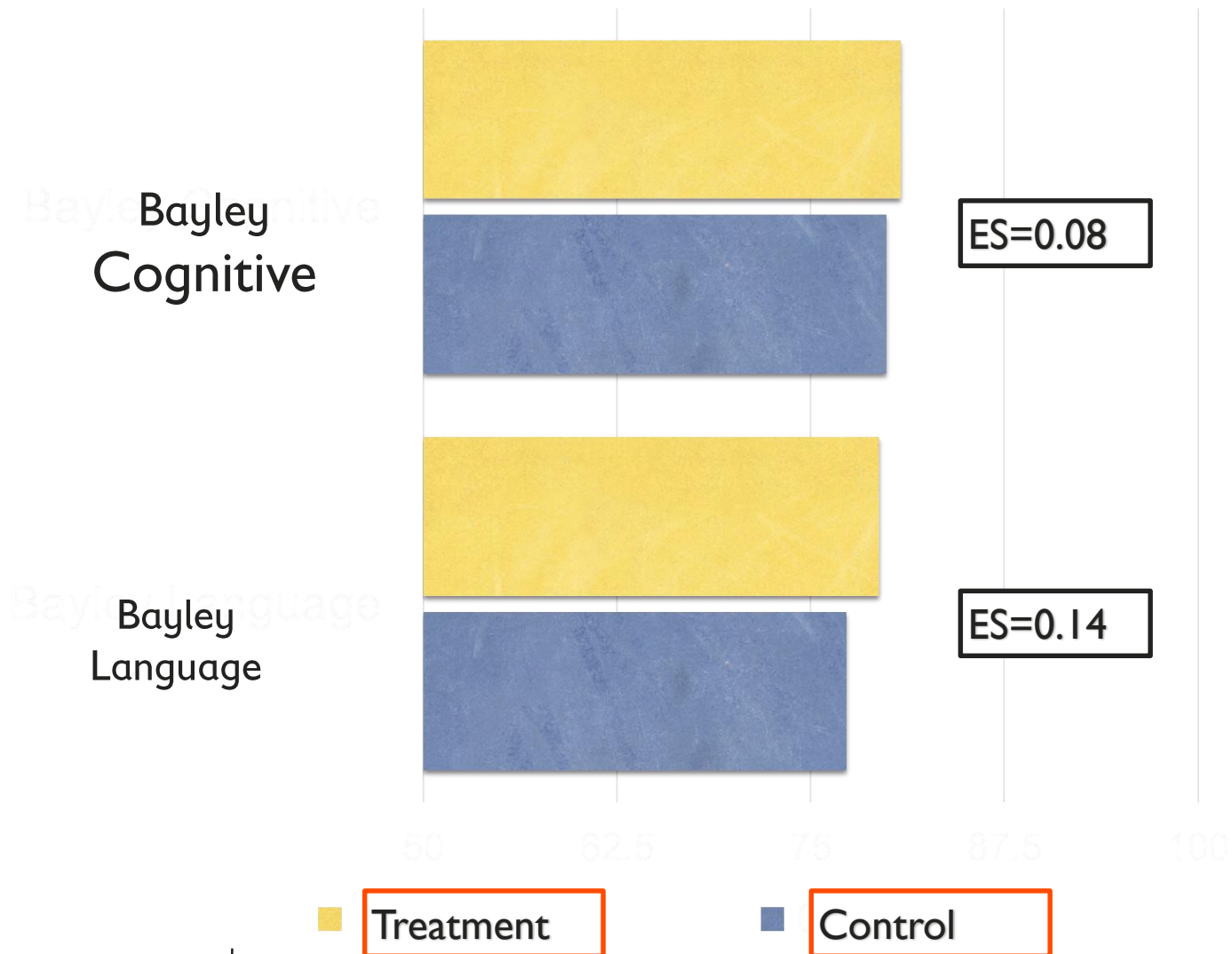
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# Impacts on intermediate outcomes

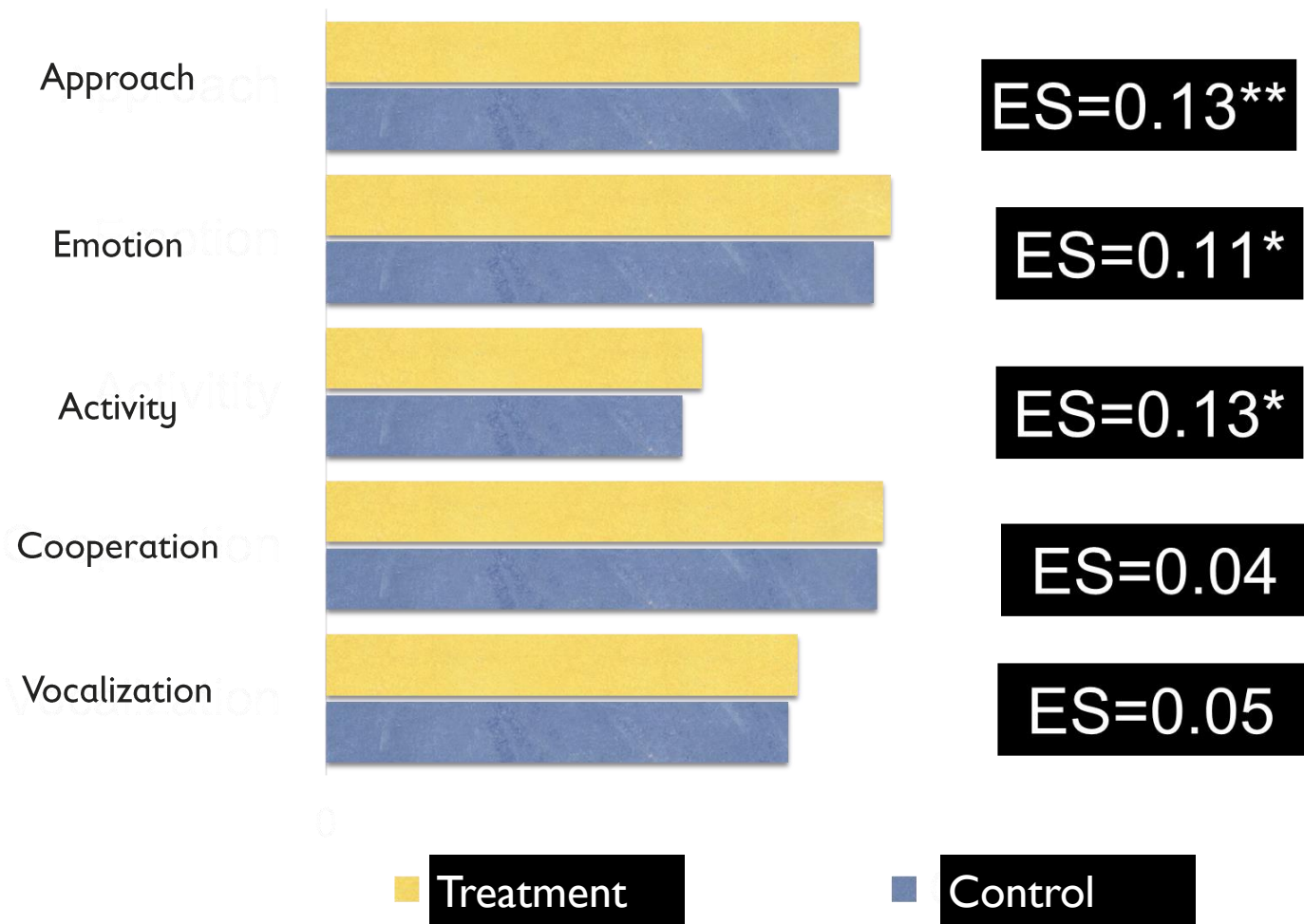




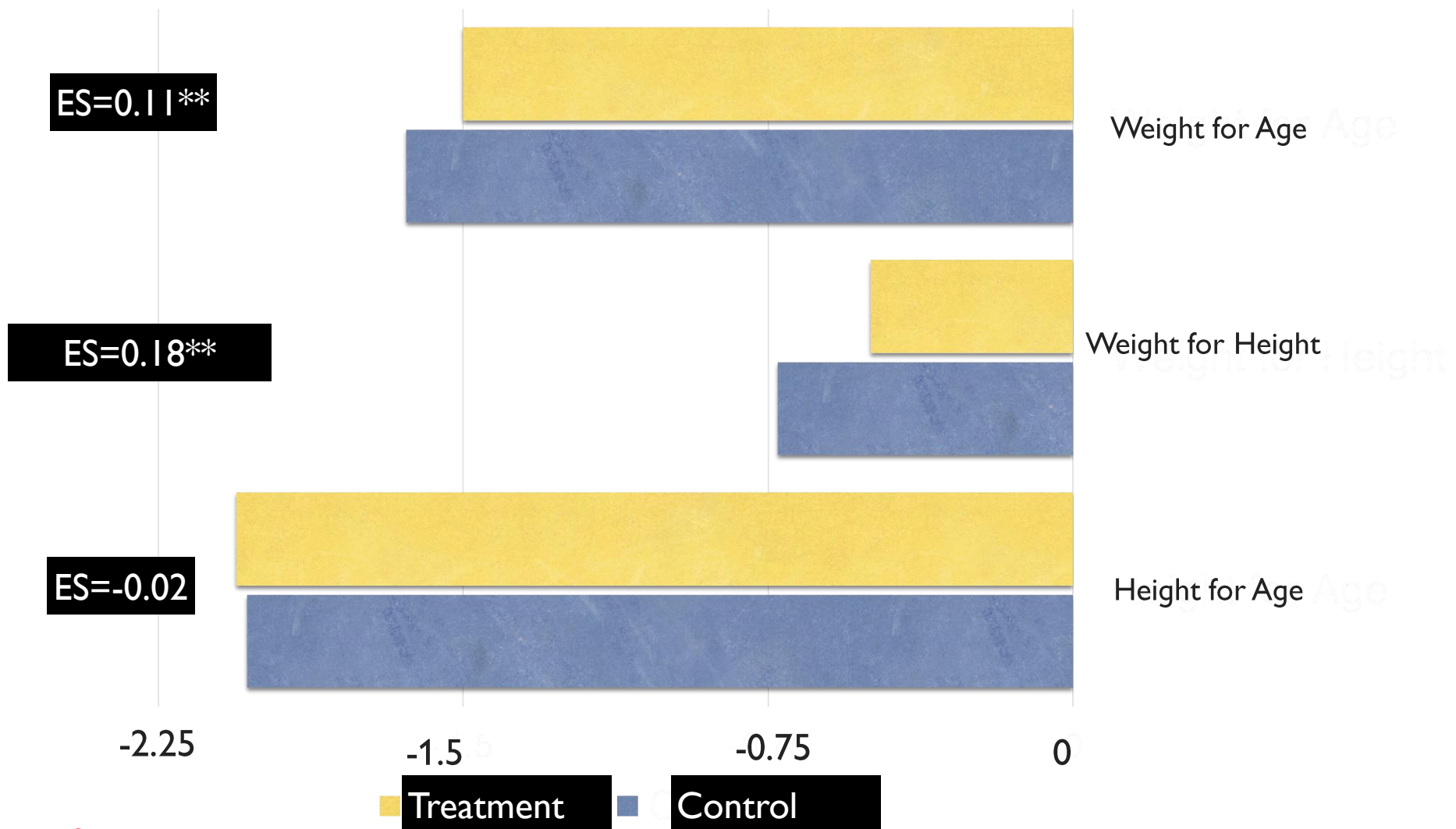
# Child development outcomes



# Wolke behavioral rating scale



# Impacts on nutritional outcomes



# Impacts on NNS

Had growth monitoring card



ES=0.21\*\*

No. of growth monitoring check-ups



ES=0.20\*\*

Control Treatment

# **Framing of Results towards Policy and Programming**

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# Uptake of intervention

## Larger impacts of ECS were found for the following groups:

- **Girls:** Linguistic and behavioral skills, and anthropometric development marginally larger for girls
- **Younger children:** Impacts were generally larger among younger children (28-34 months old)
- **Poor:** Impacts on anthropometric outcomes were larger among the poor
- **Less educated mothers:** Impacts on anthropometric outcomes were larger among the children of less educated mothers
- **Closer to the clinics:** Impacts were generally larger for the children living closer to the clinics.



- **The ECS program, as it was implemented, proved to be cost effective.**
- **The program cost per beneficiary child was US\$ 6.84 for 1.5 years of implementation.**
  - 18,644 children took up the interventions of the ECS program.
  - The program cost per clinic is \$3,270.
  - This calculation does not include the cost of community clinics.
- **The effect size per US\$100 spent on a child is internationally comparable or even higher depending on the outcomes area.**



# Policy/program implications

- Possible to integrate nutrition programs and early childhood stimulation programs in cost-effective ways
- The add-on ECS program enhanced uptake of NNS rather than competing with the program
- Service delivery structure is already established nationwide
- Relatively limited costs would be required for roll out
- This evaluation shows how experimenting on nutrition programs like the NNS has the potential to improve child outcomes and effectiveness of ECD programs



# Policy/program implications

## ECD Program Integrations with Nutrition:

- Policy dialogue and expert and stakeholder consultation to design next course of action – GoB to take lead
- MOH&FW includes ECS in the Essential Service Package (ESP)
- Develop necessary operational mechanisms – training, job-description, supervision, SBCC, community engagement
- Include in the 4<sup>th</sup> HNP sector program being designed. Phased scale up
- MOWCA, MOPME and MOLGRD should explore opportunities to introduce and scale up ECD
- GO-NGO complementary partnership approach



# Policy/program implications

## Future Research Agenda:

More research is needed to identify ways to increase take up by families and to create worker incentives to increase program reach and quality:

- Policy research for better sub-sector governance and institutional arrangements
- Component specific efficacy and effectiveness
- Nation-wide ECD status
- Integration of ECD with existing program platforms



Research Information

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Save the Children, Bangladesh



# THANK YOU



# Successful randomization and minimal attrition (3%)

## Baseline Results

Covariates	Control	Treatment
Children Characteristics		
Age in months	11.81	11.34
Gender (Female)	0.49	0.47
Household Characteristics		
Single parent household	0.17	0.17
Percent Muslim	0.85	0.87
Mother education (years)	6.60	6.62
Mother age (years)	25.70	25.74
Mother employed	0.06	0.05
Household size (persons)	5.94	6.04
Percent with mother-in-law in the household	0.43	0.42

# Equivalent on impact outcomes

## Baseline Results

Outcome measures	Control	Treatment	Diff p-value	Diff ES
<b>Child development outcomes</b>				
Cognitive (composite score)	97.96	99.14	0.430	0.08
Language (composite score)	94.51	96.07	0.290	0.10
<b>Nutrition outcomes</b>				
Weight for age (z-score)	-0.993	-0.956	0.537	0.03
Weight for height (z-score)	-0.356	-0.328	0.660	0.022
Height for age (z-score)	-1.377	-1.329	0.472	0.039
Percent underweight	0.199	0.186	0.449	-0.032
Percent wasted	0.067	0.069	0.844	0.008
Percent stunted	0.287	0.272	0.537	-0.033

# Longitudinal design and analysis

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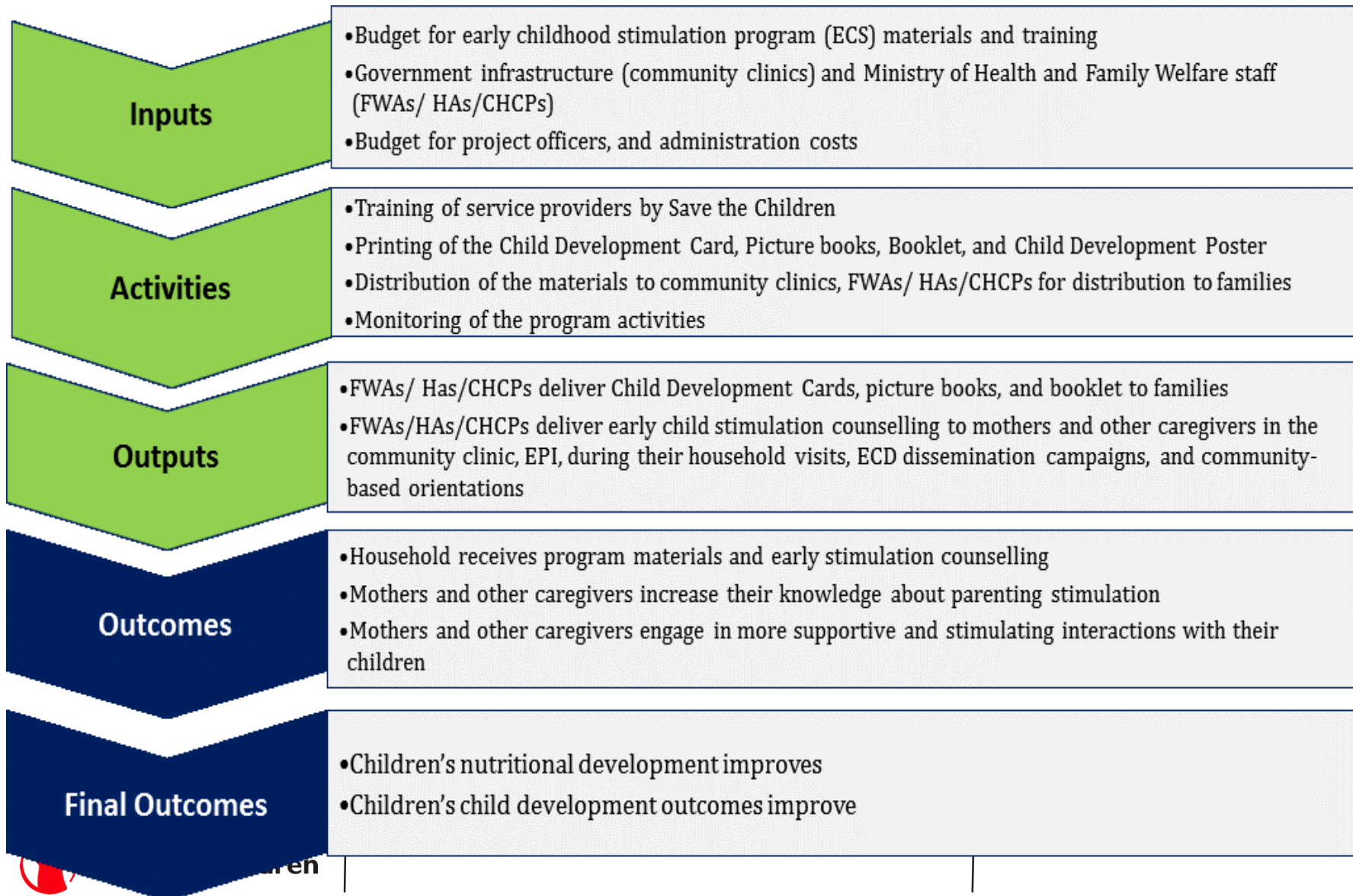
**Baseline (Nov 2013-Jan 2014) & Endline (Sep-Dec 2015):  
20 months apart on average; Monitoring data (6  
rounds, 2014 & 2015)**

**Intent-to-treat (ITT): estimates the impact between the  
HHs assigned to the treatment group and the HHs  
assigned to the control group**

**Treatment-on-the-treated (TOT): estimates the impact  
between the HHs that actually receive the  
treatment and the control group**

**Clustered standard errors; 4 model specifications**

# Theory of change





# Outcomes indicators

1. Program	2. Outcomes	3. Impact outcomes
<p><b>Implementation:</b> Training, Delivery, Exposure, Take up, Challenges</p> <p><b>Program Cost data</b></p>	<p><b>Intermediate outcomes:</b> Parenting Knowledge Parenting behavior Home environment scale (HOME)</p> <p><b>NNS outcomes:</b> Take up of NNS Feeding practices Health practices Hand washing practices</p> <p><b>Secondary outcomes:</b> Responsive feeding Mother's depression</p>	<p><b>Child development:</b> cognitive &amp; language (Bayley test) Wolke behavioral rating scale</p> <p><b>Nutrition:</b> Anthropometric measures (WAZ, WHZ, HAZ)</p>

**Other covariates:**

Families, Socioeconomic characteristics, family composition, distance to community health center, etc.