Impact of Enhanced Nutrition Program on Child Growth and Diet in India

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Context

- **Prevalence**
  - 60 million children underweight
  - 46% stunted
  - Inter-state variation

- **India’s Policy Response**
  - Integrated Child Development Services (ICDS)
  - Anganwadi Centers

Supplemental Nutrition Program

- Children receive food in ready-to-eat form, hot-meal cooked at the AWC, or as a take-home ration
- Food centrally procured from public or private vendors at the national or state level
Problems

- Irregularities in the food supply
- Leakage to non-targeted individuals
- Lack of awareness among the mothers about the food or eligibility of their children
- Failure of the AWW to contact the mother when food is available
Objective

Assess the effect of an enhanced supplemental nutrition program on growth and dietary outcomes among 6-36 months children
Program Enhancement

- **Usual Program Group**
  - Centrally procured Baby Mix

- **Enhanced Nutrition Program Group**
  - Locally prepared Baby Mix
  - Anuka (Multiple Micronutrient Supplement)
  - Monitoring

**HOME BASED MULTIPLE MICRONUTRIENT FORTIFICATION**
- Anuka - Single dose sachet – easily sprinkled on any food prepared at household

**WEEKLY DEMONSTRATION AND COUNSELING ON COMPLEMENTARY FEEDING AT AWC**
- Distribution and monitoring of use of Baby mix and Anuka

**ANUKA - 0.5 gram**
- Vitamin ‘A’ 300 MCG
- Iron 12 MG
- Folic Acid 30 MCG
- Vitamin ‘C’ 40 MG
- Zink 5 MG
- Dextrose Carrier
Quantitative Study Methods

- **Study Design**
  - Quasi-experimental pre-post test design

- **Sample**
  - 30 villages (N = 1190)
    - 15 villages from one block in the enhanced program
    - 15 villages from another block in the usual program

- **Measures**
  - Height and Weight (6-36 months children)
  - 24-hour Dietary Recall (6-18 months children)
Analyses

- Multi-level Linear Regression
  - change over time between the groups
  - accounted for village-level variation

- Growth Outcomes
  - HAZ, WAZ, and WHZ
  - control variables - age, initial Z score

- Dietary Outcomes
  - Energy, Protein, and Iron
  - control variables - age, initial nutrient intake, and breastfeeding status
Qualitative Study Methods

- Site Visit

- Interviews with key personnel
  - Project Officer at UNICEF
  - Child Development Project Officer (ICDS)
  - Anganwadi Workers
  - Mothers
Results – Growth Outcome

Change in Height-Age-Z Score

* p<0.05

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<tr>
<th>Age in Months</th>
<th>Difference: Enhanced-Usual (SD)</th>
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<td>6-8</td>
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Results - Growth Outcome

Change in Weight-Age-Z Score

Difference: Enhanced-Usual (SD)

* p<0.05

Age in Months

6-8 9-11 12-18 19-25 26-31 32-36
Results - Growth Outcome

Change in Weight-Height-Z Score

*p<0.05

Difference: Enhanced-Usual (SD)

Age in Months

6-8  9-11  12-18  19-25  26-31  32-36
Results - Dietary Outcome

Change in Energy Intake

Difference: Enhanced-Usual (kcal/d)

Age in Months

*\( p<0.05 \)
Qualitative Study Results

- Decentralization of Baby Mix
  - Central procurement vs. local preparation
  - Quality of the product
  - Acceptability

- Training
  - Counseling skills
  - Demonstration of administration of the supplement with the Baby Mix
Qualitative Study Results

- Monitoring
  - Record Maintenance
  - Increased visits
  - Adequate Staff
Conclusions

- Program enhancement benefited children

- Plausibility of benefit is supported by qualitative study results

- Observed outcomes can be attributed to:
  - local preparation of Baby Mix
  - training and monitoring
  - use of micronutrient supplement
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