Home- and Community-Based Interventions to Improve Child Growth and Development in Zambia

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Overview of:


Home-Based Growth Charts

- Inexpensive and easy-to-use growth charts installed in homes
- Locally developed and pilot tested different versions
- Separate poster for boys and for girls

*Fink et al. (2017)
Study Design

- Cluster-randomized trial
- Two treatment arms:
  1. Growth charts
  2. Community meetings with growth monitoring
- Children 6-18 months at enrollment
- Intervention period 1 year
- Primary outcomes:
  - Height-for-age z-score
  - Stunting

*Fink et al. (2017)*
Key Results

- After one year, significant reduction in stunting among children stunted at baseline

### Prevalence of stunting at endline (among children stunted at baseline)

<table>
<thead>
<tr>
<th>Percentage of Children Stunted</th>
<th>Comparison Group</th>
<th>Community Monitoring</th>
<th>Growth Charts</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>94</td>
<td>87</td>
<td>72*</td>
</tr>
</tbody>
</table>

*statistically significant at the p < 0.05 level

- Low cost
- Highly cost-effective

### Return on Investment: Returning One Stunted Child to Normal Growth Using Growth Charts

- Cost per case of stunting averted (among children previously stunted) = $157.72
- Impact (increased earnings over one child’s lifetime) = $2,546.14

Community-Based Parenting Groups

- Fortnightly group meetings
- Train-the-trainer model with group selected ‘head mother’
- Each meeting focused on different aspect of parenting:
  - Cognitive stimulation and play practices
  - Child nutrition and cooking practices
  - Self-care for good mental health

*Rockers et al. (2018)*
Study Design

- Cluster-randomized trial
- Children 6-12 months at enrollment
- Initially funded for one year; extended to second year with additional funding
- Primary outcomes:
  - Height-for-age z-score
  - Stunting
  - Bayley Scale for Infant and Toddler Development, Third Edition

*Rockers et al. (2018)
Key Results

- Improved linear growth and reduced stunting

<table>
<thead>
<tr>
<th>BSID-III z-scores</th>
<th>Adjusted β (95% CI)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition</td>
<td>0.11 (-0.06, 0.29)</td>
<td>0.196</td>
</tr>
<tr>
<td>Language</td>
<td>0.14 (0.01, 0.27)</td>
<td>0.039</td>
</tr>
<tr>
<td>Motor</td>
<td>-0.01 (-0.25, 0.24)</td>
<td>0.964</td>
</tr>
<tr>
<td>Adaptive behavior</td>
<td>0.21 (-0.03, 0.44)</td>
<td>0.088</td>
</tr>
<tr>
<td>Social-emotional</td>
<td>0.20 (-0.04, 0.44)</td>
<td>0.098</td>
</tr>
</tbody>
</table>

Notes: β estimates for all BSID-III z-scores are equivalent to Cohen’s d values. All standard errors are adjusted to account for clustering.

*Rockers et al. (2018)*
Ongoing Project with CHWs in South Africa

- Developed a job aid to guide CHW monthly home visits with age-specific information on:
  - Child health/infection
  - Child nutrition
  - Developmental milestones
  - Psychosocial stimulation activities

- Ongoing cluster-randomized controlled trial with 1,092 caregiver-child pairs and 490 CHWs in Mopani District, Limpopo Province
  - Enrolment at birth; endline at 24 months
  - CHWs attend training every 6 months
Measurement of Neurocognitive Development

• Subsample of 300 children invited to attend centrally located project lab at 7, 15, and 24 months old

• Assessed using
  o Electroencephalogram (EEG)
  o Eye-tracking