

# Promoting Care for Child Development in Community Health Services

## **A Summary of the Pakistan Early Child Development Scale-up (PEDS) Trial**

Main findings, delivery strengths  
and the path forward

*For programme staff and decision makers*

# Acknowledgements

This summary report is based on the three technical reports on outcomes, process and cost-effectiveness that were produced following the Pakistan Early Child Development Scale-up (PEDS) Trial.\* The trial was implemented by a research team from the Aga Khan University in Karachi, Pakistan in partnership with the Lady Health Worker Programme. The team, led by Aisha K Yousafzai and Zulfiqar A Bhutta, include Robert Armstrong, Saima Gowani, Amjad Hussain, Javed Memon, Muneera A Rasheed, Arjumand Rizvi, Saima Siyal and Ghurnata Tabassum. The team gratefully acknowledge UNICEF Pakistan Country Office, UNICEF Regional Office for South Asia and UNICEF New York Headquarters for funding this research and providing valuable support throughout the duration of the project. Special thanks to Anastasia Warpinski, who drafted the report.

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# Care for Child Development in Pakistan: Key Messages

- The integration of the Care for Child Development intervention into community health services in southern Pakistan was feasible, and was accepted by the community.
- The three interventions of the PEDS Trial (stand-alone Care for Child Development, stand-alone Enhanced Nutrition, and Combined Care for Child Development and Enhanced Nutrition) were evaluated on a range of outcomes.
- **The Care for Child Development intervention** had significantly greater results than other interventions in several areas:
  - Better cognitive, language and motor development outcomes at 12 and 24 months of age compared with the control group and with greater effect size than the stand-alone Enhanced Nutrition intervention.
  - Increased support for maternal psychosocial wellbeing.
  - Better quality of the home environment for child rearing.
  - Higher-quality mother-child interaction.
  - Increased knowledge and practices pertaining to care for health, feeding and development.
- **The Enhanced Nutrition intervention** had a significant effect on the following:
  - Improved child cognition, language and motor development at 12 months and 24 months compared with the control group, but with a lower effect size compared with the Care for Child Development intervention.
  - Better length-for-age at 6 months of age compared with the control group.
  - Improved haemoglobin status at 24 months of age.
  - Improved knowledge and practice pertaining to care for feeding and health.
- **The Combined Care for Child Development and Enhanced Nutrition** intervention had a significant effect on the greatest range of outcomes combining benefits of both stand-alone interventions.
- Group delivery strategies combined with home visits enables Lady Health Workers to reach a greater proportion of the community. Smaller group sessions (approximately 10 mothers with their children) were more manageable. The strengths of group sessions included peer-to-peer learning, as well as social interaction that helped mothers cope with everyday stress. The group sessions helped to create a demand for community-based ECD services.



- Integration of Care for Child Development into the Lady Health Workers' routine community health services did not compromise their delivery of these baseline services. In fact, supportive supervision strategies and refresher trainings linking new messages with existing ones may have enhanced delivery of routine services.
- Use of supportive supervision, on-the-job training and mentoring and modelling were among the crucial factors of the success of the Care for Child Development intervention.
- To optimize outcomes for young children, further attention is needed to improve nutrition care including strengthening the continuum from preconception care, prenatal care and infancy to early childhood.







The Pakistan Early Development Scale-up (PEDS) Trial was implemented in Naushero Feroze district in Sindh Province, Pakistan from June 2009 through March 2012.

Pakistan has high maternal, neonatal, infant and under-5 mortality rates, and high levels of stunting (42 per cent of children are stunted by 2 years of age). Recent research suggests that prevalence of maternal depression ranges from 25–28% per cent.<sup>1</sup> Overall, an estimated 8 million children are unlikely to meet their development potential in their first five years.<sup>2</sup>

The country's 'National Programme for Family Planning and Primary Healthcare' (commonly referred to as the 'Lady Health Worker' programme) was chosen as the pathway for carrying out the PEDS Trial. The Lady Health Worker Programme covers 60 per cent of the population and is central to delivering healthcare to disadvantaged communities across Pakistan, with a strong focus on women and children. This programme also reflects the reality of many developing countries: that children and their caregivers are much more likely to be in contact with a community health worker than to visit a primary or secondary health facility.





# The Pakistan Early Child Development Scale Up (PEDS) Trial

The PEDS Trial tested the effects on child development and growth of two intervention packages, Care for Child Development and Enhanced Nutrition, along with a third package that combined both interventions.

## Care for Child Development intervention

The Care for Child Development intervention was designed to support the young child's development through play and communication activities that help the child learn cognitive, motor, social and affective skills. The intervention includes home and group sessions designed to improve caregiver ability to respond to, communicate with, and play with their children.

The local adaptation for the PEDS Trial followed a baseline study to find out what families and health workers already knew and practiced so that the evidence-informed intervention could take full advantage of local best practices. The adapted package included: (1) a **play and communication guide**, with context-specific illustrations of play and communication activities (organized by age group) that were found to be acceptable and feasible; (2) **twelve group meeting topics**, each with an ice breaker and a brief list of key messages for discussion; (3) a **problem-solving checklist**, with commonly identified challenges related to care for child development and local solutions; (4) a **resource kit**, including a **sample play bag** for Lady Health Workers to use in group sessions (the bag included examples of household items and homemade toys); and (5) a **counseling checklist**, a reminder guide for Lady Health Workers to help them integrate new messages into their baseline services.

Lady Health Workers visited primary caregivers (typically the mother) in their homes once a month and provided guidance designed to enhance their awareness of their child's development processes and improve their ability to engage and stimulate their children. In each visit, caregivers tried out new activities with their young child using readily available items (e.g., cups for stacking) and received feedback from the Lady Health Worker on how to appropriately respond to her child's needs, wants, interests and abilities during play and within daily routines. Home visits and group sessions included dedicated time for caregivers and Lady Health Workers to solve problems together.

## Group meetings

Group meetings were open to all pregnant women and female caregivers, along with their infants and young children, in the stand-alone Care for Child Development and Combined interventions. A new parenting topic was discussed each month, followed by play and communication activities, with caregivers receiving feedback from the Lady Health Worker on how to improve the quality of their interactions with their children. Over time, this approach also supported increased peer-to-peer learning and problem solving. Group meeting topics:

- What is ECD?
- Making low-cost toys
- Helping mothers feel good and confident about providing early child care and development
- Children learn from birth
- Observing our children's development
- Understanding the importance of the special bond between mother and child
- What is responsive care?
- Providing a safe environment for our children to learn.
- Praise and discipline
- Care for feeding
- Helping mothers who feel too burdened or stressed
- Understanding the rights of our child

The Lady Health Workers offering the Care for Child Development intervention continued to provide the baseline Lady Health Worker services.<sup>3</sup>

## Enhanced Nutrition intervention

The Enhanced Nutrition intervention was designed to improve child growth, and evaluate the impact on child development of an enhanced nutrition intervention alone. The intervention focused on improving infant and young child feeding practices and responsive feeding skills through effective messaging and problem solving, along with the provision of Sprinkles<sup>4</sup> to children aged 6–24 months. To provide this service, Lady Health Workers received a nutrition education job aide, a counseling guide and a problem-solving checklist. Counseling provided during visits included problem-solving and practical support for mothers (e.g., observing feeding and providing guidance).

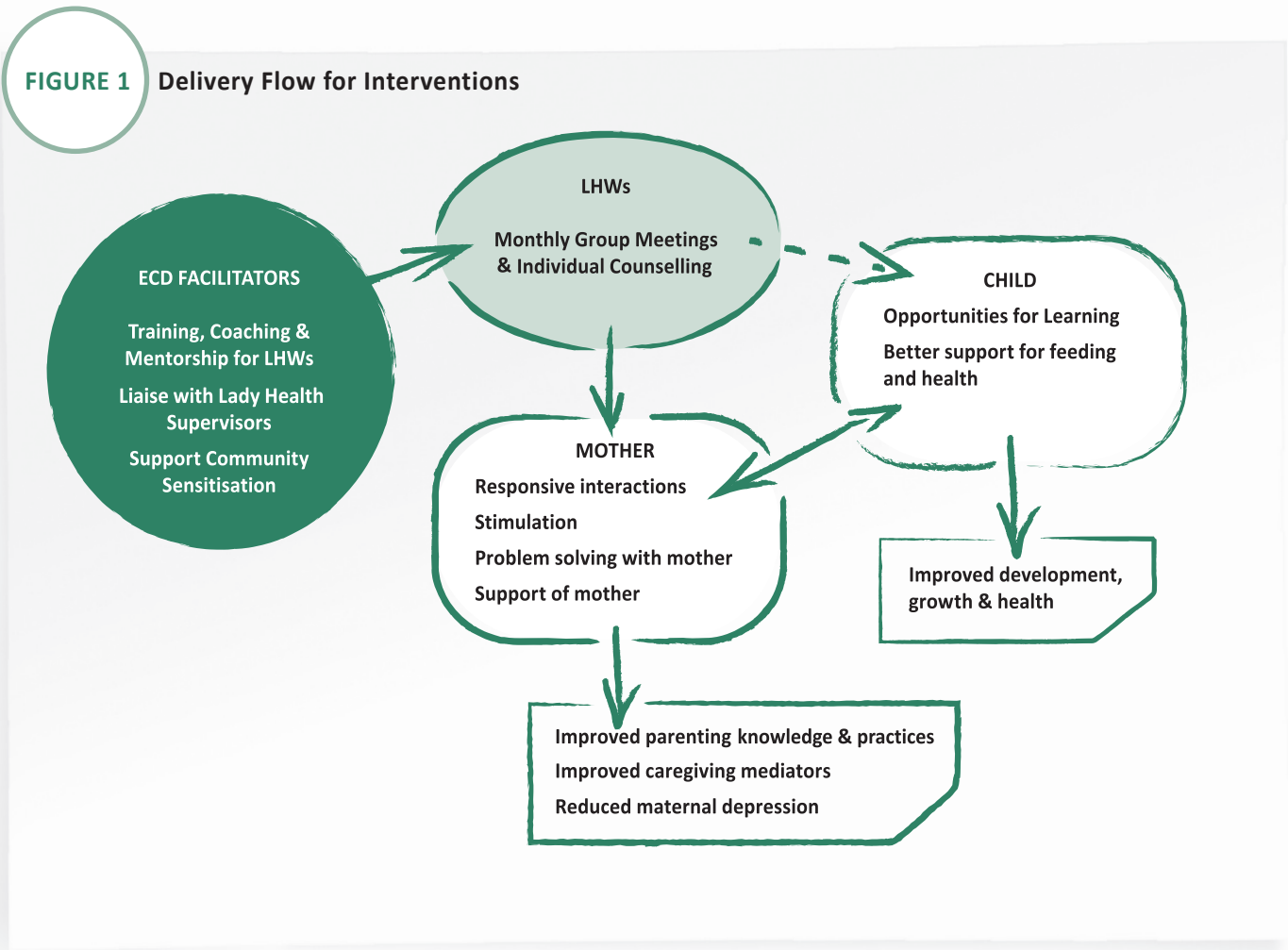
The intervention was delivered in routine monthly home visits, and the Lady Health Workers offering the Enhanced Nutrition intervention continued to provide baseline Lady Health Worker services.



**Combined Care for Child Development and Enhanced Nutrition intervention**

This intervention was designed to promote child development and growth by offering both the Care for Child Development and the Enhanced Nutrition interventions. The Lady Health Workers offering the Combined intervention continued to provide baseline Lady Health Worker services.

The delivery of the enriched interventions was supported by a team of ECD Facilitators who worked to support training, supervision and mentorship of the Lady Health Workers and the Lady Health Supervisors to support integration of interventions in the existing routine services.



## The Trial

The Trial was a cluster randomized controlled trial. Lady Health Workers delivered the interventions to all of the families with young children under 2 years old in their catchment areas, a total of 3,550 young children. To evaluate in-depth the impact of the interventions on child growth and development, four groups of children aged birth to 2.5 months were enrolled and followed to age 2 years, as follows: the Care for Child Development group (n=383), which received the Care for Child Development intervention; the Enhanced Nutrition group (n=364), which received the Enhanced Nutrition intervention; the combined Care for Child Development and Enhanced Nutrition group (n=374), which received both interventions; and a control group (n=368), which received the baseline Lady Health Worker services.<sup>5</sup>

## How outcomes were measured

The study team undertook in-depth assessments when enrolled children were 6, 12, 18 and 24 months old. A data collection team independently collected outcome data. Community-based child development assessors who had been trained by the study team collected the child development data.

**Child development** was measured at 12 and 24 months of age using the Bayley Scales of Infant and Toddler Development, Third Edition.<sup>6</sup> Four scales were used: the cognitive scale, the communication scale, the motor scale and the social-emotional scale. The tool's Behaviour Observation Inventory was also used. The MacArthur-Bates Communicative Development Inventories,<sup>7</sup> a widely used caregiver report on young children's vocabulary knowledge, was used when children were 24 months old to assess vocabulary comprehension and expression. Lastly, the Ten Questions Screen<sup>8</sup> was used when children were 24 months old to screen for impairments.

**Child growth and nutrition status** was measured by data collectors using multiple tools. Anthropometry (length/height, weight, mid-upper-arm circumference and head circumference) was taken at baseline (when each child was enrolled) and when children were 6, 12, 18 and 24 months old.<sup>9</sup> Data collectors sought information from caregiver reports on infant and young child feeding practices<sup>10</sup> and responsive feeding behaviours at baseline and at 6, 12, 18 and 24 months. Haemoglobin levels were assessed at 24 months of age via finger-prick assay. Information on household food security<sup>11</sup> was also collected when children were 24 months old.

**Child morbidity** information was collected by monthly caregiver reports to data collectors, including information on diarrhoeal diseases, acute respiratory illnesses (ARI) and fever. Verbal autopsy data was collected on any child deaths.

**Caregiving mediator** data including maternal psychological distress, home environment, mother-child interaction and caregiver knowledge and practices were collected periodically.

Maternal psychological distress was assessed when children were 6, 12, 18 and 24 months old using a self-reporting questionnaire. The questionnaire had been determined to be valid and reliable for assessing post-natal depression in the Pakistan context.<sup>12</sup>

At 6 and 18 months of age, children's home environment was evaluated using the Home Observation for the Measurement of Environment (HOME) Inventory, which was locally adapted.<sup>13</sup>



To assess mother-child interaction, the assessors used a picture-book activity to observe live five-minute interactions between mother and child when children were 12 and 24 months old. The assessors collected data on how sensitive and responsive mothers were during the interaction.

Data collectors also collected information on maternal knowledge, attitudes and practices (KAP) pertaining to child development through caregiver reports at baseline and when children were 12 and 24 months of age.





# Summary of Outcomes

The PEDS Trial resulted in the best evidence to date of the benefits to very young children of Care for Child Development and nutrition interventions.

## Effects on child development

At 12 months old, children in all three intervention groups had significantly greater cognitive, language, motor and social-emotional development scores compared to those in the control group. The Combined intervention group attained significantly better cognitive and language development scores than either group delivering Care for Child Development alone or Enhanced Nutrition alone.

### Children most at risk reap great benefits from Care for Child Development

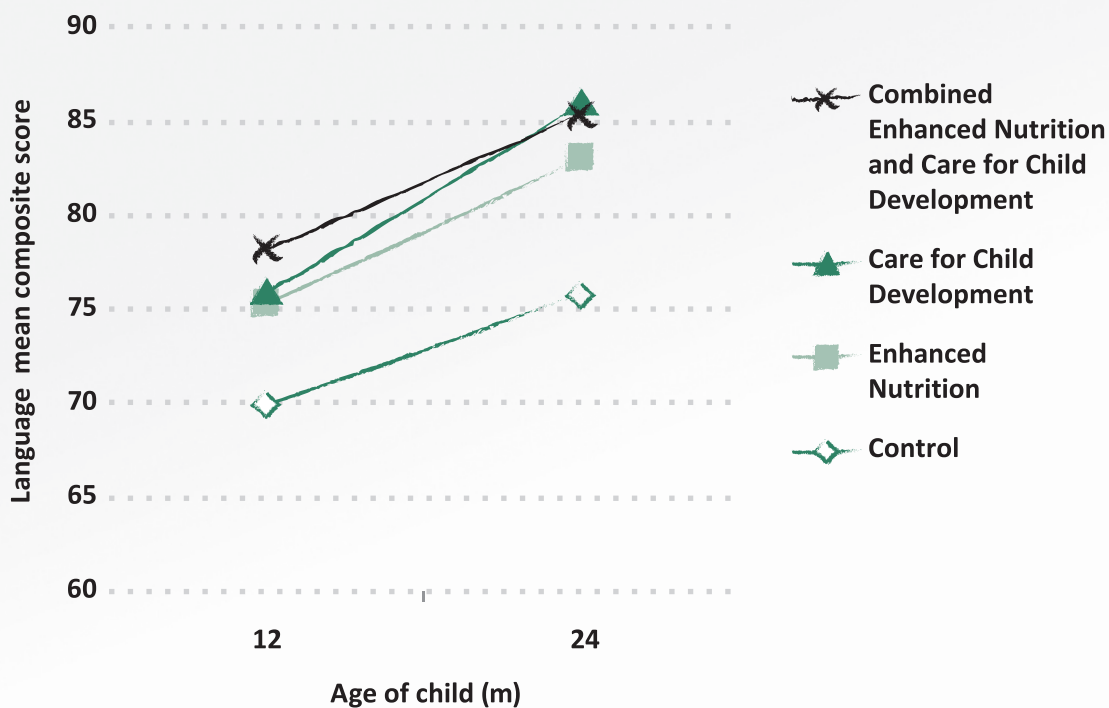
The developmental benefits of Care for Child Development for most-at-risk children in the study are one of the crucial findings of the PEDS Trial. Children most at risk are defined here as girls, children from the poorest households, children of mothers with no formal education, those of mothers with psychological distress, children who are stunted, and those from households with food insecurity. At 12 and 24 months of age, at-risk children exposed to the Care for Child Development intervention did significantly better than children with similar risks who didn't receive the intervention.

What's more, most-at-risk children exposed to the Care for Child Development intervention achieved developmental scores that exceeded the scores of children not considered to be at risk and who did not receive the Care for Child Development intervention.

In conclusion, the most-at-risk children benefit the most from Care for Child Development.

At 24 months old, children in all three intervention groups had significantly greater cognitive, language and motor development than those in the control group, but there were no significant differences between groups in social-emotional development. The Care for Child Development group and the Combined Care for Child Development and Enhanced Nutrition group had significantly better cognitive scores compared to the Enhanced Nutrition group alone, and the Care for Child Development group had significantly better language scores compared to the Enhanced Nutrition group alone.

**FIGURE 2** Language development of children at age 12m and 24m



Notes: Composite scores for language evaluated using the Bayley Scales of Infant and Toddler Development, Edition III

### KEY LESSON

**The integration of Care for Child Development benefits early child development outcomes at 12 and 24 months of age. This intervention can be delivered by Lady Health Workers in the community.**

## Effects on growth and nutritional status of young children

The prevalence of stunting, underweight and wasting was also measured when children were 6, 12, 18 and 24 months old. Overall, there was a better trend in length-for-age and weight-for-age in the Combined and Enhanced Nutrition groups at each time interval. However, significant differences in length-for-age were only observed at 6 months. Improved feeding practices and responsive feeding behavior trends were observed in all three intervention groups compared with the control group.

### KEY LESSON

**Better nutrition counseling improves the way children are fed because caregivers become more responsive. However, to impact more significantly on growth there needs to be greater focus on quality and quantity of complementary foods.**

**In addition, interventions for food-insecure households must be more targeted. There should also be greater attention to pre-conception (e.g., birth spacing) and prenatal nutrition and health care (e.g., adequate maternal nutrition, wellbeing and rest).**

## Effects on child morbidity

Overall, there was reduced incidence of morbidity (diarrhoeal illness, acute respiratory illness and fever) reported in the intervention groups. Groups exposed to the Care for Child Development intervention showed the greatest decline between 6 and 24 months in incidence of diarrhoeal disease. At 24 months, all three intervention groups had higher levels of oral rehydration salts use during episodes of diarrhoeal disease compared to the control group.

### KEY LESSON

**The integration of care seemed to be a supportive pathway in the reduction of morbidity and in appropriate and timely care for the sick child. Qualitative data support findings suggesting that families in the intervention group were more likely to seek advice from Lady Health Workers about childhood illnesses, were more likely to seek treatment from doctors or health facilities, and had greater knowledge about the signs and symptoms of childhood illnesses. Families in the Care for Child Development and the Combined groups were better able to respond to the needs of a sick child.**

Levels of haemoglobin were significantly better for children in the Enhanced Nutrition group compared to those in the other three groups.<sup>14</sup> Children in both the Combined and Enhanced Nutrition groups received Sprinkles; however, there was higher uptake in the stand-alone Enhanced Nutrition group. One explanation may be a greater focus on messaging around nutrition and Sprinkles in the stand-alone group, compared with the Combined group.

KEY LESSON

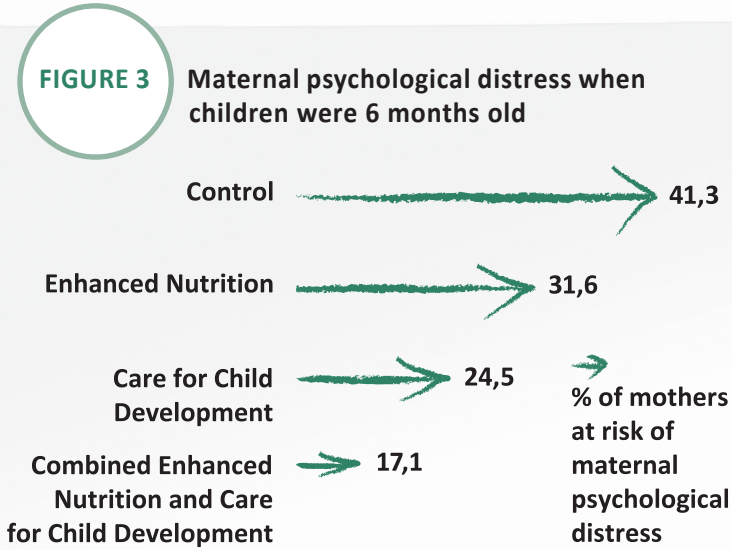
**Sprinkles may be associated with short-term benefits to haemoglobin levels in communities where uptake was good. Lessons learned include: (1) it is necessary to put a greater focus on communication about new supplements, including their benefits and potential side effects; and (2) Lady Health Workers in the Combined group need support to balance their messaging between the two interventions.**

Effects on primary caregivers

The Care for Child Development intervention had a positive impact on primary caregivers and on a number of child rearing indicators and practices, including in such areas as maternal depression, the home/caregiving environment, mother-child interaction, and others.

Maternal psychological distress

At 6 months post-partum, the lowest prevalence of maternal psychological distress was found in the combined Care for Child Development and Enhanced Nutrition group, followed by the Care for Child Development, Enhanced Nutrition and control groups in that order. At 18 months, the order was similar, but there was overall greater prevalence of maternal psychological distress across the board. Between 18 and 24 months post-partum, the prevalence of maternal psychological distress continued to increase, with the greatest increase in the Care for Child Development group. There was a consistent negative correlation between maternal psychological distress and development and growth outcomes: the higher the maternal psychological distress, the poorer the child development and growth outcomes.



*Note: Screening completed using the self-reported questionnaire (SRQ-20). A score of 9 or more was considered 'at risk'.*

### KEY LESSON

**The group sessions and focus on quality time with the child may have helped mothers cope with daily stress.**

‘I feel mentally better [when the group meetings are running]. We all feel at peace and our tension is lifted away. We talk and share with one another, we listen to the advice, and the time passes nicely...’

—*Mother*

‘We have given him [the child] more attention. And I like it when he learns new activities and perform, it is like the worries have disappeared, I feel happy...’

—*Mother*

‘...their [the mothers’] frustration has finished and they give time to their children.’

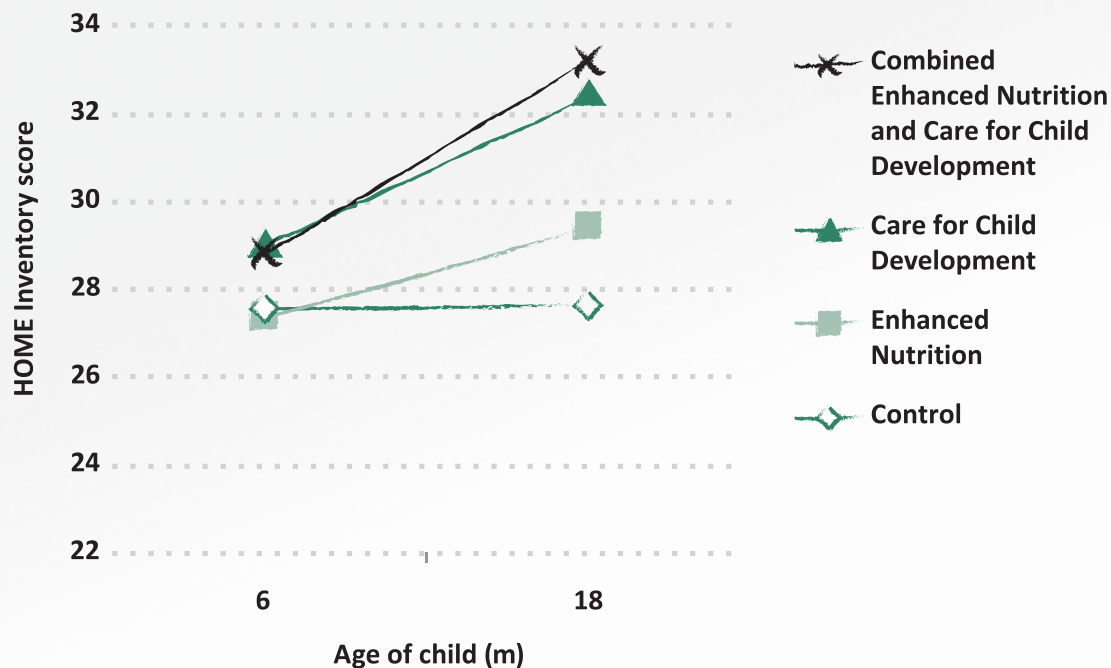
—*Lady Health Worker*



### Home environment

The HOME Inventory measures the child's caregiving environment including the safety of the physical space, interaction between caregiver and child, and the variety of early learning opportunities provided to the child. HOME scores improved between 6 and 18 months of age for the three intervention groups but not for the control group. The mean score on the HOME inventory was significantly higher at 6 and 18 months for the two groups exposed to the Care for Child Development intervention. There was a consistent significant positive association between home environment and child growth at 6 and 18 months: the better the HOME score, the better the child development and growth outcomes.

**FIGURE 4** Change in the caregiving environment



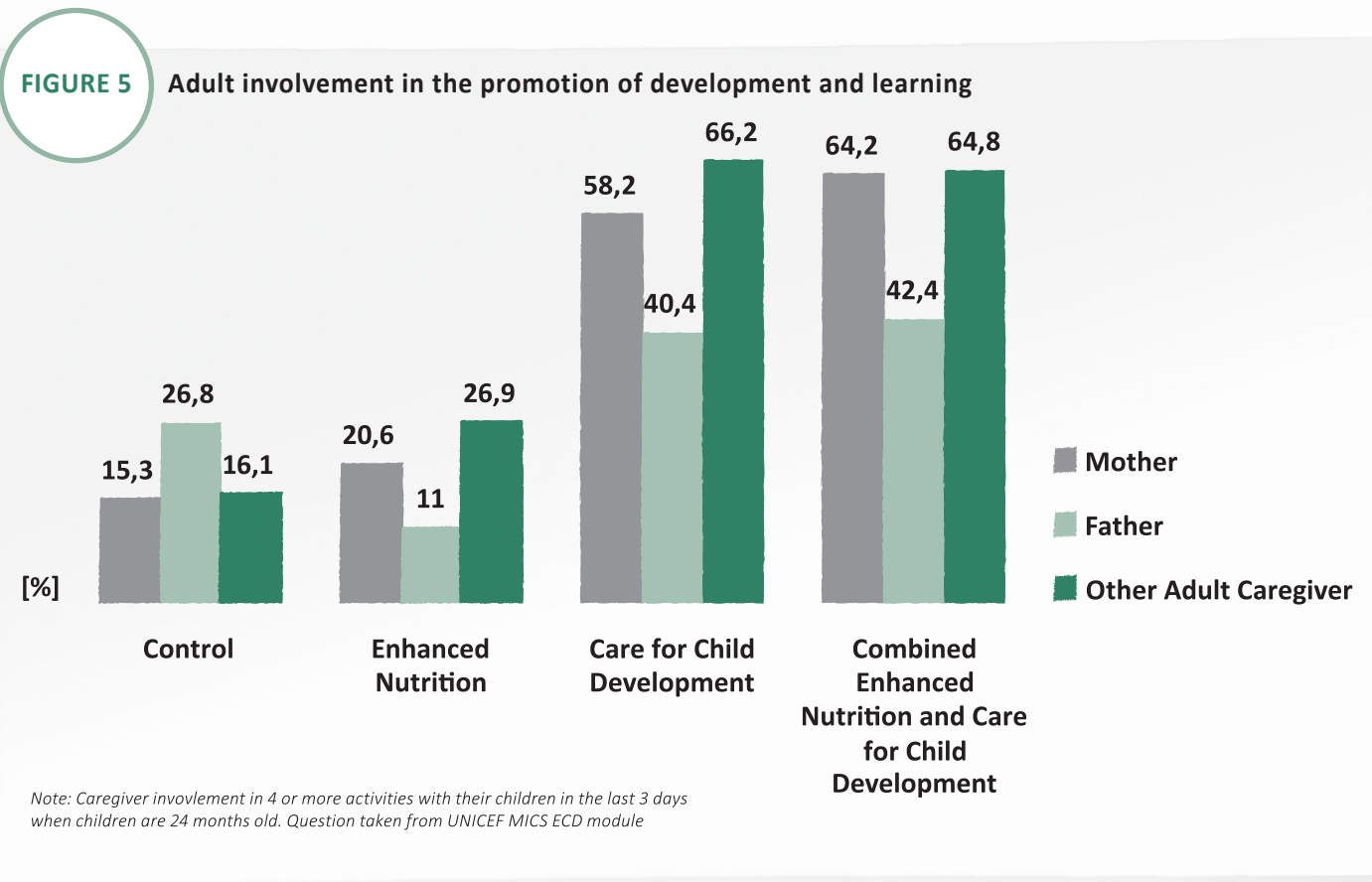
*Note: Caregiving environment evaluated at 6m and 18m of child age using the HOME Inventory, Infant and Toddler version. The HOME inventory measures learning environment of the child, opportunities for promotion of child development and the involvement and responsiveness of caregivers.*

### Mother and child interaction

The groups of children receiving the Care for Child Development intervention scored significantly higher on mother and child interaction than the Enhanced Nutrition group or the control group. The Enhanced Nutrition group had significantly higher scores than the control group. There was a consistent, significant positive association between mother and child interaction and child growth and development at 12 and 24 months: the greater the quality of interaction, the better the outcomes.

Child rearing practices that support child development

While at baseline the control group had much higher scores in maternal knowledge and practices to support child development, change in knowledge and practices from baseline to 12 months and again from 12 months to 24 months were much greater for the three intervention groups than for the control group. For example, at 24 months of age, all primary caregivers exposed to the Care for Child Development intervention were significantly more likely to report playing with their child compared to the other two groups.

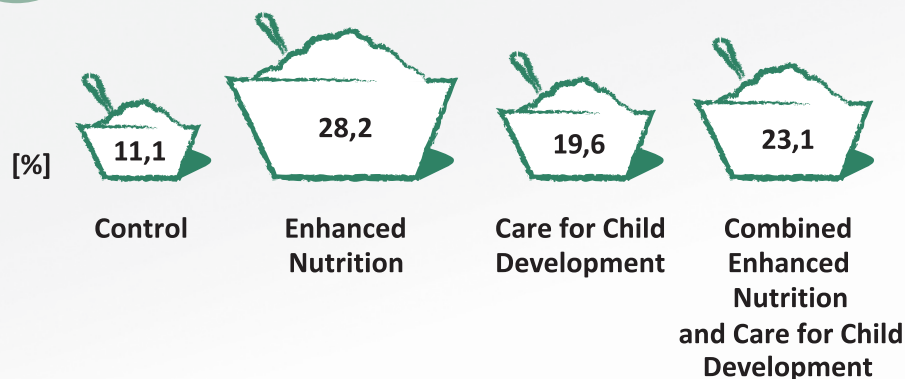


Feeding practices

Age-appropriate breastfeeding was high among all four groups, including the control group. Dietary diversity was greater in the groups exposed to the Enhanced Nutrition intervention compared with the Care for Child Development or Control group. Minimum acceptable diet was generally better in all three intervention groups compared with the control group at 12, 18 and 24 months, but was highest in the Combined and in the Enhanced Nutrition group.

Responsive feeding behaviors were promoted in all three intervention groups. Responsive feeding is related to helping caregivers observe cues and signals for a child’s level of hunger and satiety, respond in a timely manner to these cues and signals, encourage children to eat in a comfortable environment and respond to children who refuse to eat without forcefully feeding. At 24 months of age, with the exception of ‘encouragement to eat’, all three intervention groups had significantly better responsive feeding behaviours than the control group.

**FIGURE 6** Minimum acceptable diet at 24 months of age



*Note: Infant and Young Child Feeding indicator*

### KEY LESSON

The improvement of knowledge and practices related to care for development and feeding is an important pathway for influencing children's early outcomes. Interventions around caregiving pathways are also crucial for encouraging longer-term behaviour change supporting care for child health, development and growth. Evidence suggests that positive maternal psychosocial wellbeing, quality mother-child interactions and a safe and nurturing caregiving environment are all associated with benefits to early child growth and development. The Care for Child Development intervention supports these pathways for improving caregiving to benefit child growth and development.

## Summary of interventions

The **stand-alone Care for Child Development intervention** is effective at improving child development in almost every outcome area (cognitive, motor, language) at every age. One exception was social-emotional development, where a significant difference over the control group at 12 months was not retained at 24 months. The effect on child development (on cognitive and language skills) was greater than in the Enhanced Nutrition intervention.

The Care for Child Development intervention is also effective at improving the home environment and mother-child interaction, and in supporting mothers to cope with everyday stress. It improved mothers' knowledge and practices, including responsive feeding and uptake of oral rehydration salts (ORS), and helped reduce incidence of diarrhoeal disease and ARI.

The Care for Child Development intervention group failed to show any significantly better outcome than either the control group or the other intervention groups in child growth status (prevalence of underweight, stunting, and wasting) or haemoglobin levels.

The **stand-alone Enhanced Nutrition intervention** is effective at significantly improving early linear growth at 6 months of age. The Enhanced Nutrition intervention was also effective in reducing prevalence of diarrhoeal diseases and ARI, and improving feeding practices and uptake of ORS.

The Enhanced Nutrition intervention improved development outcomes compared with the control group, but was not as effective in this as the Care for Child Development or Combined interventions. The Enhanced Nutrition intervention was also somewhat effective at improving maternal knowledge and mother and child interaction, but not as effective in this as the Care for Child Development or Combined interventions. Not surprisingly, malnutrition (stunting, wasting and underweight) was greater among children living in food-insecure households. Further attention is needed on how to improve access to food in these households.

The **Combined Care for Child Development and Enhance Nutrition intervention** proved to be effective in the greatest range of outcomes. Taking the best of both single interventions, the Combined intervention was effective at improving children's development and improving early linear growth of young children. The effects of the combined intervention on mothers' knowledge, attitudes and practices were significantly higher than in all other groups. The Combined intervention had even better results than the other intervention groups on maternal psychological distress, with mothers experiencing a lower prevalence of maternal distress. However, as was the case with the other intervention groups, maternal depression in this group increased over time. The Combined intervention also benefited the home environment and the quality of mother-child interaction.

# The building blocks of success: What we learned about designing an integrated Care for Child Development intervention that achieves results

‘And the mothers are saying about me that my style of coaching is very positive and said my attitude is very positive. You are supervising [the Lady Health Worker] like a friend’

—ECD Facilitator

Just as important as the compelling development and growth results of the PEDS Trial is the information it generated on the processes central to the Trial’s implementation and outcomes. These processes were evaluated in a separate study that paralleled the actual Trial.<sup>15</sup> This study produced some general conclusions about key features for successfully integrating Care for Child Development into community health services.

**On-the-job coaching, supportive supervision and modeling were arguably the lynchpin to the success of the PEDS Trial.** They were critical in improving the quality of services — and quality turned out to be a critical factor leading to community buy-in around new services.

## 1. Supportive and intensified supervision was arguably the key crucial factor in the Trial's success

Intimately linked to the process of training in the PEDS Trial was the strategy of supportive supervision that was promoted at every level. It can be argued that the process of supportive supervision was the most crucial element of the Trial's successful outcomes for children.

The regular Lady Health Worker programme stipulates at least two contacts between Lady Health Workers and their supervisors each month, and the PEDS Trial maintained this as the expected number of contacts. In practice, though, the average number of contacts ranged from 3–7 per month and included general mentorship visits, motivational phone calls or administrative visits between Lady Health Workers and their ECD Facilitators. It was ensured at least one contact per month was on job coaching in the field.

The intensive presence of the ECD Facilitators in the field with the Lady Health Workers helped the ECD Facilitator build a relationship with her Lady Health Workers and also helped the Facilitators understand local dynamics, assist with problem solving, and build skills of the Lady Health Worker through on-the-job coaching.

The nature of supervisory contacts changed during the course of the Trial, from an initial emphasis on knowledge transfer, activity familiarity and motivation (July 2009 – December 2009) to enhancing skills, enhancing integration of counseling (child health with child development) and working on problem-solving skills (January 2011 – June 2011). The development of a mentoring relationship between ECD Facilitators and Lady Health Workers did occur and was cited by both as a positive experience and a motivating factor.

Importantly, the Lady Health Workers themselves cited the attitude and responsiveness shown to them by the ECD Facilitators as a basis for their own interactions with the mothers.

*'The Lady Health Worker said [to the ECD Facilitator] you are a committed worker, you go to the field daily. That is why I also feel to go to field'*

—Lady Health Worker

As a result of this approach, the Lady Health Workers started undertaking more of their expected routine field visits and they were able to activate the knowledge they already had; they also acquired better personal presentation awareness and skills (e.g., speaking to groups, listening attentively, suggesting health, feeding and development advice to families rather than commanding, personalizing visits, dressing neatly, etc.).

### KEY LESSON

**The motivation and supportive supervision of Lady Health Workers was valuable, and may be a pathway to ensuring that both baseline Lady Health Worker services and new interventions are delivered effectively. For example, compared with the control group, in all three intervention groups mothers reported having received messages about hand washing, or basic antenatal care advice, or support for problem solving around breastfeeding.**



## 2. On-the-job coaching<sup>16</sup> was crucial to the Trial's success

Seventy-five per cent of Lady Health Workers in the intervention groups received on-the-job coaching from their ECD Facilitator each month. On-the-job coaching (and not just supervisory discussions) was extremely important for helping the Lady Health Workers build their practical skills (e.g. observation, timing of advice to enhance caregiver-child interaction during a play and communication activity). ECD Facilitators, Lady Health Workers and even the Lady Health Supervisors expressed the benefits of on-the-job coaching. The Lady Health Supervisors believed that on-the-job coaching enhanced the Lady Health Workers' sense of responsibility.

'We have been trained many times, but have never been trained in this way'

—Lady Health Worker

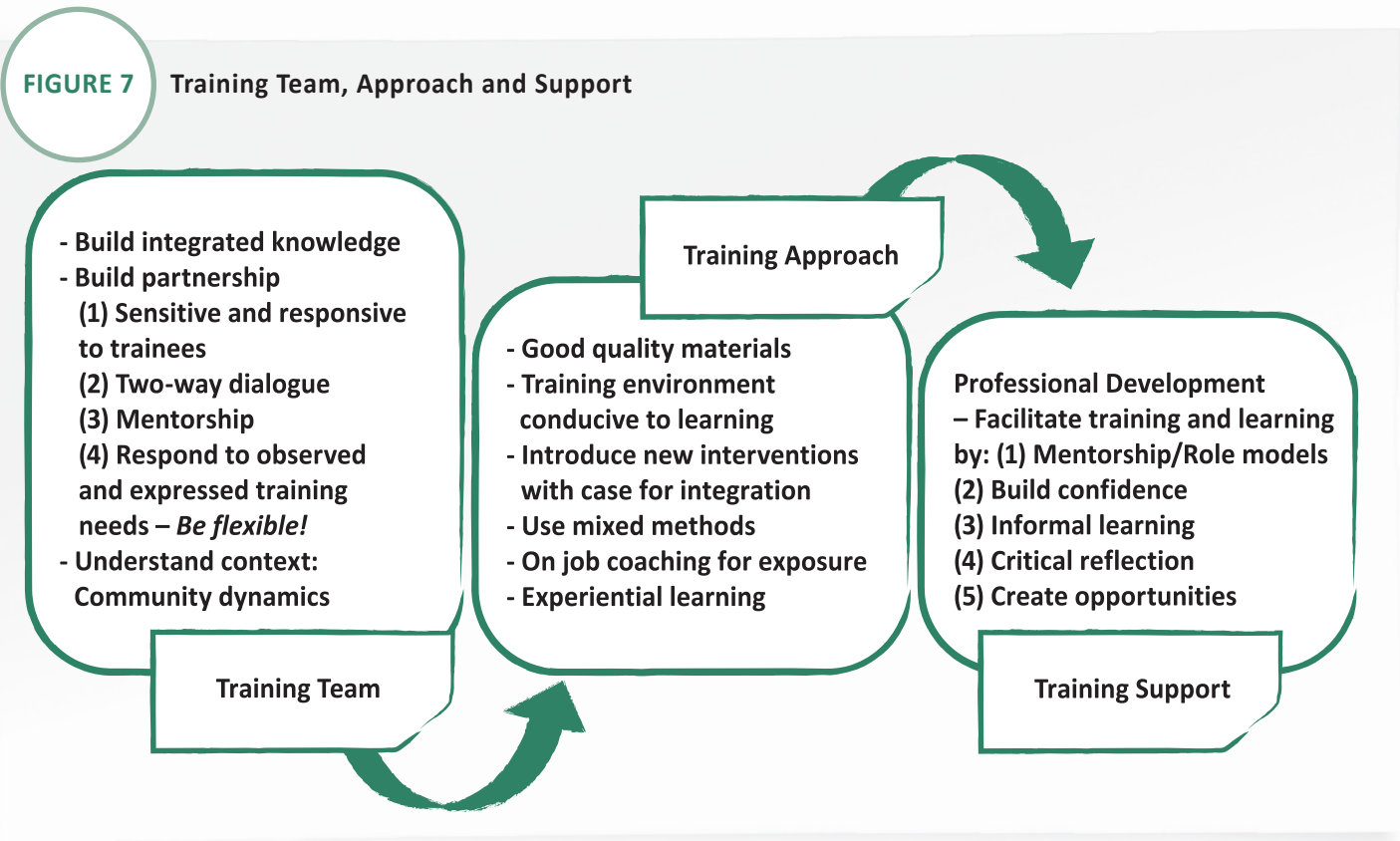
'Training and guiding (on the job) is good. When group meetings are conducted, they (ECD Facilitators) observe the Lady Health Workers do play activities. If there is a mistake they guide her how to do the task'

—Lady Health Supervisor





The need for flexibility emerged as a key theme during training at all levels. This included flexibility to respond to observed and expressed training needs (and not just to a pre-set schedule of what the training ‘ought’ to cover), as well as flexibility in the mechanics of the training (e.g., ability to adapt when, for instance, power generators failed). This need for flexibility was further modeled, and apparently appreciated, by the Lady Health Workers, and was subsequently reflected in their approach to the mothers themselves.



### 3. A focus on building skills as well as acquiring knowledge proved invaluable to the successful work of the Lady Health Workers

The PEDS Trial strategy was to improve the skills of health workers to be able to deliver the new intervention. These skills included learning to work with young children and their primary caregivers through play, observing interactions, coaching, finding out what families know, problem solving, and learning to motivate and praise mothers.

While increasing content knowledge (on Care for Child Development, nutrition, etc.) among supervisors and Lady Health Workers was important, developing their skills — in supervision, training, mentoring, and counseling mothers — was even more crucial to successful outcomes for children. Counseling was especially important and involved observing, listening, asking questions — all in an effort to find out what caregivers already knew and practiced well. Counseling also included problem solving together with the caregiver, motivating mothers and caregivers, and praising them for good practices. A simple supervisory checklist tool was used by ECD Facilitators to provide feedback to Lady Health Workers.



#### **4. Use of group meetings motivated caregivers and also helped Lady Health Workers use their time efficiently**

Group meetings helped create demand for the services offered through the Care for Child Development intervention and fostered peer-to-peer learning. The meetings were also a space for social interaction among mothers and caregivers, with caregivers reporting that meetings helped them cope with day-to-day stress. The meetings also seemed to motivate caregivers on a social level.

*‘The mothers said we like to attend meetings because we get time to chit-chat and learn something about our children as well’*

—ECD Facilitator

Over the life of the intervention, as knowledge and practices became more embedded in families, there was a shift in demands from the community, along with a shift in the nature of topics discussed at group meetings. Meetings evolved from focusing on such topics as ‘what is ECD’ and ‘toy making’ (in the first six months) to areas including ‘praise & discipline’, ‘helping stressed mothers’ and ‘child rights’. In the later phase of the intervention meeting participants were more likely to bring discussion of their hopes, fears and aspirations for the children’s futures. This suggests the need for a meeting curriculum that is stimulating and responsive enough to keep people engaged for a long period of time.

One important observation was that group meetings were inclusive and mothers caring for children with disabilities also participated.

*‘...now she can reach and grab things a bit’*

—Mother of child with mild-moderate physical impairments

The group meetings helped the Lady Health Workers make more efficient use of their time. Smaller groups of approximately ten mothers with their children appeared more manageable.

#### **5. Community satisfaction helped create a ‘virtuous circle’ of higher motivation among Lady Health Workers, better service delivery, visible results, and increased satisfaction in the community**

The introduction of the Care for Child Development intervention was initially met with reluctance among some families, who wondered what they could be taught about ‘raising children’, since obviously they had raised many up to that point. Many caregivers noted that they had previously thought less about the importance of their involvement in play and its role in learning.

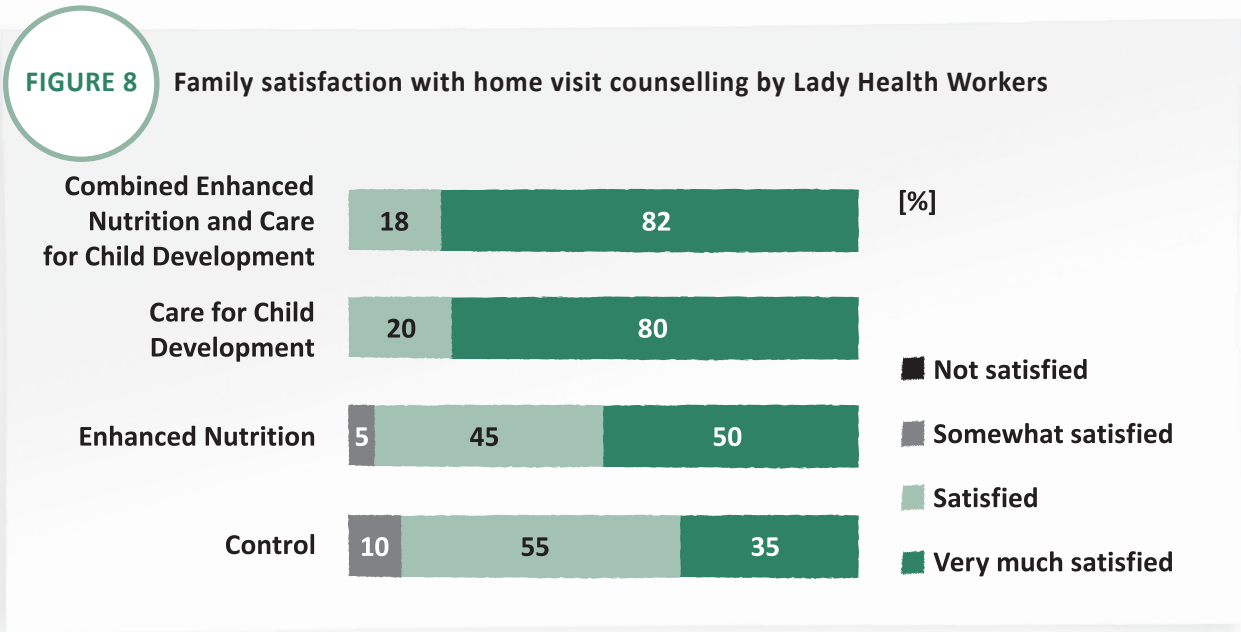
However, families seemed interested enough to change their routines and make more time for activities related to care and development. In general, caregivers (including mothers, fathers and other members of the family) seemed to adopt the behaviours and attitudes promoted by the Care for Child Development intervention. Based on their own

reports, as well as comments from ECD Facilitators and Lady Health Workers, the mothers’ emotions also underwent a positive shift, as did their observation skills.

The community perception of Lady Health Workers changed during the course of the intervention, and families became more likely to seek help from their Lady Health Worker. The result was a change in the nature of the relationship between Lady Health Workers and the communities.

Feedback from mothers and other caregivers as well as Lady Health Workers shows that the platform of early child development was extremely relevant to the mothers themselves, fostered their uptake of the intervention, and led to results they could see for themselves. It is possible that the practical approach of the Care for Child Development intervention, where mothers could see and feel visible change, was very motivating to them, and helped the platform become an efficient way to deliver integrated child health care.

What’s more, the hands-on approach of the intervention may have helped jump-start a ‘virtuous circle’, with observed results in the home leading to greater motivation leading to further involvement of the community and greater personal investment in the Care for Child Development approach. As part of this ‘virtuous circle’, the sub-study showed that the more caregivers saw benefits to the interventions, the more they called on the Lady Health Workers for advice, the more confident the Lady Health Workers became and the more (and higher quality) services they delivered.



**6. Real-time monitoring led to relevant, immediate decision-making that reinforced the positive aspects of the programme**

Knowing what worked and what didn’t was only possible because at every level the Trial team kept extensive records. Such record keeping and documentation formed the core evidence base for evaluating trial processes. Keeping and analyzing these records was important for quantifying what was actually happening during the delivery of the intervention and measuring the kinds of changes that families, Lady Health Workers and supervisors were making to foster better outcomes for children.



The record keeping done for the PEDS Trial not only provided data, through the process of reflection and meticulous documentation was an important avenue for maintaining awareness and flexibility throughout the intervention and for keeping and improving quality services. So such record keeping, even in adapted form — and particularly at the field level among community health workers and supervisors — may be one key to successfully adapting the Care for Child Development package and scaling it up.

Simple record-keeping tools can be used in a range of programmes:

- A checklist to observe intervention delivery can be used to provide feedback to improve the programme. It could cover, for example, time taken for home visit; whether visit includes health, nutrition and development advice; whether health worker attends to sick child or mother first; whether health worker listens to mother and asks questions; whether health worker observes interactions; whether health worker helps solve problems; and whether health worker praise mother.
- A record of meetings between supervisors and health workers to document problems raised and resolved. This can form a future problem-solving checklist or alert managers to new challenges in the service that might require further attention.





# Cost-effectiveness

Researchers carried out a cost-effectiveness evaluation alongside the PEDS Trial and the Process evaluation.<sup>17</sup> The evaluation was designed to measure which of the interventions carried out in the trial provided the highest effectiveness at the lowest cost.

The PEDS Trial focused on multiple outcomes. For purposes of carrying out the cost-effectiveness study, three outcome areas related to child development (cognitive, language and motor development) were chosen.

Researchers carried out the cost-effectiveness study in four phases:

- Reviewing budget and expenditures and consultation with programme staff regarding costs;
- Calculating costs;
- Calculating effectiveness; and
- Determining the effectiveness ratio.

At 12 months the Combined intervention was found to be most cost-effective, but at 24 months the stand-alone Care for Child Development intervention became more cost-effective than the other two intervention groups. This was possibly due to attrition among the Lady Health Workers in the Combined group that left this cell short of several Lady Health Workers for the second year of the programme.

Ultimately, the cost of integrating the Care for Child Development intervention with existing health and basic nutrition community services during the PEDS Trial was US\$4 per month per child. It is anticipated that the monthly cost per child could be reduced as activities go to scale.

# Implications for scaling up the Care for Child Development intervention

The Care for Child Development intervention was shown to be effective at producing positive results in child development and care for nutrition and health in the district in Pakistan where the PEDS Trial was carried out. The trial also demonstrated the feasibility of integrating this intervention in existing community health service without compromising the delivery of routine health services and the potential to enhance delivery of counseling skills that promote behavioural change in care for young children's development, health and feeding. How might Care for Child Development be scaled up in Pakistan, or elsewhere?

The PEDS Trial was a low-intensity intervention at the field delivery level (e.g., one expected community health worker-family contact per month at home, plus group meetings). However, it was extremely quality-focused in its approach to supervision, mentoring, on-the-job coaching, and reporting, reflection and analysis, which all appear to have been crucial to the programme's success in fostering better outcomes for children. A second factor in its success was high uptake among families and continuing practice of

## Key features of success

Build on existing knowledge of community health workers when introducing new messages related to child development.

Give caregivers and children opportunities to try activities for play and communication with practice and feedback rather than didactic message giving: *Caregivers are motivated and empowered when they see what they can do for their child and will continue practice.*

Create environments that empower caregivers and communities: *Group sessions created demand for early child services and provided peer support.*

Quality matters and evolves over time: *Build practical skills of community health workers through on-the-job coaching, create mentorship models, provide opportunities for experiential learning, sharing success and problem solving, keep realistic expectations for when new skills will be learned.*

Mixed methods of delivery provide multiple opportunities for caregiver participation.

Keep the number of messages few with plenty of repetition.



what they learned between contacts with Lady Health Workers. It was evident that a demand for the programme had been created.

To scale up an adapted version of the Care for Child Development package, policy makers must consider how to maintain the quality of supervision, training and mentoring demonstrated by this intervention, which benefits both routine and new interventions.

In Pakistan, the bulk of the costs of scaling up Care for Child Development work within the Lady Health Worker programme would be initial implementation costs such as baseline and refresher trainings, along with recurring human resources costs. The implications of scaling up on the actual workload of the Lady Health Workers and Lady Health Supervisors would have to be further explored.





## References

- 1 Rahman A. Maternal Depression and Child Health: The Need for Holistic Health policies in Developing Countries. *Harvard Health Policy Review*, vol. 6, no. 2, pp. 70–80, 2005.
- 2 Grantham-Mcgregor S., Cheung Y. B., Cueto S, Glewwe P, Richter L, Strupp B & The International Steering Group for Child Development. Developmental Potential in the First 5 Years for Children in Developing Countries. *Lancet*, vol. 369, pp. 60–70, 2007.
- 3 Regular Lady Health Worker responsibilities comprise 22 core tasks. These include maintaining family registers of all households in her catchment; family planning including distribution of condoms and a limited selection of other contraceptives; advice on health, hygiene, and basic nutrition education for pregnancy through care for children up to age five; distribution of iron/folic acid supplements for pregnant women; distribution of basic medicines for common ailments; referral to primary health care facilities; and support for immunization programmes. These interventions are delivered to a catchment of 120–150 households per Lady Health Worker in routine monthly home visits and occasional community group sessions.
- 4 Sprinkles are a multiple micronutrient powder that contains iron, folic acid, vitamin A and vitamin C.
- 5 By the end of the trial, seven per cent of the recruited children had been lost to follow up.
- 6 Bayley, N. *Bayley Scales of Infant and Toddler Development*. Third Edition, PsychCorp, San Antonio, 2006.
- 7 Fenson L., Pethick S., Renda C., Cox J. L., Dale P., & Reznik S. J. Short-form Versions of the MacArthur Communicative Development Inventories. *Applied Psycholinguistics*, vol. 21, pp. 95–116, 2000.
- 8 Durkin, M. S., Davidson L. L., Desai P., Hasan Z. M., Khan N., Shrout P. E., Thorburn M. J., Wang W., Zaman S. S. Validity of the Ten Questions Screened for Childhood Disability — Results from Population-Based Studies in Bangladesh, Jamaica, And Pakistan. *Epidemiology*, vol. 5, no. 3, pp. 283–289, 1994.
- 9 Cogill, Bruce. *Anthropometric Indicators Measurement Guide-2003* Revised Edition, Food and Nutrition Technical Assistance (FANTA) Project, FHI 360, Washington DC, 2003.
- 10 World Health Organization, *Infant and Young Child Feeding: Model chapter for textbooks for medical students and allied health professionals*, World Health Organization, Geneva, 2009.
- 11 Coates, J., Swindale, A. & Bilinsky, P. *Household Food Insecurity Access Scale for Measurement of Food Access: Indicator Guide*, Version 3, Food and Nutrition Technical Assistance (FANTA) Project, FHI 360, Washington DC, 2007.
- 12 Rahman A., Iqbal Z., Waheed W. & Husain N. Translation and cultural adaptation of health questionnaires. *Journal of Pakistan Medical Association*, vol. 53, pp. 142–147, 2003.
- 13 Caldwell B. M. & Bradley R. H., *Home Observation for Measurement of the Environment (HOME) Inventory*, Family and Human Dynamics Research Institute, Arizona State University, Tempe, Arizona, 2003.
- 14 Enhanced Nutrition group: 9.25 SE 0.12, *n* 332; Combined Care for Development and Enhanced Nutrition group: 8.92 SE 0.12, *n* 319; Care for Development group: 8.93 SE 0.13, *n* 335; and control group: 8.95 SE 0.09, *n* 329.
- 15 See the full Process report: Yousafzai, Aisha K. & Muneera A. Rasheed, *Pakistan Early Child Development Scale Up Trial: A Process Evaluation: Sharing Lessons for Scaling Up Early Child Development Interventions in Community Health Programmes*, Aga Khan University, Karachi, Pakistan, 2012Gowani

- 16 Training was set up in the following way: Lady Workers received in-service training and periodic refresher trainings. They also received on-the-job training during their home visits and group meetings. The training, supervision, on-the-job coaching and mentorship were provided by six ECD facilitators drawn from the same district.
- 17 Saima & Yousafzai, Aisha K. *Cost-effectiveness of Interventions in Pakistan Early Child Development Scale Up (PEDS) Trial*, Aga Khan University, Karachi, Pakistan, 2012.