



Child Health and Nutrition Impact Study

Nutrition

Moving the Dial on Nutrition Outcomes

KEY FINDINGS

- Findings suggest that World Vision programmes are contributing to improved nutrition status with positive trends in Cambodia, Guatemala and Kenya. Improvement in wasting was significantly greater in intervention versus comparison sites in Cambodia and Kenya.
- Results for exclusive breastfeeding, a core nutrition intervention, are strongly positive. Improvements were seen across most study sites, and intervention sites outperformed comparison sites in Cambodia, Guatemala and Kenya.
- There are alarming and rising rates of maternal and childhood anemia where studied in Kenya and Cambodia. This population-based anemia data is not commonly available and represents a strong call to action.
- Nutrition sensitive approaches including WASH, food security and agricultural support also appear to have contributed to improve outcomes.
- There is strong qualitative evidence that CHWs are well respected and appreciated in their communities. Survey results indicate that caregivers value CHW services in all study sites and feel better supported by them to overcome barriers to adopting desired behaviour in intervention sites yet programmes had challenges reaching target levels of coverage and suffer from ongoing CHW turnover.

The Timed and Targeted Counselling (ttC) approach, one of the three complementary approaches explored in the Child Health and Nutrition Impact Study, is core to World Vision's Global Health and Nutrition Strategy.

It equips Community Health Workers (CHWs) with messaging aimed at improving women's dietary practices and micronutrient intake during pregnancy as well as behaviours around breastfeeding, complementary feeding and micronutrient supplementation in infants and young children. Its impact is felt at the household level.

There were positive and encouraging findings along with lessons leading to improved nutrition practice as a result of this research.

Study Design

The Child Health and Nutrition Impact Study was a two-arm, quasi-experimental evaluation, with two intervention sites per country receiving a package of three approaches (see below) versus two matched comparison sites in each country receiving COMM¹ plus any pre-existing CHW² approach. In both intervention and comparison areas, World Vision's field operations were funded exclusively through private funds. The baseline was completed over a three-month period and the endline was completed five years later over the same timeframe to minimise seasonal effects. Household sample size

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varied across countries from 2,439 for baseline in Zambia to 4,561 for endline in Cambodia.³

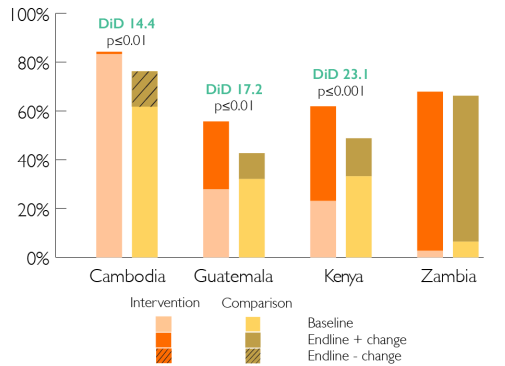
A mixed-method approach was taken combining results from population-based surveys with qualitative interviews with implementing teams, community members, CHWs and health facility staff. The study used the difference-in-differences (DiD) statistic to quantify as a percentage point difference whether intervention sites outperformed comparison sites.

The package of three approaches evaluated:

Timed and Targeted Counseling

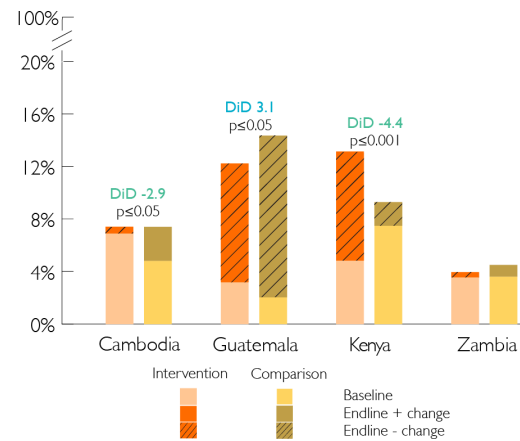
ttC equips CHWs to counsel families through scenarios described in storybooks followed by dialogue and negotiation for better health practices. Home visits are timed during pregnancy and early childhood to target health messages when they are most relevant. Of the three approaches, ttC is the most directly linked to health and nutrition behavioural outcomes.

Figure 1 Exclusive breastfeeding in children less than six months of age⁴



DiD value in green indicates better performance in intervention than comparison sites (note that prevalence decreased in comparison site in Cambodia). For Zambia, no significant difference in performance was found.

Figure 2 Wasted prevalence⁴



Citizen Voice and Action

CVA empowers community members to monitor health services and build relationships with local governments in order to hold duty bearers accountable for delivery and quality of health services. CVA groups facilitate a constructive dialogue between community members and decision-makers. CVA illuminates client-facing service quality elements, but only indirectly addresses clinical performance.

Community Health Committees

COMM empowers community groups to provide an enabling environment for health practice improvements. Committees diagnose and address barriers that families commonly face to reduce their daily risks or obtain needed health services. Committees link health facility staff to community representatives and can provide a support system for CHWs.

Results

Infant and Young Child Feeding

In all four countries, the study evidenced an increase in exclusive breastfeeding of children under six months in nearly all study areas (Figure

1). In Guatemala and Kenya there were impressive gains in intervention relative to comparison sites, and in Cambodia, a slight and non-significant improvement in intervention sites compared favorably with a worsening of this indicator in comparison sites. In Zambia, improvements in exclusive breastfeeding were substantial for both intervention and comparison sites despite the fact that the gain in intervention sites was not significantly greater than in comparison sites.

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Kenya also saw a net benefit in breast milk and complementary feeding in children six to nine months in their intervention sites ($DiD=21.5$, $p \leq 0.001$), and Zambia showed improved breastfeeding within one hour of birth in their intervention sites ($DiD=6.2$, $p \leq 0.05$). Encouraging breastfeeding is a key element in the ttC materials.

“[CHWs] visit pregnant mothers and teach them on the importance of clinic

attendance, dietary and about the kind of work they should do during and after pregnancy.”

Grandmother
Intervention Site, Kenya

Child Growth

Most study sites showed decreasing prevalence of stunting, wasting and underweight prevalence. The improvement in wasting prevalence was significantly greater in intervention than comparison areas in Kenya and Cambodia (Figure 2), indicating a net benefit linked with World Vision's intervention package.

“They [CHW] instruct [us] how to prepare Bobokhap Krupkreung [enriched porridge] ...eat vegetables... give advices on what to eat and frequency.”

Participant in Focus Group with Females and Mothers
Intervention Site, Cambodia

Micronutrients and Anemia

Zambia saw a significant improvement in pregnant women obtaining iron folic acid supplementation in the intervention versus comparison areas ($DiD=36.2$, $p \leq 0.001$). This is an important finding not only because it helps address anemia and prevents

Figure 3 Anemia in women and children ⁵

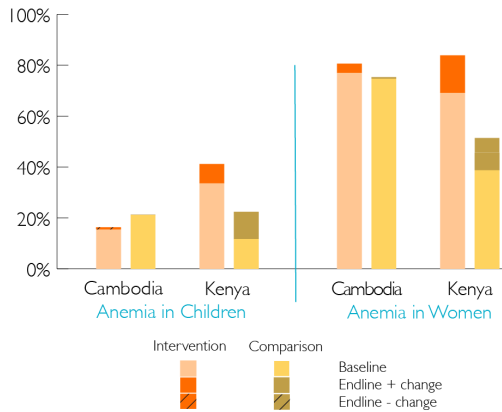
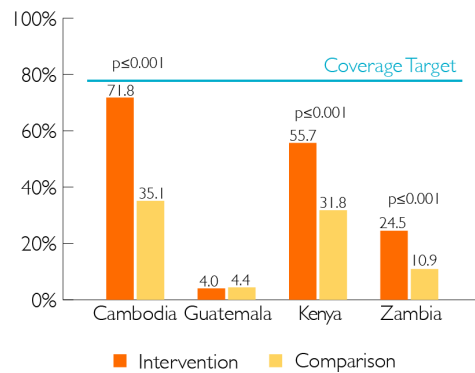


Figure 4 Women 15-49 who gave birth during the previous two years and were visited by a CHW, endline data



spinal bifida – a congenital birth defect – but it is also a good indication that self-care is improving for pregnant women.

“The [CHW] encourages us to start antenatal early so that we can get folic acid in case the blood is not enough and also get some anti-malaria tablets such as Fansidar to prevent malaria. They also encourage us to eat nutritious foods such milk, fresh vegetables, fish and fruits.”

Participant in Focus Group with Pregnant Women, Intervention Site, Zambia



However, the study findings show alarming and rising rates of anemia prevalence in Kenya and Cambodia, especially in children six to 59 months of age (Figure 3). By design, biometric testing for anemia was not performed in Zambia or Guatemala.

Data on iron folic acid supplementation in pregnant women showed sustained high coverage over time in Cambodia and modest improvement in all Kenya sites (47.0% to 53.8% and 53.3% to 60.7% in intervention and comparison sites respectively; DiD $p=0.961$)⁶. Data on iron supplementation in children was unavailable. Thus, the evaluation did

not establish a linkage between World Vision’s work in either intervention or comparison sites and the patterns seen for anemia.

Population-based anemia data is not commonly available, so our study findings are valuable points of reference for public health practitioners in Kenya and Cambodia. There are non-nutrition related causes of anemia, which if better understood in these contexts, would inform decisions around how to better approach this important health issue for both pregnant women and their infants or young children.

Intensity and Quality of CHW Services

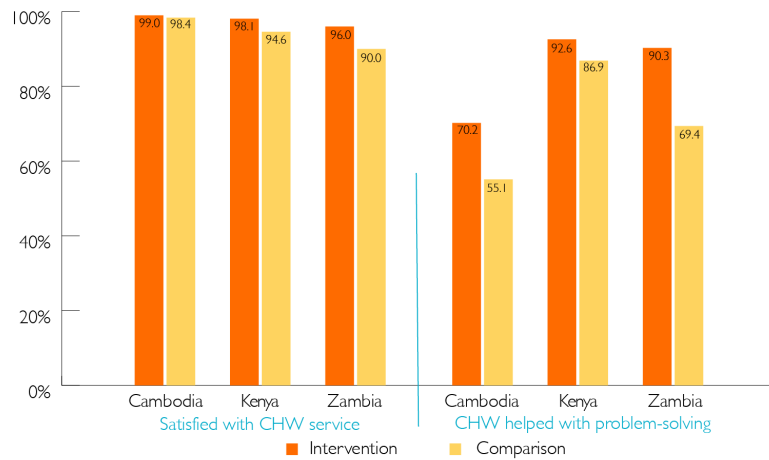
The target coverage level of 80% of eligible households reached by a CHW proved to be a challenging goal in this study. The target was approached only in Cambodia (Figure 4) and was quite low at endline in both Guatemala and Zambia. For all countries except Guatemala, the coverage in intervention sites was dramatically higher than in comparison sites suggesting the World Vision programme did support an improvement in the reach of CHW programming.

Caregivers also reported that CHWs used storybooks considerably more often during a CHW visit in intervention over comparison sites. However, this line of questioning clearly captured both families' exposure to World Vision's CHW programme as well as the standard Ministry of Health programming deployed in comparison sites (figure 4). When asked whether they were satisfied with their CHWs services, caregivers in both intervention and comparison sites rated the service quite positively (Figure 5).

The only country where the rating was significantly higher in intervention sites was Kenya. However, a more pronounced difference emerged when caregivers rated CHWs with regard to helping with problem-solving, a core element of the ttC methodology. Consistently in all countries, intervention sites outperformed comparison sites for this measure, in some cases, this difference was substantial (figure 5).

“We have managed to reduce child malnutrition cases through the [CHWs and COMM] and we recognise their work ... good health seeking behavior.”
Health Facility Manager
Comparison Site, Kenya

Figure 5 Caregiver appreciation of quality of CHW services, endline only



Evidence for a statistically significant difference between intervention and comparison sites at least at the $p \leq 0.001$ level was shown for: CHW helped with problem-solving – Cambodia, Kenya, and Zambia; Satisfaction with CHW service – Kenya only. Guatemala is not included due to low CHW coverage levels.

“The [CHW] of my community visits pregnant women, mothers of young children for them to follow the recommendations given at the World Vision trainings. These recommendations aim to strengthen nutrition, breastfeeding and complementary feeding practices.”
Participant in Focus Group with Men and Fathers
Intervention Site, Guatemala

Contextual Factors

Also assessed as part of this study were nutrition-sensitive indicators including household access to adequate sanitation and clean water

and caregiver handwashing behaviour patterns⁷. Using endline data only, results revealed wide variation in coverage among intervention and comparison sites and across countries. Across all sites and countries access to safe drinking water was generally higher (45.4% to 89.8%) than was access to improved sanitation (0.5% to 46.3%). Similarly, caregiver handwashing patterns were variable across countries and sites, yet a composite index of these patterns was greater, i.e. more handwashing at up to four key moments (score 0 to 4), in intervention than in comparison sites in Cambodia, Guatemala and Kenya (intervention vs. comparison sites: Cambodia 2.4 vs 2.2; Guatemala 3.0 vs 2.5; Kenya 2.6 vs 2.3; $p < 0.001$ in all cases). Multivariate analysis showed that a higher score for the handwashing index was associated with lower prevalence of recent diarrhea episodes in young children in Cambodia and Guatemala (Cambodia OR=0.4, $p < 0.01$ for 3 vs. 0 behaviours; Guatemala OR=0.2, $p < 0.06$ for 4 vs 0 behaviors) while access to water and sanitation facilities did not emerge as significant protective factors except for easy access to a safe water source in Guatemala (OR=2.0, $p < 0.06$; access 30 minutes or more vs. less than 30 minutes). These findings show the



interplay between contextual factors like water and sanitation infrastructure and caregiver behaviours with the latter being more closely related to diarrhea prevalence in children than the former yet effective handwashing behaviour is known to be enabled by access to improved water and sanitation infrastructure.

WorldVision documentation of the implementation experience in each country described programming that was deployed within the same timeframe as this evaluation – programming aside from ttC, CVA and COMM – that could have affected health outcomes pertinent to maternal and child health and nutrition. This programming was supported by WorldVision and by government or non-governmental implementing partners.

Across all study sites, there was a broad range of simultaneously deployed programming including: community sensitisation or mother support groups

addressing a range of maternal and child health and nutrition topics; government sponsored growth monitoring and promotion; Integrated Management of Childhood Illnesses programmes; enhancement of commodity availability at the primary health care level (including iron folic acid, vitamin A, anti-parasitic medication, oral rehydration salts and zinc); malaria and other vector control programmes; comprehensive water, sanitation and hygiene (WASH) programmes; livelihood and food security programming; and increased availability of microfinance resources.

This ecosystem of community development activity is typical of the settings where WorldVision operates.

Conclusion

The research gives evidence that WorldVision's work was effective in strengthening CHWs to stimulate behaviour change in support of

improved maternal and child nutrition.

Compared to CHWs working in the comparison area, those who delivered WorldVision's ttC approach in the intervention area had demonstrably stronger results for most behaviour change measures in three of the four study countries, and in all four improvements in exclusive breastfeeding were observed.

The reduction in wasting prevalence in Kenya and Cambodia and in severe acute malnutrition in Kenya potentially reflects the biological impact of behaviour change. The rising rates of anemia in those same two countries is a call to action for WorldVision and other partners working in those settings.

Results also showed that implementation challenges impeded the programme coverage, intensity or both to a varying degree in the four countries. It remains possible that this phenomenon made it impossible to demonstrate favorable evidence of impact on maternal and child nutritional status, newborn and child health outcome indicators. There is compelling evidence that the ttC approach empowers local health volunteers to provide credible and valued information that existing literature has already demonstrated to be life-changing for mothers and children.

The implementation challenges also speak to the need to allow sufficient time and budget for assessment and negotiation with partners prior to when implementation actually begins. These processes can take a year or longer and are rarely adequately acknowledged and resourced.



Recommendations

1. Address implementation quality by defining then promoting minimum staffing configurations and their subsequent retention at the field level. Take into account greater intensity of field work if multiple approaches are deployed within the same timeframe.
2. Strengthen project model implementation quality by creating a process flow that sets realistic expectations for project start-up with a strong partnering focus; strengthening guidance and practical training resources; and ensuring uptake of existing implementation quality assurance tools to establish and ensure minimum programme quality standards.
3. Consider coupling this set of interventions with other evidence-based nutrition approaches selected based on prevailing patterns of child and maternal nutritional status.
4. Nutrition interventions for this study were largely nutrition-specific. We need to couple these with more nutrition-sensitive programming such as WASH, food availability and security which can have a direct or an indirect effect on maternal and child nutrition. Likewise, future evaluations ought to formally consider the effect of these nutrition-sensitive programmes.

Endnotes

- 1 The term Community Health Committee or COMM is used to describe groups with this function. In Cambodia, COMMs involved are called Health Centre Management Committees; in Guatemala – COMM; in Kenya – Community Health Committees; in Zambia – Neighbourhood Health Committees. For ease of understanding, we use COMM throughout this report.
- 2 Community Health Workers (CHWs) is the term widely used to refer to community-based health extension workers. In Cambodia, CHWs are called Village Health Support Group Volunteers; in Guatemala – Madres Guías, in Kenya – Community Health Volunteers, and in Zambia – Safe Motherhood Action Groups. For ease of understanding, we use CHW throughout this report.
- 3 For a complete picture of household sample sizes as well a sub-sample sizes for eligible women, children and for anemia testing, please see *Impact Analysis Report: World Vision Child Health and Nutrition Impact Study*, Table 2.2 on page 9.
- 4 The exact values for percentages represented in this graph can be found in *Impact Analysis Report: World Vision Child Health and Nutrition Impact Study* in the following tables: Cambodia – Table 7.2 on p 117; Guatemala – Table 5.2 on p 55; Kenya – Table 6.2 on p 87; and Zambia – Table 4.2 on p 21. Difference-in-differences values appear in Table 3.1 on p 14 of this same report.
- 5 The exact values for percentages and difference-in-differences represented in this graph can be found in *Impact Analysis Report: World Vision Child Health and Nutrition Impact Study* in the following tables: Cambodia – Table 7.2 on p 117; and Kenya – Table 6.2 on p 87.
- 6 Note DiD analysis did show intervention sites outperforming comparison sites for iron folate supplementation in Zambia where anemia prevalence was not assessed; see Maternal, Newborn and Child Health brief.
- 7 Edward A, Jung Y, Chhorvann C, Ghee AE, Chege J. *Association of mother's handwashing practices and pediatric diarrhea: evidence from a multi-country study on community oriented interventions*. Journal of Preventive Medicine and Hygiene, 2019; 60.

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