



Health & Nutrition Technical Brief

# Positive Deviance Hearth Plus (+) Project Model

## THE ISSUES

Globally, child and maternal malnutrition underlie 45 percent of all child deaths.<sup>1</sup> Undernutrition increases mortality and morbidity and increases expenditure on health overall.<sup>2</sup> Undernutrition has further economic costs through cognitive delays in children, compromised learning performance, and lower economic productivity in adults.<sup>3,4</sup> Causes of lower economic productivity include lower physical strength, lower wages, and more days away from work due to illness among adults.<sup>5</sup> As a result, there is a greater than 10% reduction in lifetime earnings for each malnourished individual and approximately 8% loss in GDP.<sup>6</sup> The causes of undernutrition are complex, with immediate determinants related to disease and inadequate food intake. Moreover, micronutrient deficiencies (often called “hidden hunger” as they may not be visible to the naked eye) are widespread, especially amongst women and children. These causes in turn are due to underlying determinants such as food

insecurity, inadequate care and feeding practices (many times affected by poor household support for ‘unpaid care work’ and poor mental health of women due to traditional gender norms),<sup>7,8</sup> poor access to health services, and unhealthy household environments including poor water and sanitation.<sup>9</sup> Furthermore, there is poor coverage of health and nutrition services including poor screening coverage and referral systems (Growth Monitoring and Promotion) because these are usually conducted at health centres, which can be hard to access (physical distance) Poorly functioning rehabilitation programs are also contributing factors to high rates of malnutrition. Nutrition rehabilitation programs are often costly, the quality of care poor, and are many times dependent on supplements, which have frequent stockouts. Therefore, interventions to strengthen preventative nutrition services are required, and a more sustainable food-based approach is needed to address malnutrition.

1. Black, Robert E., et al. 2013. “Maternal and child undernutrition and overweight in low-income and middle-income countries.” *The Lancet* 382(9890): 427-451. Victoria C et al. 2008 Maternal and child undernutrition: consequences for adult health and human capital. *Lancet*. 271:340-57.  
2. Hoddinott et al. 2008. Effect of a nutrition intervention during early childhood on economic productivity in Guatemalan adults. *Lancet*. 371:411-16.  
3. Horton, S. et al. 2010. *Scaling Up Nutrition: What will it cost?* The World Bank: USA.

4. Marphatia, A. A., Cole, T. J., Grijalva-Eternod, C., & Wells, J. (2016). Associations of gender inequality with child malnutrition and mortality across 96 countries. *Global health, epidemiology and genomics*, 1, e6. <https://doi.org/10.1017/ghg.2016.1>  
5. Engle, P.E. et al. 1999. Care and nutrition Concepts and measurement. *World Development*. 27(8):1309-1337  
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## WHAT IS THE PDH+ PROJECT MODEL?

Positive Deviance/Hearth Plus (PDH+) is the updated version of Positive Deviance/Hearth (PDH), where PDH is integrated with additional prevention interventions. PDH is a behavior change program used to rehabilitate underweight and wasted children without medical complications; sustain their rehabilitation; and prevent future malnutrition. A formative research is conducted to identify the major contributing factors to malnutrition in the community and a ‘positive deviant inquiry’ is used to identify local solutions. Despite limited resources, some parents find ways to raise well-nourished children. Identifying and understanding what these ‘positive deviant families’ are doing differently in their feeding, hygiene, caring, and/or health-seeking practices from the parents of malnourished children in the same community is the foundation for this project. These key positive practices (local solutions) are shared with malnourished households

through a 10- to 12-day practical education session called ‘Hearth’ led by a trained volunteer. Malnourished children are fed a nutrient-dense meal during the session that is provided and cooked by the primary caregivers using low cost, local ingredients. The Hearth sessions are followed by 2-3 days/week of home follow-up visits for two weeks to help overcome barriers caregivers may face in practicing the new positive behaviours at home. In PDH+, the prevention interventions are strengthened while the key contextualized Hearth messages are shared through not only Hearth sessions, but also through other platforms such as decentralized GMP and IYCF counselling, biofortification, kitchen gardens, micronutrient powders, animal revolving scheme/funds, nurturing care groups, and savings groups, addressing prevention of malnutrition in children.

## ALIGNMENT TO OUR PROMISE AND THE SDGS

PDH+ is aligned with the following SDGs:

- SDG #2 (end hunger, achieve food security and improved nutrition and promote sustainable agriculture)
- SDG #3 (ensure healthy lives and promote well-being for all) by promoting desired nutrition and health behaviours)

PDH+ contributes to CWBO #5 (children 0-5 years are well-nourished) and CWBO #6 (children 0-5 years are protected from infection and disease); and aligns to the Nurturing Care Framework as it targets the 0-35 month age group and also includes early child development (ECD) components through emphasis on behavior change around child feeding and caring practices.

## CORE COMPONENTS OF THE PDH+ PROJECT MODEL?

- Decentralized Growth Monitoring and Promotion (GMP) is used to screen children, ensure they are receiving age appropriate immunization, deworming, and Vitamin A supplementation.
- Infant and Young Child Feeding (IYCF) counselling is used to provide caregivers with messages around child feeding practices if children are showing signs of growth faltering.
- PDH is used to rehabilitate underweight and wasted children without medical complications and to design six contextualized and targeted messages that can be shared through different platforms to reduce and prevent malnutrition in the community.
- Additional interventions are many times included into the PDH+ project model, including: Biofortification, kitchen gardens, micronutrient powders, animal revolving scheme/funds, and savings groups.



## WHAT IS NEW IN THE HNSA UPDATE OF THE MODEL?

Positive Deviance/Hearth Plus (PDH+) is the updated version of Positive Deviance/Hearth (PDH), where PDH is integrated with additional prevention interventions. The prevention interventions can include but are not limited to the following: Growth Monitoring and Promotion (GMP), Infant and Young Child Feeding (IYCF) counselling, kitchen gardens, biofortification, micronutrient powders (MNPs), animal revolving scheme/cooperatives, savings groups, nurturing care groups, mother support groups, and family groups.

The integration point in PDH+ is designing of the key messages and micronutrient-rich foods that should be promoted through all the interventions. A situational analysis and ‘Positive Deviant Inquiry’ (PDI) should be conducted at the start of the project model to help design the six key Hearth messages, identify micronutrient-rich, locally available, low cost foods, and Hearth menus to then be shared with the larger community through the different interventions selected by the program or project.

As long as the situational analysis, PDI, and designing of the key Hearth messages and menus are done at the start, the additional interventions could be implemented in phases, for example, year 1 can focus on training and decentralizing GMP and IYCF counselling to strengthen the prevention and screening systems in the community and year 2 could add the Hearth sessions to strengthen the referral and rehabilitation services, and begin training and distribution of micronutrient-rich seeds for kitchen gardens. Year 3 could then focus on consumption of foods from kitchen gardens, and continued supervision and monitoring of decentralized GMP and Hearth sessions. Thus, PDH+ is a revised model that not only focuses on community-based rehabilitation of malnutrition, but also on prevention and strengthening of the screening, identification, and referral process of growth faltering children to appropriate nutrition services.

## GOALS, OUTCOMES AND EXPECTED IMPACT

**Goal:** To improve the nutritional status of children 0-59 months of age in the targeted community by increased screening coverage, early detection and referral, and rapid rehabilitation using a food-based and behavioural change approach.

**Impact:** Reduction in prevalence of underweight and wasting

**Outcomes:** Improved behaviors around child feeding, hygiene, caring, and health-seeking practices. Improved knowledge and confidence around child feeding, hygiene, caring, and health-seeking practices.

**Value Proposition:** PDH+ is a bottom-up approach that looks for solutions to overcome malnutrition within the community, using existing resources. Decentralized GMP increases coverage of GMP while PDH is a food-based approach that can be used to rehabilitate both underweight and wasted children without medical complications

and, thus, is much more sustainable than supplements (currently, there is a lack of food-based approaches to rehabilitate malnourished children). Because the solutions to overcome malnutrition are found within the community and communicated through the six key Hearth messages, and the nutrient-dense menus use locally available foods, the behaviours are culturally appropriate and easier to adopt. The key messages are contextualized depending on what the major contributing factors to malnutrition are in the community. PDH+ is low in cost but requires intensive human resources to ensure program fidelity and quality. It can be more easily scaled-up with quality now with the many tools that have been developed to support program design, monitoring, and supervision.

## THE EVIDENCE BASE FOR THE PDH PROJECT MODEL

Scientific research shows PDH is effective in improving child care and feeding practices to reduce the prevalence of underweight in children. A systematic review on PDH programming was conducted by Bisits Bullen<sup>10</sup>. Two RCTs reported significant improvements in care & feeding practices and of eight programs that reported nutritional outcomes, five showed positive nutritional status outcomes. The qualitative results had unanimous high levels of satisfaction. In addition, a quasi-experimental study was conducted comparing PDH with Mother Support Groups (MSGs) in Soroti, Uganda<sup>11</sup>. Results from this study showed that contextualized messages through PDH had greater improvement in underweight prevalence even though more behaviours were changed through comprehensive messages shared through MSGs. The final conclusion was that the two approaches should be implemented

together where PDH focuses on rehabilitation and MSGs could be used to largely disseminate the contextualized messages and focus on prevention of malnutrition. Lastly, a cluster randomized control trial assessing PDH vs. PDH mHealth (using mobile phone calls to reduce number of Face-to-Face Hearth session days and home follow-ups) was conducted from 2017-2020 in Cambodia<sup>12</sup>. The study found that both PDH and PDH mHealth group were both more effective than the control group in improving the prevalence of underweight. PDH mHealth was just as effective as PDH group even though 80% of normal face-to-face interactions were replaced by interactive mobile phone calls.

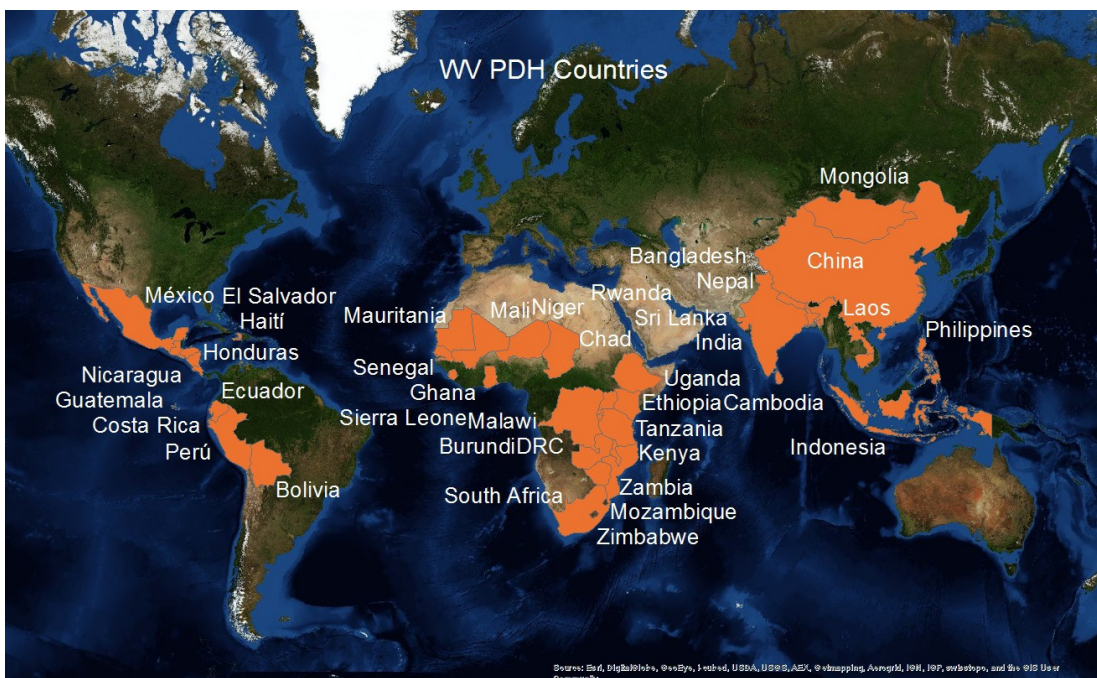
## COST PER BENEFICIARY

WV's experience to date shows that the average yearly cost per child decreased from US\$17 per child when 750 malnourished children were targeted, to US\$8 per child when the number of beneficiaries was doubled to

approximately 1,400. Some projects, particularly those that integrate food security, may have a higher cost of US\$100 per child per year.

## IMPLEMENTATION AND SCALE

PDH has been implemented in 43 countries and is currently being implemented in 28 countries (2020).



10. Bisits Bullen PA. The positive deviance/hearth approach to reducing child malnutrition: systematic review. *Trop Med Int Health*. 2011;16(11):1354-1366.  
 11. Baik, D. A case study comparing Positive Deviance/Hearth vs. the traditional health/nutrition education (Mother Care Groups) approach to prevent MAM and rehabilitate underweight children in Soroti, Uganda [abstract]. In: International Symposium on Understanding Moderate Malnutrition in Children for Effective Interventions; 2014 May 26-29; Vienna, Austria. LSHTM; 2014. Abstract nr IAEA-CN-217-105P.  
 12. Young, M., Baik, D., Gosdin, L., Reinsma, K. (2020). Replacing face-to-face household visits with interactive voice calls to reduce prevalence of malnutrition in Cambodia. Manuscript in preparation.

## Scope of WV PD/Hearth Programs (2020) : 43 countries

Red = Past Implementation

Black = Implementing now (28 countries)

AFRICA		ASIA	LAC
1. Chad	13. Tanzania	22. Bangladesh	34. Bolivia
2. DRC	14. Uganda	23. Cambodia	35. Costa Rica
3. Ethiopia	15. Zambia	24. China	36. Ecuador
4. Ghana	16. Burundi	25. India	37. El Salvador
5. Kenya	17. Zimbabwe	26. Indonesia	38. Guatemala
6. Niger	18. Malawi	27. Laos	39. Haiti
7. Mali	19. Mozambique	28. Mongolia	40. Honduras
8. Mauritania	20. Niger	29. Nepal	41. Mexico
9. Rwanda	21. Sierra Leone	30. Philippines	42. Nicaragua
10. Senegal		31. Sri Lanka	43. Peru
11. Somalia		32. Myanmar	
12. South Africa		33. Vietnam	

Some model countries that could be considered PDH ‘Learning Centres’ include:

- Bangladesh: Very large scale implementation of PDH
- Burundi: Experience with Integration – decentralized GMP, biofortification, micronutrient powders, IYCF, savings groups, and family groups; high MoH support and uptake of model; implementing mHealth – GMP/ PDH app; successful decentralization of GMP
- Cambodia: Experience with implementing PDH in urban context; mHealth innovation/ research – integration with Food Security and replacement of face-to-face interactions between caregivers and volunteers with mobile phone calls

- Sri Lanka: Strong integration with Graduation Model approach – addresses life cycle approach (integrating livelihoods, agriculture, health and nutrition)



## RESULTS, KEY ACHIEVEMENTS, SUCCESSES

PDH is an internationally recognized behaviour change program. However, there have been many criticisms around the scalability of the program because it is too technical, program quality cannot be easily monitored, and sustained impact is difficult to see. WV conducted a PDH evaluation and identified major challenges in program implementation included: high number of cascade trainings, delay in implementation after trainings, lack of standardized trainings and materials for facilitators and volunteers, missing essential elements in program designs and implementation, and poor data collection and analysis.

To address all the challenges, WV developed: i) a capacity building strategy for PDH to reduce the number of cascade trainings and yet increase the scale while maintaining high quality trainings, ii) training curriculums and job aids for 3-levels including Master Trainers, Facilitators, and Volunteers, iii) tools for monitoring programs (standardized tools, database, mHealth application) and assessing program fidelity according to a list of essential elements during both the design and implementation phases, iv) a menu calculator and PDI checklist to simplify the most technical components of PDH – the menu design and the PDI, respectively, and

v) an implementation strategy to ensure quality scale-up. Since the improvements made by WV to PDH programs, 3 countries (Uganda, Sierra Leone, and Burundi) have adopted it into the national Health and Nutrition strategy. WV has implemented PDH in 43 countries to date and in 2016 alone, WV's largest PDH program in Bangladesh admitted almost 50,000 children into PDH with a 35.1 percentage point reduction in the prevalence of underweight in just 3 months and a 43.7 percentage

point reduction in just 6 months. Since 2015- 2019, analysing WV's available monitoring data, there has been an approximate 35 percentage point reduction or more in underweight prevalence in just three months' time amongst the PDH participant children, which is a significant achievement.

## EMERGING INNOVATIONS AND TECHNOLOGY

WV has successfully integrated PDH with additional prevention and food security interventions such as decentralized GMP, IYCF counselling, family groups, savings groups, kitchen gardens, animal cooperatives, biofortification (high iron beans and orange fleshed sweet potatoes – high Vitamin A and C), and seed multiplication to not only address rehabilitation of underweight and wasted children, but to also address prevention at a larger scale by sharing the key contextualized Hearth messages and menus with the larger community. WV has also developed an online PDH database and GMP/PDH mHealth application, where data can be entered using mobile phones or tablets and immediate feedback is given to volunteers or CHWs with the nutritional status of the child and the appropriate messaging to be provided to the caregiver. This data is then linked with the online PDH database where summary reports and graphs can be generated easily for quick data analysis and application for program improvements. WV has also developed a PDH online course to provide field offices with options of using a

blended learning approach where half the sessions are conducted online and the practical sessions are done face-to-face to reduce the number of days of face-to-face trainings and reduce overall capacity building costs. The PDH online course is also being used for refresher trainings. WV is also exploring innovative ways of using technology to adapt PDH for peri-urban contexts or contexts with mobility restrictions such as during the COVID19 pandemic. WV conducted a study in peri-urban contexts of Cambodia where mobile phone calls with simple phones replaced 50% of face-to-face Hearth sessions and 80% of household follow-up visits. This adaptation called 'PDH Lite' is now being rolled out in other countries to reduce volunteer's time spent in conducting household follow-up visits and in response to COVID19 adaptations to PDH+ programs. WV is also looking into exploring adaptations to Hearth sessions to address caregivers' mental health as it is another emerging area of need as poor caregivers' mental health affects the health and nutrition of children.

### LINKS TO KEY DOCUMENTS

1. [PDH Project Model document:](#)
2. [Introductory PDH modules](#) (in English)
3. [Introduction to PDH+ and PDH+](#) in COVID context
4. [PDHearth IQA](#)
5. The [Measuring and Promoting Child Growth](#) tool
6. [PD hearth page on WVCentral](#)
7. [PDH+ Logframe](#)



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We believe a world without violence against children is possible, and World Vision's global campaign It takes a world to end violence against children is igniting movements of people committed to making this happen. No one person, group or organisation can solve this problem alone, it will take the world to end violence against children.