

Wimpfheimer-Guggenheim Essays Competition

Winning essay from 2010

Growth Assessment and Nutritional Intervention among High-Risk Children in Rural Honduras: Partnerships among OHSU, Medical Teams International, and PREDISAN

By: Diane D. Stadler, PhD, RD

Honduras is the second poorest country in Central America and the fourth poorest country in the Western hemisphere, following Haiti, Nicaragua, and Cuba. In Honduras, malnutrition almost always accompanies poverty especially among populations in the remote eastern mountain areas, those who are most vulnerable and without access to health services. As reported by Albalak, et al. (2000), among Honduran children between one and two years of age, 35% were stunted (height/age Z-score <-2), 40% were anemic (hemoglobin concentration <11 g/L), and 48% were Vitamin A deficient (serum retinol concentration <30 µg/L). Seventy-seven percent of these children had at least one of condition; and of these, 51.4% had more than one condition. Among children between three and six years of age, 38% were stunted, 18% were anemic, and 42% were Vitamin A deficient. Of these slightly older children, 64.5% had at least one condition and of these, 44.1 % had more than one nutritional deficiency. Fortunately, vitamin and mineral deficiencies may be corrected at any age; unfortunately, the functional consequences of vitamin and mineral deficiencies in early childhood may be long lasting. Likewise, severely compromised linear growth may be irreversible in children > 3 years of age and rapid catch-up weight gain to promote accelerated rate of linear growth may be associated with increased risk of adult onset chronic disease.

To address these concerns, multifaceted, broad-reaching dietary-improvement strategies need to be implemented on a population basis. Two organizations that have partnered to address malnutrition in the remote eastern regions of Honduras are [Medical Teams International \(MTI\)](#) and [PREDISAN](#). Medical Teams International is a nonprofit, international disaster relief and humanitarian development organization based in Tigard, Oregon. PREDISAN is a non-profit, Christian, health and development organization based in Catacamas, Honduras. PREDISAN administers a primary health care program through seven health centers and serves a population of over 12,500 people living in 51 rural villages and 7 marginal "barrios" in eastern Honduras. In 2008, PREDISAN staff provided over 15,000 patient visits and, in collaboration with the Honduran Ministry of Health, successfully collected infant and child growth data and

administered vaccinations and medications for the treatment of malaria, tuberculosis, leishmaniasis and epilepsy, among other conditions.

Through its care of children at the rural health centers, PREDISAN staff identified the need to address the widespread problem of childhood malnutrition in eastern Honduras. They submitted a proposal to MTI to sponsor a team of nutrition professionals to train public health nurses and community volunteers to weigh and measure infants and young children to assess growth and nutritional status and to counsel mothers of children identified as at risk for malnutrition to improve the quality and diversity of the diet and health of their children. In November 2008, MTI issued the following volunteer opportunity request on behalf of PREDISAN:

"A nutrition team is needed to serve in Catacamas, Honduras. The team will provide training to local health workers and staff from our partner PREDISAN, to improve services and management of children in developmental stages 6 months to 12 years with inadequate growth and nutritional problems."

I learned of this request during a field trip to the REAL LIFE exhibit at the MTI headquarters that the [OHSU Graduate Programs in Human Nutrition](#) coordinated for our dietetic interns and graduate students. I responded to the announcement the same day, discussed options with the MTI Latin American Team Coordinator the next day, and within two weeks, entered into the MTI-PREDISAN partnership. My role was to lead a team of second year nutrition graduate students on a 10-day mission to address growth and nutritional concerns common among children in eastern Honduras.

In preparation for our work in Honduras we participated in a series of conference calls with MTI and PREDISAN staff to learn more about the environment that we would be working in, the lifestyle, including the diet of the people who we would be working with, the resources, including the normative growth data used by the Honduran Ministry of Health, that would be available for us to reference. We discussed cultural beliefs, values about diet, food preparation and feeding practices, and child health. We learned that growth was assessed by comparing weight measurements to age- and sex-based normative data and that length or height measurements were not considered in this evaluation.

Before our arrival, the nurse manager who oversaw operations of the rural community health clinic network identified one urban health clinic on the outskirts of Catacamas, "the town at the end of the road," and two rural health clinics in eastern villages to serve as training and evaluation sites. Then, the nurse managers in charge of each of these health clinics identified two community volunteers to serve as growth and health monitors. Parents of children who were healthy and who demonstrated appropriate growth, who were well respected within the community, who were comfortable with the types of calculations and record-keeping that would be used to monitor growth of children in their communities, and who could teach others these tasks were asked to volunteer. The volunteer monitors had to agree to attend a half-day growth measurement training session and a half-day community growth measurement clinic. Afterwards, they had to be willing to conduct ~monthly growth assessments of children

identified to be at “nutritional risk”, to meet regularly with the nurse manager of the clinic to review high-risk cases, to counsel mothers on strategies to improve their children’s diets to promote adequate growth and nutritional balance, and to teach others these skills.

Once in Honduras, we spent two days at each of three health clinics. Within each setting we employed four strategies to improve the quality and diversity of the diet and health of children previously identified to be at high nutritional risk based on very low weight for age:

1. One-on-one, in-home counseling with mothers and grandmothers of children identified to be at high nutritional-risk to assess access to food and feeding practices and to make targeted recommendations to improve the diet.
2. Community-based nutritional education sessions to teach mothers and grandmothers basic principles to improve the quality and diversity of the diet fed to their children.
3. Growth assessment training to teach volunteer health monitors to accurately weigh and measure the length or height of infants and young children and to interpret these values using the 2006 WHO growth charts.
4. Growth measurement clinics to provide hands-on training for the volunteer health monitors to initiate longitudinal tracking of weight and height status of infants and young children identified as being at high nutritional risk.

After completing the community-based work, we hosted a growth measurement and assessment workshop for the public health nurse managers of each of the rural health clinics in eastern Honduras supported by PREDISAN. Inherent within the training sessions and workshop was the concept of “training -the-trainer.” The goal was for the community volunteer monitors and public health nurses to be comfortable with the measurement process and the interpretation of the measurement values so that they could teach others these skills. In this way the training and follow-up cycle would be complete and sustainable, and monitoring of infant and child growth would be performed and dietary interventions would be initiated in those identified to be at high risk even in the most remote and underserved regions of Honduras.

To support these training sessions we developed materials for each of the volunteer health monitors and public health nurse managers.

Each set of materials contained:

- Written standard procedures for measuring weight, length and height,
- A complete set of the 2006 WHO growth charts for both boys and girls,
- Growth Monitoring Record Forms and Individual Growth Recorders
- A table of expected weight gain and linear growth velocity for infants and children of different ages,
- A series of case studies that were used to illustrate various scenarios during the growth assessment training sessions,
- Charts describing and illustrating high-quality, nutrient rich local foods and portion sizes appropriate for children of different ages,

- Posters describing types and amounts of food to be used to complement breastfeeding of older infants,
- And other materials to illustrate balanced and healthy infant and child feeding practices among Hispanic populations.

All materials were developed in Spanish and highly illustrated to convey messages simply and practically. In addition, each binder contained pencils, pens, colored pencils, a pencil sharpener, a ruler, a calculator, a tablet and clipboard, and other supplies that would be used in the growth monitoring process.

We were provided a \$500 equipment budget with which we purchased two hanging infant sling scales with replacement slings (Salter-type, Model 235-6S), two “stand-on” scales to weigh older children (Healthometer, Model 142KL), a portable, collapsible stadiometer (SECA, Model 217), and two infant length mats (SECA, Model 210). The equipment chosen was lightweight, yet sturdy, and fit into a backpack so that it could be carried to remote home sites for monitoring visits. In addition, we obtained educational materials from various organizations including cardboard-backed food model pictures, from the [Oregon Dairy Council](#) — and colorful placemats illustrating the “plate method” of meal planning that we laminated from the Idaho Plate Method. Because a main goal of our educational program was to increase fruits and vegetables in the diet, we requested donations of cooking utensils from various community organizations — specifically, vegetable steamers, vegetable peelers, measuring cups, measuring spoons, serving spoons, plates, bowls — all items that could be used in the community health centers or given to the families.

Our work with the families, the volunteers, and the health professionals in Honduras was personally and professionally rewarding. We all learned from this experience. Most striking to us was the all-encompassing lack of diversity of foods in the diet and the limited access to foods, including fruits and vegetables. As part of our debriefing process with the directors at PREDISAN we identified a number of community-based projects that could be done to support their on-going efforts to improve the growth and nutritional status of the children in eastern Honduras. Suggestions included fruit and vegetable preparation classes, community-school gardens, backyard-container gardening, and community green houses; none of which were in place in the communities that we visited. Recommendations were also made to enhance the school-based snack and meal programs and to develop a fun and practical elementary/middle school nutrition education curriculum for teachers to introduce concepts of healthy, balanced eating.

As a result of this conversation and subsequent discussion, I am now working with a new team of graduate students to plan our next nutrition project in eastern Honduras in partnership with MTI and PREDISAN. In preparation for our March 2010 departure we are developing culturally appropriate recipes and new cooking strategies (e.g., use of vegetable steamers, pressure-cookers and sautéing techniques) that we will introduce through hands-on cooking classes for volunteers in 10 rural communities. The volunteers will use their new skills to incorporate fruits and vegetables into the school-based snack and meal program and hopefully into their own home meal preparation.