

Integrating health and agriculture to maximize the nutritional impact of orange-fleshed sweetpotato: The Mama SASHA proof-of-concept project in Western Kenya

High rates of participation from pregnant women suggest that the integration of orange-fleshed sweetpotato (OFSP), nutrition education and vine distribution into antenatal care is feasible and acceptable for health care providers, community health workers and pregnant women.



Family in Bungoma enjoying OFSP meal (credit R. Odengo).

What is the problem?

Vitamin A deficiency (VAD) contributes to significant rates of blindness, disease, and premature death in Sub-Saharan Africa (SSA). Young children and pregnant or lactating women are particularly at risk of VAD. OFSP is an important source of energy and beta-carotene, which is converted into Vitamin A in the body. One medium-size sweetpotato provides enough to meet the recommended daily allowance of vitamin A for children and non-lactating women. Evaluations of food-based approaches promoting increased OFSP production and consumption have shown significant positive impacts on Vitamin A intake and status.

VAD can have multiple causes. It can result from inadequate intake due to a lack of vitamin A sources in the diet or from insufficient vitamin A absorption because of the presence of parasites or infectious diseases. Pregnancy should be a particularly opportune time to reach women with nutritional and health interventions that can lower their risk of VAD, mitigate negative environmental and socio-economic factors, and enhance the survival and growth of their infants.

This project seeks to explicitly integrate agriculture and nutrition interventions into

antenatal health care services to maximize the potential benefits of OFSP on the health status of mothers and children less than 2 years of age. It is the first time such an intervention is being tested at the community-level in SSA – and the first one of its kind to focus explicitly on pregnant women.

What do we want to achieve?

The aim of this 5-year project is to provide solid evidence for the effectiveness of this innovative approach to integrate OFSP promotion and production with public health care services. The expected impacts include significant increases in both the consumption of Vitamin A-rich foods and use of antenatal care services. The original target (already surpassed) was to reach 900 pregnant women and their households between 2010 and 2014.

Where are we working?

The project is being implemented in selected health facilities across Busia and Bungoma districts of Western Province, Kenya. In these areas, sweetpotato is important for food security. But the majority of sweetpotato varieties are either white or yellow-fleshed, containing little beta-carotene. The challenge is to introduce the beta-carotene-rich OFSP varieties and promote their production, uptake, and consumption alongside overall improvement in child and household dietary practices.

How are we going to make it happen?

The project is being implemented within the existing USAID/Kenya AIDS, Population and Health Integrated Assistance Program (APHIA Plus). That program works directly with communities and public health facilities throughout Western Province to strengthen a wide range of health services.

The Mama SASHA intervention uses community health workers to encourage pregnant women to



Partners include:

- The International Potato Center (CIP), leading from a field office based in Bungoma
- PATH, an international non-profit organization focused on health
- Kenyan Agricultural Research Institute (KARI)
- Local government stakeholders, especially the Ministries of Health and Agriculture
- Community Research in Environment and Development Initiatives (CREADIS)
- Appropriate Rural Development Agriculture Programme (ARDAP)
- With scientific inputs from the University of Toronto, Emory University and the University of Washington

seek early and recommended ante- and postnatal care services. They also establish and run community-level pregnant women's clubs, with monthly dialogue sessions focused on nutrition and health topics. During each antenatal care visit, nurses provide improved nutrition counseling along with vouchers, which women can use to obtain OFSP planting vines. The vine cuttings are obtained from trained secondary vine multipliers, located near the health clinics.

To evaluate the program's impact, an equal number of intervention and control sites have been randomly selected from among eight community health facilities. The four intervention sites receive the full range of nutrition, outreach, and health services described above, along with the vouchers. The four control group facilities offer the standard APHIA Plus training and sensitization on Infant and Young Child Nutrition services, but without the pregnant women's groups, vouchers, or support for the production of OFSP.

A pilot study was undertaken from May 2010 through February 2011, with the goal of validating and refining the intervention design as needed. Full implementation of the program began in April 2011.

❖ What have we achieved so far?

Following the 10-month pilot program, where 823 women participating in the intervention areas received vouchers – 75% of whom redeemed them for planting material, we conducted operational research to refine the implementation design.

As of May 2013, over 4,600 pregnant or lactating women with vouchers received vouchers, far exceeding the project's stated goal of reaching 900 women. In the first year, ending in May 2012, 70 percent of all pregnant women redeemed the vouchers for OFSP vines in spite of a prolonged drought during the early part of 2012, while the percent of women redeeming vouchers increased to 80 percent in the second year. Community health workers established 215 pregnant women clubs, and



■ Collecting data in the COVA office (credit F. Livumbatsi).

worked together with agricultural extension agents to disseminate information to the broader community on the production and consumption benefits of OFSP through community field days and other OFSP production and food preparation demonstration activities.

A second round of operational research was completed in 2012 to assess health worker, agricultural extension officers, community and pregnant women's acceptance of OFSP linked to increased ANC services. Respondents noted enhanced maternal and child health coupled with improved household food security. Mothers felt their children were less susceptible to disease and more energetic; they and their partners also valued OFSPs' shorter maturity and higher yields than their local varieties. Community Health Workers (CHWs) emerged as a critical link for reaching pregnant women and connecting them to antenatal health care services and their community vine multipliers who provided OFSP planting material. Success brought increased workload to health care and agricultural professionals and community health workers, but it also provided enhanced training, more effective nutrition messaging, tangible recommendations to improve diet quality, higher job satisfaction and overall improved motivation upon seeing the positive benefits for pregnant women and ultimately, their babies.

In August 2012, the team inaugurated the Cohort for Vitamin A (COVA) study of the Mama SASHA project, with the objective of assessing how uptake of the OFSP interventions including knowledge, farming and consumption of OFSP impacts nutrition and health status, including uptake of health services of mothers and their infants from mid-pregnancy through 9 months postpartum.

❖ Where do we go from here?

As the project enters its final year, the team is actively preparing for two impact evaluations to assess whether there have been significant changes in (1) health and nutrition knowledge; (2) consumption of OFSP and other nutrient rich foods; and (3) antenatal and postnatal health care service utilization that have resulted in improved maternal and child health outcomes. The cohort study of 505 women will complement the cross sectional household survey of 316 pregnant women and 2,400 mother-child pairs in intervention and control communities. Together, the cross-sectional household survey and the nested cohort study will provide a robust measure of impact of the intervention by 2015.



■ Health worker receiving certificate of appreciation for service from project manager.

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