

Nutri-flour - a New Recipe for Success: *Evaluation of a Nutritional Supplement Program for People Living with HIV/AIDS in Western Kenya*



Laura Coe, MPH; Kennedy Abanja, BS; Monica Oguttu, RN, CNM
Kisumu Medical and Education Trust, Kisumu, Kenya

Evaluation Objectives

- Assess client outcomes:
 - Acceptance of the product
 - Weight gain
 - Decrease in opportunistic infections (OI)
 - Improved health status
 - Improved adherence
- Obtain perceptions of Community Health Workers (CHWs) and K-MET staff on the program

Nutritional Challenges of ART

- Food/nutrients affect efficacy of drugs¹
 - Absorption
 - Distribution
 - Metabolism
 - Excretion
- Must appreciate local situation in terms of food insecurity or risk jeopardizing the effectiveness of program

“Nutritious food combined with antiretroviral (ARV) drugs are essential to maintaining the immune system and helping prolong the life of someone with HIV”²

Kenyan Stats

- 30-40% of Kenyan population is undernourished³
- 35% of households suffer from food insecurity⁴
- 56% of Kenyans live on less than \$1/day⁵
- Compromised nutritional status -->
Compromised immune system -->
Increased risk of disease
- HIV prevalence
 - National 7%
 - Nyanza Province 15%
 - Kisumu city 28%⁶ (higher in slums)



United Nations
World Food Programme

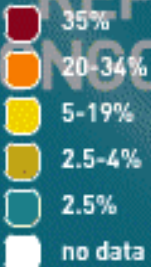
Source: The State of Food Insecurity in the World, Food and Agriculture Organization of the United Nations
More than 800 million people know what it is like to go to bed hungry

ETHIOPIA

LIC

HOT SPOTS

% of population undernourished



UGANDA

KENYA

RWANDA

BURUNDI

- Afghanistan
- Burundi
- Chad
- D. R. Congo
- Korea (DPR)
- Ethiopia
- Guinea
- Haiti
- Kenya
- Madagascar
- Mozambique
- Somalia
- Sudan

Zoom out

Print



Kenya



Total Population	31,100,000
Total Undernourished	10,300,000
% of total population	33%

- Many Causes
- Many Solutions
- How to Help
- Tackling Hunger

K-MET Nutrition Program



- Within Home-based Care (HBC) program for People Living with HIV/AIDS (PLWHA)
 - Community-based
 - Uses locally available resources

In 2003:

- 60 PLWHA in HBC
 - 35% severely malnourished
 - 65% were underweight (BMI < 18.5)

Nutri-flour

3 types of flour

- *Extra* for the sick
- *Nene* for babies
- *Afya* for everyone

Benefits:

- Nutrient dense
- Low-fat
- Protein-rich alternative to meat
- Soft and easy to swallow
- Easy to digest



Nutri-flour Ingredients

■ Base Ingredients

- Soy
- Millet
- Sorghum

■ Enriched with:

- Nuts (ground nuts)
- Pumpkin seeds
- Sweet potatoes
- Maize
- Ginger
- Amaranth seeds

■ Nutritional components

- Energy
- Protein
- Fat
- Iron
- Calcium
- Vitamin A, B
- Folic acid

Vitamin A, zinc and iron have been found to boost the immune system of PLWH⁵

Evaluation Methods (1)

- Face to face interviews
- Focus group discussions
- Key informant interviews
- Review of patient hospital records
- Nutri-flour production and sales data



Program Outputs

From 2003-2006:

- 1,741 clients were enrolled in the nutrition program
- 6,500 kgs (14,300 lbs) was distributed to community for free
- Production increased more than 3-fold (from 250 to 2,200 kgs per month)
- Sales increased more than 3-fold (from 120,000 to 345,000 KSh)

Client Interviews

- N=45 HBC clients
- Demographics
 - 77% were HIV+
 - 90% were on ARVs
 - 80% female
 - 80% were widows
 - Average age 40



“Without a balanced diet ARVs are like poison” – K-MET HBC client

CHW Focus Group Results

- 7 focus groups, 48 participants
- All CHWs felt their clients benefited from the flour
 - Helped them gain weight
 - Improved strength
 - Improved appetite
 - Adherence to drugs
 - Improved general health status
 - Return to normal activities
- Clients cannot always afford flour
- 90% of CHWs cannot always afford flour
- Inconsistent supply
- Wanted more free flour and support from K-MET

Client Interview Results (1)

- 100% said the flour helped them
 - 85% reported they gained weight
 - 38% were confirmed by hospital records
 - 90% improved strength
 - 80% returned to daily activities
 - 60% improved adherence to drugs
 - 100% preferred nutri-flour over other brands

"It's the only thing I can eat without vomiting" - K-MET HBC client

Client Interview Results (2)

- 90% liked the taste of the flour
 - Extra was the most popular
- 50% have problems accessing
 - 87% flour too expensive
- 60% said supply was inconsistent
 - 30% get for free
 - 40% mixed
 - 20% buy

"For those who can afford it, it helps."
- K-MET HBC client

Patient Hospital Data

- To collect data on weight, adherence and OIs
 - 39 records reviewed (6% of HBC clients)
 - 64% gained weight
 - 3kgs (6.6 lbs) average weight gain
 - 90% no adherence problems
 - OIs difficult to collect and link to weight gain
 - most common: malaria, TB, oral thrush

ARVs in Action



Before



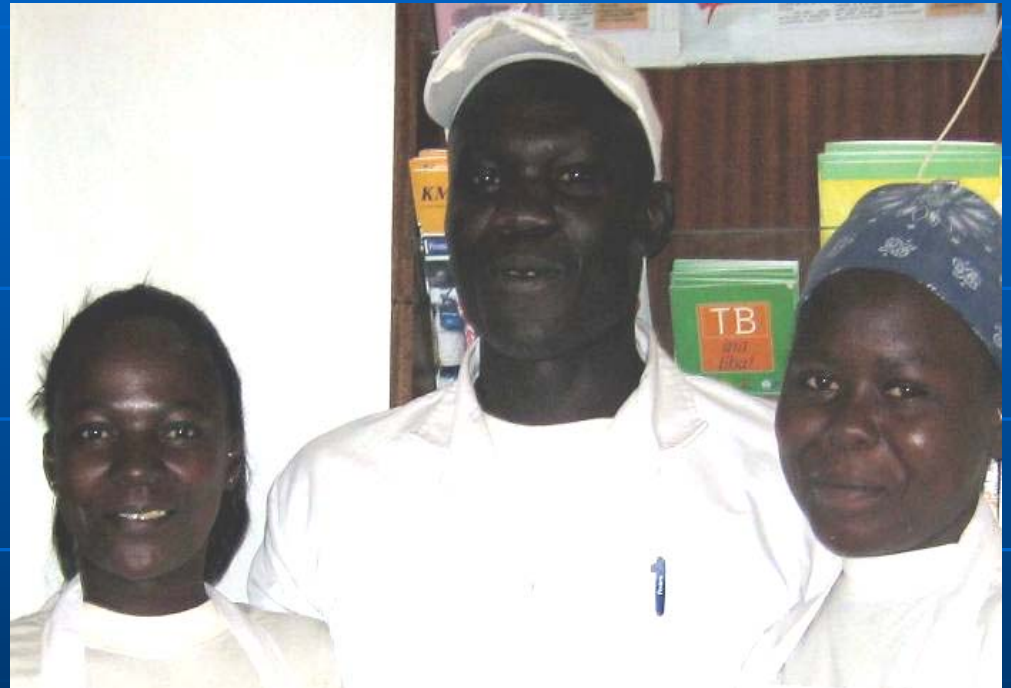
After

K-MET Staff Interviews (1)

N = 7

Program strengths

- Good product that is helping people
- Community-based
- Uses locally available ingredients



"It's hard to swallow drugs with water they can get stuck in your throat, the ugi helps " – K-MET HBC client

K-MET Staff Interviews (2)

■ Challenges

- Sustainability
 - Affordable price
- Increasing demand (marketing)
- Distribution system
- Scaling-up production
 - Resources for staff and equipment
- Poverty and food insecurity in population

Evaluation Limitations

- Sample size
- Duration and frequency of use varied
- Stage of disease and co-morbidities varied
- Language/health literacy barriers
- Interviewee, translator and selection bias
- Not truly a supplement for all
- Weights were not collected systematically
- Logistics

Conclusions

- Maintaining good nutritional status is critical especially among PLWH and those on ART
- ART programs must:
 - Consider the prevalence of undernutrition and food insecurity in the target population
 - Include nutrition supplementation
- Clients were very positive about the flour and anecdotally people have benefited however given the limitations it is difficult to assess the effectiveness

Recommendations

- Additional research needed to assess impact of nutrition supplement

U.S. Policy Recommendations

- Support programs that are evidence-based vs. politically motivated
- Fund local programs that understand the specific needs of their community

***“I hope K-MET can continue so that others can benefit as I have” – K-MET
HBC client***

References

- 1 *HIV/AIDS: A Guide For Nutritional Care and Support*. 2nd Edition. Food and Nutrition Technical Assistance Project, Academy for Educational Development, Washington DC, 2004.
- 2 World Food Program, HIV/AIDS unit, 2007.
[ww.wfp.org/aboutwfp/facts/hunger_facts.asp#fah aids](http://www.wfp.org/aboutwfp/facts/hunger_facts.asp#fah aids)
- 3 *The State of Food Insecurity in the World*, Food and Agriculture Organization of the United Nations. www.wfp.org/aboutwfp
- 4 Smith, L.; Alderman, H.; Aduayom, D. *Food Insecurity in Sub-Saharan Africa*. 2006. International Food Policy Research Institute. www.ifpri.org/pubs/abstract/146
- 5 World Health Organization 2004. *Nutritional counselling, care and support for HIV-infected women: guidelines on HIV-related care, treatment and support for HIV-infected women and their children in resource-limited settings*. ISBN 92 4 1592125.
- 6 *Kisumu District Strategic Plan 2005-2010 for Implementation of the National Population Policy for Sustainable Development*. National Coordinating Agency for Population and Development. August 2005.

Asante Sana!
(Thank you!)

Laura Coe, MPH
MA Dept. of Public Health
laura.coe@state.ma.us