

Effectiveness of safe hygiene kits distribution in advancing Maternal and Child health

Diana Mulatya¹ and Alyn Achieng Omondi²

¹Public health expert in Design and Development of Water, Sanitation and Hygiene Programs, Kenya

²Statistician at Adaptive Management and Research Consultants (AMREC), Kenya

Introduction

In Kenya, approximately one-third of child deaths annually are due to under nutrition and % of mortality is linked to unsafe WASH practices.¹ The World Health Organization (WHO) estimates that 50 percent of malnutrition is associated with recurrent bouts of diarrhea, frequently caused by unsafe water, insufficient sanitation, and inadequate hygiene. ² Diarrhea is also a leading cause of under nutrition and one-third to one-half of all child mortality cases are linked to under nutrition.

If mothers and other caregivers used basic hygiene practices and had better access to safe water and adequate sanitation this could greatly reduce under 5 deaths and improve child nutrition. Ensuring that no child dies of preventable deaths requires a pragmatic approach to implementing programs and includes exploring opportunities to reduce child mortality during pregnancy, birth and through the postnatal period.

To address the disease burden in Kenya, a USAID funded -Kenya Integrated Water, Sanitation and hygiene (KIWASH) - project was designed to explore opportunities for integrating WASH and nutrition interventions through use of a safe hygiene kits distribution program to caregivers of children >2 years and expectant mothers.

Key Findings

- i. Hygiene kits interventions improved ANC and PNC attendance in health care facilities
- ii. Safe hygiene kits reduced occurrence of diarrhea disease significantly
- iii. Distribution of safe hygiene kits only improved some WASH behaviors but not others.
 - Positive behavioral shifts in use of improved water sources compared to unimproved, increased availability of handwashing facilities.
 - No reported improvements in household's access to sanitation or safe disposal of baby feces between beneficiaries and control arm
- iv. Positive nutrition sensitive behavior shifts were observed in hygiene kits beneficiaries compared to those on control arm, i.e. Improved complimentary feeding practices in children >6 months, vitamin A supplementation and increased kitchen gardening at households.

The approach to a safe hygiene kit intervention package

The Hygiene kit consisted of a covered 20 litre water storage container, 20 litre handwashing buckets with a tap, a bottle of Water Guard, a bar of soap; one packet of oral rehydration salts (ORS and Zinc dts-Z kit)

for management of diarrhea cases, and branded hygiene messaging affixed on supplies.

The KIWASH safe hygiene kit was designed to conform to other inexpensive household point of use interventions that have been documented to reduce the risk of diarrhea by 25-28%. ³ - ⁷ Under KIWASH design, distribution of hygiene kits and behavior change education was provided to caregivers by health care providers during antenatal care (ANC) and postnatal care (PNC) clinics. Whereas PNC is care to mother and baby after birth to six weeks with least three PNC visits recommended for all mothers and newborns, ANC refers to care offered by skilled health care professionals to women during pregnancy. WHO recommends a minimum of four ANC visits, ideally at 16 weeks, 24-28 weeks, 32 weeks and 36 weeks. Beneficiaries received refills for water guard and soap on every subsequent clinic visits.

After clinics, scheduled follow ups were made by the Community Health Volunteers (CHVs) at household level to reinforce adoption of behaviours. By design, the hygiene kits intervention pivoted on health care platforms that intrinsically offered immunization, nutritional counselling and education. Before project outset, KIWASH developed training guides and messaging on WASH and nutrition integration. Capacity training and technical assistance was also extended to health care providers and CHV working in the target 25 health facilities selected as avenues for intervention delivery.

Manual and computerized monitoring systems were also established to track and follow up with beneficiaries.

In 2019, KIWASH commissioned a short study to assess the impact of using an integrated hygiene package as an incentive to improve WASH and nutrition behaviours or increase utilization of ANC/PNC services. This study was undertaken in four of the five target counties- namely Nairobi, Makueni, Migori and Kakamega.

Conclusion

The safe hygiene kits intervention was an effective strategy for influencing integrated WASH and nutrition behaviors, namely the improved use of safe water and handwashing and Vitamin A supplementation, complimentary feeding and the adoption of kitchen gardens.

In addition, the intervention increased the use of antenatal, delivery and postnatal services, which have been shown elsewhere to improve maternal and child health.

Acknowledgements

We would like to thank county public health and nutrition teams from Kisumu, Kakamega, Nairobi, Makueni and Migori Counties for providing input on program design, challenges and best practices, in addition to their role in implementing the safe hygiene kit distribution

interventions. Funding for safe hygiene kit interventions was made possible by the support of the American people through the United States Agency for International Development (USAID) under the terms of Contract No. AID-615-TO-15-00001.

References

1. Organization WH. State of Inequality: Reproductive Maternal Newborn and Child Health: Interactive Visualization of Health Data: World Health Organization 2015.
2. Bryce J, Boschi-Pinto C, Shibuya K, et al. WHO estimates of the causes of death in children. *The Lancet* 2005;365(9465):1147-52.
3. Crump JA, Otieno PO, Slutsker L, et al. Household based treatment of drinking water with flocculant-disinfectant for preventing diarrhoea in areas with turbid source water in rural western Kenya: cluster randomised controlled trial. *Bmj* 2005;331(7515):478.
4. Garrett V, Ogutu P, Mabonga P, et al. Diarrhoea prevention in a high-risk rural Kenyan population through point-of-use chlorination, safe water storage, sanitation, and rainwater harvesting. *Epidemiology & Infection* 2008;136(11):1463-71.
5. Quick RE, Kimura A, Thevos A, et al. Diarrhea prevention through household-level water disinfection and safe storage in Zambia. *The American journal of tropical medicine and hygiene* 2002;66(5):584-89.
6. Quick RE, Venczel L, Mintz E, et al. Diarrhoea prevention in Bolivia through point-of-use water treatment and safe storage: a promising new strategy. *Epidemiology & Infection* 1999;122(1):83- 90.
7. Semenza JC, Roberts L, Henderson A, et al. Water distribution system and diarrheal disease transmission: a case study in Uzbekistan. *The American journal of tropical medicine and hygiene* 1998;59(6):941-46.
8. Loharikar A, Russo E, Sheth A, et al. Long-term impact of integration of household water treatment and hygiene promotion with antenatal services on maternal water treatment and hygiene practices in Malawi. *The American journal of tropical medicine and hygiene* 2013;88(2):267-74.
9. Sheth AN, Russo ET, Menon M, et al. Impact of the Integration of Water Treatment and Handwashing Incentives with Antenatal Services on Hygiene Practices of Pregnant Women in Malawi. *The American Journal of Tropical Medicine and Hygiene* 2010;83(6):1315-21. doi: [https:// doi.org/10.4269/ajtmh.2010.10-0211](https://doi.org/10.4269/ajtmh.2010.10-0211)
10. Wood S, Foster J, Kols A. Understanding why women adopt and sustain home water treatment: insights from the Malawi antenatal care program. *Social Science & Medicine* 2012;75(4):634-42.
11. Darvesh N, Das JK, Vaivada T, et al. Water, sanitation and hygiene interventions for acute childhood diarrhea: a systematic review to provide estimates for the Lives Saved Tool. *BMC public health* 2017;17(4):776.
12. Fuller JA, Westphal JA, Kenney B, et al. The joint effects of water and sanitation on diarrhoeal disease: a multicountry analysis of the Demographic and Health Surveys. *Tropical Medicine & International Health* 2015;20(3):284-92.
13. Wolf J, Hunter PR, Freeman MC, et al. Impact of drinking water, sanitation and handwashing with soap on childhood diarrhoeal disease: updated meta-analysis and meta-regression. *Tropical medicine & international health* 2018;23(5):508-25.
14. Briere EC, Ryman TK, Cartwright E, et al. Impact of integration of hygiene kit distribution with routine immunizations on infant vaccine coverage and water treatment and handwashing practices of Kenyan mothers. *Journal of Infectious Diseases* 2012;205(suppl_1):S56-S64.