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John Snow, R&T Inc. Ethiopia
The Last Ten Kilometers

Influence of the Health Extension Program on Environmental Sanitation in Ethiopia

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Introduction

- Ethiopia, with 74 million population has one of the highest maternal and infant mortality rates in sub-Saharan Africa
- Before 2003, 50 percent of the population lived more than 10 kilometers from a health facility
- In 2003, Ethiopia launched the health extension program (HEP) to ensure universal access to promotive, preventive and select curative health interventions
- Over 11,000 health posts (HP) constructed and over 30,000 female health extension workers (HEWs) trained—one HEW for every 500 households
- HEP services include communicable disease prevention and control, family planning, maternal and child health, immunization, nutrition, adolescent reproductive health, first-aid and emergency measures, **hygiene and environmental sanitation**, and health education and communication
- Through outreach activities the HEWs train families to adopt the desirable health practices and serve as '**models**' in their neighborhood
- Voluntary community health workers (vCHWs)—who are 'model family' members—assist the HEWs to provide the HEP package of services in their neighborhood
- The Bill & Melinda Gates-funded Last Ten Kilometers (L10K) Project supplements and complements the HEP in 115 districts (18% of the total population) in four regions of the country—Amhara, Oromia, SNNP and Tigray
- The L10K baseline survey conducted in December 2008–January 2009 gives the opportunity to assess the impact of HEP on household environmental sanitation in Ethiopia

Study Design

- Comparison of environmental sanitation between 2005 and 2008/09
- The variability in the scope and intensity of the HEP in communities is correlated with the variability in household sanitation—effect of the HEP is measured by the magnitude of "dose-response" relationships between measures of exposure to HEP and the outcomes of interest

Data

- The L10K baseline survey: Two-stage cluster sampling
  - 243 primary sampling units/communities
  - 4,860 women in reproductive age
- Ethiopian demographic and health survey 2005
  - 2,845 of the 14,070 women in reproductive age in L10K survey areas

Measurements

HEP exposure indicators are community- or kebele-level contextual variables

  Scope of HEP:
  - Number of HEWs in the community

  Intensity of HEP (in quintile):
  - % of women in the community visited by a HEW in last 6 months
  - % of women in the community visited by a vCHW in last 6 months
  - % of women in the community who are a model family or a graduating model family member

Environmental sanitation outcome variables measured at the individual-level:
  - % of women from households with latrine
  - % of women from households with clean source of drinking water

Results

Figure 1: *Scope of the HEP*: Percentage distribution of communities/kebeles according to the number of HEWs (n=243), L10K survey 2008/09
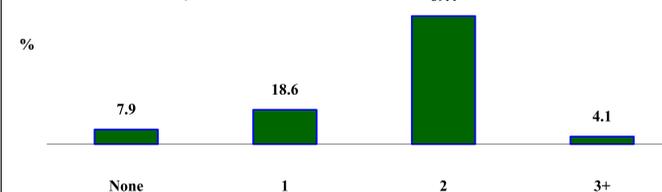

Figure 2: *Intensity of the HEP*: Percentage of women in reproductive age visited by a HEW, visited by a vCHW, and a model family member (n=4,860), L10K survey 2008/09
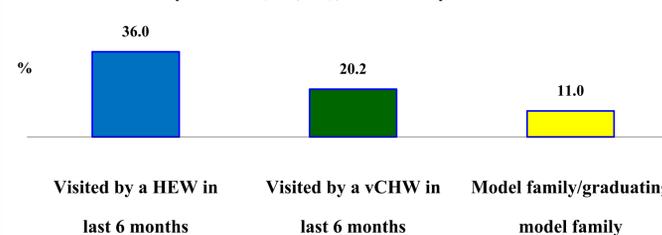

Figure 3: Percentage of women from households with latrine, and the percentage from households with clean source for drinking water, L10K survey areas 2005 and L10K survey 2008/09
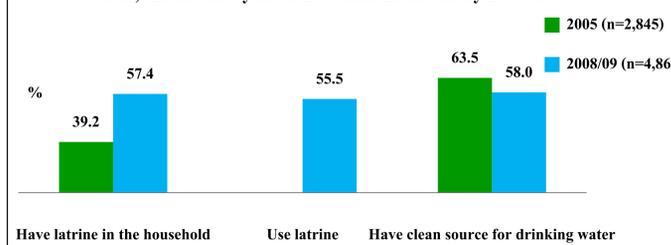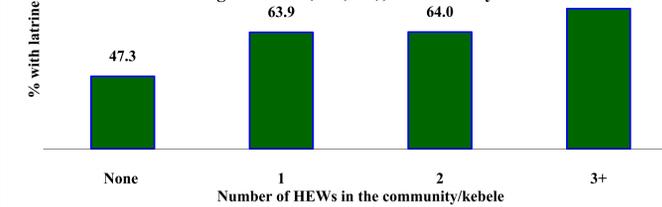

Figure 4: Logit model* simulations of the effect of the number of HEWs in a community/kebele on the propensity of a woman's household having a latrine (n=4,840), L10K survey 2008/09

*Logit model controls for survey design effect, age, education, marital status, number of children, religion, listens to radio, years at current residence, distance to water source and health facility, wealth quintile, urban settings, and survey domains

Figure 5: Logit model simulations of the effect of the prevalence of household visits by a HEWs in a community/kebele on the propensity of a woman's household having a latrine (n=4,860), L10K survey 2008/09
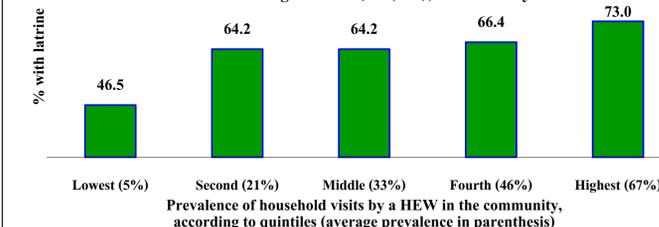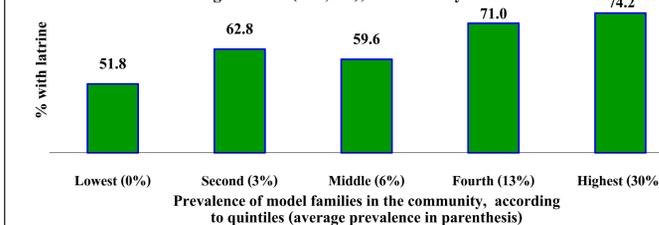

Figure 6: Logit model simulations of the effect of the prevalence of 'model families' in a community/kebele on the propensity of a woman's household having a latrine (n=4,860), L10K survey 2008/09

Conclusions

- The HEP coverage is almost universal
- However, the intensity of the program varies between kebeles
- The HEP improved household latrine possession
- However, it could not influence the access to clean drinking water
- Relatively high HEP intensity—as measured by prevalence of : household visits by HEWs, household visits by vCHWs and model families are associated with household—is associated with relatively high latrine possession

Implications

- The HEP should collaborate with other sectors to improve access to clean drinking water
- Program should expand its effort to engage communities (model families & vCHWs) to further improve household and community environmental sanitation practices