# Improving the Targeting of Preventive Health Subsidies through Vouchers in Western Kenya

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**Sector(s):** Health

**Fieldwork:** Innovations for Poverty Action (IPA)

**Location:** Busia District, Kenya

**Sample:** 118 parents of children aged 6-12 months

**AEA RCT registration number:** AEARCTR-0001076

**Data:** Download dataset (from Harvard Dataverse)

**Research Papers:** Targeting health subsidies through a nonprice mechanism: A randomized controlle...

Increasing access to safe water is important for reducing child morbidity and mortality. Mass distribution of water treatment products can considerably increase access but it is expensive, especially if some of the recipients do not end up using the subsidized products. In Western Kenya, researchers compared three different approaches to subsidizing dilute chlorine solution to treat drinking water: a partial subsidy, a twelve month supply of free chlorine through monthly vouchers, and a twelve month supply of free chlorine hand-delivered. Safe water rates were much lower for households who had to co-pay for chlorine, but similar between households who received chlorine for free and households who had to redeem complimentary vouchers. This suggests that vouchers screened out households that would accept but not use the product under free immediate distribution, thereby keeping most of the benefits of free distribution while reducing wastage.

## Policy issue

Diarrhea is a major cause of child mortality in many low- and middle-income countries, but can be cheaply and effectively reduced by using a dilute chlorine solution to treat drinking water. However, the most efficient way to distribute chlorine solution remains an open question. Previous research in Zambia suggests that charging more for chlorine may target the product more effectively to those who use it for its intended purpose than charging less, but higher fees exclude many potential users. Vouchers for free chlorine solution could ease this trade-off: Providing free solution eliminates costs that could exclude low-income households from purchasing the solution, but redeeming a voucher requires a small amount of effort that could screen out the households that are less likely to actually use the chlorine.

## Context of the evaluation

In 2014, Western Kenya had the highest prevalence of child diarrhea in the country, with 20.1 percent of children under five having diarrhea in the two weeks prior to being surveyed.[1] Water treatment solution is available in most areas and usually

distributed through social marketing or sales in retail shops. In particular, Population Services International (PSI) began marketing bottles of dilute chlorine solution, branded as “WaterGuard”, in Kenya in 2003 for KES 20 (approximately US$0.30 at the time). Brand recognition for WaterGuard and reported understanding of the benefits of water treatment is high in rural Kenya.

Although individuals report understanding the benefits of water treatment, take-up of chlorine solution is low: only seven percent of rural households in this part of Kenya were using chlorine to treat their drinking water prior to the evaluation. Previous research in this context has found that, when chlorine solution was provided for free, with relatively infrequent reminders to use the solution, around half of recipient households treated their water. Limited use may be due to a variety of factors, including the aversion to the taste of chlorine.




People refill their water buckets in Kenya.

Photo credit: africa924, Shutterstock.com

## Details of the intervention

From 2007-2008, researchers tested the impact of different prices and delivery methods on take-up and use of dilute chlorine solution in western Kenya. Researchers recruited 1,118 parents of children aged six to twelve months, an age group at high risk of mortality due to diarrheal disease, from the waiting rooms of four rural maternal and child health clinics. While they were at the clinic, researchers asked participants a series of questions about their current water treatment practices, knowledge of waterborne diseases and diarrhea prevention, and child health. They were then randomly assigned to one of three groups:

1. *Cost-sharing:* Participants were offered water treatment solution for immediate purchase at a 50 percent discount off the retail price. Participants could purchase up to five 150-ml bottles of the solution (enough to last approximately five to eight

months) at KES 10 (US$0.15) per bottle.

2. *Vouchers*: Participants received twelve complimentary vouchers, each redeemable for one 150-ml bottle of water treatment solution at a local shop or the clinic. Each voucher was marked for a specific month, for the next twelve consecutive months, and participants were given a calendar to track each voucher's expiration.
3. *Free delivery*: Participants received two 500-ml bottles of water treatment solution (enough to last seven to eleven months), one immediately and the second three to five months later delivered to the participant's home. When they received the first bottle, participants were informed that they would receive a second bottle later.

Researchers conducted a follow-up survey at participants' homes three to five months after their clinic visit to evaluate the impact of different prices and effort required to obtain water treatment solution on take-up and usage of the product.

## Results and policy lessons

*Take-up:* While nearly every participant accepted the free solution, only 52 percent of participants purchased a bottle at the subsidized rate, and few purchased more than one (one bottle lasts the average household about a month). Take-up among participants who received vouchers was higher: 85 percent of households redeemed at least one voucher, with 40 percent of all monthly vouchers redeemed.

*Usage:* Charging a fee for chlorine solution was prohibitive to many households who would have otherwise used the treatment. At the time of the follow-up survey, only 12 percent of households in the cost-sharing group had chlorine in their water, compared to 34 percent in the free distribution group. However, there was no difference in usage between households who received chlorine for free and households who received vouchers. This suggests that the inconvenience of safekeeping and redeeming vouchers did not screen out many households who would have used chlorine solution if given it directly, and that the households who did not redeem vouchers likely would not have used the chlorine under free delivery.

In addition, free distribution through vouchers may be more likely to reach the target population. Lower-income households were more likely to redeem vouchers, while wealthier households were more likely to purchase chlorine under cost-sharing. To the extent that lower-income households are at greater risk of diarrheal disease, the use of vouchers may lead to greater health improvements than cost-sharing.

Together, these results suggest that free provision via vouchers screened out 88 percent of households who would accept but not use the product when given for free by health professionals, while excluding few households who would use the product but were unwilling or unable to pay for it. Combining free provision with a voucher mechanism therefore achieves most of the benefits of free treatment, while eliminating most of the potential wastage.

Dupas, Pascaline, Vivian Hoffman, Michael Kremer, and Alix Peterson Zwane. 2016. "Targeting health subsidies through a nonprice mechanism: A randomized controlled trial in Kenya." *Science* 353: 889-895.

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1. 2014 Kenya DHS Survey. Available athttps://dhsprogram.com/pubs/pdf/fr308/fr308.pdf