Poverty is a critical social determinant of health. A particular approach toward mitigating inequitable access to health services in Kenya has been through a community-based distribution program implemented by the Safe Water and AIDS Project (SWAP) that has achieved modest uptake of public health interventions. To explore reasons for modest uptake, we asked program participants about child health problems, daily tasks, household expenditures, and services needed by their communities. Respondents identified child health problems consistent with health data and reported daily tasks, expenses, and needed services that were more related to basic needs of life other than health. These findings highlight the challenges of implementing potentially self-sustaining preventive interventions at scale in poor populations in the developing world. (Am J Public Health. 2013;103:2131–2135. doi:10.2105/AJPH.2013.301459)
micronutrient Sprinkles, ITNs, and soap for handwashing.

To provide context for findings of this evaluation, at the second follow-up in March 2009 we asked respondents supplementary questions about their children’s main health problems, their most important daily tasks, the main things they spent money on, and the most-needed services in their community.

RESULTS

Results of the baseline survey showed that 86% of the population was in the poorest socioeconomic quintile of Kenya. The evaluation found that although utilization of public health interventions increased during the 2-year project period, uptake was modest. Reported use of WaterGuard ranged from 10% at baseline to 32% at first follow-up and 43% at second follow-up. Reported purchase of micronutrient Sprinkles was 0% at baseline, 22% at first follow-up, and 36% at second follow-up.

In the second follow-up survey, among 1159 respondents interviewed, the child health problems most frequently reported included malaria (90.5%), diarrhea (47.7%), pneumonia (43.9%), worms (27.5%), and malnutrition (11.0%; Table 1). The most commonly reported daily tasks were tending the fields (81.5%), cooking food (80.9%), collecting water (68.2%), washing clothes (64.3%), cleaning the house (61.6%), and purchasing food (41.9%). Household spending priorities included food (99.9%), clothing (78.8%), medications (70.7%), soap or detergent (68.2%), school supplies, cooking fuel (33.8%), and agricultural supplies (31.8%).

Finally, respondents reported that the services most needed by their communities included health care (64.8%), education or training (62.2%), clean water (47.7%), toilets (42.8%), employment (39.7%), electricity (28.4%), and employment (39.7%).

DISCUSSION

These responses provide perspective into the challenges of promoting preventive health interventions in poor populations. Although child health problems identified by caretakers were consistent with Kenyan health data and preventable through simple, inexpensive interventions, no health prevention activities were mentioned as an important daily task by more than 12% of respondents. The only health-related spending priority reported in this survey—medications—was curative in nature. The most frequently reported household tasks, spending, and most-needed community services reflected the basic needs of life: food, clothing, cleaning, education, earning a living, and transportation. All 3 health-related services mentioned—healthcare, clean water, and toilets—are infrastructure investments that, in the case of water and sanitation, have
TABLE 1—Percentage of Mothers Reporting Child Health Problems, Household Tasks, Spending Priorities, and Needed Services: Nyando Integrated Child Health and Education Project, Western Kenya, March 2009

<table>
<thead>
<tr>
<th>Rank</th>
<th>Child Health Problems</th>
<th>No. (%)</th>
<th>Household Tasks</th>
<th>No. (%)</th>
<th>Spending Priorities</th>
<th>No. (%)</th>
<th>Needed Services</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Malaria</td>
<td>1049 (90.5)</td>
<td>Tending the fields</td>
<td>945 (81.5)</td>
<td>Food</td>
<td>1158 (99.9)</td>
<td>Health care</td>
<td>751 (64.8)</td>
</tr>
<tr>
<td>2</td>
<td>Diarrhea</td>
<td>553 (47.7)</td>
<td>Cooking food</td>
<td>938 (80.9)</td>
<td>Clothing</td>
<td>913 (78.8)</td>
<td>Education/training/fees</td>
<td>721 (62.2)</td>
</tr>
<tr>
<td>3</td>
<td>Pneumonia/lung disease</td>
<td>509 (43.9)</td>
<td>Collecting water</td>
<td>790 (68.2)</td>
<td>Medicine</td>
<td>819 (70.7)</td>
<td>Sufficient food</td>
<td>698 (60.2)</td>
</tr>
<tr>
<td>4</td>
<td>Worms</td>
<td>319 (27.5)</td>
<td>Washing clothes</td>
<td>745 (64.3)</td>
<td>Soap or detergent</td>
<td>790 (68.2)</td>
<td>Clean water</td>
<td>553 (47.7)</td>
</tr>
<tr>
<td>5</td>
<td>Malnutrition</td>
<td>127 (11.0)</td>
<td>Cleaning the house</td>
<td>714 (61.6)</td>
<td>School supplies</td>
<td>613 (52.9)</td>
<td>Toilets</td>
<td>490 (42.8)</td>
</tr>
<tr>
<td>6</td>
<td>Measles</td>
<td>71 (6.1)</td>
<td>Purchasing food</td>
<td>486 (41.9)</td>
<td>Cooking fuel</td>
<td>392 (33.8)</td>
<td>Employment</td>
<td>460 (39.7)</td>
</tr>
<tr>
<td>7</td>
<td>Skin problems/rashes</td>
<td>52 (4.5)</td>
<td>Tending livestock</td>
<td>237 (20.4)</td>
<td>Seeds, agricultural supplies</td>
<td>369 (31.8)</td>
<td>Better roads</td>
<td>431 (37.2)</td>
</tr>
<tr>
<td>8</td>
<td>Tuberculosis</td>
<td>42 (3.6)</td>
<td>Feeding family</td>
<td>225 (19.4)</td>
<td>Water treatment products</td>
<td>135 (11.6)</td>
<td>Electricity</td>
<td>329 (28.4)</td>
</tr>
<tr>
<td>9</td>
<td>Headache</td>
<td>21 (1.8)</td>
<td>Treating water</td>
<td>170 (14.7)</td>
<td>Transportation</td>
<td>96 (8.3)</td>
<td>Housing</td>
<td>285 (24.6)</td>
</tr>
<tr>
<td>10</td>
<td>Fever</td>
<td>24 (2.1)</td>
<td>Going to work</td>
<td>118 (10.2)</td>
<td>Light, paraffin</td>
<td>40 (3.5)</td>
<td>Transportation</td>
<td>157 (13.5)</td>
</tr>
<tr>
<td>11</td>
<td>Eye problems</td>
<td>13 (1.1)</td>
<td>Religious observances</td>
<td>62 (5.3)</td>
<td>Water</td>
<td>32 (2.8)</td>
<td>Loan/microcredit</td>
<td>57 (4.9)</td>
</tr>
<tr>
<td>12</td>
<td>Ear problems</td>
<td>13 (1.1)</td>
<td>Collecting firewood</td>
<td>49 (4.2)</td>
<td>Household items</td>
<td>13 (1.1)</td>
<td>Agricultural support</td>
<td>26 (2.2)</td>
</tr>
<tr>
<td>13</td>
<td>Abdominal pain</td>
<td>12 (1.0)</td>
<td>Caring for ill child/relative</td>
<td>46 (4.0)</td>
<td>Fishing supplies</td>
<td>11 (0.95)</td>
<td>Business improvements</td>
<td>15 (1.3)</td>
</tr>
<tr>
<td>14</td>
<td>Schistosomiasis</td>
<td>12 (1.0)</td>
<td>Washing dishes</td>
<td>32 (2.8)</td>
<td>Livestock</td>
<td>9 (0.78)</td>
<td>Market center</td>
<td>14 (1.2)</td>
</tr>
<tr>
<td>15</td>
<td>Dental problems</td>
<td>11 (0.95)</td>
<td>Caring for children</td>
<td>11 (0.95)</td>
<td>Business expenses</td>
<td>6 (0.52)</td>
<td>Flood control</td>
<td>8 (0.09)</td>
</tr>
</tbody>
</table>

Note: The sample size was n = 1159.

Other desirable characteristics like convenience and personal safety.15,16

The competing tasks and many expenses that burden households help explain the modest rates of uptake of inexpensive preventive interventions observed in this population. The possibility that economic barriers constrain use of lifesaving technologies raises the question of whether they should either be highly subsidized or provided free to poor populations with little or no disposable income.17

Another constraint to adoption of interventions may have been the complex, time-consuming, behavior change process itself. The 2-year study period may have been insufficient to observe change. SWAP continues to

NICH was carried out in Nyando Division of Nyanza Province in rural western Kenya. The population of Nyando Division is about 80,000 people. Most of the people in this region are from the Luo ethnic group and are subsistence farmers. This is a polygamous society where multigenerational families typically live in compounds comprising a main house surrounded by several additional households.

There existed low demand for these particular products for other reasons.

In summary, our findings provide insight into the substantial challenges of implementing self-sustaining preventive interventions in poor populations in the developing world, and the difficulties experienced in scaling up proven, partially subsidized interventions, such as household water treatment. In populations with little disposable income and many competing needs, the expectation of full or partial cost recovery in health programs may be unrealistic. The success achieved with ITN coverage provides an instructive example of an alternative implementation approach. ITN use reached meaningful scale only after economic barriers to access were lowered through free distribution.

**Field Action Report**

Explore alternative, integrated behavior change strategies, which should be evaluated over longer periods.

This survey had 2 main limitations. First, because it was conducted in 1 division in western Kenya, the results are not generalizable. Nevertheless, basic survival needs noted by this population are common in other poor populations. Second, our study population may have possessed greater knowledge of childhood health problems and preventive interventions because of SWAP health promotion activities. This awareness, however, did not appear to motivate high levels of use of these interventions, suggesting either that many people lacked disposable income to purchase the items or that there existed low demand with the implementation of the study, including data collection and data management, and contributed to the writing. R. Quick supervised the project and contributed to the study design and writing.

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This article is dedicated to the memory of Alfredo Obure who died on December 30, 2009.

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Note. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the CDC.

**Human Participant Protection**

The protocol for this project was approved by the institutional review boards at the Kenya Medical Research Institute (KEMRI; protocol #1176) and at the Centers for Disease Control and Prevention (protocol #5039).

**References**


