Hand Washing Research on Utilization of Bush Proof Hand Washing Containers (BPHWC) in Humanitarian Emergencies

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Summary

A six months trial of 100 Bush Proof Hand Washing Containers (BPHWC) was carried out in approximately 10 rural villages situated in Southern Zimbabwe. The research focused on four key parameters, which were: acceptability, utility, durability and lastly cost effectiveness. This research shows that community members accepted and consistently used the BPHWC, however the disabled and bedridden chronically ill people could not use it. It was also noted that the BPHWC was mainly for hand washing after defecation and not before eating and this was because most of them were located near or inside latrines. Other limitation of the BPHWC was that the containers can only be used at household level not in communal facilities because their limited capacity and they can also be stolen. Out of 100 containers distributed in December 2006, 88 were still being used and twelve got spoiled either at the seam or nozzle. For the Zimbabwe program, BPHWC were not cost effective as there were cheaper and more durable options. However, for rapid onset emergencies BPHWC might be the best option in promoting hand washing at household level within 48hours of a humanitarian intervention. Best practice would advocate for addition of BPHWC into household hygiene kits but further research needs to be done to assess acceptability and use in Islamic and non-African communities who are used to washing their hands with unlimited supply of tap water.

I. Introduction to Research and Context

Hand washing has been proved to be an effective measure for preventing faecal oral transmission of diarrhoeal causing micro-organisms. Research and evaluation reports in the Water Sanitation and Hygiene (WASH) sector have shown that poor hand hygiene practice and lack of appropriate hand washing facilities are often the missing link in integrated water hygiene sanitation intervention programs. Poor hand hygiene often result to increased incidence diarrhoeal diseases that are the major cause of morbidity and mortality among the under five years old children. While the techniques involved in hand hygiene are simple, the complex interdependence of factors (age, literacy, household economic status, water supply, cultural beliefs and religious practices) makes promotion of hand washing complex. Though the importance of providing hand-washing facilities at household level cannot be underemphasized there is still no fast solution to this challenge especially in the first 48 hours of an acute emergency.

In an effort to identify a rapid response hand-washing device, Oxfam GB piloted 100 Bush Proof Hand Washing Containers in Zimbabwe from December 2006 to July 2007. The objective of the research was to ascertain the effectiveness bush proof hand-washing device with focus on four key parameters, which were: acceptability, utility, durability and lastly cost effectiveness. Acceptability and utility were essential for promoting compliance to hand washing while cost and durability are essential for assessing sustainable use of the containers.
2. Literature review

Various authorities in the public health field have advocated for hand washing as a mean of controlling not only diarrhoeal diseases but also Acute Respiratory Infections. Kaltenthaler et al (1991) observed that households with infants and people involved in outdoor physical activities had higher fecal count on their hands than the normal population. Additionally children between 1-5 years of age had higher counts than children of 6-12 years. The implication of her findings was that hand washing needs to be at all times and not only after defecation and that parents need to take lead in ensuring children wash their hands before eating. Though promotion of hand washing has been based on the germ theory (fecal contamination) Zeitlyn et al (1991) argues that people are more likely to wash hands to improve their self-esteem and due to religious or cultural obligations than prevention of diseases. Nonetheless, research carried out by Curtis et al (2003) revealed that hand washing with soap can lower risk of diarrhoeal diseases by 42-44%.

Though there is a wealth of information on hand washing in development and peaceful context there is little information on hand washing facilities and hand washing practice in humanitarian emergencies. It is always assumed that any container that can hold water can be used for hand washing but experience has shown that this is often not the case. Lack of hand washing facilities during the acute phase decreases targeted community compliance with hand hygiene hence increasing their risk and exposure to diarrhoeal diseases. So as to provide a solution to this problem, Oxfam GB commissioned a research on the BPHWC with the three main research questions being?

- What is the acceptability and utility of the bush proof hand-washing device?
- What is the durability of bush proof hand washing device when used at household level?
- What is the cost effectiveness of bush proof HWC in relation to other options in the community?

The following sections of this report will focus on the research process, results, limitation of findings and lastly recommendations and conclusion.

3. Research Process

An initial baseline survey with an objective of identifying prevailing knowledge and practice on hand hygiene covered 41 villages with participation and input from 219 households that was above 92 households recommended by Epi Info 2000. From the baseline survey result the most disadvantaged villages with scarce water sanitation facilities were selected for piloting use of the containers. They were selected because Oxfam had already earmarked the location for provision of water sanitation facilities hence provision of hand washing containers would act as an incentive for improving hygiene at household level. Households within targeted villages were selected based on the presence of latrine within the household; willingness to participate, vulnerability i.e. widows, child headed households and families with chronically ill person. All of the selected beneficiaries were members of their village health clubs and were identified through purposive sampling.

After the community sensitisation and distribution of the BPHWC, A team of 5 Village Health Workers supervised by 1 Oxfam GB Public Health Promoter was tasked with following up of the 100 households that received the BPHWC. VHW conducted weekly household visits to observe use of BPHWC, motivate families to use the container and have informal discussions with households on challenges faced in using the BPHWC. During the first two months of the research reports were compiled on a weekly basis but this latter changed to monthly reporting. In the final evaluation conducted in July 2007, 3 focussed group discussions; informal interviews and 27 household visits were conducted. Approximately 40 households participated in the final evaluation of the research.

4. Results

4.1. Acceptability and Utility

In an effort to analyse acceptability and utility of the BPHWC it was critical to develop an understanding of what motivates the targeted community to wash their hands. Main motivators for hands washing were: to remove dirt from hands so as to be presentable and secondly to control feecal oral diseases. Acceptability and use of the
BPHWC was indicated by placing a filled container in a latrine or under a tree within the household and evidence of use was indicated by the water level in a container, report by family members on usage and wet ground underneath the hand washing container. Most households reported that priority time for hand washing was after defecation followed by hand washing before eating. In all households visited it was reported and observed that BPHWC were solely used for washing hands after defecation and not before eating and this was because households did not want the inconvenience of moving up and down with the container. Chart 1 below shows variations in hand washing times as per perceived priority.

**Chart 1: Priority Time for hand washing**

<table>
<thead>
<tr>
<th>Persons</th>
<th>Before Eating</th>
<th>After Defecation</th>
<th>After Waking up</th>
<th>Before cooking</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>25</td>
<td>20</td>
<td>15</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

Key factors that influenced use of BPHWC were:

**Material factors:** Households liked the plastic container, felt it was portable and the use of a nozzle to release water made them feel they were using a tap that was perceived to be superior to using a jug or a cup to wash hands. Having the BPHWC in or outside the latrines acted as a constant reminder for people to wash their hands this was important because it improved household compliance with hand washing. Unlike the jug or basin method that needs two people to facilitate hand washing one person can use BPHWC without assistance. As the container got old and dirty so did motivation to use it decrease. Added material advantage was the slow release of water hence saving a scarce resource however the slow release acted as a disincentive for farmers who needed large quantity of water to wash of soil from their hands.

**Type of faecal disposal facility and use of BPHWC:** Baseline survey in December 2006 had shown that less than 20% of Oxfam constructed toilets had hand washing facilities and while none of the families without latrines practiced hand washing after going to the bush. However by the end of this study all Oxfam constructed latrines had either the BPHWC or concrete hand washing facilities. It was observed that more people used the BPHWC when it was located in or outside a latrine but this meant bed ridden family members could not use it. Chart 2 shows that households without latrines were less likely to use hand washing containers compared to households with traditional or Oxfam latrines and this is because the ones who use the bush do not necessarily go back to the houses, the bush is used when someone is on his/her way to the market centre or visit relatives.

**Gender:** Gender was important in relation to filling the container. In all 27 households visited it was reported that women and young girls are the ones who filled the container. In their absence the containers were unlikely to be filled hence not used

**Age, disability and health status:** Under five years old children, the elderly were less likely to use it compared to other age groups and this was because of perceived difficulty in opening the nozzle. The containers were also hung at a level where under five years old children could reach it. People with
disability of the hand needed assistance to wash their hands.

*Literacy and economic status:* Households with higher literacy could link the use of BPHWC to prevention of faecal oral diseases while those with lower education viewed the BPHWC as an ornament. A household with high income was likely to have a coca cola or local juice plastic bottles to replace torn BHPC bags.

*Mobilization and sensitisation:* In contrast to the baseline survey there was a marked increase in number of households who viewed dirty hands as a means for spreading diarrhoeal infections. It was vital to link use of BPHWC to prevention of faecal oral transmission of diarrhoea causing micro-organisms. The increase in understanding might be attributed to the distribution of the BPHWC and intense sensitisation conducted by VHW. Though Oxfam distributed 100 BPHWC for the research and additional 100 were distributed to a third village that felt left out, in our final evaluation it was found that containers distributed to the third village where there was little follow up by Oxfam had higher number of spoilt containers while some were being used consistently.

![Chart 3: Comparison of community members understanding of Diarrhoeal Diseases Transmission Routes before the research and after.](image)

*Availability of other hand washing containers:* Household members used the BPHWC for washing hands after using the latrine and not before eating. Jugs and dishes are still preferred for washing hands before eating because the BPHWD are placed near the latrines and not within the house.

*Water supply:* Household that walked for 30 minutes to fetch water felt that the container helped them in conserving water. Though not reported by the community it was noted that household with source within their homestead were more likely to refill their container than households that did had to walk for 30 minutes to fetch water.

### 4.2. Durability

Out of 100 containers distributed in December 2006, 88 were still being used and were in good condition. The twelve that got damaged were due to broken nozzle (5) and leaking container (7). The outer coat of most containers started pilling after 4 months. There were no replacements for broken nozzles or containers from the local market.

![Chart 4: Ranking of key problems](image)

### 4.3. Cost effectiveness

When assessing the cost of the BPHWC two factors need to be considered, firstly is how fast locally available HWC can be procured in required quantities and secondly the context i.e. where is it going to be used is, it an emergency situation or development oriented programming?
Oxfam GB experience in acute emergencies has been that it is difficult to get good hand washing containers for use at household level from local market in large quantities and this is because most household with no access to tap water use cups, jugs or basins for hand washing. Furthermore, hand washing has not been a demand driven market in poor communities hence there are no hands washing containers manufactured for use in poor households. When communal hand washing containers are finally constructed in camps they are placed in or around latrines but none is provided at household level. In such a situations it would be far much cheaper to include a specific type of hand washing container into the household hygiene kits so as to develop compliance at the beginning of an emergency. At 3 dollars, the BPHWC are expensive but when bought in bulk they can be cheaper.

When assessing cost in relation to context it is far much cheaper to construct concrete hand washing vessels per latrine block. A concrete latrine water container cost less than a dollar and lasts the whole lifespan of a latrine.

5. Limitation of the research

Though the findings of the research are to aid in identifying a hand-washing container that can be used in emergencies the research was not done in an emergency environment but in a stable and settled households. However and linked to precedence, most hand washing research that have influenced PH programming have been done in stable environments but the findings have been replicated in emergencies.

6. Recommendations and Conclusion

- The container should have extra protecting from UV light so that it can last longer. The Nozzle should be adjustable to allow a flexible flow rate as per demand of an individual.
- The container can be pre-chemically treated for slow release of hand disinfecting chemicals.
- The containers can be branded to provide visibility for Oxfam or a donor. They can also be used to pass key messages on hygiene sanitation at camp level.

In conclusion, families reported that the biggest impact of having the BPHWD was creating a habit for people to wash their hands. People knew even before receiving the hand-washing container that it was important to wash their hands but they did not have motivation to wash their hands. The hand-washing device acts as a reminder for family members to wash their hands after defecation. Further research needs to be done to access the utility of the container in rapid onset emergencies.

Bibliography:


