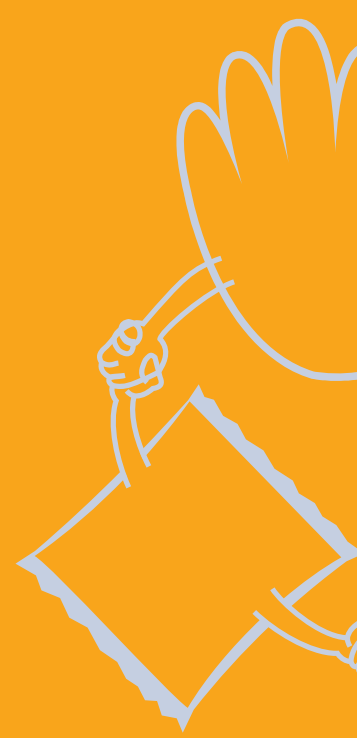




Saathi Bachpan Ke Diarrhea Prevention and Management Baseline Report

Findings | Summary | Recommendations





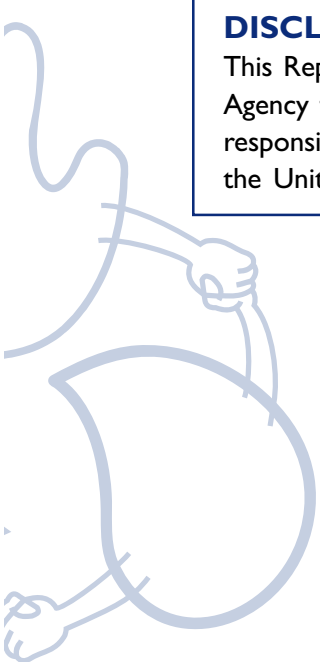
SAATHI BACHPAN KE

DIARRHEA PREVENTION AND MANAGEMENT BASELINE REPORT

FINDINGS | SUMMARY | RECOMMENDATIONS

DISCLAIMER

This Report is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this Report are the sole responsibility of Abt Associates India Pvt. Ltd. and do not necessarily reflect the views of USAID or the United States Government.



ACKNOWLEDGEMENTS

Funded by the United States Agency for International Development (USAID), the Market-based Partnerships for Health (MBPH) project is being implemented by Abt Associates and its consortium of partners. Developed by MBPH, *Saathi Bachpan Ke* is a pilot program that builds partnerships and leverages the strengths of the public and private sectors (pharmaceutical, soap and hygiene product partners) for childhood diarrhea management. Abt leads the design and implementation of the program's research component for assessing the effect of the intervention on the supply and use of health commodities as well as the financial viability of the model. Data collection for the program's qualitative and quantitative baselines studies were completed with assistance from local research firms.

MBPH would like to thank TNS Mode and Purple Audacity research teams led by Sandeep Ghosh and Sharmila Das respectively, for their efforts in collecting and analyzing the data for this report. The project is also indebted to numerous individuals who participated in the baseline studies. By responding to the quantitative study questionnaires and participating in the in-depth interviews and focus group discussions that were the basis for the qualitative research study, they helped provide valuable information for both improving the design of the pilot program as well as for assessing its impact.

The Abt research team also thanks USAID|India for its support, especially Sheena Chhabra and Moni Sagar whose inputs and guidance have been invaluable in shaping the design and implementation of the program. Finally, the pilot program would not have been possible without the collaboration, ideas and enthusiasm of our key partners Reckitt Benckiser- Dettol, Tata Chemicals- Tata Swach and Alkem Laboratories- Alkem Ulticare.

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ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
AWP	Active Water Purification
FGD	Focus Group Discussion
HH	Household
HW	Hand Washing
HWTS	Household Water Treatment Systems
HWWS	Hand washing with Soap
IDI	Intensive Depth Interviews
IPC	Inter Personal Communication
ISMH	Indian System of Medicine and Homeopathy
KAP	Knowledge Attitude and Practice
MBPH	Market-based Partnerships for Health
MoU	Memorandum of Understanding
NGO	Non-Government Organization
ORS	Oral Rehydration Salt
ORT	Oral Rehydration Therapy
PSU	Primary Sampling Units
RO	Reverse Osmosis
SEC	Socio Economic Category
TG	Target Group
UP	Uttar Pradesh
USAID	United States Agency for International Development
UV	Ultra Violet
WHO	World Health Organization



EXECUTIVE SUMMARY

INTRODUCTION

Implemented by the USAID funded Market-based Partnerships for Health (MBPH) project, *Saathi Bachpan Ke* ('Friends of Childhood' in Hindi) is a program that aims at improving child health by reducing the incidence of diarrheal diseases in children under five (the second highest cause of deaths among this age group). This is done by promoting simple and effective behaviors, namely, hand washing with soap, treating water and using oral rehydration therapy (ORT).

The program is currently being piloted in 12 slums each in the cities of Varanasi, Lucknow and Kanpur in the state of Uttar Pradesh (UP) in India. *Saathi Bachpan Ke* aims to garner the strength of the public and private sectors (pharmaceutical, soap and hygiene product partners) for diarrhea management. At present, the program is partnering actively with marketers of Dettol soap, Swachh water filters and Oralhydrate oral rehydration salts (ORS) and encouraging them to play an important role in the promotion of positive health behaviors by supporting the incorporation of integrated public health messages into their different marketing initiatives and interventions. This is in line with MBPH's belief that having commercial partners who are better informed about public health issues will also make them better advocates for improved child health and more committed to building a market for products that prevent and help manage childhood diarrhea over the long term. While the results from this research study will help establish program baselines and will shape the category campaign for *Saathi Bachpan Ke*, MBPH also expects commercial partners to make use of the results of the consumer research and incorporate the key insights into their marketing strategies.

RESEARCH OBJECTIVES

The objectives of the study were to:

- Establish baseline values for performance indicators around knowledge, attitudes and practices of consumers
- Establish an evidence base for prioritizing target population segments
- Identify and prioritize key barriers to the adoption of desired behaviors

METHODOLOGY

The research objectives discussed above were addressed through a mix of quantitative and qualitative studies, described below:

QUANTITATIVE STUDY:

In October 2010, Abt commissioned TNS Mode, an international market research agency with extensive experience in social research to carry out a population-based survey of households. The survey was conducted in 36 project slums of Lucknow, Varanasi and Kanpur districts of UP. Data was collected through home visits using structured questionnaires. The target respondents for the hand washing and water treatment were caregivers of children under the age of 5 years. For ORT/ ORS, the



target respondents were caregivers of children under the age of 5 years, reported to have diarrhea two weeks preceding the survey. The study covered a total of 2354 caregivers for hand washing, 777 caregivers for water treatment and 774 caregivers of children under the age of five years with diarrhea for ORT/ORS. A systematic simple random sampling was adopted to select the eligible respondents for the baseline study.

The sample data was weighted and then analyzed using uni-variate, bi-variate and multi-variate techniques (binary logistic regression) and the key findings are presented in multiple ways including percent, adjusted proportion, mean scores and odds ratio.

QUALITATIVE STUDY:

A qualitative study preceded the quantitative survey. The purpose of the qualitative study was to have an in-depth understanding of target population; their behavior, knowledge and attitude towards hand washing with soap, water treatment and ORT/ORS use and factors affecting the use of these desired behaviors. The study was conducted by Purple Audacity, a national research agency experienced in doing qualitative studies. It was conducted in Lucknow and Varanasi districts of UP in August 2010. The study participants included women (and their spouses) in the reproductive age group of 18-35 years who were primary caregivers of children under the age of 5 years. The eligible respondents belonged to SEC C & D. In all, 19 intensive depth interviews (IDIs) and 9 focus group discussions (FGDs) were conducted.

KEY FINDINGS AND RECOMMENDATIONS:

This section presents the key findings of the program's quantitative and qualitative studies and specific communication recommendations on hand washing with soap, water treatment and use of ORT.

HAND WASHING WITH SOAP

KEY FINDINGS:

- More than 90 percent of the caregivers reported that water and soap was available at the wash stations most often used in the household.
- About three-fourths of the caregivers reported washing their hands with soap consistently after defecation and cleaning child's bottom. This was related to the extremely strong perceptions among the respondents about "Ghin" or the feeling of disgust related with handling human feces.
- Only 16 percent of caregivers reported washing their hands with soap consistently before eating food and feeding their child. It was mainly because of the deep rooted concepts of "Pavitrata" (ritualistic purity) and "Gandagi" (visible sign of impurities). Women believed in "Pavitrata", or that the kitchen was a pure place once it was mopped and after they have taken a bath. If there are any impurities that these would be visible "Gandagi", and in this case they would wash their hands with water. Hence, the need to wash hands with soap was not felt before eating food and feeding their child. In fact, washing hands just with water emerges as the most significant competitor to using soap for hand washing.



- By far, the most important factor influencing the consistent use of soap before eating food and feeding their child was the belief that it is indeed important to wash one's hands with soap before eating food and feeding their child. Findings further revealed that those caregivers, who were uneducated, were the ones more likely to not wash their hands with soap consistently before eating food and feeding their child.

HAND WASHING WITH SOAP RECOMMENDATIONS:

Based on the findings, following recommendations are proposed:

- Program communication activities should focus on promoting washing hands with soap consistently versus just washing with water, before eating food and feeding their child. Focusing on washing hands with soap before meals will in turn increase the use of hand washing with soap on all five critical occasions: after defecation, after cleaning child's bottom, before eating, before feeding their child/children and before cooking. Communication need not emphasize the importance of washing after defecation since this is largely understood and practiced.
- Focus on changing the beliefs that washing hands with water is considered to make them pure ("Pavitrata") and washing hands with water alone removes "Gandagi". For this, it is important to communicate that hand washing means washing with water 'and' soap, not with water alone.
- Access to soap and water was not an issue at households. However there are opportunities at schools, especially around mid-day meals, to provide access and increase cases of hand washing with soap before eating. While these activities at schools will not specifically target under five children, there ought to be a spillover effect of educating the elder siblings who are a key influencer group.

WATER TREATMENT KEY FINDINGS:

- The predominant source of drinking water among the respondents was tube wells or hand pumps. The majority of caregivers did not follow safe water storage practice and did not treat their drinking water. The study suggests that the source of water played an important role in the perception of quality of water. Hand pumps were perceived as the safest source. Hence, the perceived need to treat their drinking water was low.
- About 32 percent of caregivers who said that they felt the need to treat their drinking water, did not currently use any Active Water Purification (AWP) methods such as boiling, chlorine tablets, iodine tablets, alum, ceramic filter, gravity filter, reverse osmosis (RO) or ultra violet ray (UV) consistently. Even though there was a perceived need to treat their drinking water, it had not translated into the consistent use of AWP methods. Only 7 percent of caregivers felt the need and were also using an AWP method consistently.
- The most critical determinant for motivating caregivers who have the perceived need to use an AWP method consistently is instilling the belief that water which looks clean, tastes good or comes from a pipe may not be safe to drink. Research finds that those who have access to water from pipes or tubewells/ hand pumps, have the highest potential for using an AWP method consistently.



- The qualitative study findings explain that purity of water was associated with its transparency, taste and smell. As long as the water looked clean, tasted sweet and had no smell, there was no need for any additional water treatment. In addition, there is a tradition of drinking fresh water as it is considered to be safe and there is an understanding that stale water should be thrown away. The low risk perception also came from the fact that the younger generation had always seen their parents follow this system and nothing 'bad' had happened to them.

WATER TREATMENT RECOMMENDATIONS:

Based on the findings, the following recommendations are proposed:

- Communication activities should focus on changing the belief that water which looks clear or does not taste bad or does not smell bad smell is safe to drink.
- The program should mainly target those caregivers whose predominant drinking water source is either water from pipes or tube well/ hand pumps.
- Practice of safe storage of drinking water is very low. Hence, the program should focus on solutions that enable and enhance safe storage procedures.
- The program also needs to include healthcare providers to build the connection between unsafe water and disease and illness, and spread this message for motivating use of water treatment methods.

USE OF ORT KEY FINDINGS:

- A majority of caregivers took some action either at home (39%) or sought external advice (77%) to treat their child who was suffering from diarrhea. Only about 14 percent of caregivers did not take any action for treatment.
- Among those caregivers who sought external advice, 76 percent of the caregivers visited private health facilities, 19 percent went to the government health facilities and 2 percent of the caregivers consulted chemists.
- Around 65 percent of caregivers reported giving ORT to their child suffering from diarrhea. Around 49 percent of them reported giving ORS and 33 percent of caregivers gave either sugar-salt solution or gruel. The qualitative study revealed that sugar-salt solution was thought to be equivalent to ORS and was trusted since it is made at home and hence is more convenient.
- Although use of ORT is quite high, consistent use is relatively low and it declined significantly from 65 percent to 39 percent when caregivers were asked about the use of ORT after every liquid stool. A similar pattern was observed with ORS use which declined from 49 percent to 27 percent.
- The two significant determinants that could trigger behavior change among those who did not give ORT frequently to their child during last diarrheal episode were: a) recommendations by healthcare providers and b) knowledge that ORT should be administered in small quantities to facilitate the child's acceptance of ORT.
- The qualitative study showed that there was low perceived self-efficacy and most respondents were not aware of correct preparation or dosage of ORT (both for sugar-salt solution and ORS).



- Caregivers who were uneducated and had a monthly income of ₹ 2000 or less were less likely to use ORT frequently.

USE OF ORT RECOMMENDATIONS:

Based on the findings, the following recommendations are proposed:

- The program communication needs to focus on informing caregivers that ORT should be administered frequently after every liquid stool.
- Focus on emphasizing that ORT should be administered in small quantities if the child initially refuses to take ORT.
- Increase the awareness of correct preparation and dosage of ORT. This includes the need to focus on both sugar-salt solution and ORS, in order to increase correct use of ORT.
- Recommendation of ORT/ORS by healthcare providers is an important trigger for use among caregivers. Ensuring that these recommendations are made by providers is likely to have a larger impact in having caregivers administer ORT frequently during diarrheal episodes. Training sessions among providers should highlight this fact and advocate recommending ORT/ORS to caregivers.



BACKGROUND

Funded by USAID, *Saathi Bachpan Ke* ('Friends of Childhood' in Hindi) is a program implemented by the Market-based Partnerships for Health (MBPH) project. The aim of the program is to improve child health by reducing the incidence of diarrheal diseases in children under five (the second highest cause of deaths among this age group) by promoting simple and effective behaviors, namely, hand washing with soap, treating water and using ORT.

The program, being piloted in the state of UP in India has been designed keeping in mind the fact that despite the existence of inexpensive and efficient means of prevention and treatment, diarrhea kills more children than AIDS, malaria and measles put together. Diarrhea is the second largest killer of children under five in India, with 386,600¹ deaths each year and 25 percent of these deaths occur in UP. Research indicates that 88 percent² of these deaths are preventable through:

1. Hand washing with Soap (HWWS), especially at five critical times: after defecation, after cleaning the child bottom, before eating, before feeding their child/children and before cooking³
2. Treating drinking water using appropriate Household Water Treatment Systems (HWTS)
3. Providing oral rehydration therapy (ORT)

Saathi Bachpan Ke aims to garner the strength of the public and private sectors (pharmaceutical, soap and hygiene product partners) for diarrhea management. Keeping this objective in mind, at present, the program is partnering actively with marketers of Dettol soap, Swach water filters and Orhydrate oral rehydration salt (ORS) and encouraging them to play an important role in the promotion of positive health behaviors by supporting integrated public health messages and incorporating them into their different marketing initiatives and interventions. MBPH believes that having commercial partners who are better informed about the public health issues will also make them better advocates for improved child health and more committed to building a sustainable market for products that prevent and help manage childhood diarrhea.

The need for a comprehensive study was envisaged to aid the development of communication strategy by bridging key knowledge gaps pertaining to use of public health products for comprehensive diarrhea prevention and management, and to understand the current levels of key program indicators (see Annexure I) to enable evaluation of the program performance over time.

¹World Health Organization, Global Burden of Disease Estimates, 2004 Update

²Child Survival II. The Lancet, Vol 362. July 5, 2003

³ WHO and UNICEF, 1999 (http://www.who.int/child_adolescent_health/en/and http://www.usaid.gov/our_work/global_health/eh/techareas/handwashing.html)



RESEARCH OBJECTIVES

The objectives of the study were:

1. To establish baseline values for performance indicators around knowledge, attitudes and practices of consumers. MBPH expects that the knowledge, attitudes and reported behaviors of the target populations will change as a result of the interventions being implemented and promoted by the program.
2. To establish an evidence base for prioritizing target population segments. It is important for program and communication activities to focus on the segment of the target population that is most at risk and most likely to adopt the desired behavior/s.
3. To identify and prioritize key barriers to the adoption of desired behaviors. Potential target populations do not adopt desired preventive practices, even though they reflect the desired attitudes, due to a variety of reasons. An in-depth understanding of these reasons or barriers to behavior change will help the MBPH project design effective and comprehensive behavior change strategies and activities. Further, the findings of this study will help with key management decisions regarding prioritization of activities that address the most important barriers for effective management of resources.



METHODOLOGY

The research objectives discussed above were addressed through a mix of quantitative and qualitative studies, described below:

QUANTITATIVE STUDY:

In October 2010, Abt commissioned TNS Mode, an international market research agency with experience in social research to carry out a population-based survey of households. The survey was conducted in 36 project slums of Lucknow, Varanasi and Kanpur districts of UP. Data was collected through home visits using structured questionnaires. The target respondents for the hand washing and water treatment were caregivers of children under the age of 5 years and for ORT/ORS, the target respondents were caregivers of children under the age of 5 years, who reported having suffered from diarrhea two weeks preceding the survey. A total of 2,354 caregivers for hand washing, 777 caregivers for water treatment and 774 caregivers of children under the age of five years with diarrhea for ORT/ORS were covered under the study (see Annexure II).

A systematic simple random sampling was adopted to select the eligible respondents for the baseline study. The slums included in the program were taken as primary sampling units (PSU) for the study. A listing of a minimum of 110 and a maximum of 500 households was finalized in each PSU and the eligible respondents were identified using a small questionnaire to determine socio-economic classification of the household and the presence of children less than 5 years of age. In each PSU, household listing was conducted until 21 households with a 'diarrhea child'¹ aged 0-5 years were identified. After establishing the household lists, 36 caregivers were selected from the eligible households using systematic simple random sampling for the hand washing section. Of the 36 caregivers in each PSU, 12 caregivers were also selected for administering the water treatment section using the same methodology. All the caregivers from the listed households with a 'diarrhea child' aged 0-5 years were selected for the ORT/ORS section of the survey.

The instrument was designed for a structured face-to-face interview in a private setting, where the interviewer would code responses given by the respondent. The questionnaire was translated in local language and pre-tested before finalization. A well trained and experienced field team of TNS Mode conducted the survey with appropriate data quality checks. Responses to open-ended questions were translated and coded appropriately and the data was entered in SPSS for analysis.

The data analysis was done using uni-variate and bivariate methods and these findings were presented in percent and mean scores. In addition, a multivariate technique (binary logistic regression) was used to control for socio-demographic characteristics of respondents and identify triggers and barriers for desired behavior. The results of multivariate analyses are presented as odds ratios, adjusted proportion and means score with statistical significance in this report. The sample was weighted for the analysis.

¹ A child who suffered from diarrhea in the last 15 days



QUALITATIVE STUDY:

The purpose of the preceding qualitative study was to have an in-depth understanding of target population; their behavior, knowledge and attitude towards hand washing with soap, water treatment and ORT/ORS use and factors affecting the use of these desired behaviors. The study was conducted by Purple Audacity, a research agency with experience in doing qualitative studies. It was conducted in Lucknow and Varanasi districts of UP in the month of August 2011. The study participants included women (and their spouses) in the reproductive age group of 18-35 years who were the primary caregivers of their children under the age of 5 years. The eligible respondents belonged to SEC C & D.

The study involved habitat visits and observations with impromptu discussions with household members; IDIs and FGDs with mothers and fathers and some health providers. A total of 19 IDIs and 9 FGDs were conducted.



KEY FINDINGS AND RECOMMENDATIONS

This section provides the key findings from both the quantitative and qualitative studies, first for hand washing with soap followed by water treatment and then the use of ORT.

HAND WASHING

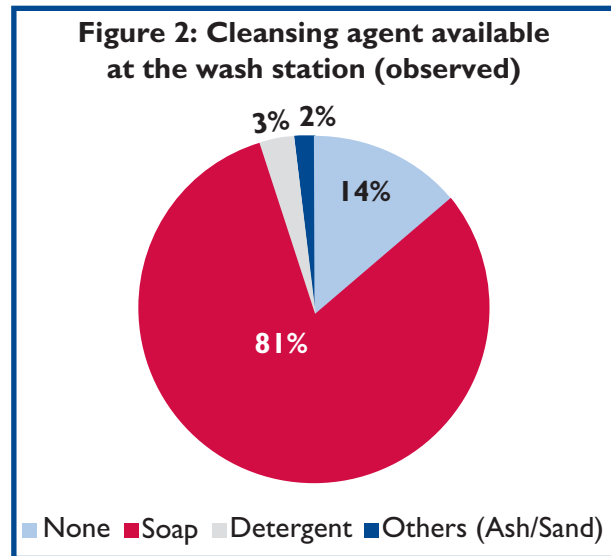
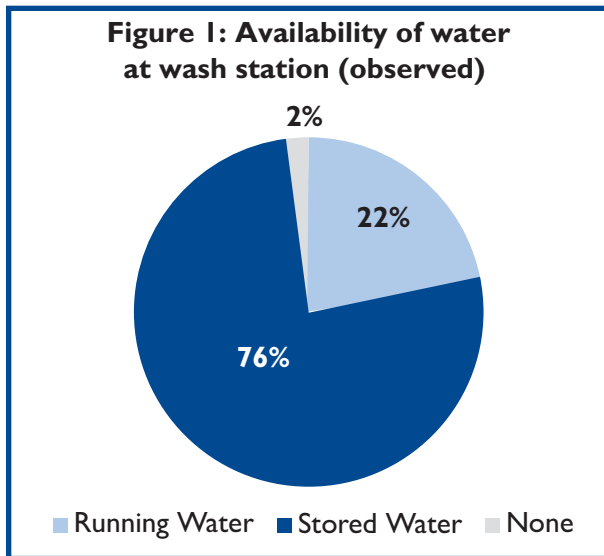
A total of 2354 caregivers of children under the age of 5 were interviewed regarding hand washing with soap. This section presents findings relating to the hand washing station characteristics, use of soap at the five critical times, potential target population and barriers to hand washing with soap.

CHARACTERISTICS OF HAND WASHING STATION

The types of places most often used for hand washing with soap and the availability of water and soap at these stations as reported by the respondent is shown in Table 1. More than 90 percent of the caregivers reported that water and soap was available at the wash stations most often used in the household. This indicates that the availability of water and soap was not an issue preventing people from washing their hands on all critical occasions.

Wash Area	Most often wash station	Water available	Soap available	Local cleansing agent (Ash/mud/sand) available
Inside/ within 10 paces of the toilet facility	30%	94%	95%	23%
Inside/ within 10 paces of the kitchen/ cooking place	18%	92%	86%	30%
Elsewhere in home or yard	46%	94%	90%	20%
Outside yard	12%	83%	75%	23%
Others	1%	45%	48%	6%
N	2354			

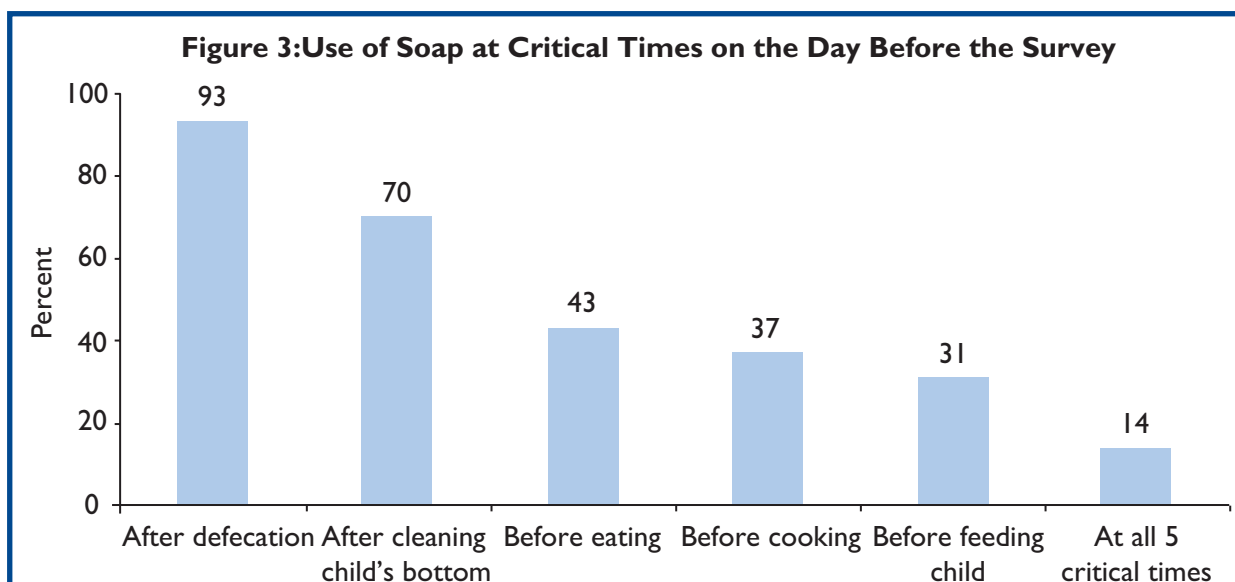
In order to validate the above findings reported by caregivers, the availability of water and cleansing agent at the wash station was also observed and is presented in Figures 1 and 2. The observational findings provide similar insights as reported by the caregivers above. Almost all households had water (98 percent) at the wash station of which 76 percent had stored water. In terms of availability of soap; 81 percent of households were observed to have soap at the hand washing station, while 14 percent had no cleansing agent available at the hand washing station.



USE OF SOAP FOR HAND WASHING AT FIVE CRITICAL POINTS

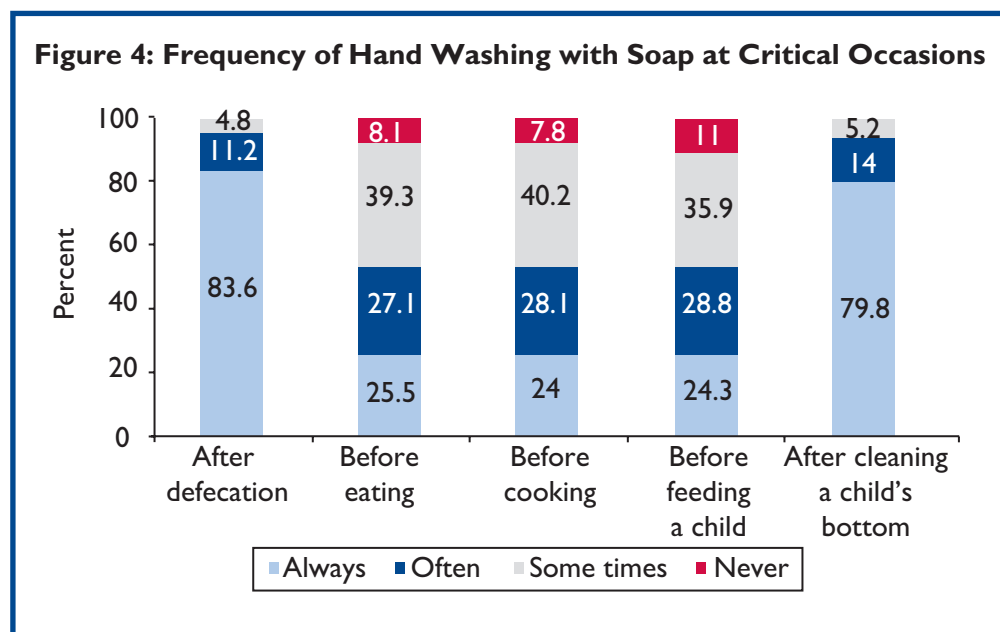
The data on use of soap for hand washing a day before the survey and the frequency of use of soap for hand washing at the five critical points, suggests that the program communication should focus on promoting hand washing with soap at one or two critical times rather than trying to communicate the use of soap at all five critical times to most effectively impact program indicators.

Figure 3 shows the use of soap on the day before the survey. Use of soap was mainly limited to after defecation and cleaning child's bottom. The incidence of hand washing with soap at all the five critical points on the day before the survey was low at 14 percent.





The consistent use of soap at all five critical points is the best indicator for measuring impact of program activities. Disaggregating this, the analysis showed that consistent use of soap was less at three critical points i.e. before eating food, before feeding their child/children and before cooking (Figure 4). In contrast, majority of caregivers reported consistently washing their hands with soap after defecation or cleaning their child's bottom.



The qualitative study also confirmed that soap was used after defecation. The reason for this was cultural/psychological; there was a feeling of disgust after defecation. Women had a stronger association towards washing hands with soap after defecation because of “Ghin” (disgust). However, there was no distinction between soap used for other purposes and soap used for hand washing.

Qualitative findings further suggested that use of soap for hand washing at the other critical points related to food or feeding is low mainly because of two issues “Pavitrata” and “Gandagi”. The idea of “Pavitrata” (purity) was deep rooted among women in the study. Women felt “Pavitra” since they entered the kitchen only after taking a bath. Cooking normally took place after taking a bath and there was little felt need to wash hands at this critical point.

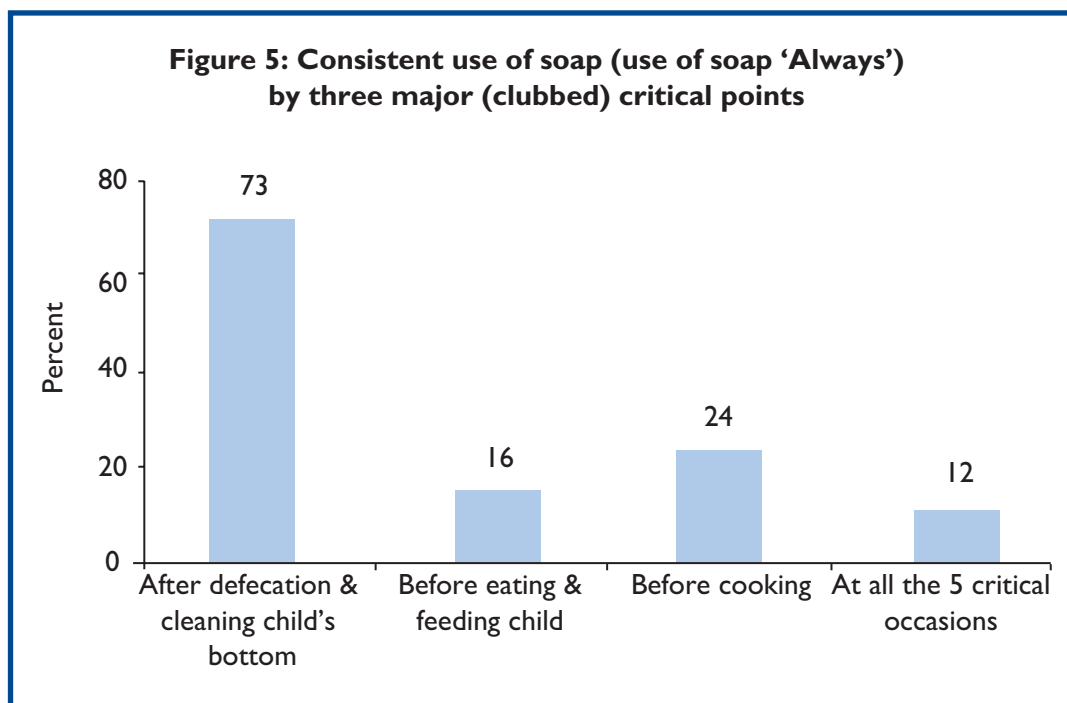
An unclean environment was one with “Gandagi” which was associated with mainly visible dirt. Men and women associated health and hygiene with cleanliness of themselves and their homes. Water was considered to be pure, as it cleans the visible “Gandagi”. Therefore, though there was awareness about other critical points, many washed their hands only with water before eating food or feeding a child. Overall, water emerged as a major competitor to use of soap for cleaning one's hands.

Based on qualitative findings, data presented in Figure 4 can be regrouped as: those times where the



respondents: a) feel “Ghin” and therefore wash their hands with soap always; b) do not wash hands with soap due to the idea of “Pavitra” and c) wash hands with water when there is visible “Gandagi”. These three groups based on their characteristics are: before defecation (self & cleaning child), before cooking, and before feeding (self or child). This regrouping helps in answering the critical question, “which of these critical points for hand washing should be the focus of future programmatic interventions?”

Regrouping shows (Figure 5) that 73 percent of the caregivers reported washing their hands with soap consistently (i.e. washing their hands with soap ‘always’) after defecation and cleaning child’s bottom followed by before cooking (24%). Consistent use of soap was lowest before eating food and feeding their child/children and its contribution to the overall measure of using soap consistently at all five critical times is minimal.



At this juncture, the program in order to increase the consistent use of soap for hand washing at all five critical occasions should focus on promoting hand washing with soap consistently before eating food and feeding their child/children. Further, the proportion of caregivers who reported using soap consistently for hand washing before eating food and feeding a child is termed as ‘behavers’, indicating desired behavior of hand washing with soap.

POTENTIAL TARGET GROUP FOR HAND WASHING WITH SOAP AND DETERMINANTS OF USE OF SOAP

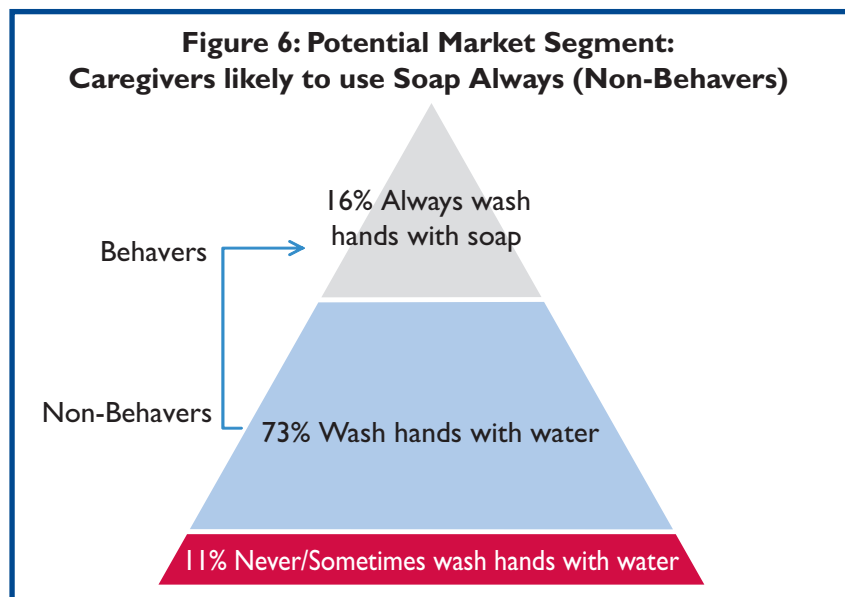
This section focuses on estimating the most likely group of caregivers who are at risk (i.e. those not



always washing hands with soap before eating food and feeding a child) and positively disposed towards adopting desired behavior. This group of caregivers is termed as 'non-behavers'. This section also identifies and prioritizes determinants of using soap consistently after eating food and feeding a child.

Potential Target Group:

Figure 6 shows that 16 percent of all caregivers were behaviors, i.e. they always washed their hands with soap before eating food and feeding their child/children. Of the 84 percent that sometimes/often/never washed their hands with soap, 73 percent at least washed their hands with water before eating and 11 percent never/sometimes washed their hands with water.



The 73 percent of caregivers who at least washed their hands with water before eating food and feeding their children will form the focus target group, for programmatic interventions, since they are considered to be positively disposed towards washing their hands but fail to do it consistently with soap. These 73 percent of caregivers who washed their hands at least with water are termed as 'non-behavers', indicating that they are a potential target group for hand washing with soap.

The Determinants of Use of Soap:

The following section discusses the key determinants of the desired behavior which is always washing hands with soap before eating food and feeding a child. This is done through a segmentation analysis. It is the process of dividing a heterogeneous population into homogenous groups based on their risk and behavior of interest, and then identifying behavioral determinants and population characteristics that are significantly different for behaviors (those who always washed their hands with soap before eating food and feeding a child) versus non-behavers (those who washed their hands at least with water, but not with soap). The findings are presented in Table 2 on segmentation.



Table 2: Segmentation: Key determinants of ALWAYS Washing Hands with Soap Before Eating and Feeding their Child/Children

		Adjusted means/proportions		
		No HWWS before eating food and feeding their child/children (N=1710)	HWWS before eating food and feeding their child/children (N=372)	
Perceptions/ Knowledge levels				
	Odds Ratio	Sig.	Mean scores/proportions	
Belief that it is important to wash hands before eating food and feeding their child	3.07	*	20%	44%
Soaps are always available at the wash station	1.50	*	3.7	3.9
Believe in washing hands even though hands look clean	1.22	*	3.2	3.4
Population Characteristics				
Kanpur (Ref: Lucknow)	1.27	*	43%	49%
High school completed (Ref: Illiterates)	1.38	*	16%	21%
Educated secondary or above (Ref: Illiterates)	2.46	*	11%	20%

Note: * Significant at 95% level of significance

Logistic regression is used to find determinants of desired behavior. The results are presented as odds ratio, adjusted proportions and mean scores after controlling for age, education, income, occupation, availability of water and soap at wash station. '*' indicates that the indicator is significant at $p < 0.05$ and is a determinant of desired behavior. Table 2 presents only those determinants and population characteristics which are significantly associated with desired behavior (see Annexures III and IV for detailed list of variables considered as determinants and population characteristics).

The odds ratio in Table 2 indicates the strength of relationship between a determinant and the desired behavior. An odds ratio of greater than one indicates that a particular determinant is likely to have a positive effect on behavior change. Similarly, an odds ratio of less than one indicates that a determinant is likely to have a negative effect on behavior change. In the survey, attitude and perceptions related issues were measured using multi-items with Likert scales response. Four point Likert Scale was used from strongly disagree to strongly agree (1: Strongly disagree, 2: Somewhat disagree, 3: Somewhat agree, 4: Strongly agree). Some of the issues relating to knowledge and belief are measured using one statement, a 'yes' and 'no' response and the findings are presented as proportion or as a percent.



Table 2 indicates that caregivers who believed that it was important to wash their hands before eating food and feeding their child, have an odds ratio of 3.07. This means that the caregivers who believed this, are three times more likely to always wash their hands with soap before eating food and feeding a child than those who do not believe so. The other significant determinants are 'soaps are always available at the wash station' and 'believe in washing hands even though hands look clean'.

Adjusted proportion or the mean score of non-behavers provides the scope for change. If the mean score of a determinant among non-behavers is low, there is high scope for the particular determinant to change. Table 2 further indicates that the caregivers who were 'non-behavers,' rated the determinant 'soaps are always available at the wash station' as 3.7 on a scale of 1 (strongly disagree) to 4 (strongly agree). Similar pattern was noticed among non-behavers for the determinant 'believe in washing hands even though hands look clean'. This indicates that though these determinants have a positive association with desired behavior, the scope for change is minimal. Whereas, the adjusted proportion for the determinant 'believed that it was important to wash their hands before eating food and feeding their child' among non-behavers is 20 percent, indicating a high scope for change.

Table 2 further indicates that among all the population characteristics controlled for its effect in logistic regression, district and education categories showed a significant difference in use of soap 'always' for hand washing before eating and feeding. The caregivers who completed high school were 1.4 times likely and those who were secondary or further educated were 2.5 times likely to always wash their hands with soap before eating food and feeding their children than those who were illiterate. This means that those caregivers, who were uneducated, were the ones who did not follow the desired behaviour.

The findings of segmentation Table 2 overall reveals that the key determinant of desired behavior are caregivers who believed that it was important to wash their hands before eating food and feeding their child as it has a very strong association with the desired behavior (odds ratio=3.07) and greater scope for change (non-behavers=20%). The key population characteristic is illiteracy as the uneducated caregivers were the ones not following the desired behaviour. This profile of non-behavers is helpful in developing a marketing mix that appeals to this specific group.

CONCLUSIONS

From the findings of the hand washing section, the following conclusions can be drawn:

- Though water and soap are reported to be available at the wash stations, only 16 percent of caregivers reported always washing their hands with soap before eating food and feeding their child. This was mainly because of the deep rooted concepts of "Pavitrata" (purity) and "Gandagi" (visible sign of impurities). Women believed in "Pavitrata" as they always mopped their house in the morning and entered their kitchen after taking bath making it pure, and if there is any visible sign of impurities (Gandagi), they washed their hands with water. Hence, the need to wash their hands with soap was not felt. Water emerged as a competitor to the use of soap.
- Majority of them reported washing their hands with soap consistently after defecation and cleaning child's bottom due to the concept of "Ghin" (feeling of disgust).



- By far, the most important determinant influencing the consistent use of soap before eating food and feeding their children is the belief that it is important to do this. Findings further revealed that those caregivers, who were uneducated, were the ones who did not behave as desired (i.e. did not wash hands with soap before eating or feeding their child consistently).

RECOMMENDATIONS

Based on the findings, the following recommendations are proposed:

- Communication activities should focus on promoting washing hands with soap always before eating food and feeding their child/children. Focusing on washing hands with soap before eating food and feeding their child/children consistently will in turn increase the use of hand washing with soap at all five critical occasions. Communications need not emphasize the importance of washing after defecation because this is generally understood and practiced.
- Focus on changing the belief that washing hands with water is considered “Pavitra” and washing hands with water alone removes “Gandagi”. For this, it is important to communicate that hand washing means washing with water **and soap**, not just water alone.
- Access to soap and water was not an issue at households. However there are opportunities at schools, especially around midday meals, to provide access and increase cases of hand washing with soap before eating.

WATER TREATMENT

A sample of 777 households was drawn for the water treatment section. This section presents findings relating to the main sources of drinking water, storage practices, felt need for treating water, awareness and use of water treatment methods, the potential target population and barriers to treating water.

MAIN SOURCE OF DRINKING WATER AND STORAGE PRACTICE

The main sources of drinking water of the households in the survey are detailed in Table 3. The survey showed that the predominant source of drinking water in the intervention slums was tube well or hand pump (55 percent) followed by piped water in to the house (24 percent) and public taps (18 percent).

Drinking water source	Caregivers
Piped water into house/ yard/ plot	24%
Public tap/ standpipe	18%
Tube wells/ Hand pumps	55%
Others	3%
N	2354



The qualitative research provided a greater understanding of the drinking water sources and the perceptions about them. The main source of water in slums was India Mark II pumps, which draws water from deeper levels and has a filter inside the pipe. Hand pumps were perceived to be the safest source of water. Piped water was present in some households, however, its supply was very irregular and at times there was a foul smell from the bleaching powder used in the tanks. This led some households to adopt water treatment and some others to change their source of water.

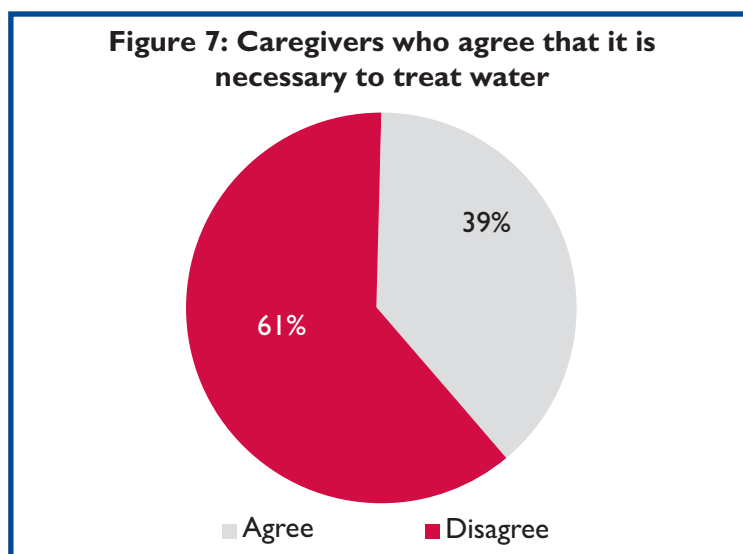
Table 4 shows that 95 percent of the respondents stored their drinking water. Most vessels had wide mouths where hands could be dipped in the water while taking water from the container and very few water storage containers had a ladle near the vessel. This indicates that the safe storage of drinking water was practiced by very few caregivers.

Table 4: Percent distribution of caregivers by type of container used for storing water	
Characteristics	Caregivers
Drinking water stored	95%
Material of container	
Pottery	4%
Plastic	45%
Metal	50%
Others	1%
Mouth of Container	
Wide-mouth (can dip hand)	88%
Narrow-mouth (cannot dip hand)	12%
Container has built-in tap	10%
Long-handled ladle present	18%
N	759

FELT NEED TO TREAT WATER

This section details the felt need to treat water among the households surveyed. Respondents were asked how often they felt it was necessary to treat the water they got to make the water drinkable (i.e. improve taste, remove dirt, germs, bad smell or chemicals like arsenic or fluoride). Responses were coded on a 5-point semantic differential scale. This scale rated felt need based on: almost every day, frequently/often, rarely, never or do not know. The responses to almost every day, frequently/often were combined to depict the felt need to treat water.

Out of the total sample, 39 percent felt the need to treat their drinking water, while the remaining 61 percent perceived no such need (Figure 7).



The results from the qualitative research study support and explain the low perceived need for treating water. The study suggests that the source of water played an important role in the perception of quality of water. The well had been completely aborted due to visible impurities e.g. dust, insects etc. Hand pumps were perceived as the safest source. There was also a perception that everyone was drinking the same water and there was no problem with the water - *“Humhe pata hota hai ki woh pani saaf hota hai, kyunki kabhi koi dikkat nahi hui”* (We know that the water is clean, as we haven’t had any problems before).

AWARENESS AND USE OF WATER TREATMENT METHODS

Awareness and consistent use of water treatment methods is shown in Table 5. Consistent use was determined by accounting for caregivers who reported using the water treatment method always or most often in last 30 days preceding the survey. As shown in Table 5, around 90 percent of caregivers were aware of boiling water as a water treatment method followed by filtering water with cloth, allowing the water to settle, and using alum. Awareness of ceramic candle filter, gravity filter, RO (reverse osmosis) and UV (ultra-violet rays) was lowest among caregivers, as reported by approximately one-tenth of the caregivers. Even though awareness of boiling was high, it had not translated into the consistent use, as reported by only 7 percent of caregivers. The consistent use of other water treatment methods was even lower than boiling water.

The qualitative study throws some light on these findings. Boiling the water is perceived to change the taste of water, and any change in taste and smell acts as a deterrent to the use of boiling as a HWTS. This was also the case with the use of chlorine, bleach, iodine and alum as these tablets or liquids also changed the taste of water and gave it a medicinal taste, which made it seem suitable only during illness when the cleanliness of water could not be compromised. In addition, low usage could also be due to the low perceived need to treat their drinking water, as discussed in the previous section.



Table 5: Percentage of Caregivers by Awareness and Consistent Use of Water Treatment Methods		
Methods	Aware	Consistent usage
Filter water using cloth, sieve or net filter	82%	4.0%
Allow the water to settle and decant	64%	3.0%
Boil the water	90%	7.0%
Chlorine/Bleach tablet powder or liquid	26%	0.3%
Iodine liquids or tablets	28%	0.0%
Alum	40%	3.0%
Ceramic candle filter	18%	0.6%
Gravity filter	16%	0.4%
Treatment device which uses reverse osmosis (RO)	11%	0.1%
Treatment device which uses electricity and ultra-violet rays (UV)	9%	0.1%
N	777	

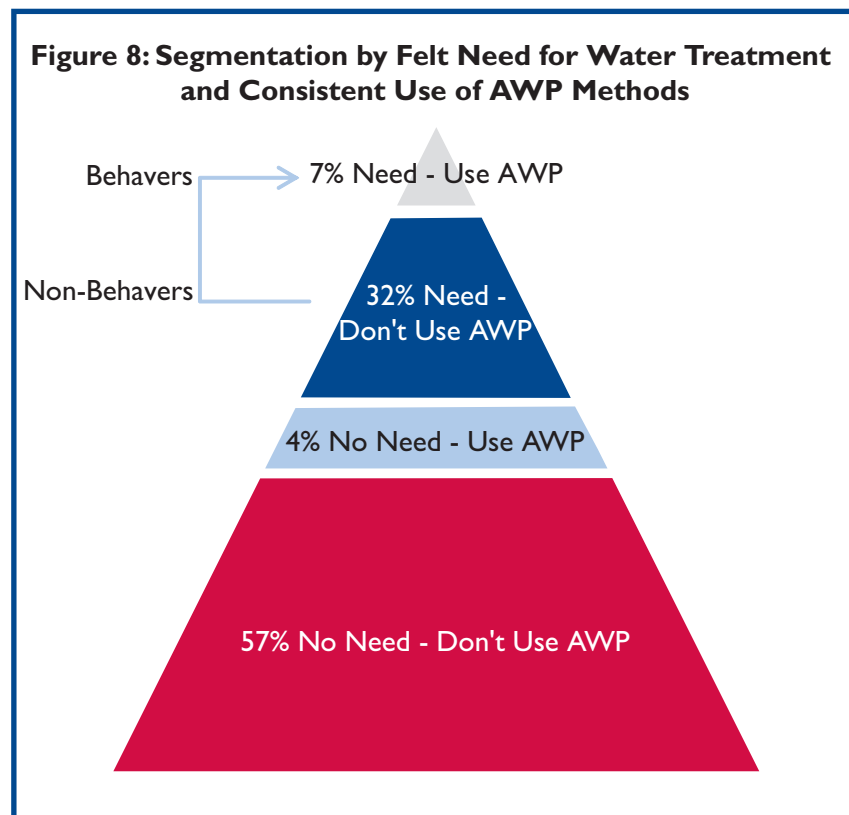
Table 5 further indicates that there are broadly two groups of caregivers when it comes to use of water treatment methods. The first group includes caregivers who reported consistently using cloth, net filters or allowing the water to settle for treating their drinking water. The second group comprises of those caregivers who reported consistently using one or the other AWP methods, such as boiling the water, chlorine tablets, iodine tablets, alum, ceramic filter, gravity filter, RO or UV. This group of AWP method users is of interest as they took some active steps to treat their water. Though a small proportion of caregivers fall in this group (11 percent), it is important to look deeper into this group to understand what motivated them to use AWP methods.

POTENTIAL TARGET GROUP FOR WATER TREATMENT AND DETERMINANTS OF USING ACTIVE WATER PURIFICATION (AWP) METHODS

This section focuses on estimating the most likely group of caregivers who are positively disposed and can be motivated to treat their water. This likely group of caregivers is termed as 'non-behavers'. These 'non-behavers' are those who are currently not engaged in using any AWP method, but have the perceived need to treat their drinking water. This section goes on to identify and prioritize the determinants of treating water consistently.

Potential Target Group:

Figure 8 shows that only 7 percent of the respondents felt the need for treating water and engaged in consistent use of AWP methods. About 32 percent of caregivers felt the need but did not consistently use any AWP methods and the remaining respondents did not feel the need to treat their drinking water.



The 32 percent of caregivers who felt the need to treat the water but did not engage in AWP make up the potential target segment which can be motivated to use an AWP method and moved to the group of caregivers who felt the need and consistently used AWP methods. In the following section, the group of caregivers who felt the need but did not engage in the use of any AWP method consistently is defined as 'non-behavers'. The other group of caregivers who had perceived need and used an AWP method consistently is defined as 'behavers'.

Determinants of Using Active Water Purification Methods:

To understand the motives and barriers to the consistent use of AWP methods, the study analyzed the differences between those who felt the need as well as consistently used AWP methods (behavers) and those who felt the need for water treatment but did not consistently use AWP methods (non-behavers). Table 6, provides the details regarding the analysis.

**Table 6: Key determinants of Active Water Purification (AWP) methods**

Table 6: Key determinants of Active Water Purification (AWP) methods				
			Adjusted means/proportions	
			Felt the need but do not consistently use an AWP method (non-behavers) (N=250)	Felt the need and consistently uses an AWP method (behavers) (N=54)
Perceptions/ Knowledge levels				
	Odds Ratio	Sig.	Mean scores/proportions	
Belief that water that looks clean/ tastes good/comes from a pipe is not necessarily safe to drink	2.11	*	2.31	2.75
Self-Efficacy – confident of treating water/ can take required time to treat water	1.45	*	2.50	2.90
Population Characteristics				
Main source of drinking water is public tap (Ref: Others: Tanker, rain water)	0.47	*	23%	11%
Main source of drinking water is tube well/bore well (Ref: Others: Tanker, rain water)	0.38	*	40%	31%
Kanpur (Ref: Lucknow)	0.23	*	32%	15%

Note: * Significant at 95% level of significance

Logistic regression is used to find out determinants of desired behavior (i.e. consistent use of any AWP method). The results are presented as odds ratio, adjusted proportions and mean scores after controlling for age, education, income, occupation and source of drinking water. '*' indicates that the indicator is significant at $p < 0.05$ and is a determinant of desired behavior. Table 6 presents only those determinants and population characteristics which are significantly associated with desired behavior (see Annexures III and IV for detailed list of variables considered as determinants and population characteristics).

Table 6 indicates that respondents who believe that water that looks clean, tastes good or comes from a pipe may not be safe to drink has an odds ratio of 2.11. It means that caregivers who believed in this



were twice more likely to exhibit consistent use of AWP methods than those who did not share the same beliefs. The other significant determinant was 'self-efficacy', or respondent's confidence in being able to, or take the time to treat water. This determinant also improves caregivers' likelihood of engaging in frequent use of AWP methods. Comparison of these two determinants in terms of odds ratio indicates that the determinant "belief that the water that looks clean, tastes good or comes from a pipe may not be safe to drink" is more strongly associated with the desired behaviour than the determinant of 'self-efficacy' as it has a higher odds ratio.

Table 6 further indicates that caregivers who were 'non behavers' rated the determinant 'believed that water that looks clean, tastes good or comes from a pipe may not be safe to drink' at 2.31 on scale of 1 (strongly disagree) to 4 (strongly agree). A similar pattern was noticed among the 'non-behavers' for the determinant 'self-efficacy'. This indicates that both determinants have high scope for change.

Table 6 reveals that among all the population characteristics controlled for in the logistic regression, district and source of water showed a significant difference and played an important role in use of AWP methods. Those who received water from public taps and tubewells/borewells/hand pumps were less likely to treat their water than those who received water from tankers/rain water. The odds ratios for the source of water being public taps and tubewells/borewells/ hand pumps are 0.47 and 0.38 respectively.

As stated earlier, qualitative findings indicate that the source of drinking water adds to the perception of quality of water. In addition, the qualitative study also finds that purity of water was associated with its transparency, taste and smell. As long as the water looked clean, tasted sweet and had no smell, there was no need for water treatment. Most people felt it was the best way to judge how safe it was to drink, since impurities had to be visible i.e. "Gandagi" (visible signs of impurities). In addition, any difference in smell or taste also meant that the water was impure. In addition, there was a tradition of drinking fresh water as it was considered to be safe and there was an understanding that stale water should be thrown away - "*Taza pani thanda aur meetha hota hai, humhe pata hota hai ki wo achcha hota hai*" (fresh water is cool and sweet, we know this is good). They had always seen their parents/earlier generations follow this system and nothing had happened till then, therefore they felt that it was safe to continue with this practice.

The findings of Table 6 overall reveals that the key determinant of desired behavior is the belief that water that looks clean, tastes good or comes from a pipe may not be safe to drink, as it has a very strong association with the desired behavior (odds ratio: 2.11) and a significant scope for change (non-behavers mean score: 2.31). The key population characteristic is caregivers with tube well/ hand pumps as source of their drinking water as these caregivers are the ones who are less likely to use AWP method consistently. This profile of non-behavers is helpful in developing a marketing mix that appeals to this specific group.



CONCLUSIONS

From the findings of the water treatment section, the following conclusions can be drawn:

- The predominant source of drinking water was tube wells or hand pumps. A majority of caregivers did not follow safe water storage practice. The study suggests that the source of water played an important role in the perception of quality of water. Hand pumps were perceived as the safest source. Hence, the perceived need to treat their drinking water is low.
- Only 7 percent of caregivers felt the need and were using an AWP method consistently. 32 percent of caregivers who felt the need were not using AWP methods such as boiling the water, chlorine tablets, iodine tablets, alum, ceramic filter, gravity filter, RO or UV consistently. This makes it clear that even though there is a perceived need among caregivers to treat their drinking water, it has not translated into consistent use of AWP methods.
- The most critical determinant for motivating caregivers who have the perceived need to use an AWP method consistently is the belief that water that looks clean, tastes good or comes from a pipe may not be safe to drink. The data analysis suggests that the largest potential lies among those who have access to piped water or tube-wells/ hand pumps.
- The qualitative study findings explain that purity of water was associated with its transparency, taste and smell. As long as the water looked clean, tasted sweet and had no smell, there was no need for water treatment. In addition, there is a tradition of drinking fresh water as it was considered to be safe and there was an understanding that stale water should be thrown away since many participants said that their parents had followed this practice with no ill effects, they felt that they too could continue this way.

RECOMMENDATIONS

Based on the findings, the following recommendations are proposed:

- Communication activities should focus on changing the belief that drinking water which looks clear or tastes better or does not have bad smell, is safe to drink as it still may be contaminated.
- The program should mainly target those caregivers whose predominant drinking water source is either piped water or tube well/ hand pumps.
- Since the practice of safe storage of drinking water is rare, the program should look for solutions that focus on safe storage practices.
- The program also needs to include health care providers in order to establish linkages between unsafe water and disease/illness, and spread the message for usage of water treatment methods.



ORAL REHYDRATION THERAPY (ORT)

The sample for the ORT section of the study was drawn from listed households with children below 5 years of age. The sample comprised of 774 caregivers with children under the age five who suffered from diarrhea in two weeks preceding the survey. The information captured from 3645 households listed shows that around 22 percent of the total households with children under the age of 5 years had at least one such child suffering from diarrhea in two weeks preceding the survey. This section presents the findings related to action taken by caregivers during diarrhea, use of ORT and the potential target population and barriers to use of ORT during diarrhea.

ACTIONS TAKEN BY CAREGIVERS

Of the 774 households that reported diarrhea cases, a majority of caregivers reported treating their child suffering from diarrhea either at home (39 percent) or sought external advice (77 percent). Around 14 percent of caregivers did not do anything (Figure 9).

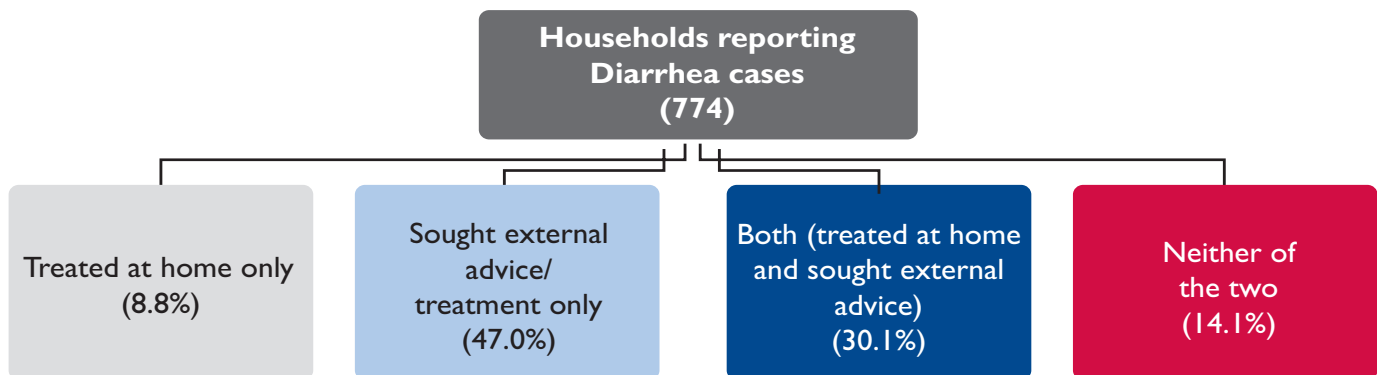




Table 7 shows the top three actions taken at home or when seeking external advice for treating diarrhea. Among those who were treated at home, around half of the caregivers gave sugar-salt solution followed by ORS (35 percent) and medicine or syrup (37 percent) (See Annexure V for details on awareness of ORS). Of those who sought external treatment, 69 percent gave medicines and 40 percent gave ORS.

Table 7: Percent distribution of caregivers by top three actions taken at home or when external advice was sought	
Type treatment	Caregivers
Treatment at home	
Sugar-salt solution	51%
ORS	35%
Medicine	37%
Sought external advice	
Medicines	69%
ORS	40%
N	774

Table 8 shows that of the caregivers who sought external advice, 76 percent visited private health facilities for treatment, 19 percent approached government health facilities and 2 percent consulted chemists.

Table 8: Percent Distribution of caregivers by type of providers visited	
Type of provider	Caregivers
Private	76%
Government	19%
Chemist	2.2%
Others	2.8%
N	774



The qualitative study revealed that in case of severe diarrhea, most participants opted for treatment from health providers. They did not feel the need to store ORS even if they were aware about ORS and its benefits - “*jaise hi beemari aati hai to doctor ke paas le jate hai*”(we go to the doctor as soon as someone is ill). However, there may have been lags in taking the child to the health provider. It was found that the general course of diarrhea treatment was as follows: On the first day of diarrhea, mother tried to control loose motion by skipping the child’s meal. Usually on the second day, this was followed by elders of the family trying some home remedies, including sugar-salt solution. Finally on the third day, the child’s father was informed, involved and the child was taken to the health care provider.

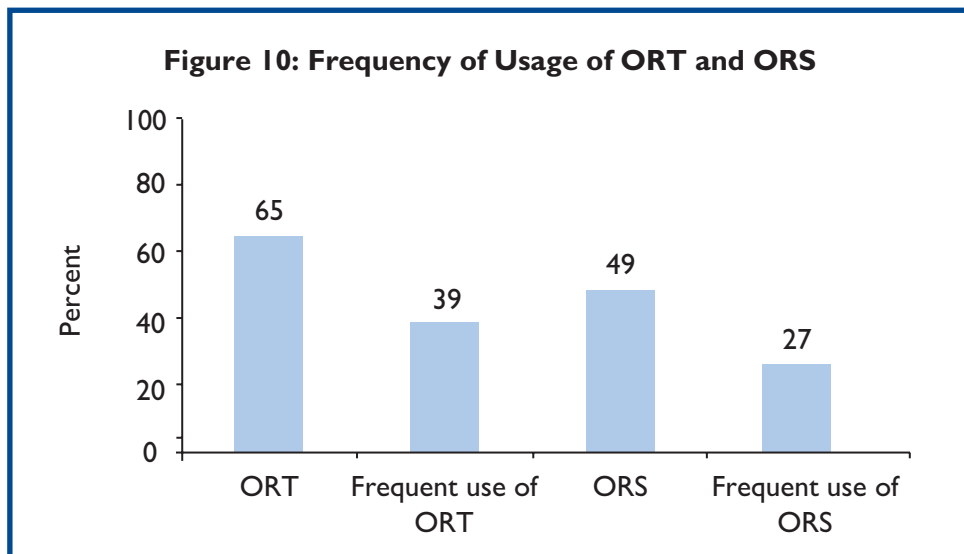
USE OF ORT

Table 9 shows that around 65 percent of caregivers reported giving ORT. Of the caregivers with a child under the age of 5 years suffering from diarrhea, 49 percent of them reported giving ORS and 33 percent of caregivers gave either sugar and salt solution or gruel.

Action Taken	Caregivers
ORT	65%
Gave ORS only	32%
Gave Sugar & salt only	11%
Gave both (ORS & sugar & salt)	17%
Gave Gruel only	5%
No ORT given	35%
N	774

The qualitative study also revealed that sugar-salt solution was thought to be equivalent to ORS and was trusted since it is made at home and is more convenient- “*namak cheeni bhi to vahi hai*” (salt-sugar is the same thing). This trust developed because it was self-made and elders had used this in the past. This perception was reinforced by knowledge from media or television. ORS was used usually after being advised by a doctor or a health provider – “*haan doctor bataya tha ki ORS dena chahiye*” (the doctor had told us to use ORS).

Over and above the use of ORT, as a curative measure, frequency of usage is important. A single dose of ORT/ORS during the diarrheal episodes may not be sufficient for the child and it is recommended that these treatment courses should be followed until the child gets complete relief. Figure 10 shows that there is a sharp decline in the frequent administration of ORT and ORS during diarrheal episodes; the proportion of caregivers who reported giving ORT to those who reported giving ORT frequently (after every liquid fluid) fell from 65 percent to 39 percent.



Providing ORT frequently to children suffering from diarrhea balances dehydration caused after every liquid stool. It is therefore important for the program to communicate that giving ORT after every liquid stool is beneficial rather than only promoting ORT without highlighting the frequency of use.

DETERMINANTS OF USE OF ORT

In order to identify the determinants of ORT use, the caregivers were segmented into two groups. One group comprised of caregivers who reported giving ORT after every liquid stool. They are termed as behaviors (39 percent). The second group included caregivers who gave ORT infrequently or did not give it at all, termed as non-behaviors. This section identifies and prioritizes determinants of frequent use of ORT.

Logistic regression is used to identify determinants of frequent use of ORT and findings are presented in Table 10. The results are presented as odds ratio, adjusted proportions and mean scores after controlling for age, education, income, occupation, duration of diarrhea, fever during diarrhea and blood in stool. * indicates that the indicator is significant at $p < 0.05$ and is a determinant of desired behavior. Table 10 presents only those determinants and population characteristics which are significantly associated with the frequent use of ORT (see Annexures III and IV for detailed list of variables considered as determinants and population characteristics).

Results in Table 10 indicate that those caregivers who knew that ORT should be administered frequently in small quantities if a child refuses to take it initially has an odds ratio of 6.07. This means that the caregivers who knew that ORT should be administered frequently in small quantities were six times more likely to use ORT frequently for their child than respondents who are not aware of this. Additionally, the caregivers were more likely to give ORT frequently if a provider recommended or prescribed ORS.



Table 10: Key Determinants of ORT Usage Frequently

Table 10: Key Determinants of ORT Usage Frequently				
Determinants		Adjusted means/proportions		
		Not give ORT frequently (N=473)	Give ORT frequently (N=301)	
Perceptions/ Knowledge levels				
	Odds Ratio	Sig.	Mean scores/proportions	
Recommended that ORS should be administered in small quantities to facilitate child's acceptance to ORS	6.07	*	21%	61%
Provider recommended/ prescribed ORS	1.81	*	44%	59%
Child with diarrhea had fever in last two weeks	0.59	*	68%	56%
Population Characteristics				
Primary and above (Ref: Illiterate)	1.93	*	23%	36%
Monthly income more than Rs. 5000 (Ref: Less than Rs. 2000)	1.57	**	16%	25%

Note: * Significant at 95% level of significance ** Significant at 90% level of significance

In addition, the qualitative study showed that there was low self-efficacy and most respondents were not aware about correct preparation or dosage of ORT - both for sugar-salt solution and ORS. For sugar-salt solution they were unaware about preparation - “*garam pani mein namak aur sakkar mila kar dete hai*” (mix sugar and salt in hot water) - “*neebu cheeni pani ka ghol diya jata hai* (you give a mixture of lemon and sugar in water) - “*katori mein cheeni namak ghol ke de dete hai*” (mix water, salt and sugar in a bowl and give it). For ORS, they were unaware that one pack was for one time use only, hence storage became a problem - “*khula packet kharab ho jata hai*” (an open packet will go bad). Also, children were not willing to have large amounts of ORS at one time. In terms of availability of ORS, health providers (Anganwadi) provided the pack but did not inform about the preparation and dosage - “*anganwadi wali didi dekar jati hai... nahi istemaal ke bare mein nahi bataya*” (the Anganwadi workers came and gave it...no she didn't explain how to use it).

Table 10 further indicates that among all the population characteristics controlled for in logistic regression, literacy and monthly income showed a significant difference and played an important role in frequent use of ORT. The caregivers who were literate were 1.93 times likely to use ORT frequently than those who were illiterate. Similarly, caregivers who had a monthly income of more than ₹ 5000 were 1.53 times more likely to use ORT more frequently than those who had a monthly income of



₹ 2000 or less. This indicates that the caregivers who were uneducated and had monthly income of ₹ 2000 or less, were the ones who did not give ORT frequently to their child suffering from diarrhea. This appears as a constant trend across use of all three health behaviours: water, soap and ORT.

CONCLUSIONS

From the findings on ORT use, the following conclusions can be drawn:

- Around 65 percent of caregivers reported using ORT. Consistent use was much lower and declined significantly to 39 percent when caregivers were asked about the use of ORT after every liquid stool.
- The two significant determinants that could trigger behavior change among those who did not give ORT frequently to their child during diarrheal episode were: a) recommendations by health care providers and b) knowledge that ORT should be administered in small quantities to facilitate child's acceptance to ORT.
- The qualitative study showed that there was low self-efficacy and most respondents were not aware of correct preparation or dosage of ORT - both for sugar-salt solution and ORS.
- Caregivers who were uneducated and had monthly income of Rs. 2000 or less were less likely to use ORT frequently.

RECOMMENDATIONS

Based on the findings, the following recommendations are proposed:

- The program communication needs to focus on creating awareness that ORT should be administered frequently after every liquid stool.
- Focus on emphasizing that ORT should be administered in small quantities if the child initially refuses to take ORT.
- Increase the awareness of correct preparation and dosage of ORT. This would need to focus on both sugar-salt solution and ORS, in order to increase correct use of ORT.
- Health care providers' recommendation of ORT/ORS is important to trigger use among caregivers. Providing these recommendations through health care providers is likely to have a larger impact in having caregivers administer ORT frequently during diarrheal episodes. Training sessions among health care providers should highlight this fact and advocate recommending ORT/ORS to caregivers.
- Caregivers who are uneducated and have monthly income of ₹ 2000 or less are a potential segment for increasing frequent use of ORT. The program interventions should focus on developing appropriate marketing mix that appeals to this group of caregivers.



PLANNED ACTIVITIES

Specific activities planned for the program intervention based on research recommendations are summarized in the following table:

CONCLUSIONS	RECOMMENDATIONS	PROGRAM ACTIVITIES
HANDWASHING		
<ul style="list-style-type: none"> • Though water and soap are reported to be available at the wash stations, only 16 percent of caregivers reported always washing their hands with soap before eating food and feeding their child. This was mainly because of the deep rooted concepts of “Pavitrata” (purity) and “Gandagi” (visible sign of impurities). Women believed in “Pavitrata” as they always mopped their house in the morning and entered their kitchen after taking bath making it pure, and if there is any visible sign of impurities (Gandagi), they washed their hands with water. Hence, the need to wash their hands with soap was not felt. Water emerged as a competitor to the use of soap. • Majority of them reported washing their hands with soap consistently after defecation and cleaning child’s bottom due to the concept of “Ghin” (feeling of disgust). 	<ul style="list-style-type: none"> • Communication activities should focus on promoting washing hands with soap always before eating food and feeding their child/ children. Focusing on washing hands with soap before eating food and feeding their child/children consistently would in turn increase the use of hand washing with soap at all five critical occasions. Communications need not emphasize the importance of washing after defecation because this is generally understood and practiced. • Focus on changing the belief that washing hands with water is considered “Pavitra” and washing hands with water alone removes “Gandagi”. For this, it is important to communicate that hand washing means washing with water and soap, not just water alone. • Access to soap and water was not an issue at households. However there 	<ul style="list-style-type: none"> • Communication activities both mass media and ground activation will focus on motivating caregivers to wash hands with soap instead of only water. The activities will communicate that “water is not adequate for washing hands as germs survive in water, only soap kills germs. Therefore it is essential to wash hands with soap.” • IPC and one to group communication efforts with caregivers will be conducted by outreach NGO Partner – Pratinidhi – and will focus on hand washing with soap consistently at 5 critical times. The focus will be on making hand washing synonymous with hand washing with soap and not only with water. The program has developed an innovative IPC hand tool that demonstrates water is insufficient and only soap takes care of “kitanu” (disease causing germs) and “gandagi” (impurities).



CONCLUSIONS	RECOMMENDATIONS	PROGRAM ACTIVITIES
<ul style="list-style-type: none"> By far, the most important determinant influencing the consistent use of soap before eating food and feeding their children is the belief that it is important to do this. Findings further revealed that those caregivers, who were uneducated, were the ones who did not behave as desired(i.e. did not wash hands with soap before eating or feeding their child consistently). 	<p>are opportunities at schools, especially around midday meals, to provide access and increase cases of hand washing with soap before eating.</p>	<ul style="list-style-type: none"> SBK Health Camps will reinforce the same messages. Puppet theatre and games with caregivers will be used at the health camps to demonstrate the importance of using soap and how water is not enough to get rid of “Kitanu” (germs). Dettol soaps from partner Reckitt Benckiser will be used for correct demonstration of hand washing, proper identification of 5 critical times for hand washing with soap and importance of washing with soap and not water alone. Wall paintings in the intervention areas will reinforce how washing with water is not good enough. School activities with children will focus on eating as one of the most critical times for hand washing. Mid day meals at schools are a important time when children need to wash their hands with soap. Street theatre will also be



CONCLUSIONS	RECOMMENDATIONS	PROGRAM ACTIVITIES
		<p>used to communicate these messages.</p> <ul style="list-style-type: none"> • Global Hand Washing Day will reinforce “hand washing with soap before ‘feeding and eating’ with caregivers and children”.
WATER TREATMENT		
<ul style="list-style-type: none"> • The predominant source of drinking water was tube wells or hand pumps. A majority of caregivers did not follow safe water storage practice. The study suggests that the source of water played an important role in the perception of quality of water. Hand pumps were perceived as the safest source. Hence, the perceived need to treat their drinking water is low. • The caregivers who felt the need but were not using AWP methods such as boiling the water, chlorine tablets, iodine tablets, alum, ceramic filter, gravity filter, RO or UV consistently reported to be 32 percent. Whereas only 7 percent of caregivers felt the need and were using an AWP method consistently. Even though there is a perceived 	<ul style="list-style-type: none"> • Communication activities should focus on changing the belief that drinking water which looks clear or tastes better or does not have bad smell, is safe to drink. • The program should mainly target those caregivers whose predominant drinking water source is either piped water or tube well/ hand pumps. • Since the practice of safe storage of drinking water is rare, the program should look for solutions that focus on safe storage practices. • The program also needs to include healthcare providers to build a connection between unsafe water and diseases, and spread the message for 	<ul style="list-style-type: none"> • Communication activities will focus on changing the belief that “visibly clean water is safe for drinking” and will offer boiling, usage of tablets and water filter as a solution. • Demonstrations with water testing kits at household level will show that water is contaminated and it needs to be treated. • The program has partnered with Medentech for door to door marketing of Aquatabs. • All communication interventions like interpersonal communication, wall paintings, puppet theatre at health camps, street theatre will focus on promotion of active treatment of water before drinking on a regular



CONCLUSIONS	RECOMMENDATIONS	PROGRAM ACTIVITIES
<p>need to treat their drinking water, it has not translated into consistent use of AWP methods.</p> <ul style="list-style-type: none"> • The most critical determinant for motivating caregivers who have the perceived need to use an AWP method consistently is the belief that that water that looks clean, tastes good or comes from a pipe may not be safe to drink. The data analysis suggests that the largest potential lies among those who have access to piped water or tube-wells/ hand pumps. • The qualitative study findings explain that purity of water was associated with its transparency, taste and smell. As long as the water looked clean, tasted sweet and had no smell, there was no need for water treatment. In addition, there is tradition of drinking fresh water as it was considered to be safe and there was an understanding that stale water should be thrown away since many participants said that their parents had followed this practice with no ill effects, 	<p>using water treatment methods.</p>	<p>basis. Communication messages will promote these methods : Use of boiling water purifiers (with partner TATA Swach) and water purification tablets (Aquatabs with partner – Medentech). Communication with caregivers will show safe storage practices.</p> <ul style="list-style-type: none"> • Health camps will have a kiosk where field workers will demonstrate findings of water testing done at household level. Use of TATA Swach and Aquatabs will be demonstrated with participation of partners. • Training of TATA Swach field promoters in Lucknow, Varanasi, Kanpur and NCR will be conducted by the program to add to the program’s outreach activities so that there is integration of diarrhea messaging and findings of research into their marketing efforts as well. • As part of efforts to ensure that doctors also reinforce the same program messages, there will be training of ISMH doctors in and



CONCLUSIONS	RECOMMENDATIONS	PROGRAM ACTIVITIES
<p>and hence they felt that they too could continue this way.</p>		<p>around intervention slums on importance of water treatment in diarrhea prevention. There will be demonstration of purification methods (Aquatabs water purification tablets and TATA Swach Filters) at the training.</p>
ORAL REHYDRATION THERAPY (ORT)		
<ul style="list-style-type: none"> • Around 65 percent of caregivers reported using ORT. Consistent use was much lower and declined significantly to 39 percent when caregivers were asked about the use of ORT after every liquid stool. • The two significant determinants that could trigger behavior change among those who did not give ORT frequently to their child during diarrheal episode were <ol style="list-style-type: none"> a) recommendations by health care providers and b) knowledge that ORT should be administered in small quantities to facilitate child's acceptance to ORT. • The qualitative study 	<ul style="list-style-type: none"> • The program communication needs to focus on creating awareness that ORT should be administered frequently after every liquid stool. • Focus on emphasizing that ORT should be administered in small quantities if the child initially refuses to take ORT. • Increase the awareness of correct preparation and dosage of ORT. This would need to focus on both sugar-salt solution and ORS, in order to increase correct use of ORT. • Health care providers' recommendation of ORT/ ORS is important to trigger 	<ul style="list-style-type: none"> • Mass media advertising for frequent use of ORS will focus on motivating mothers to continue giving ORS "even when child refuses" in small quantities, repeatedly. • IPC will focus on all aspects of ORS use – correct making of ORS solution, correct dosage according to age, correct use after every diarrheal episode and correct storage – for 24 hours only. • IPC will also focus on other home remedies like sugar-salt solution and on what to give and not to give besides reinforcing breastfeeding and continuation of feeding during episodes of diarrhea.



CONCLUSIONS	RECOMMENDATIONS	PROGRAM ACTIVITIES
<p>showed that there was low self-efficacy and most respondents were not aware of correct preparation or dosage of ORT - both for sugar-salt solution and ORS.</p> <ul style="list-style-type: none"> Caregivers who were uneducated and had monthly income of Rs. 2000 or less were less likely to use ORT frequently. 	<p>use among caregivers. Providing these recommendations through health care providers is likely to have a larger impact in ensuring that caregivers administer ORT frequently during diarrheal episodes. Training sessions among health care providers should highlight this fact and advocate recommending ORT/ORS to caregivers.</p> <ul style="list-style-type: none"> Caregivers who are uneducated and have monthly income of Rs. 2000 or less are a potential segment for increasing frequent use of ORT. The program intervention should develop appropriate marketing mix that appeals to this group of caregivers. 	<ul style="list-style-type: none"> The IPC will also talk about dangerous signs, how to recognize them and when to rush the child to a doctor. ISMH provider training and refreshers will focus on correct diagnosis, recommendation of frequent use of and promotion of ORT as first line of action in diarrhea.

ANNEXURE I:

INDICATOR LIST WITH BASELINE VALUES

Intermediate results	Indicators	Baseline	Data sources and collection methods
Creating demand for relevant products i.e. soap, ORS and water purification methods	% of caregivers who agree that their drinking water needs to be treated	39.0%	End-line KAP surveys
	% of caregivers who know of most critical times (before food , after defecation) for hand washing	22.0%	End-line KAP surveys
	% of caregivers reported to give ORT first to their child suffering from diarrhea	21.0%	End-line KAP surveys
	% of providers who are aware that ORS and/or Zinc needs to be prescribed as first line of treatment for diarrhea	87.8%	End-line KAP surveys
Improving behaviors/ use of promoted products	% of caregivers reporting washing hands with soap consistently before eating food and feeding a child	16.0%	End-line KAP surveys
	% of caregivers, whose children under 5 had diarrhea in the last 2 weeks, reported giving ORS	49.0%	End-line KAP surveys
	% of HHs currently using (everyday/most often) any promoted water purification method***	0.7%	End-line KAP surveys
Leveraging of partner organizations and commercial viability	Sales of partner brands in intervention sites	-	Partner data
	Amount of financial resources leveraged	-	Leveraging report
	Amount of in-kind resources leveraged	-	Leveraging report
	Program has at least one commercial partner (MoU) for each of the promoted product categories	4	Project records
	Program has at least four commercial partners (MoU) and one non-commercial partner (MoU)	5	Project records
	% of caregivers who associate Saathi Bachpan Ke Program with diarrhea prevention & management in children****	-	End-line KAP surveys
	% of providers who associate Saathi Bachpan Ke Program with diarrhea prevention & management in children	-	End-line KAP surveys
Project is well documented and disseminated	MBPH website created and has updated information about the model and its achievements	-	Project records
	At least two project briefs disseminated over LoP	-	Project records



ANNEXURE II:

SAMPLE SIZE DETERMINATION

The target respondents for the hand washing and water treatment were caregivers of children under the age of 5 years and for ORT/ORS, the target respondents were caregivers of children under the age of 5 years, who reported that their children suffered from diarrhea two weeks preceding the survey. A total of 2354 caregivers for hand washing, 777 caregivers for water treatment and 774 caregivers for ORT/ORS were covered under the study. The main assumptions and considerations in sample size calculation are discussed below for the three behaviors of interest, viz. hand washing with soap, use of promoted water treatment method and ORS/ORT, separately:

- *Hand washing with soap:* The baseline value of washing hand consistently with soap at critical points was assumed to be 50 percent. A change of 5 percent was assumed during the program intervention period at 95 percent confidence level and 80 percent power with design effect of 1.5 and 10 percent non-response. In addition, the sample size calculation also considered measuring a difference of 20 percent between those who consistently washed hands with soaps and those who did not among, the key determinants. Overall, a sample size of 2052 was determined for estimating the hand washing with soap consistently and identifying triggers and barrier to the use of soap. But, overall, a higher sample size was covered to ensure selecting a representative sample from the project slums.
- *Use of promoted water treatment method:* Promoted water treatment method includes use of gravity filter, chlorine tablets or boiling water. The baseline value for use of promoted method was considered to be not more than 8 percent based on the field experience. A change of 5 percent was assumed during the program period at 95 percent confidence level and 80 percent power with design effect of 1.5 and 10 percent non-response. Overall, the estimated sample size for determining required change in the use of promoted water treatment method was 772 caregivers of children under the age of 5 years.
- *Use of ORT/ORS:* The baseline value for the use of ORS was assumed to be 50 percent for optimizing the sample size estimation. Overall, a 10 percent change was assumed during the program intervention period at 95 percent confidence level and 80 percent power with design effect of 1.5 and 10 percent non-response. In addition, a sample size calculation also considered measuring a difference of 20 percent between those who used ORS and those who did not among the key determinants. Hence, a sample size of 750 caregivers was estimated for assessing the required change in use of ORS during the program period and identifying triggers and barriers to ORS use.

ANNEXURE III:

LIST OF VARIABLES FOR SEGMENTATION

- **Hand Washing**
 - Knowledge
 - Availability
 - Self Efficacy (Perceived ability to use soap to wash hands)
 - Attitudes
 - Age, Education
 - Media Habits
 - Main source of drinking water

- **Water Treatment**
 - Knowledge
 - Severity
 - Self Efficacy (Perceived ability to treat water at home using filters and tabs/liquid)
 - Availability
 - Attitudes
 - Outcome Expectation (Believe in solution)
 - District
 - Age, Education, Occupation, Income
 - Media Habits
 - Main source of drinking water

- **Oral Rehydration Therapy (ORT)**
 - Knowledge
 - Severity&Threat
 - Availability
 - Outcome Expectation (Belief in solution)
 - Self Efficacy
 - Believe in giving ORS in small quantity
 - Heard of ORS
 - Symptoms of Diarrhea
 - Knowledge about danger signs of diarrhea
 - Age, Education
 - Media Habits
 - Toilet Facility, Fuel used for cooking
 - Main source of drinking water
 - Reported incidences of fever and blood in stool



Annexure IV:

PROFILING RESPONDENTS

The caregivers in the sample comprised of women in the age group 18 to 35 (Table I I a). Table I I b shows that approximately half of them were illiterate (46 percent). The qualitative study found that in terms of health and hygiene, parents were found to be the first teachers. If the first generation dwellers were educated, then the second generation seemed to be more evolved and informed regarding health and hygiene issues. Men and women mentioned studying about germs and bacteria in biology and home science classes - “*grah vigyan ki kaksha mein pada tha*”. Those who were not very educated but socialized seemed to be more evolved as they learnt the traits from their relatives and friends.

Table I I a: Age	
<=22 years	14.1%
23-26 years	34.1%
27-30 years	30.8%
>30 years	21%
N	2354

Table I I b: Education	
Illiterates	46.3%
Primary or less	25.1%
High school completed	17.1%
Secondary completed and above	11.5%
N	2354

Table I I c shows that most respondents in the quantitative study were housewives. The qualitative study found that men were generally involved in income generation and women took care of the children and the home. Most men were daily wage earner like carpenters, auto drivers etc. Men who worked in government jobs, seemed more aware and active in terms of health and hygiene. Table I I d provides details of the distribution of household income in the sample.

Table I I c: Occupation	
Housewives	83.9%
Others	16.1%
N	2354

Table I I d: Household income	
Less than Rs. 1,000	1.7%
Rs. 1,000 to Rs. 2,000	14.1%
Rs. 2,001 to Rs. 3,000	34.4%
Rs. 3,001 to Rs. 5,000	32%
Rs. 5,001 to Rs. 10,000	12.3%
N	2354

The qualitative study observed that there was considerable change in the social status of women; there were increased education and income opportunities for women. Educated women were found to have educated parents and also had their maternal families living in cities. Public health products were used more in households where women were involved in making household purchases whereas non usage was higher in households where mostly men did the shopping and women were restricted and not allowed to move out alone.

As per the qualitative study, all required infrastructural facilities were available, e.g. schools, dispensaries, general shops etc. However, although public toilets were observed in Lucknow, people went out for



defecation because of irregular water supply. In households which had functional latrines, women used them, but men still went out for defecation. Additionally, most lived in a joint family and every one could not use one single latrine, therefore, going out to defecate become mandatory. Findings from the quantitative study are shown in Table 11e, 19 percent of the households had no toilet facilities.

Table 11e: Type of toilet facility	
No facility	19.2%
Flush to piped sewer tank/ septic tank	52.6%
Others	28.3%
N	2354

In terms of drinking water, hand pumps were the main source of water since they were considered to be safe. The well had been completely aborted due to the visible signs of 'Gandagi' in the water. Table 11f provides details of the households covered in the quantitative study.

Table 11f: Drinking water source	
Piped water into house/ yard/ plot	25.1%
Public tap/ standpipe	16.8%
Tube well/ borehole	49.8%
Others	8.3%
N	2354

Most houses were 'Pucca' (made of bricks and cement) houses, indicating development in the districts. Some households had TVs, refrigerators and other household gadgets. However, in Varanasi, satellite channels were not available; therefore, Doordarshan shows like 'Kalyani' were popular. Table 11g, Table 11h and Table 11i show details of caregivers' habits of listening to radio, watching TV and reading the newspaper respectively. 76 percent watched TV almost everyday while 79 percent did not listen to the radio and 72 percent did not read the newspaper at all.

Table 11g: Frequency of listening to radio	
Almost every day	9.5%
At least once a week	7.9%
Less than once a week	3.4%
Not at all	79.2%
N	2354

Table 11h: Frequency of watching TV	
Almost every day	75.8%
At least once a week	9.5%
Less than once a week	3.7%
Not at all	11%
N	2354

Table 11i: Frequency of reading newspaper	
Almost every day	7.6%
At least once a week	10.8%
Less than once a week	9.3%
Not at all	72.4%
N	2354



Annexure V:

ORS AWARENESS

Table 12a: ORS brands heard	
Electral	11%
ORS	56%
Glucose/ Glucon D	3%
Others	2%
Do not know	28%
N	774

Table 12b: Use of ORS	
WHO ORS	24%
ORS	21%
ORS orange/Greenpacket	8%
Electral	3%
Glucon D	2%
Do not know	37%
N	380

Table 12c: ORS Brands used	
Ever Prescribed	53%
Ever given ORS	53%
Gave ORS during last episode	49%
N	774

Table 12d: Place of Purchase of ORS	
Chemist shop	46%
General Store	14%
Free supply from local dispensary/ government health facility	8%
Doctor	30%
Free supply from Anganwadi center	2%
Others	0.2%
N	774

Annexure VI:

PROFILE OF A NON-BEHAVER

Manju Devi has been married for 5 years and lives in a joint family with her husband, parents-in-law, 'devar-devrani' (brother-in-law and his wife) and 2 children. She is illiterate. The men are the decision makers in the family and her opinion and that of other women is not solicited in family matters.

If she wants something, she has to let her husband know and if he feels it is necessary, he will go out and buy it. She is not allowed to go out of the house and has little or no social interaction. Her daily routine includes mainly household related activities - "Hum sube uthete hein, bache ko dudh pilate hein, saf safai, manjan karwate hein, hamara husband jate hein to unke liye khana vana banate hein, baki apna aur apne bache ki dekh bhal karte hain" (I wake up in the morning, feed milk to the child, clean up, get them to brush, my husband leaves so I prepare food for him, the rest of the time I look after myself and my child).

While there is a TV at home and she likes to watch the daily soap operas but finds it difficult to find time. Sometimes the electricity fails as well, so she can't watch it. - "light ki yahan bahut pareshani hai" (electricity is very unpredictable).

Her perception about 'gandagi' is mainly visible 'gandagi' and cleanliness is very important to her - "ghar mein jhado lagana, pochha lagana zaroori hota hai" (sweeping and mopping the house is important). She has a deep rooted idea of 'pavitrata (purity)' and enters the kitchen only after having a bath.

She was introduced to the concept of **soap for hand washing** before her marriage but would mostly wash hands with water rather than use soap. After defecation, she would be more regular in using soap. Since then she has continued to use soap post defecation and when there is visible gandagi (dirt) in her hands as she sees a visible difference - "mail nakhono mein bhar jate hai" (dirt collects under the nails). But, she does not feel the need to wash her hands with soap at other critical points every time.

Further, she does not know anything about the necessity of **water treatment**. Her husband though educated, also does not feel the need for water treatment and her maternal home is also completely unaware about water treatment. Everyone in family thinks that since they are drinking hand pump water and their forefathers also drank the same water, there should not be a problem. If nothing happened in the past, then nothing will happen in the present or the future. Therefore, they feel that their source of water is completely pure - "Pani meetha hai, achcha hai" (the water is sweet so it is good) and "Shuru se peete aa rahein hain, kabhi kuch nahi hua" (we have been drinking this water since the start and nothing has happened to us).

She feels helpless about her children falling sick and blames the environment in the slum. She trusts her home remedies for initial treatment and provides **sugar salt solution** since it is convenient and she has seen her parents using the same methods- "kyonki humko inpe vishvas hai... Kyonki humare maa baap bhi bahut pehele se ye sab karte aa rahe hai" (we use this because we believe in it, our parents have also been following this practice from a long time ago) and "Bazaar jane main samaye na barbaad ho isliye" (going to the market takes a lot of time). She would take her child to the doctor only after a few days of persistent sickness and provide **ORS** solution for diarrhea only if it was prescribed by the doctor.



