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# Handwashing in schools

Brief on evaluation preliminary results



BushProof





## I. INTRODUCTION

Every year, 1.7 million children worldwide die from diarrhea and respiratory infections<sup>1</sup>. In addition, infectious diseases, in the broadest sense of the term, cause significant school absenteeism, which hinders students' education and academic success<sup>23</sup>.

To combat this phenomenon, handwashing education and awareness are significant tools to be used to reduce cases of diarrhea and respiratory diseases<sup>4</sup>.

In this context, the RANO WASH project, HappyTap Co., and Fondation Mérieux have separately developed activities to promote good hygiene practices, including handwashing, in schools in Madagascar.

The organizations are working to achieve sustainable behavior change among beneficiaries in partnership with the Ministry of National Education (MoNE) and the Ministry of Water, Sanitation, and Hygiene (MoWASH) and to improve the «WASH Friendly School» approach.

## 2. PRESENTATION OF THE ORGANIZATIONS AND THEIR ACTIVITIES

- **HappyTap Co.** promotes the implementation of the new norm in hand hygiene, that the hand washing station is within reach. Indeed, it has been shown that most people only wash their hands if a sink is 7.6 meters away<sup>5</sup>. To this end, portable handwashing stations (handwashing devices: HWDs) have been installed in locations that are close and accessible to students.



<sup>1</sup> Liu L, Johnson HL, Cousens S, Perin J, Scott S, Lawn JE, Rudan I, Campbell H, Cibulskis R, Li M, Mathers C, Black RE, 2012. Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. *Lancet* 379: 2151–2161

<sup>2</sup> Moonie S, Sterling DA, Figgs LW, Castro M, 2008. The relationship between school absence, academic performance, and asthma status. *J Sch Health* 78: 140–148.

<sup>3</sup> Dyer DL, Shinder A, Shinder F, 2000. Alcohol-free instant hand sanitizer reduces elementary school illness absenteeism. *Fam Med* 32: 633–638.

<sup>4</sup> Aiello AE, Coulborn RM, Perez V, Larson EL, 2008. Effect of hand hygiene on infectious disease risk in the community setting: a meta-analysis. *Am J Public Health* 98: 1372–1381.

<sup>5</sup> [2] Deyneko, A., Cordeiro, F., Berlin, L. et al. Impact of sink location on hand hygiene compliance after care of patients with *Clostridium difficile* infection: a cross-sectional study. *BMC Infect Dis* 16, 203 (2016). <https://doi.org/10.1186/s12879-016-1535-x>

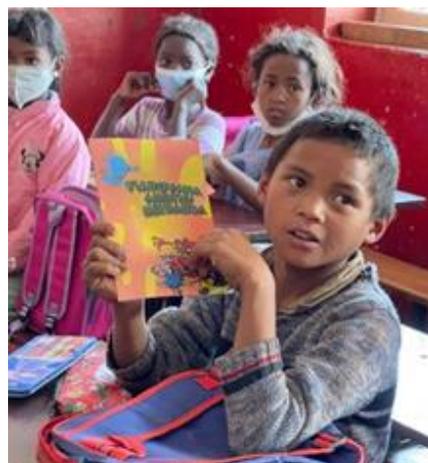
- **RANO WASH** or Rural Access and New Opportunities for WASH, is a project funded by USAID and implemented by a consortium led by CARE with CRS, WaterAid, Sanddrano, and BushProof.



One of their actions is to set up «nudges» at the level of sanitary blocks to encourage the practice of handwashing with soap. These incentive nudges, a written message or symbol, encourage (not coerce) the individual to make the right decision. In 2015, research conducted by the Global Handwashing Partnership found a significant increase in handwashing by recipients after these nudges were installed<sup>6</sup>.

- **Fondation Mérieux** has launched a WASH awareness program in Primary Public Schools (EPP) attached to the MoNE and with partner associations.

Pedagogical kits made up of different awareness-raising tools have been made available and allow for the transmission of key messages concerning the theme of WASH. This allows students to access adapted tools developed by professionals in the field to assimilate scientific and medical data on the subject.



### 3. EVALUATION OBJECTIVES

Following their different actions in the field, the three organizations wished to study the feasibility of a joint intervention by studying the impact of their individual actions (Objective 1) and the added value of simultaneous action of the three organizations (Objective 2).

Indeed, a systematic review has shown that approaches that combine improvements to water infrastructure and hygiene promotion education are more effective in changing handwashing behavior.

The partners wish to study the added value of pooling their actions to have the greatest possible impact

### 4. METHODOLOGY

Five schools in the Vakinankaratra region of Madagascar participated in an observational study that compared the different actions deployed.

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<sup>6</sup> Robert Dreibelbis, Anne Kroeger, Kamal Hossain, Mohini Venkatesh and Pavani K. Ram (2016) Behavior Change without Behavior Change Communication: Nudging Handwashing among Primary School Students in Bangladesh Int J Environ Res Public Health. 2016 Jan; 13(1): 129. Published online 2016 Jan 14. doi: 10.3390/ijerph13010129

Number	Name of school	Manager	Approach taken
School 1	EPP Antanamalaza	RANO WASH	Nudge
School 2	EPP Antemotra	Happy Tap	New normal with handwashing stations and soap
School 3	EPP Andranomanelatra	Fondation Mérieux	Educational approach
School 4	EPP Antsoatany	The three entities	Nudge + New normal + Educational approach
School 5	EPP Masimpieferana	Control school	No approach

To participate in the study, two experimental conditions were necessary:

**Condition 1:** schools did not have any of the three approaches offered by the three organizations before the study

**Condition 2:** The schools had a handwashing facility with sufficient water

Soap was made available to the schools to make the study as standardized as possible. Indeed, schools do not always have the means to provide to meet this need.

The variable studied was the number of handwashing with soap (HWWS) over half a day, performed by students in 7th and 8th grade (aged 8 to 12 years). This age group was chosen because it is from age 8 onwards that the pupils master writing and reading, which is necessary for them to participate in the sensitizations. It is important to note that the observers measuring this variable come from a different organization than the one implementing the approach itself to minimize bias.

The indicator is studied in three stages:

**A**

In the first stage (T0), the number of handwashing with soap was measured without any intervention from the organizations

**B**

In the second stage (T1), 6 weeks after the intervention, the number of handwashing with soap was measured in the control school and the schools where the individual RanoWASH and HappyTAP actions took place.

It was decided that additional time would be allocated to the school sensitized by Fondation Mérieux because the educational approach requires more time to mature. The measurement was carried out 10 weeks after the intervention.

T1 is, therefore, the first analysis of the impact of the individual actions of each organization (Objective 1).

**C**

In the third stage (T2), 18 weeks after the intervention, the number of LMS will be measured in all schools, including the school where the combined actions occurred.

T2 will therefore allow for an analysis of the sustainability of the individual actions and the added value of the combined action (Objectives 1 and 2).

This interim report aims to analyze the results of T1 compared to T0.

## 5. RESULTST0-T1 COMPARISON

The following table presents the number of handwashing sessions (LMS) performed by 7th and 8th graders during T0 and T1 and the variations.

Name of schools	Number of grade 8 and 7 students	Total number of handwashing performed by the students in T0	Total number of handwashing performed by the students in T1	Variation (%)
EPP Antanamalaza (Nudges by RanoWASH)	113	118	236	+100%
EPP Antemotra (New normal by HappyTap)	39	20	25	+25 %
EPP Andranomanelatra (Education by F.Mérieux)	94	154	71	-54 %
EPP Mananetivohitra (Control school: no intervention)	130	183	241	+ 32 %

As a reminder, the measurement of School 4 (Antsoatany), which benefited from the combined action of the three organizations, will be done in T2. It will therefore be included in the final report of the study.



## 6. ANALYSIS OF RESULTS

First, the RanoWASH activity developed in the Antanamalaza School significantly impacted handwashing with soap (+100% of handwashing with soap in T1 compared to T0). This result supports the hypothesis that implementing «nudges» can encourage handwashing with soap, which is consistent with the conclusions of studies on this innovative approach. However, since this observation was made in the weeks after the intervention was implemented, it is still difficult to conclude on medium- and long-term effectiveness.

Among the factors favoring this result, it should be noted that the handwashing devices were in sufficient numbers and that their position close to the toilets positively influenced handwashing. In addition, the enthusiastic involvement of the school staff observed by the observers also allowed the activity to run smoothly.

Second, in the Antemotra School, a 25% increase in the number of handwashing with soap was measured at T1. This result, in turn, supports the hypothesis that the implementation of handwashing devices installed near the beneficiaries allows for an increase in handwashing practice.

But this increase, although real, is modest. This can be explained by the fact that there was a change in leadership at the school during the study, which did not facilitate smooth communication about Happy TAP's activity. Moreover, during the follow-up mission, bad use of the materials (damaged handwashing stations or transformed into garbage cans) was noticed. It will therefore be necessary to see the evolution of the indicator at the T2 measurement. Thirdly, for the school sensitized by Fondation Mérieux, a 54% decrease in the LMS compared to T0 was observed. As a reminder, Fondation Mérieux's approach is educational and very different from the other two interventions because of its theoretical contribution. Indeed, its objective is to obtain a change in behavior by raising awareness of the importance of hand washing and the benefits it can bring. It is based on understanding the action. The activities are based on interactive tools used by teachers. To do this, teachers must be sufficiently familiar with the tools and be able to schedule activities with students during school hours. In addition, the students in the class must also integrate the information and understand it well.

For these reasons, this intervention requires more time to mature than the other two interventions. From this point of view, the result observed at T1 could confirm this need for maturation time to ensure better intervention effectiveness. The observation to be carried out for T2 will allow us to confirm this hypothesis.

In addition to this process, several factors related to the context of the intervention may justify the result of this observation. First, a change in leadership within the school that, again, strongly influenced the study and its results, according to the observers. Indeed, the handover was not optimal with the loss of important documents such as, for example, the counting sheets. In addition, the water points and handwashing stations were too far from the toilets and were insufficient for the number of students.

These elements may explain the decrease in handwashing with soap for this school and are food for thought for corrective actions in future activities.

Finally, for the control school, there was a significant increase in the number of handwashing (+32% compared to T0). This can be explained by the fact that, during the observation, the teachers obliged the students to wash their hands before returning to class, which constitutes a bias. School staff were asked not to influence the students' hand washing during the observation.



## 7. LIMITATIONS OF THE STUDY

In addition to the above, several factors may influence this study, which must be considered. First, it is important to mention that students could have gone through the handwashing process several times and been counted in the total number of handwashing with soap each time. It is, therefore, quite likely that the same student washed their hands several times and that a student did not wash their hands at all.

Second, the soap provided to schools may have influenced the behavior of beneficiaries because they do not always have access to it and were able to take advantage of it in the study. So, it may influence their attitude but in a positive way because they understand the need to wash their hands with soap.

All three organizations are also aware that the presence of observers on the day of the count may influence students' handwashing behavior and may not represent their attitudes on other days. In addition, it should be noted that there were changes in observers during the study, which may have influenced the data collection.

Finally, despite the standardization of the study, the context in which the different schools operate is different and influences the results. Differences in infrastructure, different levels of access to water, and disruptive elements (external to the study) added variables that deserve our attention to allow comparability in this observational study.

## CONCLUSION

We note that this pilot study allows us to understand better the intervention context, the reality of the field, and certain organizational and structural difficulties. These elements are very important and must be considered for future actions so that the three organizations are continuously improving.

This interim report is a partial analysis of the impact of the individual actions developed by each organization. For two out of three schools reached, handwashing practice is improved.

Given that the number of handwashing events is increasing for the control school (with an explicit bias), it isn't easy to conclude the individual activities of the different organizations to date.

The analysis that will be done after the T2 data collection will allow for a complete reflection on this point, on the sustainability of individual actions and the impact of the combined action of the three organizations.



This document was made possible with the support of the American people through the United States Agency for International Development (USAID), under the terms of cooperative agreement AID-687-A-17-00002 , managed by Cooperative for Assistance and Relief Everywhere. The contents of this document are the sole responsibility of the RANO WASH Consortium and do not necessarily reflect the views of USAID or the United States government.