



WEBINAR SESSION 9 (May 2019) – SUMMARY

WASH Technologies for Healthcare Facilities Presentation by Adam Drolet from PATH And Colin Goddard and Joanna Eagan from Zero Mass Water

Purpose of this Webinar

Technologies are key to achieving adequate water, sanitation and hygiene (WASH) in healthcare facilities (HCF). Addressing the lack of access to clean water in HCF due to the inadequate supply and availability of chlorine and tackling new concerns raised by an increase in global water scarcity require new solutions. Presenters from PATH and Zero Mass Water explain the role of new technologies, the MSR SafiStation Chlorine Generator and Source Hypropanels, in solving these global concerns.

Summary of Presentation

WASH Technologies in HCF

- There are two general categories for WASH in HCF interventions: Software and hardware interventions.
- Software interventions are capacity strengthening interventions such as awareness raising, management engagement and training, auxiliary staff training, healthcare worker training and monitoring systems.
- Hardware or infrastructure interventions include technologies that focus on access, storage, distribution and treatment of water, sanitation accessibility, quality, and fecal sludge management, handwashing and cleaning, and waste segregation, storage and disposal.
- Existing technologies include point of use filters, centralized water treatment, handwashing stations, chlorine generation and incinerators. Further innovation is necessary for sanitation technologies.

PATH

- PATH works in 70 countries with the goal of reducing health inequity by developing, co-developing, supporting and scaling health products and services.
- PATH's work spans the value chain by providing support to incubate, accelerate, scale, and optimize concepts to quickly translate them to the market
- The company uses a user-centered product development process to design, test, refine and evaluate products.

MSR SafiStation Chlorine Generator

- MSR SafiStation Chlorine Generator is a user focused and designed technology by PATH and MSR® Global Health that can help address issues with chlorination in HCF.
- Healthcare acquired infections affect one in six patients in low-income countries and 36% of HCF lack disinfection solution, which is critical to infection prevention and control (IPC).
- Chlorine is widely used and recommended for IPC but the lack of consistent access and availability limits an HCF's ability to provide safe and hygienic environments.
- The MSR SafiStation Chlorine Generator produces a 1% chlorine solution using salt, water and electricity for IPC and water treatment.
- The device is continuous flow, connected for monitoring and maintenance, and designed for healthcare settings.
- Preliminary results from a validation study conducted in 24 HCF in Uganda and Ghana found that remote data transmission improves monitoring and, onsite, on demand production of chlorine increases availability. There were also high acceptability rates and significant reductions in the cost of chlorine.
- Next steps include a market introduction in East and West Africa, implementation and operational research, supporting the advancement of the product category, and dissemination into health systems.

Zero Mass Water

- Zero Mass Water is helping make drinking water an unlimited resource.
- The company is using new technology to address water scarcity caused by water supply gaps and the impact aging infrastructure has on the quality of water.

Source Hydropanels

- Source Hydropanels is a technology from Zero Mass Water which uses sunlight and air to make, mineralize, and deliver drinking water.
- The technology is entirely solar powered and infrastructure free and is operational down to sub 10% relative humidity and across all above-freezing ambient temperatures.
- Source Hydropanels work by hygroscopic materials absorbing water vapor from the air. Solar power distills the vapor leading to pure water and deterministic and ML algorithms tune for optimal water production. The water is mineralized for taste and health and delivered at pressure from an on-board 8 gallon (30 L) reservoir.
- Zero Mass Water tests SOURCE drinking water against lists of US and international contaminants and has not detected any contaminants above regulatory limits in SOURCE water.
- Real-time sterilization in the reservoir maintains a high-quality of drinking water.
- Source Hydropanels is installed in 24 countries on five continents

- SOURCE Hydropanels and is applicable for residential, commercial and institutional use and SOURCE fields are scaled to meet greater demand.
- Recently, SOURCE Hydropanels have new applications in HCF in Jamaica and Zimbabwe.

Unanswered Questions from the Discussion

- Mohammad Golam Muktadir: I remember [a similar technology] called F Cubed. So, what is the major difference here?
A: The fundamental difference is that we are creating pure water using sunlight and air alone. We are not taking existing water and purifying, but rather creating water which is pure from the start. This technology mentioned appears to be using solar desalination & purifying seawater, groundwater, or polluted water. Our technology is very unique in many ways. One being we operate completely independent of the need for infrastructure (do not use any electrical plug in, or existing pipes or infrastructure). We also have the ability to efficiently create water in very dry regions of the world, thus not relying on humid prone regions, due to the way the technology has been engineered using a materials science approach. Finally, SOURCE Hydropanels create a very high quality of water that is optimized through a mineralization process and real time monitored while in the reservoir, unlike any other air to water technology out there that will require an electrical input and becomes very energy intensive, or requires a high level of moisture in the air.
- Mira Bacatan: After [SOURCE Hydropanels] has been installed, is it easily dismantlable especialy in times of high wind or during typhoon season?
A: Regarding high winds, our panels are rated for wind loads of 175mph or 285 km/hr and proven to withstand hurricanes here in the US and Caribbean as well as typhoons in other areas of the world.

Summary of Action Items

- Develop and implement technologies for WASH in HCF.
- Promote the monitoring and evaluation of new technologies for WASH in HCF.
- Disseminate information about technologies in WASH in HCF.