ENHANDSOR

West Bengal, India

Making Handwashing a Habit

Persuading people to engage in simple behaviors that can improve their health should be easy. Handwashing, if performed at the right time, could save millions of children from stunting and death through infectious diseases every year. Existing public health campaigns have focused on education, but these efforts have time and again failed to change behavior and improve health.

We take a new approach.

Our Innovation

We develop a noninvasive technology that allows us to measure and motivate handwashing behavior. Through a randomized control trial in West Bengal, India, we consider key behavioral barriers and embed each into the classic habit loop: mealtime is the *trigger,* handwashing is the *routine,* and different types of incentives are the *reward*.

Sustainability? We eventually remove all extrinsic incentives, and see if we've managed to make handwashing a habit.

MIT Economics

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Bacterial and viral contamination end the lives of nearly three million children every year and severely stunt millions more. The public health world recognizes handwashing with soap as the most "cost-effective vaccine" to such contamination, yet handwashing campaigns have failed to make a dent on child mortality.

Their weakness lies in their lack of monitoring technology. Without observing people's behaviors, we cannot change bad practices.

But physically monitoring handwashing is intrusive and costly in rural areas, and observation by a third party will bias behavior.

The enHandsor, an undetectable monitoring system embedded in a liquid soap bottle, addresses the disadvantages of previous measurement methods and revolutionizes the standard approach to preventative health.

It targets handwashing, secures data on frequency and time of use, and eliminates bias from human observation. This alone is an enormous step forward in handwashing campaign efforts.

But the enHandsor takes us further. By embedding a GSM module in the device, researchers now have the opportunity to interact directly with the user. This means that every time the handsoap is used, we as researchers know immediately and can respond accordingly.

Along with the objective data collected, this device generates an entirely new set of tools with which to cultivate a sustained hand hygiene habit.

The enHandsor allows us to:

1. monitor handwashing
in real time by transmitting data wirelessly, and thereby
2. promptly and repeatedly reward
individuals for good practices, conditioning such behavior into a daily norm.

Mealtime --> Handwashing --> Reward.
We have completed the habit loop!

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But habits can only form if we can get children to start washing in the first place, overcoming key behavioral barriers such as high mental startup costs, limited attention toward an activity with distant benefits, and the absence of social monitoring.

The enHandsor allows us to evalute the importance of each barrier by comparing the effectiveness of different interventions across randomly selected groups of households, in standard RCT fashion.

We will provide monetary incentives to reduce mental startup costs; inform other households that they are being monitored to increase social pressure; and use text messages as reminders. Three months after the introduction of the interventions, all extrinsic incentives will be phased out. We will continue to monitor handwashing behavior over the course of one year to observe whether a subconscious habit loop has indeed been established.

We are working with 3000 households and 5200 children under the age of five in rural West Bengal.

Within one year's time, we will have precise causal estimates of the effect of each intervention on disease incidence and child mortality in our population.

Scalability is promising: Our most expensive intervention is still one-half the cost of the standard handwashing information campaign, and our partnership with the health ministry of West Bengal ensures that we can eventually scale up throughout the state and potentially throughout India.

What we need:

In order to launch this RCT, we need to produce 3000 enHandsors at a total cost of $60K. We can then embark on a groundbreaking study in preventative health: one that will not only transform how we think about public health campaigns henceforth, but finally make a substantial dent in the 3 million children lost every year from entirely preventable illnesses.