New Handwashing Solution to Prevent Spread of Infectious Diseases

Proposed use

This innovative technology proposes a new solution that improves handwashing practice and could help to prevent the spread of infectious diseases such as COVID-19, cholera and diarrhoea-related issues due to poor hygiene, especially in developing countries.

Problem addressed

Good hand hygiene is key to reduce the risk of infection by viruses and other pathogens. It has been reported that less than 8% of the target low-income population was their hands after using toilet facilities in many developing countries.

Behavioural research carried out in Africa has shown that many people have concerns of cross-contamination for sharing the soap, therefore they are reluctant to use soap in public facilities. In the same regions, soap is regularly prioritized for other purposes instead of handwashing after defecation so even if soap is present, it is not used for handwashing. Current soap formats and dispensers to avoid cross contamination are too expensive or are designed for communal use and are thus not suitable for home use leaving a gap in the market.

Another issue of alternative soaps is that they may be used for the toilet at the end of their lives such as when they get small, but they often fall into cracks or into the toilet and are lost. Liquid pump bottles are commonly referred to by many as a product of choice, but this is outside the budget of many households. Dry soap, if used as separated small flakes of leaves can easily fall from the hand resulting in waste.

Therefore, there is a need of new affordable solution to enhance handwashing practice and halt the spread of pandemic and infectious diseases.

Technology overview

Design engineers from Imperial College and London School of Hygiene & Tropical Medicine (LSHTM) have developed a new technology to improve the handwashing practice.

It consists of easy-to-use single-use tabs of soap eliminating the need to share the cleaning product or dispenser with others. Due to their unique design, their application is exclusively for handwashing and cannot be used easily for other activities. The tabs of soap are durable and resistant to harsh conditions, so they don't decompose or lose their integrity in tropical climates. People can put them into their pocket or otherwise carry them for many days and they are still useful. Different mechanisms for dispensing the tabs are available to facilitate the transport and use.

Production costs are estimated to be approximately one cent of US dollar, being affordable solution for low-income communities.

This technology is the result of an extensive behavioural project run in Tanzania. Field trials in this region showed that the usage of this novel solution increased the rate of handwashing practice from none to one-to-two times a day. Further popularization of this approach might have a significant impact on enhancing hygiene conditions and potentially health across vulnerable societies.

Benefits & Advantages

- Simple single-use soap -> no need to share.
- Design for the unique purpose of handwashing.
- Clear reminder for handwashing.
- Portable and durable.
- Sustainable solution.
- Environmentally friendly.
- It could be locally produced.
- Low-cost production- affordable for consumers and seller with a clear business model opportunity around the selling of each wash.
- It can be purchased in small quantities.

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Intellectual property information

A priority UK patent application has recently been filed (application number 2004992.0).

Link to published paper(s)

More information is available in the news story that can be found in this link:
https://www.imperial.ac.uk/news/197195/new-handwashing-solution-could-help-halt/

Inventor information

This innovative handwashing solution has been developed by Dr Weston Baxter and Dr Edward Brial from Dyson School of Design Engineering at Imperial College London in collaboration with Prof. Robert Aunger from London School of Hygiene & Tropical Medicine (LSHTM).