Evidence-Based Development: A Trend Whose Time Has Come? The Case of Chlorine Dispensers for Safer Water

Editor’s Note: This guest blog post is authored by Alix Zwane, Executive Director of Evidence Action. In her post, Alix lauds the increased attention given to evidence-based innovations in development and describes the Dispensers for Safe Water initiative as an example of a WASH intervention grounded in this data-driven approach.

Evidence-based development innovations are finally all the rage. The UK’s Department for International Development and USAID announced the Global Development Innovation Ventures (GDIV) Fund almost exactly a year ago to focus development investments on “innovative approaches with proven, radically successful results.” Just a few weeks ago, USAID launched its Global Development Lab that aims to “test and scale breakthrough development innovations.” And even more recently, a senior policy advisor to the president of the European Commission argued that evidence should trump politics and diplomacy for deciding on aid investments.

One example of how aspirations for data-driven development translate into actual, real projects that improve millions of peoples’ lives is the Dispensers for Safe Water initiative. Chlorine dispensers currently serve over two million people in East Africa and are on track to grow to four million people by the end of this year, and 25 million by 2018.
Chlorine dispensers installed directly at the water source represent an important innovation in the rural water sector. They solve a number of challenges that have hindered sustainable, quality services for cleaner water to date -- despite the billions that have been spent on water and sanitation projects. And because the approach has been vigorously tested, we can say definitively that chlorine dispensers work at a fraction of the cost of typical water projects, and at high adoption rates by people most in need of clean water.

What Are Chlorine Dispensers?

Dispensers are installed directly at the water source and contain enough chlorine for a community using the water source for about a month. A person collecting water turns a knob that releases enough chlorine to clean 20 liters of water -- the typical amount that people collect from the source and carry home. The dispensers are rugged and durable, and maintained and marketed by local health promoters who educate the community about the utility of adding small amounts of chlorine to the drinking water, and check and refill the dispensers as needed.
A local health promoter in Teso district, Kenya, teaches community members about the health benefits of chlorinated water, and how the chlorine dispenser works. Credit: Andy Chen for Evidence Action

Chlorine is very cheap and effective at killing most bacterial and viral pathogens. Safety concerns with dilute chlorine are minimal, and it is widely used as a disinfectant in water treatment plants around the world. Chlorine can also provide residual protection for up to three days (depending on storage conditions), which means that it not only disinfects water, but can also prevent re-contamination.

**Are People Healthier Because of Chlorine in their Water?**

So what do we know about improving water quality for people? There have been a number of review articles recently that have assessed the evidence for drinking water quality interventions in developing countries. One meta study that analyzed 65 separate evaluations concluded that...
point-of-use (or, in the case of dispensers, point-of-source) water quality interventions appear to be highly effective -- and indeed, more effective than water supply or source treatment in reducing diarrhea -- but that this is very sensitive to the ability of the program to sustain high rates of product adoption. Obviously, a product cannot provide health benefits if people don’t use it. Another systematic review of the evidence showed that there are reductions of up to 40% of childhood diarrhea among people using the product.

Are People Actually Using Chlorine Dispensers?

The case for cost-effective impacts for dispensers rests not only on the potential for health impact. People actually have to use water treatment products if they are to be effective. The sustained use of dispensers has been documented via a rigorous randomized controlled trial (PDF) in which adoption held at about 50% for three years in the treatment group assigned to dispensers. We continue to see average adoption rates over 40% in areas where baseline water treatment with chlorine is less than 10%. For anyone in the WASH field, these are impressive rates. Adoption of chlorine at the point of service is high because it is cheap, convenient, salient, and public.
Average adoption rates in areas where chlorine dispensers are introduced exceed 40%. Credit: Andy Chen for Evidence Action

**Dispensers are Sustainable and Cost-Effective**

Chlorine dispensers are inexpensive, costing less than $0.50 per person per year at scale. This is considerably lower than the large infrastructure programs that may not be sufficiently invested in over time, and then fall into disuse. The low cost per person has also allowed us explore new financing models, such as using carbon credits. Chlorine reduces the need for boiling water, so dispensers can be financed that way. And because chlorine dispensers are inexpensive to maintain, carbon revenue covers the costs even as the initiative expands to serve 25 million people in 2018.

We believe that evidence and rigorous testing of new development approaches is critical in order
to scale what works to reach millions, and are pleased that the global development field is moving
in the direction of being more rigorously data-driven and evidence-based.
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