

Cholera's global toil could diminish with new smartphone tech

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Scanning electron microscope image of *Vibrio cholerae*. Credit: Wikipedia

For most, cholera comes as a mild to moderate form of diarrhea. For others, the diarrhea quickly causes dangerous fluid loss – up to a quart an hour – and has a milky appearance. Then comes hours of vomiting, and

possibly death from organ failure.

One of the world's most preventable and treatable diseases is sickening more than 3 million people every year and killing more than 95,000, according to the World Health Organization. But [technology](#) developed at Purdue University could help change that.

Researchers have developed a smartphone technology app that provides a '[cholera](#) detection lab.' The technology is being commercialized through a Purdue University-affiliated startup. The founder of the startup believes this technology can do much to save lives.

OmniVis, co-founded by Purdue College of Engineering alumnae Katherine Clayton and three professors, uses a hardware device and consumable test kit to collect and analyze [water](#) samples. The technology then maps out the results within 30 minutes, compared with the 3-5 days it may take with conventional cholera detection methods.

More than \$2 billion is spent in treatment and lost in reduced productivity due to cholera, which is caused by contaminated food or water.

Women in sub-Saharan Africa spend a combined average of about 200 million hours per day collecting water, and a whopping 40 billion hours per year, according to the United Nations.

"I went to Purdue for my Ph.D. because I knew I wanted to make a difference in global health," Clayton said. "The caliber of Purdue professors and students, along with phenomenal resources like the Purdue Foundry, truly enable researchers to take what they learn in the lab to struggling communities around the world. Working on this life-saving technology and now moving it to the public to help people is a life-changing experience."

The World Health Organization reports that more than 780 million people globally do not have access to improved water sources, and 90 percent of infectious disease deaths are from contaminated water. About 3.4 million people die from water-related diseases such as cholera each year; about 40 percent of those are children.

Members of the team will travel to Haiti, one of the countries with the most cases of cholera over the past decade, in January for a field test of their detection system.

Provided by Purdue University

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