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NEW STUDY INVESTIGATES LONG-TERM VIABILITY OF WATER TREATMENT AND HYGIENE INTERVENTION IN RURAL GUATEMALA

COLLEGE STATION, TX, Sep. 8, 2009: A study funded by the Institute for Public Health and Water Research (IPWR) has provided the first post-intervention follow-up analysis of a combined household water treatment and hand-washing behavior change intervention. The findings highlight the difficulty of implementing behavior-based household water treatment systems.

The study, conducted by IPWR Fellow Benjamin Arnold, MPH, a doctoral candidate at the University of California at Berkeley, examined the effectiveness of a 3-year, combined point-of-use water treatment and hand-washing intervention in rural Guatemala that had been conducted by Catholic Relief Services, the SODIS Foundation and Caritas, a local agency, between October 2003 and September 2006.

Arnold's study is the first post-intervention follow-up of such a combined intervention and the first to include child health measurement. "In my master's thesis, I noticed that there were a lot of randomized trials that dramatically reduced diarrhea in their target populations," he said. "But water treatment requires significant, lasting behavior changes, and there had been no rigorous evaluations of intervention sustainability for longer than one year. I wanted to know if these programs were really working."

The study focused on the area around Camotán, in southeastern Guatemala, which is among the country's poorest, most remote regions. Arnold and his team visited 600 households in 30 villages, including nearly 1,000 children under five years of age. Two-thirds of study participants had spring-fed taps in their house or yard, while one third used local springs or surface water. Arnold's research shows that while most of the people he interviewed believed their drinking water was clean, only 4% of the samples he took met WHO water standards, meaning 96% of the samples were contaminated with detectable *Escherichia coli*.

According to the implementing organizations, 70% of families participating in the original intervention reported using the prescribed water treatment and hygiene methods at the end of the intervention period. But six months later that proportion had dropped to 37%. Further measurement by Arnold's team revealed that less than 10% of the participants were actually treating their water.

"The challenge in these interventions is sustaining the behavior by making it habitual," said Arnold. "This is a well-known struggle in many public health interventions, and I think that a useful contribution from academics would be formative research into adoption barriers, social marketing messages and intervention delivery – all important issues that our study did not address." The original intervention recruited local women to promote household water treatment and handwashing in monthly home visits to participant households.

Arnold pointed out that IPWR funding was critical to the implementation of his study. "IPWR filled a funding gap," he said. "Very few organizations are putting resources towards effectiveness evaluations of water treatment campaigns. Thanks to IPWR, our study design provides a useful template for further research in this sector."

The study was published in July 2009 Advance Access by the *International Journal of Epidemiology*.

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