

## **Microbiologic evaluation and community acceptance of a plastic water storage vessel, point-of-use water treatment, and handwashing in Karachi, Pakistan**

*Luby S, Agboatwalla M, Raza A, Mintz E, Sobel J, Hussain S, Husan R, Ghouri F, Baier K, Gangarosa G*

**Introduction:** In Karachi, where diarrhea is the leading cause of childhood death, municipally supplied water is heavily contaminated with fecal organisms. We pilot-tested an inexpensive home-based approach to improve water quality and hand cleanliness.

**Methods:** Seventy-five households in a low-income neighborhood were recruited, and motivated to use the different interventions. Twenty-five received a plastic water storage vessel and regular supply of chlorine bleach for water treatment; 25 received a regular supply of 'Safeguard' soap only; and 25 received the vessel, bleach, and soap with instructions to use the chlorine treated water for handwashing. We measured the density of the thermotolerant (fecal) coliforms in drinking water and in hand rinse specimens at baseline and in samples collected at unannounced visits during meal preparation 3-6 weeks after intervention.

**Results:** At baseline, 71 of 75 stored drinking water samples were contaminated with a median of 20,000 cfu of thennotolerant coliforms per 100 ml, and 72 of 75 hand rinse samples were contaminated with a median of 9,000 cfu of thermotolerant coliform per 125 ml of hand rinse solution. Seventy-two households (96%) accepted and continued to use the interventions. After intervention, 36 of the 47 household (77%) who had received the water vessel and bleach had no detectable thermotolerant colifoms in their water. Families that received no soap had a median 17,500 thermotolerant coliforms per 125 ml of hand rinse solution post-intervention compared to a median of 6,750 thermotolerant coliforms among persons who received soap with the water vessel and 5,000 among persons who received soap alone (p=.01)

**Discussion:** In a highly contaminated environment the water storage container with chlorine markedly improved water quality. Soap improved hand cleanliness, whether the hands were washed in chlorinated water or contaminated tap water.

### **Suggested citation:**

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