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## **High compliance randomized controlled field trial of solar disinfection of drinking water and its impact on childhood diarrhea in rural Cambodia.**

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### **Abstract**

Recent solar disinfection (SODIS) studies in Bolivia and South Africa have reported compliance rates below 35% resulting in no overall statistically significant benefit associated with disease rates. In this study, we report the results of a 1 year randomized controlled trial investigating the effect of SODIS of drinking water on the incidence of dysentery and nondysentery diarrhea among children of age 6 months to 5 years living in rural communities in Cambodia. We compared 426 children in 375 households using SODIS with 502 children in 407 households with no intervention. Study compliance was greater than 90% with only 5% of children having less than 10 months of follow-up and 2.3% having less than 6 months. Adjusted for water source type, children in the SODIS group had a reduced incidence of dysentery, with an incidence rate ratio (IRR) of 0.50 (95% CI 0.27-0.93,  $p = 0.029$ ). SODIS also had a protective effect against nondysentery diarrhea, with an IRR of 0.37 (95% CI 0.29-0.48,  $p < 0.001$ ). This study suggests strongly that SODIS is an effective and culturally acceptable point-of-use water treatment method in the culture of rural Cambodia and may be of benefit among similar communities in neighboring South East Asian countries.