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### Abstract Information

**Abstract Title:**

A Synthetic Review of Household Valuations of Water Quality Improvements in Developing Countries

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Paper

**Themes:**

How Much Is Clean Water Worth? A Synthetic Review of Evidence from Randomized Evaluations

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**Abstract:**

Diarrheal diseases kill two million children every year despite the availability of effective and inexpensive technologies to improve water quality and prevent the spread of infections. There is a growing literature on the effectiveness of such technologies but important gaps remain in our understanding of the factors that encourage or inhibit mothers from adopting these products and techniques. Our synthetic review, sponsored by 3ie, expands upon and complements several existing summary articles by focusing on evidence from randomized evaluations that shed light on the underlying behavioral mechanisms that are necessary for water treatment technologies to translate into health gains. The medical effectiveness of point-of-use water treatment and hand washing in particular have been well established. However, most studies intended to assess biomedical impacts rely on interventions intended to generate high levels of uptake over short periods. As noted in White (2008), such impact evaluations do not provide actionable guidance to policymakers about how to implement apparently beneficial interventions. In practice, health benefits depend on private demand for health and health products, and individual decisions to adopt and consistently adhere to certain behaviors. Moreover, the cost-effectiveness of such interventions, and related programs that improve source water quality or sanitation conditions, depend crucially on institutional design and delivery mechanisms. Understanding determinants of adoption is crucial for developing institutions that can support sustained take-up. We discuss both externalities and private valuation as factors that shape demand curves for health products and must therefore be taken into account in policy design. We review the findings from the few impact evaluations that have considered willingness to pay as an outcome variable (e.g. Ashraf et. al., 2008; Clasen et al., 2004; Kremer et al. 2008a and 2008b; Luby et al., 2008) and discuss how to interpret alternative measures including both stated and revealed preference approaches. Methodological challenges to developing rigorous measures of valuation are reviewed, with an eye to providing guidance to researchers at the project design phase. A consistent and discouraging trend emerges from the valuation studies we review – even with major documented health improvements, willingness to pay for water quality improvements is almost always less than the cost of the technology. We draw conclusions about alternative delivery mechanisms for water treatment products and infrastructure given existing evidence on demand and willingness to pay. Finally, we consider the role of legal institutions and the question of whether a lack of private property rights over water resources can lead to under-investment in source water quality improvements or inadequate maintenance of existing infrastructure. We explore the implications of this debate for efforts to reduce diarrheal mortality. This review article should guide engineers as well as policymakers and researchers by describing demand for health and clean water, and the factors that influence demand, and by highlighting research gaps related to these questions. We also emphasize the flexibility of rigorous evaluations as a tool for informing the policy debate in this sector and provide guidance on the types of rigorous evaluations that may hold the most promise.

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