

**Abstract title:**

Failures in quality, quantity, and reliability of water provided through an informal distribution system in a slum in Mumbai, India [Abstract #OS40.6]

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**Introduction:**

Unregistered slums receive no access to the municipal water supply. The resulting informal water access systems may increase diarrheal morbidity.

**Objective:**

To assess water quality, quantity, and cost in an unregistered slum with an informal distribution system.

**Methods:**

We tested 229 water samples for coliform bacteria and *E. coli* during 3 seasons: winter, summer, and monsoon. The same set of samples were collected each season from every point of the water distribution system, including motors that tap the municipal supply, hoses going to slum lanes, large household storage containers (for bathing/washing), and small household storage containers (for drinking). Storage container samples were collected from the same 21 households in each season. Cost and quantity of water use in these homes were assessed. Control water samples were collected from a registered slum and low-income flats.

**Results:**

In winter and summer, no contamination was found in control samples or in motor and hose samples. In winter, 5% of stored drinking water samples were contaminated with *E. coli* and 14% with coliforms. In summer, 43% of drinking samples were contaminated with *E. coli* and 52% with coliforms. Contamination in large storage containers also increased between winter and summer. In winter and summer respectively, 95% and 80% of households fell below the WHO water usage recommendation of 50 liters per capita per day. In winter and summer respectively, average cost of water in the slum was 65 times and 141 times more expensive than the municipal rate of 2.25 rupees per 1000 liters. Monsoon season data is pending and will be available at ICUH.

**Conclusion:**

Most bacterial contamination occurs due to household water storage with major seasonal variation, suggesting that seasonal safe storage and point-of-use interventions may improve water quality. Problems of exorbitant expense and inadequate quantity can only be remedied by equitable access to the municipal water supply.

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