

Two studies investigate health impacts of continuous piped water supply

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This week's issue of *PLOS Medicine* features two separate studies, each of which investigates the importance of uninterrupted piped water supplies to health outcomes. In a matched cohort study in Hubli-Dharwad, India, Ayse Ercumen of the University of California, Berkeley, and colleagues compared health outcomes for households that had been upgraded to receive continuous piped water to households with intermittent water supply. Aurélie Jeandron of the London School of Hygiene & Tropical Medicine and colleagues conducted a time-series regression of water supply to Uvira, Democratic Republic of the Congo and admissions to the local Cholera Treatment Centre (CTC).

Ercumen and colleagues found that in [households](#) with continuous as compared to intermittent piped water supplies, there was a 37% lower prevalence of dysentery among children under 5 in low-income segments of the population, and a 42% lower incidence of typhoid fever among all household members. However, there was no significant association found between upgraded water supply and other health outcome measures, such as overall diarrheal illness and growth in children under 5 years old.

Ercumen and colleagues say that their "findings suggest that intermittently operated piped water systems serve as a transmission pathway for waterborne pathogens in this urban population despite centralized treatment."

Jeandron and colleagues found that in the 12 days following a day

without tap water in water supply, CTC admissions increased by 155% compared to admissions following a day with optimal water supply, and that suspected cholera cases attributable to low water supply accounted for 23.2% of total CTC admissions. Laboratory confirmation of suspected cholera cases was not available for this study, and the analysis did not suggest any association between chlorine levels and suspected cholera incidence.

Jeandron and colleagues say that their results "argue in favour of water supply investments that focus on the delivery of a reliable and sustainable water supply and not only on point-of-use water quality improvements as are often seen during cholera outbreaks."

In a Perspective linked to these two research articles, Clarissa Brocklehurst of the University of North Carolina at Chapel Hill and Tom Slaymaker of UNICEF discuss the importance of providing universal access to safe and reliable drinking [water supplies](#) as envisaged in the 2030 Sustainable Development Goals. Brocklehurst and Slaymaker write: "The studies in this issue of *PLOS Medicine* highlight the [importance](#) of continuous piped water supply, but also the pitfalls. Interruptions in the supply can negate the possible health benefits, and installing piped water without addressing other environmental concerns may not deliver the hoped-for health benefits."

More information: Ercumen A, Arnold BF, Kumpel E, Burt Z, Ray I, Nelson K, et al. (2015) Upgrading a Piped Water Supply from Intermittent to Continuous Delivery and Association with Waterborne Illness: A Matched Cohort Study in Urban India. *PLoS Med* 12(10): e1001892. [DOI: 10.1371/journal.pmed.1001892](https://doi.org/10.1371/journal.pmed.1001892)

Jeandron A, Saidi JM, Kapama A, Burhole M, Birembano F, Vandeveld T, et al. (2015) Water Supply Interruptions and Suspected Cholera Incidence: A Time-Series Regression in the Democratic Republic of the

Congo. *PLoS Med* 12 (10): e1001893. [DOI: 10.1371/journal.pmed.1001893](https://doi.org/10.1371/journal.pmed.1001893)

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