

Study: Chlorine may not always protect water

BELFAST, NORTHERN IRELAND — Chlorine treatment of drinking water does not always get rid of mycobacteria, possibly putting people at risk of tuberculosis infection, researchers in Northern Ireland warn.

One possible route of transmission of *Mycobacterium paratuberculosis* from cattle to humans is via contaminated water supplies, according to Lynne B. Whan and colleagues at Queen's University Belfast, the Department of Agriculture and Rural Development for Northern Ireland and the Northern Ireland Drinking Water Inspectorate in Belfast.

An article in *TB & Outbreaks Week* quoted Whan stating that even high concentrations of chlorine failed to kill some bacteria when the initial population was high. The researchers evaluated the effects of chlorine on bovine and human strains of *M. paratuberculosis*, the article stated.

Chlorine concentrations of up to 2 milligrams per milliliter (mg/mL) were added to water purified through deionization and reverse osmosis (DRO) and to DRO water with additives to emulate the environment at a commercial water treatment plant, the article stated. When bacteria was present at levels of high levels, some bacteria survived exposure to the highest dose of 2 mg/mL of chlorine for 30 minutes, Whan and coworkers reported. Bacterial survival was seen in both types of water studied.

High levels of chlorine did significantly reduce *M. paratuberculosis* cell counts by as many as 2.35 log units for the human strain, said the article.

Whan said the work highlights the need for further research into the survival of the bacteria during water treatment.

Key points reported in the study, according to the article, include:

1. Chlorine treatment of drinking water does not always eradicate mycobacterial populations, possibly putting people at risk for tuberculosis infection.
2. When *Mycobacterium paratuberculosis* was present in large quantities, even high concentrations of chlorine failed to kill all bacteria.
3. Significant reductions in bacteria populations were seen, however.