

Private drinking water supplies pose challenges to public health

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An estimated three to four million people - about one in every eight Canadians - drink water from private supplies.

Infrequent testing and maintenance puts consumers of these water supplies at greater risk of contamination than public systems, states an article in *CMAJ* ([Canadian Medical Association Journal](#)). It goes on to state people need to take personal responsibility for their water quality and governments need to provide better oversight and resources in order to improve the case.

Water-borne [disease outbreaks](#) are common in the developing world but can also occur in affluent countries. In the United States, 19.5 million water-borne illnesses occur every year (all sources) and three quarters (76%) of [drinking water](#) outbreaks are associated with groundwater sources. A study from the United Kingdom found outbreaks of water-borne infectious diseases among people with private water supplies were 35 times greater than among consumers of publicly-supplied water.

While most Canadians are supplied by regulated public municipal water systems, people who live in rural areas often rely on private supplies, most of which are groundwater sources such as wells. These may not be well-maintained or regularly tested for water quality. An Ontario study found that only 8% of private water systems met the current provincial recommendation for frequency of testing.

"The perception that private systems, the majority of which come from

groundwater in rural and small towns, yield higher water quality compared to municipal sources is unclear and unfounded," writes Dr. Jeffrey Charrois a research scientist with Alberta Innovates — Technology Futures and an adjunct assistant professor with University of Alberta. "The provision of safe, secure drinking water is necessary for protecting public health and requires an understanding of the responsibility, proper technical training plus the dedication to carry out those tests."

Contamination of wells can occur from bacteria, enteric viruses and protozoa — pathogenic organisms capable of causing water-borne-illnesses — as well as chemicals such as pesticides, nitrate, and naturally occurring arsenic. A review of 288 water-related infectious disease outbreaks in Canada over a 27 year period found that two-thirds were associated with private or semi-private supplies. In another survey of 1292 drinking water wells on farmsteads in Ontario, 40% of the wells were found to contain one or more contaminants at levels above maximum acceptable concentrations.

Water quality oversight of public systems typically rests with the ministry of health or environment, depending on the province or territory. "Issues related to the quality of water from private wells are clearly not on the radar of most Canadians," writes the author.

"Owners of private systems must take personal responsibility for their water quality, but they need more information and better resources," concludes Dr. Charrois. "Local, provincial and federal governments must develop and deliver the education, awareness and innovative programs that encourage people to take the steps to ensure that their private [water](#) systems are safe."

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