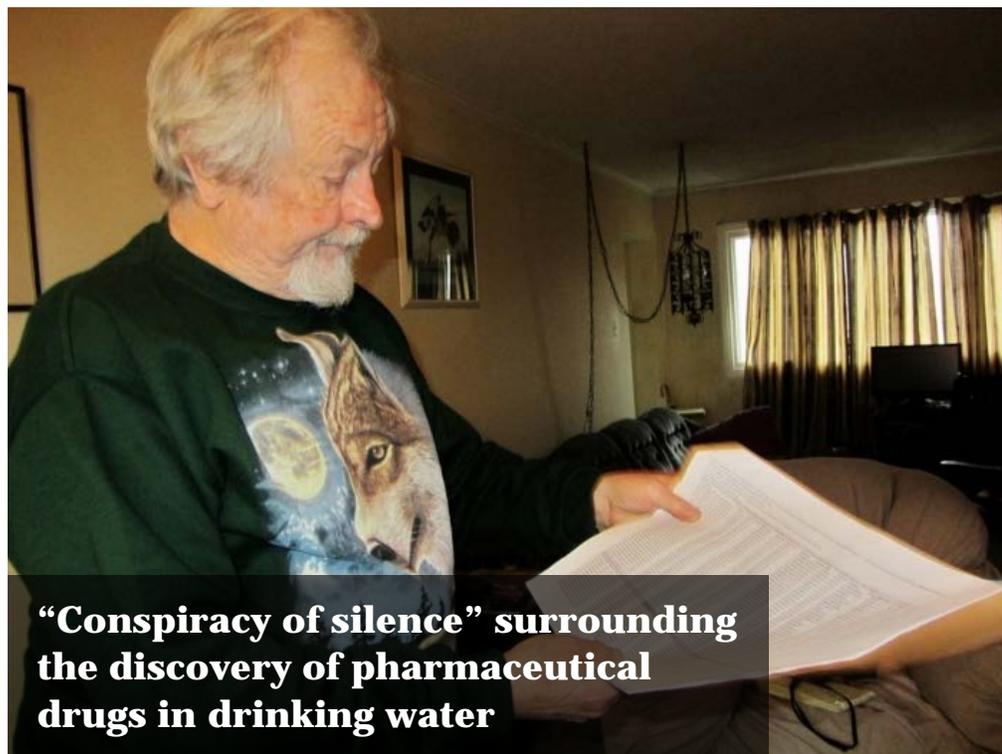


North America and Caribbean

Canada



“Conspiracy of silence” surrounding the discovery of pharmaceutical drugs in drinking water

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The Ontario Ministry of the Environment finds itself under pressure from a Canadian scientist to address contaminated drinking water. Among the contaminants, a medication used in the treatment of epilepsy and bipolar disorder was regularly detected.

Joseph Cummins, a professor emeritus of genetics at the University of Western Ontario, warns water pollution is a growing threat and that the public is not being given the necessary information to protect itself from what he calls a “conspiracy of silence.”

He says drinking water is contaminated, in part, by the unregulated discharge of pharmaceutical drugs. “It’s pervasive in the Great Lakes, which is really shocking.”

Cummins has been pushing the Ontario Ministry of the Environment (MOE) to make public the 17 sampling sites where tests were conducted on drinking water systems in 2005-06 that contained pharmaceuticals, hormones and bisphenol A. The MOE study was published in 2011.

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In his report, *Pharmaceutical Cocktails Anyone?*, published last September by *The Institute of Science in Society*, Cummins wrote that the results of the MOE study were "alarming", but have not been deemed to be a matter of great concern by the ministry.

Cummins charges keeping information from the public is "dangerous" and he questions why the ministry and scientific journals are publishing only some of the data.

Carbamazepine, a medication used in the treatment of epilepsy and bipolar disorder, was detected the most frequently and was found in 25 percent of the MOE samples from eight different sites, where multiple samples were taken, with a maximum value of 601 nanograms per litre (1.000 nanograms equals 1 microgram).

Carbamazepine is also altered by water chlorination to chemicals that are known or suspected to cause cancer, Cummins said.

Distressing reactions

In response to the question of why the sample sites were not made public, the ministry sent out a statement saying that the study was a voluntary survey. "The ministry is committed to keeping the identity of participating municipal water systems anonymous. The results show that the quality of their drinking water is good."

0454	EOPP05	ERYTHROMYCIN	10 NG/L	10	NG/L <=W
0454	EOPP09	MONENSIN SODIUM	10 NG/L	10	NG/L <=W
0454	EOPP26	NORFLOXACIN	10 NG/L	10	NG/L <=W
0454	EOPP23	TYLOSIN	10 NG/L	10	NG/L <=W
0454	EOPP21	TETRACYCLINE	10 NG/L	10	NG/L <=W
0454	EDCN01	ALPHA-ESTRADIOL	5 NG/L	5	NG/L <=W
0454	EDCN02	ETHYNYLESTRADIO	5 NG/L	5	NG/L <=W
0454	EDCN04	NORETHINDRONE	5 NG/L	5	NG/L <=W
0454	EDCN09	ESTRIOL	5 NG/L	5	NG/L <=W
0454	EOPN08	INDOMETHACIN	5 NG/L	5	NG/L <=W
0454	EOPN12	WARFARIN	5 NG/L	5	NG/L <=W
0454	EOPN11	SULFADIAZINE	5 NG/L	5	NG/L <=W
0454	EOPP03	CIPROFLOXACIN	5 NG/L	5	NG/L <=W
0454	EOPP11	OXYTETRACYCLINE	5 NG/L	5	NG/L <=W
0454	EOPP14	SULFACHLOROPYR	5 NG/L	5	NG/L <=W
0454	EOPP25	ENROFLOXACIN	5 NG/L	5	NG/L <=W
0454	EOPP13	ROXITHROMYCIN	5 NG/L	5	NG/L <=W
0454	EOPP08	MECLOCYCLINE	5 NG/L	5	NG/L <=W
0454	EOPP04	DOXYCYCLINE	5 NG/L	5	NG/L <=W
0454	EDCN07	EQUILIN	2 NG/L	2	NG/L <=W

List of drugs found in the MOE report

The MOE report was published in the journal *Science of the Total Environment* and Cummins chastised the journal for failing to involve the full details of the study, namely the sample sites. "This is a serious abuse of scientific reporting which will allow bureaucrats and politicians to control and decide how and which data are to be used", he said.

When Cummins discovered that the antibiotic erythromycin was in samples of the drinking water, as high as 116 ng/L, he pushed to find out the sources as he has a "deadly" allergy to this drug.

He was shocked to learn his own drinking water, which is from the Elgin Area Water Supply System (which treats Lake Erie water), contained erythromycin.

But the MOE maintains that the tap water is safe. "The testing showed that levels of pharmaceuticals in finished drinking water are either undetectable or present at trace levels. At the levels detected, an individual would have to drink thousands of glasses of drinking water a day to exceed the acceptable daily intake for each specific compound."

Cummins said the ministry hasn't even considered the synergistic or additive effects of the various drugs.

He said that the World Health Organization (WHO) has also mistakenly determined that the levels are safe. "The WHO has really had their head in the sand."

WHO spokesperson Gregory Hartl said it is unlikely that exposure to very low levels of pharmaceuticals in drinking water would result in adverse risks to human health. "Concentrations of pharmaceuticals detected in drinking water (typically in the nanogram per litre range) are several orders of magnitude lower than the minimum therapeutic dose."

Cummins will be discussing this issue at the Colours of Water Festival, which celebrates art, science and music inspired by water. The event will be held in London, England in March.

"The pharmaceuticals in water story... is so powerful, there's no way it won't be a major concern", he said.

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