

Drug traces found in cities' water

By MARTIN MITTELSTAEDT
ENVIRONMENT REPORTER

Monday, February 10, 2003 – Print Edition, Page A1

Trace amounts of prescription drugs have been detected in the drinking water of four Canadian communities, including Montreal and Hamilton, the first time pharmaceutical products have been discovered in North America's municipal water supplies.

The drugs were found through laboratory tests funded jointly by The Globe and Mail and CTV of water samples taken from 10 Canadian communities.

The tests detected carbamazepine, an anticonvulsant given for epileptic seizures, in tap water from Montreal, Hamilton, and Brooks, a rural community in southern Alberta downstream of Calgary's sewage outflow.

Another drug, gemfibrozil, used to reduce cholesterol levels, was found in Portage La Prairie, a Manitoba community known for farming and food processing.

The tests, by Enviro-Test Laboratories of Ottawa, found the drug residues in concentrations in the 6.5- to 70-parts-per-trillion range.

One part per trillion is the equivalent of a grain of salt in an Olympic size swimming pool, and concentrations around this level are at the edge of what researchers can detect using modern laboratory equipment.

It is not known what health risk, if any, is posed by drinking or bathing in water containing trace amounts of drugs. "Right now, there [are] a lot of unanswered research questions, research that has to be conducted," said Detlef (Deib) Birkholz, vice-president of research at Enviro-Test and adjunct professor at the University of Alberta's faculty of pharmacy.

He said that "even though the concentrations are a thousand- or a million-fold below therapeutic levels, they could be having effects" on sensitive populations, such as fetuses and people with weakened immune systems.

Officials from the communities said they had no idea of why their water had drug residues.

The Globe-CTV tests were not intended to provide an exhaustive picture of drinking water supplies in Canada and researchers do not know if there are any ill effects for people exposed to extremely small quantities of pharmaceuticals.

But earlier studies have found trace amounts of drugs in some lakes and rivers, raising concerns that the chemical compounds could also be making their way into drinking water.

In Hamilton, the city draws water from a pipe that juts nearly a kilometre into Lake Ontario. The intake is far from any pollution source.

"It is strange. We are pretty far out in Lake Ontario," said Lou DiGironimo, director of Hamilton's municipal water department.

In Brooks, a community surrounded by vegetable and grain farms that draws on the Bow River to slake the thirst of its 12,500 residents, an official said the town's water is extensively treated and considered of good quality.

"We meet all Alberta environmental stuff and we chlorinate and filter and the whole thing," said Bill Prentice, manager of the town's works and utility department.

Health Canada's director of regulatory affairs, Karen Proud, cautions that research is so preliminary that regulators don't know whether the drug traces are hazardous. But she said there is enough evidence to warrant investigation.

"Whenever something turns up in drinking water that's not naturally there, there is a concern," she said.

In Europe, drugs have been detected in drinking water supplies, though similar research hasn't been published in Canada and the United States.

Health Canada and Environment Canada are currently surveying 24 Ontario communities to check if drug residues have entered water supplies. The agencies are considering expanding their testing to the rest of Canada next year.

There is no requirement in Canada to test drinking water for drug residues and no regulatory limits on these contaminants.

"This is so new from a scientific perspective that nobody's even thought about it," said Mark Servos, a research scientist at Environment Canada who is heading the Ontario water study.

Drugs are entering the environment because many pharmaceuticals are not fully metabolized in the bodies of those using them.

For carbamazepine, about 30 per cent is excreted unaltered by users.

If there is good news in the survey, it is that most of the water Canadians draw from their taps appears to have no drug residues, or has them at such low concentrations that they are below laboratory detection limits.

Water samples were also taken from Edmonton, Calgary, Halifax, Vancouver, Toronto, and Walkerton, Ont., home of Canada's worst case of water-borne illness, the E. coli outbreak that killed seven residents and sickened thousands in May, 2000. In these communities no residues were found of the more than 40 commonly used drugs and chemicals that Enviro-Test checked for.