



**On the left, a petri dish showing the amount of bacteria grown from a dog dish at a local Starbucks cafe, on the right, a sample from the water cooler at Queen's Park. TANNIS TOOHEY/TORONTO STAR**

Ontario Premier Dalton McGuinty would be better off drinking from a dog bowl than the water cooler he shares with his colleagues at Queen's Park, a *Toronto Star* investigation reveals.

The Star collected and analyzed bacteria samples swabbed from spouts of 20 public water fountains and free-standing coolers across the city. We also tested the inner rim of a water bowl for dogs outside a coffee shop.

The dirtiest drinking fountain was found inside the main lobby of City Hall where council passed a motion two years ago prohibiting the sale of bottled water in all municipal buildings, leaving fountains the sole water source for staff and visitors.

The results reinforce what our mothers always told us. Don't let your mouth meet the spout.

And if you did?

"You're increasing your likelihood of a harmful exposure," water expert Marc Edwards of Virginia Tech told the Star. Pregnant women, children and people who are sick would be most vulnerable, he said. Harmful pathogens that could live on fountain and cooler spouts include e-coli and legionella, which can cause gastrointestinal problems and pneumonia-like symptoms.

Edwards is hailed across North America for his work in ensuring the safety of public drinking water. His research linked several cases of lead poisoning in the Washington, D.C. area, thought to be caused by paint, to local tap water. Lead service lines throughout the district were replaced because of his findings.

Half of the drinking water spouts tested in the *Star's* survey — including the Royal Ontario Museum and the Eaton Centre — showed bacteria levels researchers said were “too high to count.”

Of the 20 tested, the cleanest spout was on the second floor of Holt Renfrew's Bloor Street store.

Our testing began with a “hygiene meter” that is used by food processing plants, hospitals and sanitation industries as a quick measure of surface contamination.

Next, researchers from Ryerson University, who recently conducted similar surface testing at Mount Sinai hospital, swabbed the spouts for bacteria. The bacterial cultures were grown for three days until the colonies were big enough to count with the naked eye.

Analysis showed half the samples contained more than 300 colony-forming units per milliliter — or in the researchers' terms, “too many to count.”

The results, researchers said, confirm lack of cleanliness. Complex DNA testing would be needed to determine whether the bacteria pose a health risk.

A series of tests was run on the spouts of three water coolers inside the Legislative Assembly building at Queen's Park. Because of concerns about lead in the drinking water, coolers are the primary watering holes on site.

The spout of the second-floor water cooler outside the Liberal Caucus meeting room, where provincial politicians gather regularly, was visibly soiled with what looked like lipstick. Analysis showed the spout contained at least 10 times more bacterial growth than the dog bowl we tested, which was sitting on the sidewalk outside Starbucks at Queens Quay and York St.

A water cooler on the third floor, near media bureau offices, ranked as one of the cleanest with a bacteria count of 6 on the spout. But another cooler spout, on the main floor near the building's Wellesley Street entrance cracked the top-10 dirtiest list.

“We do in fact have a water cooler maintenance and distribution program,” said Dennis Clark, Sergeant at Arms and spokesman for the property. “Basically, it says each and every water cooler will be serviced and maintained, flushed, sanitized and cleaned, internally and externally every day.”

As a result of the *Star's* findings, House Speaker Steve Peters said, “We'll certainly be reviewing our cleaning and maintenance practices.”

The hygiene meter the *Star* used measures the amount of adenosine triphosphate (ATP) on a surface. ATP is the universal energy molecule found in all animal, plant, bacteria, yeast and mold cells. Residues, particularly food or organic residue, contain large amounts of ATP. When left on a surface, residues can harbor and grow bacteria and cause cross-contamination.

Most food processing plants, for example, insist that work surfaces maintain an ATP reading below 30, said microbiologist Douglas Wright, president of Scigiene Corporation. His company is the Canadian distributor for the Hygiene Hygiene Monitoring System, which the *Star* used. The standard of cleanliness in office environments ranges from 50-100, he said.

The higher the reading, the more contaminated the surface.

The spout outside the Liberal caucus meeting room registered a reading of 4,529. The City Hall spout came in at 8,570. The dog bowl — 172.

Another site tested was 900 Bay St., part of the Queen's Park office block complex, which is cleaned by Winnipeg-based company Bee-Clean. Bacteria swabbed from the fountain spout in the building's main lobby were among those researchers rated "too high to count". Its hygiene meter reading was 531.

Julia Sakas, a spokeswoman for the Ontario Realty Corporation, which manages the government-owned building, said the fountain spouts are wiped down at least twice a day with an environmentally-friendly cleaner and disinfectant. A Bee-Clean spokesman said he could not comment.

A ROM spokesman told the *Star* yesterday the museum has shut off its nine fountains pending testing to "ensure levels of safety."

Most bacteria are harmless and even beneficial to us but a few species are pathogenic and can cause infectious disease.

It's why many hospitals don't have public fountains on site.

"The main issue for hospitals would be that there are sick patients, who also may have hospital-acquired bacteria in their throat," said Dr. Roslyn Devlin, medical director of St. Michael's microbiology laboratory. "It would be possible to contaminate the spout of the water fountain. Then those bacteria could be passed on to the next person."

The modern drinking fountain dates to the early 1900s.

Its inventor, Luther Haws, a sanitary inspector in Berkeley, Calif., is said to have created the apparatus after seeing school children sharing water from the same tin cup. Haws' invention allowed users to drink without putting their lips to anything but the water stream. In 1909, he formed the Haws Sanitary Drinking Faucet Company, which recently celebrated its centenary.

Many fountains operated by the City of Toronto are Haws-made.

The City's Facilities Management division is responsible for the maintenance and cleaning of drinking fountains at City Hall and Nathan Phillips Square. There are approximately 100 drinking fountains inside the building and five in the square.

"All drinking fountain spigots and basins are cleaned daily with a germicidal product named "Easy Clean" and checked periodically throughout the day," city spokeswoman Cheryn Thoun told the *Star*. "The method involves washing the spigot and the inside of the basin with a small mop-type cotton tool. The fountains are then run for approximately 30 seconds to rinse the chemical out."

Fountains in public parks are another story. There are 671 of them.

Each spring, they are tested to meet provincial drinking water standards. While spot checks are conducted through the season until the fountains are turned off in the fall, basins and bubbler heads are not sanitized with any regularity.

A Haws spokesperson said the company recommends at least a weekly cleaning of its fountains.

"This is a public health issue," said City Councillor Glen De Baeremaeker, an environmental activist, who supported the bottled water ban. "We want to make sure people are safe. We'll sit down with our custodial staff and our public health department to make sure the cleaner itself is effective and that we are ensuring (the fountains) are clean and safe."

De Baeremaeker, who chairs the public works committee, which is in charge of the City's water and drinking supply, said he's asked staff to check to see if the City has had any complaints of people getting sick after drinking from a fountain. So far, he said, they are not aware of any.

The *Star's* results should not discourage people from drinking at water fountains, says one of Canada's top environmental microbiologists. They should encourage the agencies responsible for these units to give them a good scrubbing, making sure to avoid cross-contamination. In other words, a floor-cleaning cloth should never be used to wipe out the fountains.

"We will never live, and cannot survive in an environment free of microorganisms," said Ryerson University's Gideon Wolfaardt, a Canada Research Chair who supplied the *Star* with researchers from his laboratory.

"This however does not mean we should be careless in the maintenance of facilities, especially those in public. Regular, proper cleaning procedures are important," Wolfaardt said.