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Drug traces turn up in source **waters** for nation's biggest city

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Locals say this city makes the world's best bagels from the best **water**, piped in from rustic reservoirs up to 150 miles north. Yet few know of a secret ingredient in their source **water**: a dash of **pharmaceuticals**.

Research studies have turned up minute amounts of more than 15 drugs or their byproducts in several pristine-looking rivers, a reservoir, and aqueducts feeding the country's biggest **water** system. Though barely measurable, these **pharmaceuticals** are present in a variety worthy of a medicine cabinet: drugs for aches, infections, seizures and high blood pressure; hormones for menopause; the active ingredient in a popular sedative; and caffeine -- all bound for the city that never sleeps.

How did they reach waterways? The vast watershed, while mainly rural, stretches almost from Pennsylvania to Connecticut and encompasses lots of human activity. Human and veterinary medicines are excreted or discarded, and eventually enter source **waters** mostly through residential sewage or farm runoff.

And while these **waters** are processed at wastewater treatment plants upstate, much of the **pharmaceutical** residue passes right through, studies show.

It's unknown how much lingers each day by the time 1.1 billion gallons reach the faucets of more than 9 million people in the city and northern suburbs via a century-old network of aqueducts and tunnels.

The New York City Department of Environmental Protection, which runs the city's **water** system, responded to an Associated Press survey of **water** utilities, saying it has not tested its **drinking water** for **pharmaceuticals**, despite the findings in its watershed.

The tests that detected **pharmaceuticals** in the upstate source **waters** were conducted by the U.S. Geological Survey and New York State Department of Health.

City **water** officials declined repeated requests for an interview and issued only a brief general statement: "New York City's **drinking water** continues to meet all federal and state regulations regarding **drinking water** quality in the watershed and the distribution system" -- regulations that do not address **pharmaceuticals** in trace amounts.

As in other cities, human health risks from trace **pharmaceuticals** are uncertain, since concentrations in New York source **waters** are way below medical doses and undergo dilution as they mix with fresh **water** en route to the city.

Already, though, troubling studies indicate that traces of **pharmaceuticals** may be harming fish in New York City's Jamaica Bay, within sight of Manhattan's skyscrapers. Researcher Anne McElroy at Stony Brook University has found feminized male flounder there, and she links them to high levels of the female hormone estrone or other estrogenic chemicals discovered in the waterway.

Estrogen also has been found in the city's watershed in recent years. Upstate, the geological survey and state health agency also detected the heart medicine atenolol; anti-seizure drugs carbamazepine and primidone; relaxers diazepam and carisoprodol; infection fighters trimethoprim, clindamycin, and sulfamethoxazole; pain relievers ibuprofen, acetaminophen and codeine; and remains of caffeine and nicotine.

Despite all that, the federal government considers the New York City system to be so clean that it need not filter most of its **water**, as most big cities are required to do. When the filtering waiver was extended last year, Mayor Michael R. Bloomberg exulted: "I've always thought that New York City has some of the best **water** around, and now we've got confirmation from Washington."

However, filtration is meant mainly to remove germs, and the federal government hasn't required any testing of **pharmaceuticals** in source or **drinking water**. Though it lacks conventional treatment plants with filtering processes, New York City does disinfect and add chemicals to its **drinking water**. Plus, it is building a filtration plant for **water** from its

Croton watershed -- its smallest and closest source.

Patrick Phillips, a geological survey hydrologist who has studied drugs in the city's watershed, says recent sewage treatment upgrades probably catch some, though the systems aren't designed to. The city also is building a plant to disinfect with ultraviolet radiation the **water** taken from the major, upstate sectors of the watershed. Research shows that ultraviolet can degrade some **pharmaceuticals**.

"I think both the state and the city are aware that these things could be an issue and you could be proactive about it," Phillips says.

Few New Yorkers seem aware of their possible presence. The AP contacted more than two dozen **water**-testing companies across the metropolitan area, and none had ever been asked to check for **pharmaceuticals**.

Douglas LeVangie, a sales executive at Simpltek, says even the company's home **water** tests for disease-causing germs sell modestly in New York City, with its global reputation for wholesome **water**.

National Writer Martha Mendoza and writer Justin Pritchard also contributed to this report.