

Drinking water linked to infections

February 28 2014, by Sandra Hutchinson



Brisbane's water supply has been found to contain disease carrying bugs which can be directly linked to infections in some patients, according to a new study by QUT.

Dr Rachel Thomson, who has completed her PhD through QUT's Faculty of Health, said certain species of nontuberculous mycobacteria were present in Brisbane's [water](#) distribution system.

"We know that certain species of nontuberculous mycobacteria can cause [disease](#) and infection in humans, especially in some at-risk groups, but not all exposure to mycobacteria is harmful," she said.

"We also know this is not isolated to Brisbane, with water supplies in many countries being a risk.

"What my study has been able to do is directly link the strains of bugs found in Brisbane's water supply with the strains of bugs found in human infections, indicating that the water may be the source of the infection.

"Mycobacterial infections usually present as a persistent cough with symptoms similar to tuberculosis and include fatigue, night sweats and weight loss."

Dr Thomson said the number of mycobacterial disease cases in Queensland was steadily increasing, with an estimated 200 new cases diagnosed each year.

"Mycobacterial infections are most common in people with underlying lung disease such as people with emphysema and cystic fibrosis, as well as those with immune suppression conditions like HIV or those taking chemotherapy-type medications," she said.

"But what is concerning is we are also seeing a growing number of middle-aged women getting the disease; they tend to be slender and slightly above average height, and who for all intents and purposes are fit and healthy.

"It has been termed Lady Windermere syndrome because we are seeing it in women who tend to quietly and politely cough ineffectively, thereby not coughing up the bacteria."

Dr Thomson said in Queensland in people aged over 65, mycobacterial infection was more common than type 1 diabetes.

"The other big concern is treatment. People who contract the infection

usually have to take three different types of antibiotics over a 12 to 18 month period, sometimes even longer, and there can be side effects," she said.

"Certain strains of the disease are also notoriously difficult to treat and carry a high risk of morbidity and mortality, and there has been a recent suggestion that infection with one species may be transmitted between patients."

Dr Thomson's study also looked at whether household water exposure through aerosols by activities like showering could lead to infection.

"We found that nontuberculous mycobacteria could be aerosolised during showering to a respirable particle size and therefore potentially inhaled deep into the lungs," Dr Thomson said.

"The combined findings of strain comparisons of city wide and patient home sampling indicate that patients are at risk of infection from exposure to Brisbane's water and showers."

Dr Thomson said the easiest way to kill water-borne mycobacteria was by boiling water, although her study suggested additional water chlorination through the water treatment process may also help. To reduce aerosolised mycobacteria, bathing rather than showering is recommended.

She said reducing the temperature of home hot water systems contributed to increased household exposure to these mycobacteria.

The four specific species of mycobacteria Dr Thomson found in Brisbane water that have been linked to human disease include *Mycobacterium abscessus*, *Mycobacterium avium*, *Mycobacterium lentiflavum*, and *Mycobacterium kansasii*.

More information: [eprints.qut.edu.au/65483/1/Rac ...](https://eprints.qut.edu.au/65483/1/Rac...)
[1 Thomson Thesis.pdf](#)

Provided by Queensland University of Technology

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