



## Update: New Zealand's Largest Drinking Water Outbreak

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In August 2016, more than one-third of the 14,000 residents of the community of Havelock North in New Zealand were sickened with gastrointestinal illness after drinking untreated groundwater contaminated with [Campylobacter bacteria](#). It was New Zealand's [largest drinking water outbreak](#) in recorded history. Although accounts vary, the outbreak has been linked to the [deaths of up to three persons](#). Other recent reports have noted that many people, especially the elderly, continue to suffer physically and have not fully recovered from the outbreak.<sup>1</sup> The regional cost of the outbreak now exceeds \$2.7 million in New Zealand dollars.<sup>2</sup> Once the problem was identified and shortly after chlorination was implemented, there were no further cases of *Campylobacter* enteritis due to water system contamination.



### *Campylobacter and the Government Inquiry*

[Initial reports](#) suggested that livestock were the most likely source of the Havelock North *Campylobacter*—a common food- and waterborne pathogen (disease-causing microorganism) that is transmitted in the feces of infected persons and animals. In New Zealand, the most frequent reservoirs of *Campylobacter* are sheep, poultry, cattle and swine.<sup>3</sup>

On August 18, 2016, a Government-initiated independent inquiry into the Havelock North outbreak was [announced](#). Although formal results are not expected until March 31, 2017, a series of ongoing public hearings have indicated that [sheep feces](#) are the probable cause of the outbreak. Tracer dye test results conducted as part of the inquiry show that Havelock North's untreated groundwater supply was

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<sup>1</sup> Many elderly residents still suffering ill-health after gastro outbreak. [http://www.nzherald.co.nz/hawkes-bay-today/news/article.cfm?c\\_id=1503462&objectid=11797655](http://www.nzherald.co.nz/hawkes-bay-today/news/article.cfm?c_id=1503462&objectid=11797655).

<sup>2</sup> Cost of Havelock North gastro outbreak tops \$2.7million.

<http://www.stuff.co.nz/national/health/88847784/cost-of-havelock-north-gastro-outbreak-tops-27million>.

<sup>3</sup> New Zealand Ministry of Health (2007). Estimation of the Burden of Water-Borne Disease in New Zealand: Preliminary Report. <https://www.health.govt.nz/system/files/documents/publications/water-borne-disease-burden-prelim-report-feb07-v2.pdf>.

contaminated by sheep feces washed from paddocks into an adjacent surface pond located less than 100 meters from one of the community's three bores (wells).<sup>4</sup>

For the test, scientists raised the pond level to where it was on August 6<sup>th</sup> last year, following heavy winter rains, and added a green fluorescent dye. The fluorescein dye appeared in the bore 29 hours after its introduction into the pond and continued until the test concluded 7 days later. Moreover, *Campylobacter* was also detected in the pond as well as the bore 2 days after the dye was introduced. The groundwater bore will be decommissioned.

### *Lessons Learned*

As I noted in my [original article](#), the conditions leading to this drinking water outbreak were “hauntingly familiar to the deadly pathogenic *E. coli* and *Campylobacter* outbreak that occurred in 2000 in [Walkerton, Canada](#), where seven people died and thousands fell sick... Similar to Walkerton, Havelock North also relies on a shallow aquifer, but unlike Walkerton, Havelock North was intentionally not chlorinating because their groundwater had been considered ‘secure’ from contamination.”<sup>5</sup> Tragically, that belief was misplaced. Moreover, the Government-led inquiry has brought to light that a similar outbreak occurred in Havelock North in 1998 when 80 people were reported as falling ill.<sup>6</sup>

The Havelock North outbreak and ongoing inquiry continue to [stir the public health debate](#) regarding [whether or not all New Zealand drinking water should be chlorinated](#). Although continuously applied chlorine is both economical and effective in killing or inactivating *Campylobacter* and most other pathogenic bacteria and viruses, less than a year removed from the outbreak, many New Zealand communities continue to [fight water chlorination](#). The Havelock North outbreak also demonstrates the importance of designing, constructing and maintaining wells that preclude contamination from both surface water and groundwater.

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**[www.waterandhealth.org](http://www.waterandhealth.org)**

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<sup>4</sup> Tests reveal source of Havelock North water contamination.

<http://www.radionz.co.nz/news/national/323594/tests-reveal-source-of-havelock-north-water-contamination>.

<sup>5</sup> A Cautionary Tale of Untreated Groundwater, *Campylobacter*, and New Zealand's Largest Drinking Water Outbreak. <http://www.waterandhealth.org/cautionary-tale-untreated-groundwater-campylobacter-zealands-largest-drinking-water-outbreak/>.

<sup>6</sup> Sheep faeces 'predominantly' led to Havelock North outbreak – inquiry.

<http://www.radionz.co.nz/news/national/323420/havelock-north-has-'worst-record'-for-contaminated-water>.