

Lessons Learned from New Zealand's Drinking Water Debate

*By Chris Wiant, MPH, PhD
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It's been over a year since we [last wrote](#) about [New Zealand's largest waterborne disease outbreak](#). In August 2016, following heavy winter rains, an estimated 5,500 of 14,000 residents of Havelock North fell ill, with potentially up to 4 deaths, after drinking *intentionally untreated* groundwater from a community well contaminated with [Campylobacter bacteria](#).

As the waterborne disease outbreak wound down, a reflection period for local as well as regional officials followed to determine how the outbreak happened and who was to blame. And that [sometimes acrimonious](#) exchange grew into a still ongoing national debate focused, for the most part, on whether all of New Zealand's public drinking water supplies should be disinfected with chlorine. But there really should be no debate: the provision of safe drinking water following proper [treatment and disinfection](#) is a key component of a multi-barrier approach to public health protection!



A farm pond and some sheep near Havelock North, New Zealand

The Inquiry

The occurrence of such a large, preventable waterborne disease outbreak in New Zealand, a developed nation and [coveted vacation destination](#), almost immediately triggered a formal, 2-stage government inquiry, complete with public hearings. The [first report of the Stage 1 Inquiry](#), released in May 2017, focused on the cause(s) of the outbreak. The most significant finding, by means of tracer dye studies, was that following the heavy rains, runoff water and feces containing *Campylobacter* from a sheep paddock contaminated a pond and then a nearby shallow-bored well that was part of the Havelock North community water system.

[Stage 2 of the Inquiry](#), which was completed in December 2017, examined systemic issues in managing water supplies across New Zealand and resulted in dozens of action items and recommendations to help

prevent such an outbreak from occurring again.¹ At the most basic level, the Inquiry concluded that New Zealand’s existing system does not ensure that water suppliers comply with the law and New Zealand’s drinking-water standards, and that extensive regulatory reform was needed. Notably, the Stage 2 report recommended abolishing the “secure bore water” status² for communities using groundwater, such as Havelock North, as legal justification for not treating their drinking water: “The concept of a secure classification is fundamentally flawed as it does not provide a sound or safe basis for dispensing with treatment or reducing monitoring requirements and provides an erroneous and misleading message that the bore water is safe.”³ The Inquiry report did acknowledge that many of their recommendations would require substantial government action, external consultation, and revisions to the [Ministry of Health’s Drinking-water Program](#). In short, this type of change takes time and public input plays an important role in the process.

The Government Response

The Ministry of Health [response to the Havelock North Inquiry](#) outlines the status of completed, ongoing, and planned efforts to address all action items and recommendations of the Inquiry. Shortly after the Stage 2 Inquiry report’s release, the Director-General of Health issued a [formal statement advocating the use of disinfection](#) and recommending that community water suppliers and district and regional councils reconsider reliance on secure bore designations. Since the Stage 2 report’s release in late 2017, the number of persons estimated to be receiving non-disinfected water has dropped from over 600,000 to less than 100,000. A multidisciplinary Drinking-water Advisory Committee was also formed to provide advice on supplying safe drinking water, including advising on revisions planned for the current (2008) Drinking-water Standards. Recognizing that many of the Inquiry recommendations for drinking water management affect wastewater and storm water, the Government recently launched the [“Three Waters Review”](#) of these interconnected programs.

Lessons Learned and Resistance to Drinking Water Chlorination

It is early 2019, and Havelock North and many other groundwater-supplied communities across New Zealand who voluntarily withdrew or otherwise lost their secure bore status have been disinfecting their drinking water, some for over 2 years—typically with the addition of liquid chlorine bleach. Yet some persons in Kiwi communities remain unhappy with chlorinated drinking water,⁴ primarily due to taste and odor complaints. (Consumers bothered by a [chlorine smell](#) may install activated carbon filters at their tap to eliminate residual chlorine or allow it to dissipate by filling a pitcher of water and letting it sit for a few hours.) Others communities are evaluating non-chlorine disinfectants and hoping that recent

¹ The Stage 2 Inquiry also included a high-profile panel session of five international experts who provided many [unambiguous statements](#) about the public health importance of drinking water chlorination.

² New Zealand’s [drinking-water standards](#) establish the concept of “secure bore water” for water suppliers that meet a series of criteria (e.g., establishing that bore water is not directly affected by surface or climate influences).

³ Report of the Havelock North Drinking Water Inquiry: Stage 2. Available: <https://www.dia.govt.nz/Government-Inquiry-into-Havelock-North-Drinking-Water#Overview>.

⁴ In [one survey](#) of 361 persons in Napier, New Zealand, a small coastal city near Havelock North, 42% of respondents stated that they would not drink the tap water because of the taste or smell; in contrast, 19% indicated “they did drink the water and didn’t understand why so many complained of it.”

and forthcoming changes to water quality monitoring and reporting will provide a means to avoid so-called [“mandatory chlorination.”](#)

But what we stated in our [first article](#) in 2016 still holds true in New Zealand (and everywhere for that matter): “Because chlorine is both economical and effective in killing/inactivating *Campylobacter* and most other pathogenic bacteria and viruses, it can be viewed as a very inexpensive insurance policy against the high cost of waterborne illness when it is continuously applied at the proper level.” The Havelock North outbreak reinforced several fundamental principles of public health protection, including that virtually all groundwater is subject to a risk of contamination, and that multiple barriers of protection are critical to addressing these risks from source to tap. And while it is also important to solicit and consider public input, effective risk management must always be grounded in sound science and transparency. In this case, disinfection of the Havelock North community water system would have also spared substantial personal and [economic costs](#) for the estimated 5,500 citizens who became ill from waterborne disease.

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