



Reducing the health burden from contaminated drinking water in NZ: Opportunities arising from the new Water Services Bill

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Increasing water-related health threats, notably the waterborne campylobacter outbreak in Havelock North, have highlighted failings in NZ's regulatory system for drinking water. In this blog we consider how the new Water Services Bill might provide a framework to enable the new water regulator, Taumata Arowai, to oversee, administer and enforce new drinking water regulations. We also detail how addressing the upstream determinants of water-related disease

burden is a far better approach than treating water that has already become contaminated. The COVID-19 experience also raises the benefits of consolidating NZ's public health organisations into a single highly competent national public health agency, which may have implications for reform of drinking water safety.

Introduction

Havelock North's water-related disease outbreak brought to light the marked failings of NZ's regulatory system for drinking water. In response to this and other concerns, the new Water Services Bill has just been introduced into the NZ Parliament. This new legislation is designed to provide Taumata Arowai, the new water regulator, the powers to establish, monitor and enforce a new regulatory regime for drinking water. In this blog, we discuss key aspects of the Water Services Bill and how they can improve public health and enable robust public health research into the link between water and health.



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Burden of water-related disease

It is conservatively estimated that 34,000 people get sick from drinking water in NZ each year.¹ In addition, the country has experienced localised disease outbreaks, none more prominent than the campylobacter outbreak in Havelock North which caused an estimated 8320 people to get sick, 42 hospitalisations and four deaths (as per this just published study²). There is also emerging epidemiological evidence on the relationship between water contamination and chronic conditions. For example, elevated nitrate concentrations well below the current regulatory limits in NZ have been linked with an increased risk of colorectal cancer in at least seven studies summarised in a recent meta-analysis.³ This

meta-analysis estimated elevated nitrate concentrations could be responsible for up to 8% of colorectal cancers in the United States – which would equate to 280 colorectal cancer cases per year in NZ where we also have elevated nitrate levels.

NZ's current regulatory system for drinking water

Currently, national responsibility for drinking water quality lies with the Ministry of Health. Monitoring drinking water standards is devolved to local government – the owners and operators of most water supplies in NZ. Consequently, water contamination monitoring and reporting systems vary between local governments due to differing operating structures, resources and priorities. This fragmentation has led to major knowledge gaps relating to water contaminants in water supplies, with many people still drinking potentially hazardous water. It is estimated as many as 40% of New Zealanders receive water that does not comply with current drinking water standards or has unknown water quality.⁴

Key provisions of the new Water Services Bill

The Water Services Bill (WSB) was introduced into the NZ Parliament on 28 July 2020 and outlines the regulatory functions of the new water regulator, Taumata Arowai.⁵ Below we discuss four key provisions that could address some of the problems that have impacted public health and impeded robust public health research.

Issuing and enforce drinking water standards: A key provision of the WSB is for Taumata Arowai to issue drinking water standards that specify the maximum acceptable values for different contaminants. Currently, the Drinking Water Standards are issued by the Ministry of Health under the Health Act 1956 but there are also clauses in the Resource Management Act (RMA) 1991 and Local Government Act 2002 that pertain to drinking water. As such, local government policy decisions often defer to the RMA, which in some cases, are in conflict with the Drinking Water Standards. The WSB proposes to repeal the relevant sections of the Health Act, the RMA and the Local Government Act to ensure the application and enforcement of a single set of standards. This approach enables clear standards on water contaminants that are likely to impact health but also to enable the flexibility required for Taumata Arowai to adjust these standards in line with best evidence.

The new Bill also provides Taumata Arowai the powers to enforce compliance. These powers include issuing compliance orders, appointing an operator, issuing fines and taking suppliers to court for serious offences.

Standardising the monitoring and reporting of water quality for drinking water suppliers: The previous monitoring system utilised a risk-based approach whereby water supplies testing below 50% of the Maximum Acceptable Value (MAV) for certain contaminants between 1995-2004 were not required to conduct ongoing testing. This was an approach that ignored the impact of major structural changes in our land use and climate change on water quality. Reporting to central government for many contaminants was not deemed necessary in many cases. As such, there has been no central database for many water contaminants in NZ's water supplies.

The new WSB requires suppliers to update and maintain records on their compliance with legislative requirements and details of the water supply itself. This includes regular records on contaminants, details on the supply area, the population supplied, description of the water supply and contact information for the owner and operator. All water suppliers are required to update this information every year as part of a yearly registration process.

Thus, the WSB would create a centralised registry for all water supplies that is maintained and updated every year. It is critical that this registry require regular monitoring and reporting of chemical contaminants. This information is key to ensure compliance to drinking water standards but also to enable robust public health research to investigate the true burden of disease from water contaminants.

Expanding the definition of water suppliers: The WSB also proposes to expand the definition of a water supplier that is required to register which currently includes suppliers providing drinking water to more than 25 people. We estimate that around 750,000 people rely on water supplies that are either unregistered or unmonitored. International evidence and anecdotal NZ evidence suggests people relying on these supplies are at the greatest health risk from water contaminants.⁶ The new Bill's definition of water suppliers includes all water suppliers except for **domestic self-suppliers** which are stand-alone or single domestic dwellings providing water for their own domestic residence (eg, with roof collection of water). For example, a multi-dwelling apartment building, private bore serving two properties, or a café supplied by a rainwater tank are not domestic self-suppliers and will be subject to the new regulations. This new definition, combined with monitoring and reporting provisions, will enable greater visibility of the true extent of our drinking water quality.

Adopting a prevention focused risk management approach - Te Mana o te Wai: The WSB requires "all persons who perform or exercise functions, powers, and duties under the legislation to give effect to Te Mana o te Wai".⁵ This is an approach that recognises the fundamental relationship between the health of the water and wider societal outcomes, placing the health of the water before all else.⁷ The WSB operationalised Te Mana o te Wai through its prevention focused risk management approach that requires suppliers to have a Water Safety Plan and Water Source Protection Plan. The Water Source Protection Plan identifies the risks to source water (eg, agricultural run-off) and requires actionable mechanisms to control or eliminate those risks. Drinking water suppliers will be required to monitor the source water quality, in addition to the treated water, to uphold the health of source water and action Te Mana o te Wai.

Uncertainties and opportunities to shape drinking water regulation in NZ

Reform of drinking water is taking place in a rapidly changing policy environment, particularly as a result of the ongoing global COVID-19 pandemic threat. There is also a major reform process of the health sector as a result of the Health and Disability System Review,⁸ whose report was released on 16 June. In addition, the WSB is part of the three waters reform, which includes wastewater and storm water as well as drinking water, which has major implications for both national and local body responsibilities. While water suppliers' responsibilities are increasing, the Government is providing financial (\$761 million) and structural (Taumata Arowai) support to suppliers.

The COVID-19 pandemic has shown the fragile nature of public health capacity in NZ because of fragmentation and erosion over several decades. There is a strong argument that NZ may be best served by establishing a nationally coordinated public health agency that can take an 'all hazards' approach to managing the surveillance, control and prevention of major health threats within NZ. This approach would suggest consolidating NZ's limited health protection resources into an agency that could manage drinking water safety along with food safety, the protection of borders and other public health functions

into a single agency with critical mass of expertise.

Conclusions

Recent water-related enteric disease outbreaks and concerns about rising chemical contamination of water have highlighted the failings in NZ's regulatory system for drinking water. The new Water Services Bill provides the framework to enable the new water regulator Taumata Arowai to oversee, administer and enforce new drinking water regulations. Some of the key provisions could help improve public health by empowering Taumata Arowai to issue and enforce new drinking water standards. The new monitoring and reporting systems seem likely to increase water suppliers' accountability for water quality and could enable more robust analyses into the relationship between water quality and health impacts. Actioning Te Mana o te Wai with a prevention focussed risk management approach should start to address the upstream determinants of water-related disease burden as opposed to just focusing on treating contaminated water. Finally, implementing this new regulatory system for drinking water needs to take account of the recognised need for NZ to have highly competent public health infrastructure to manage the risk from COVID-19 and a full range of other health threats.

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