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# Access to fluoridated drinking-water

This factsheet presents information about the population with access to fluoridated drinking-water in New Zealand.

**Of the New Zealanders on registered drinking-water supplies, 60.6% (about 2.5 million people) had access to fluoridated drinking-water in the 2020/21 reporting period.**

The percentage of people on fluoridated drinking-water supplies has been largely unchanged since 2014/15.

Only 16.9% of the South Island population on registered supplies have access to fluoridated drinking-water, compared with 74.8% of the North Island population.

People in major urban areas appear more likely to have access to fluoridated drinking-water than people in more rural areas.


Wellington City, Upper Hutt City, Porirua City and Invercargill City all reported 100% of the population on registered supplies having access to fluoridated drinking-water.

## Background information

Tooth decay (dental caries) is a major chronic disease among New Zealanders of all ages. It is often accompanied by pain, infection, and tooth loss, and can lead to absence from work or school (Royal Society of New Zealand 2014). Dental caries (cavities) are caused by acids that are produced by bacteria in the mouth. The acids dissolve the hard enamel of the tooth surface and start dental decay. A high-sugar diet can raise the number of bacteria, which in turn increases the production of decay-causing acids (Ministry of Health 2010, Royal Society of New Zealand 2014).

Fluoride is known to protect teeth against dental caries, so adding fluoride to drinking-water supplies can help limit tooth decay. Fluoride works to protect teeth in three ways (Royal Society of New Zealand 2014):

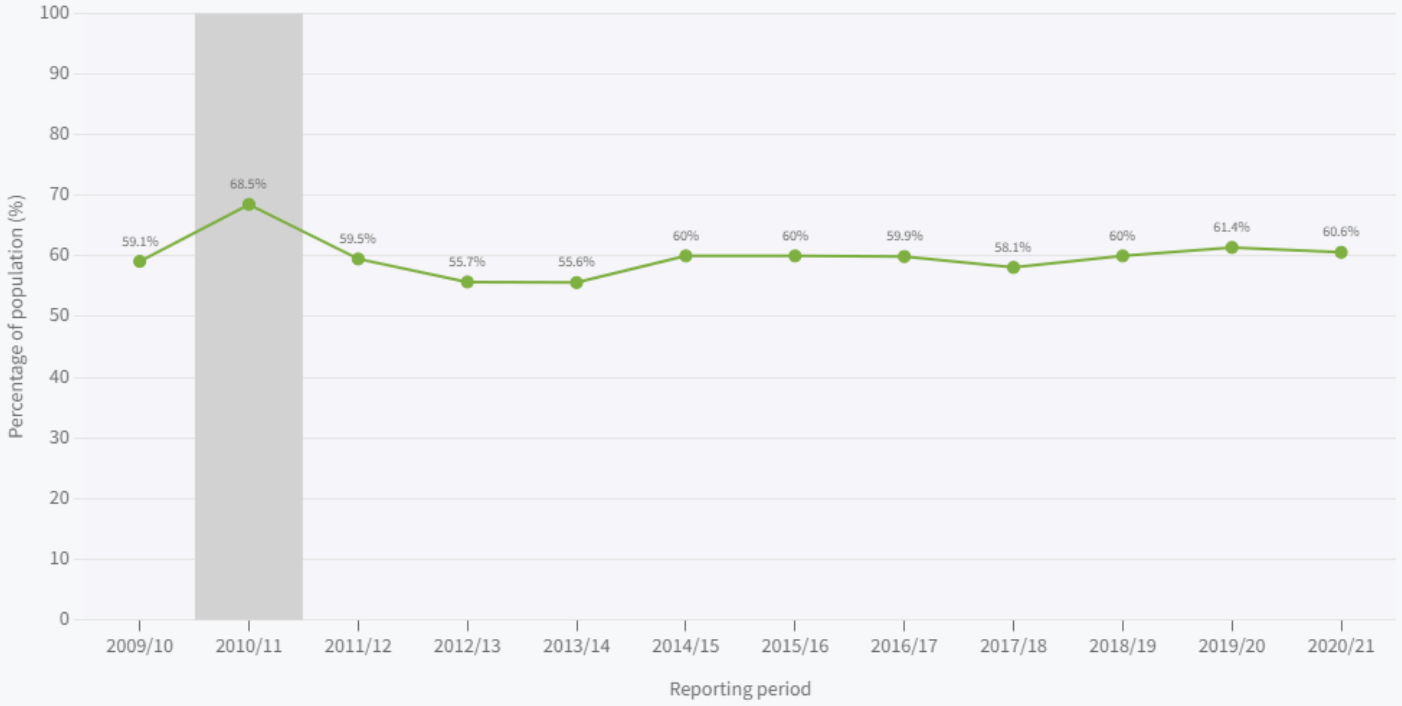
- strengthening of tooth enamel, making teeth more resistant to decay
- interference with the growth of bacteria that cause cavities
- repair of the early stages of tooth decay.

## About 60% of New Zealanders on registered supplies have access to fluoridated drinking-water

About 4.2 million New Zealanders (83.6% of the population) received water from registered drinking-water supplies during the 2020/21 reporting period. The remainder received water from very small community supplies (typically serving fewer than 100 people) or sourced their own water from 'self-supplies' (eg, rainwater tanks). Of the population on registered supplies, 60.6% (2.5 million) had access to fluoridated drinking-water. From 2014/15 onwards, this percentage of people with access to fluoridated water has remained largely unchanged, never going above 62% (Figure 1).

The peak in the proportion of the population receiving fluoridated water in 2010/11 was due to a large drop in the recorded population on registered water supplies rather than an increase in access to fluoridated drinking-water. In 2010/11, 10 supplies serving 400,000 people in Christchurch were excluded from the Annual Drinking-water Quality Report (Ministry of Health, 2012) following the Canterbury earthquakes. However, because Christchurch's water supply was not fluoridated, this did not change the actual number of people with access to fluoridated water and instead skewed the data for the overall population of New Zealand (Table 1). As the recorded 'total population on registered supplies' changed drastically for this reporting period only, the peak should be discounted as an outlier. The actual number of people who received fluoridated water is presented in Table 1 for 2010/11 and other years.

Figure 1 Percentage of the population on registered drinking-water supplies with access to fluoridated drinking-water, by year, 2009/10-2020/21




Note: The grey zone around the 2010/11 reporting period indicates that this is considered an outlier and should not be used when making interpretations on the overall percentage of people with access to fluoridated drinking-water over time.

Source: Ministry of Health 2022

Table 1 Population on registered community drinking-water supplies with access to fluoridated drinking-water, by year, 2009/10-2020/21

| | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| People on registered supplies (millions) | 4 | 3.4 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 4.1 | 4.1 | 4.2 |
| People with access to fluoridated drinking-water (millions) | 2.4 | 2.3 | 2.3 | 2.1 | 2.1 | 2.3 | 2.3 | 2.3 | 2.2 | 2.5 | 2.5 | 2.6 |
| Percent of people with access to fluoridated drinking-water (%) | 59.1 | 68.5 | 59.5 | 55.7 | 55.6 | 60 | 60 | 59.9 | 58.1 | 60 | 61.4 | 60.6 |

Source: Ministry of Health 2022

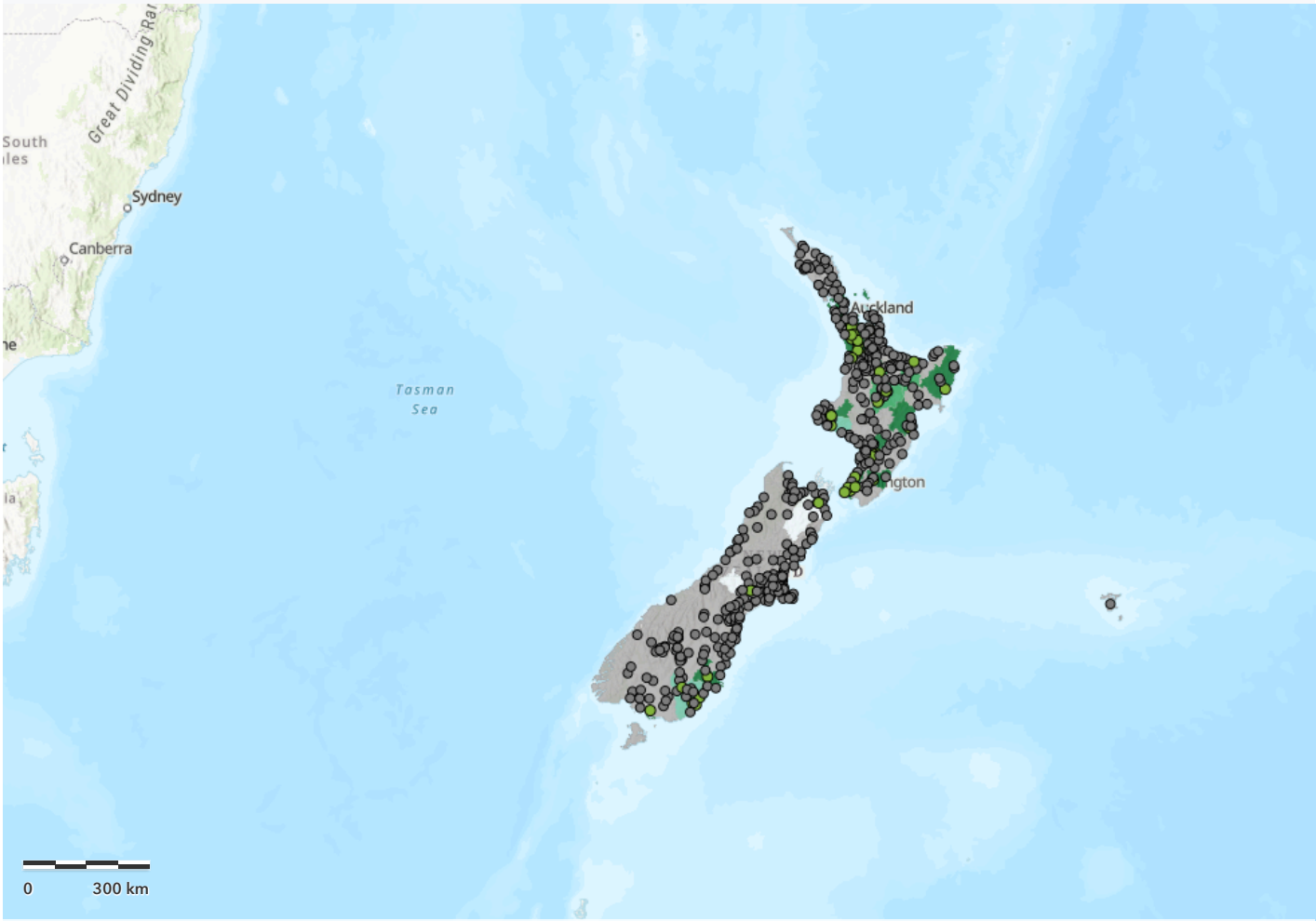
## People in the South Island had less access to fluoridated drinking-water

In the South Island, just 16.9% of the population on registered supplies were served fluoridated drinking-water. In comparison, 74.8% of the population in the North Island, on registered supplies, were served fluoridated drinking-water in the 2020/21 reporting period. People in the North Island were about four times more likely to have access to fluoridated drinking-water than people in the South Island, meaning that fluoridation levels in South Island water supplies are much lower.

Eight of the South Island's 234 registered supplies were fluoridated, covering five territorial authorities (TAs). Thirty-three of the North Island's 251 registered supplies were fluoridated, spread across 19 TAs (Figure 2).

Most of the fluoridated drinking-water contained within TAs were in major urban areas, with the majority of these in the North Island (Figure 2); Hamilton, Wellington, Upper Hutt, Lower Hutt, Porirua, and Invercargill TAs had reported the highest percentage of their population on registered supplies served by fluoridated drinking-water supplies. Christchurch, Whangarei, New Plymouth, and Tauranga TAs were notable exceptions.

Figure 2 Percentage of population with access to fluoridated drinking-water, by territorial authority (TA), 2020/21 reporting period




**Source:** Ministry of Health 2022

Table 2 provides the population count and percent with access to fluoridated water for each territorial authority shown in Figure 2 (above). Wellington City, Upper Hutt City, Porirua City and Invercargill City all reported 100% of the population on registered supplies having access to fluoridated drinking-water. Lower Hutt City was reported to have access to 100% fluoridation of supplies, however, this does not reflect the Petone and KoroKoro areas not having access to fluoridated drinking-water supplies due to separate council agreements (Wellington Water, 2022). Only five of the 24 TAs with access to fluoridated drinking-water were located in the South Island.

Forty-three TAs do not have any access to fluoridated drinking water. The populations of these areas make up 39.4% of the population of New Zealand on registered supplies. The largest TA population without access to fluoridated water is Christchurch City, serving 400,800 people.

With the shift in decision-making to the Director-General of Health under the Health (Fluoridation of Drinking-Water) Amendment Act 2021, 14 TAs have been directed to fluoridate their community water supplies (Ministry of Health, 2022).

Table 2 Population on registered supplies with access to fluoridated drinking-water, by territorial authority (TA), 2020/21

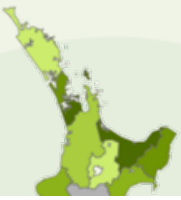
| Territorial authority | People on registered water supplies | People with access to fluoridated drinking-water | People with access to fluoridated drinking-water (%) |
|---|---|---|---|
| Far North District | 29,234 | 0 | 0 |
| Whangarei District | 71,780 | 0 | 0 |
| Kaipara District | 6,613 | 0 | 0 |
| Thames-Coromandel District | 21,373 | 7,657 | 35.8 |
| Hauraki District | 14,886 | 0 | 0 |
| Waikato District | 35,385 | 31,235 | 88.3 |
| Matamata-Piako District | 18,335 | 0 | 0 |
| Hamilton City | 176,765 | 176,565 | 99.9 |
| Waipa District | 35,143 | 0 | 0 |
| Otorohanga District | 7,607 | 0 | 0 |
| South Waikato District | 18,416 | 13,300 | 72.2 |
| Waitomo District | 6,402 | 0 | 0 |
| Taupo District | 37,488 | 27,748 | 74 |
| Western Bay of Plenty District | 30,446 | 0 | 0 |
| Tauranga City | 146,097 | 0 | 0 |
| Rotorua District | 63,211 | 0 | 0 |
| Whakatane District | 31,302 | 21,020 | 67.2 |
| Palmerston North City | 88,877 | 79,427 | 89.4 |
| Tararua District | 11,056 | 0 | 0 |
| Horowhenua District | 26,586 | 0 | 0 |
| Kapiti Coast District | 43,865 | 35,800 | 81.6 |
| Porirua City | 55,005 | 55,005 | 100 |
| Upper Hutt City | 39,927 | 39,927 | 100 |
| Lower Hutt City | 103,872 | 103,872 | 100 |
| Wellington City | 210,637 | 210,637 | 100 |
| Kawerau District | 7,721 | 0 | 0 |
| Opotiki District | 5,560 | 0 | 0 |
| Gisborne District | 31,721 | 30,600 | 96.5 |
| Wairoa District | 5,200 | 0 | 0 |
| Hastings District | 68,747 | 64,764 | 94.2 |
| Napier City | 59,055 | 0 | 0 |
| Central Hawke's Bay District | 6,751 | 0 | 0 |
| New Plymouth District | 65,210 | 0 | 0 |
| Stratford District | 8,123 | 6,773 | 83.4 |
| South Taranaki District | 17,850 | 9,710 | 54.4 |
| Ruapehu District | 10,319 | 0 | 0 |
| Whanganui District | 40,325 | 0 | 0 |
| Rangitikei District | 8,734 | 0 | 0 |

| | | | |
|---|---|---|---|
| Manawatu District | 18,963 | 15,419 | 81.3 |
| Masterton District | 20,940 | 19,000 | 90.7 |
| Carterton District | 5,230 | 0 | 0 |
| South Wairarapa District | 6,998 | 0 | 0 |
| Tasman District | 27,902 | 0 | 0 |
| Nelson City | 52,790 | 0 | 0 |
| Marlborough District | 35,753 | 1,500 | 4.2 |
| Kaikoura District | 3,670 | 0 | 0 |
| Buller District | 6,594 | 0 | 0 |
| Grey District | 9,920 | 0 | 0 |
| Westland District | 7,887 | 0 | 0 |
| Hurunui District | 7,885 | 0 | 0 |
| Waimakariri District | 52,534 | 0 | 0 |
| Christchurch City | 400,801 | 0 | 0 |
| Selwyn District | 50,429 | 0 | 0 |
| Ashburton District | 24,147 | 1,700 | 7 |
| Timaru District | 43,658 | 0 | 0 |
| Mackenzie District | 3,710 | 0 | 0 |
| Waimate District | 6,161 | 0 | 0 |
| Chatham Islands Territory | 125 | 0 | 0 |
| Waitaki District | 19,949 | 0 | 0 |
| Central Otago District | 20,235 | 0 | 0 |
| Queenstown-Lakes District | 55,899 | 0 | 0 |
| Dunedin City | 116,360 | 112,515 | 96.7 |
| Clutha District | 13,592 | 7,985 | 58.7 |
| Southland District | 11,791 | 0 | 0 |
| Gore District | 9,670 | 0 | 0 |
| Invercargill City | 50,456 | 50,456 | 100 |
| Auckland | 1,451,828 | 1,422,604 | 98 |

Note: The Lower Hutt City data does not reflect the Petone and KoroKoro areas, which are not fluoridated due to separate agreements with councils (Upper Hutt City Council, 2022).

Source: Ministry of Health 2022

**Interactive regional dashboard**



## Data for this indicator

This indicator presents information based on analysis of data published in the Annual Report on Drinking-water Quality 2020–2021, published by the New Zealand Ministry of Health in August 2022.

These figures are based on supplies that were listed as fluoridated in the data source and do not account for faults in the process of adding fluoride to water supplies that may cause fewer than the stated number of people to actually have access to fluoridated drinking-water or to local agreements that exclude fluoridation from subsets of larger supplies.

For descriptive information about the data, see the **Metadata Sheet**

## References


Ministry of Health. 2010. *Our Oral Health: Key findings of the 2009 New Zealand Oral Health Survey.* Wellington: Ministry of Health.

Ministry of Health. 2012. *Annual Report on Drinking-water Quality 2010–2011.* Wellington: Ministry of Health.

Ministry of Health. 2022. *Annual Report on Drinking-water Quality 2020–2021.* Wellington: Ministry of Health.

Ministry of Health. 2022. *Director-General of Health's role in decision-making on the fluoridation of drinking-water supplies.* Wellington: Ministry of Health. URL: Director-General of Health's role in decision-making on the fluoridation of drinking-water supplies | Ministry of Health NZ (accessed 20 February 2023)

Royal Society of New Zealand. 2014. *Health Effects of Water Fluoridation: A review of the scientific evidence.* Wellington: Office of the Prime Minister's Chief Science Advisor and Royal Society of New Zealand.

Wellington Water. 2022. *Wellington's drinking water fluoridation facilities in need of repair*. Wellington: Wellington Water. URL:Wellington's drinking water fluoridation facilities in need of repair UHCC (upperhuttcity.com) (accessed 17 April 2023)



**Previous factsheet(s):**

2021 2018 2017

**Other related topics include:**

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