Oral health of children

HIGHLIGHTS:

- **Children in fluoridated areas generally have better oral health**
- **Oral health status differs by region and ethnicity**
- **In 2015, more 5-year-olds and children in Year 8 were caries-free compared to 2000**

Oral health in children is important

Children are at risk of dental caries as soon as their primary teeth ('baby teeth') begin to break through the gum at about the age of 6 months (Ministry of Health 2010). Tooth decay is the most common disease among children in New Zealand. It is also one of the leading reasons for hospital stays during childhood (Ministry of Health 2015). Good oral health in children has major benefits as it prevents pain, infection and oral disease such as dental caries. Adding fluoride to drinking-water supplies can help prevent and reduce tooth decay (Royal Society of New Zealand 2014).

Children living in areas with access to fluoridated drinking-water generally had better oral health in 2015

The percentage of children, who are caries-free (i.e. have no past or current experience of dental decay), is higher in areas with access to fluoridated drinking-water supplies (Figure 1 and Figure 2). In 2015, 60% of 5-year-olds and 62% of children in Year 8 (12-13-year-olds), who lived in fluoridated communities, were caries-free. In non-fluoridated communities, 59% of 5-year-olds and 61% of children in Year 8, were caries-free in 2015.

The largest difference in the percentage of caries-free children between fluoridated and non-fluoridated areas can be seen for Māori children (Figure 1 and Figure 2). For 5-year old Māori children the difference is approximately 9% and for Māori children in Year 8 the difference is approximately 6%.

Figure 1: Percentage of 5-year olds who were caries-free in 2015, by ethnic group and water fluoridation status

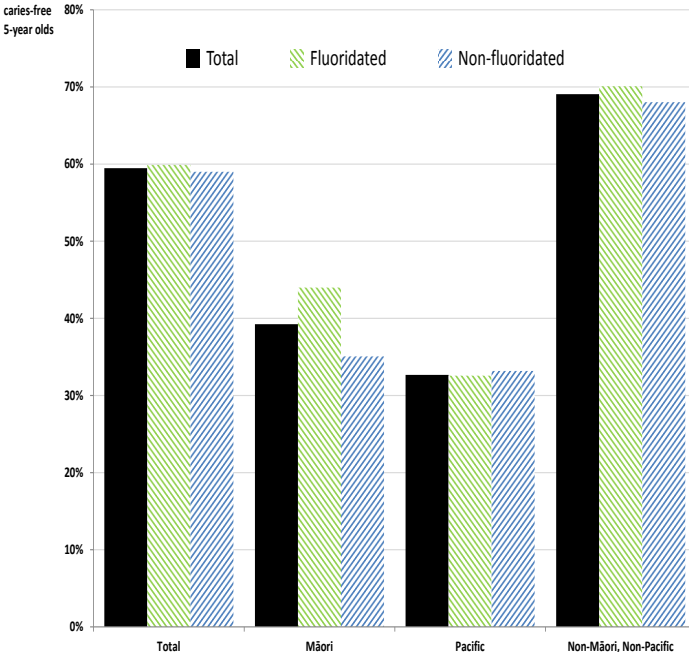
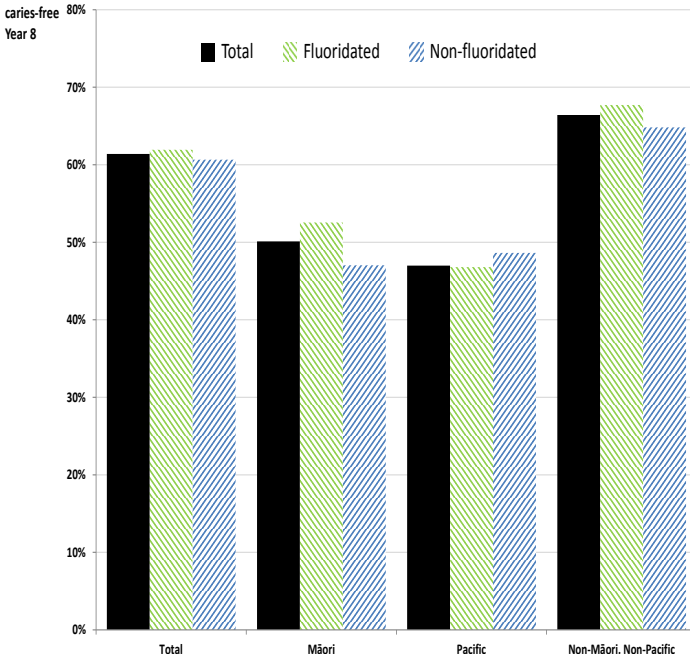


Figure 2: Percentage of children in Year 8 who were caries-free in 2015, by ethnic group and water fluoridation status



source for Figure 1 and Figure 2: Ministry of Health. (2017). *Oral health data and stats 2015*. URL: http://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/oral-health-data-and-stats/age-5-and-year-8-oral-health-data-community-oral-health-service (accessed April 2017)

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Children living in the Capital & Coast District Health Board (DHB) had the best oral health

In 2015, the Capital & Coast DHB had the highest percentages of caries-free 5-year-olds and children in Year 8 in New Zealand. Approximately 70% of 5-year old children and 69% of children in Year 8 were caries-free in this region (Figure 3 and Figure 4).

In general, children in the South Island were more likely to be caries-free than children in the North Island (Figure 3 and Figure 4). This difference is largest in 5-year old children. On the North Island 58% of 5-year-olds and 61% of children in Year 8 were caries-free, compared to 64% of 5-year-olds and 63% of children in Year 8 on the South Island.

Figure 3: Percentage of 5-year-olds who were caries-free in 2015, by DHB*

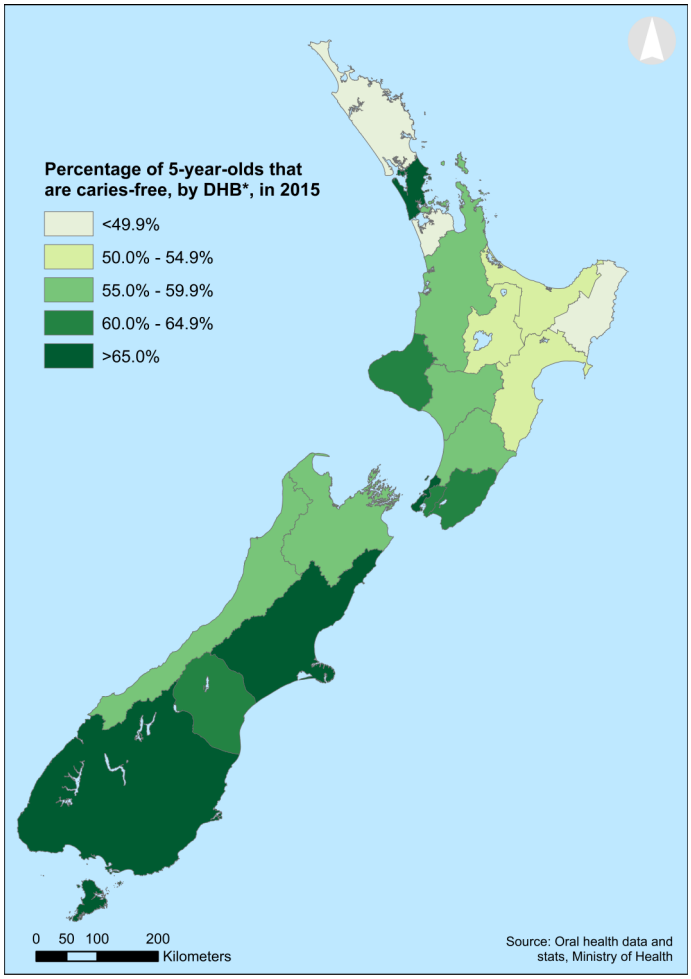
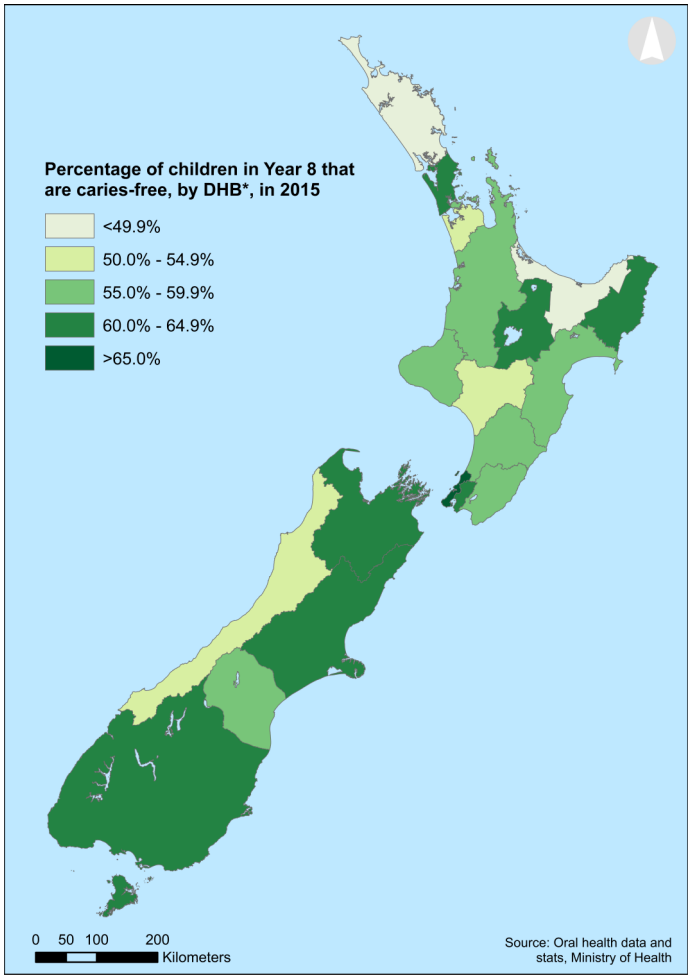


Figure 4: Percentage of children in Year 8 who were caries-free in 2015, by DHB*



source for Figure 3 and Figure 4: Ministry of Health.(2017). *Oral health data and stats 2015*. URL: http://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/oral-health-data-and-stats/age-5-and-year-8-oral-health-data-community-oral-health-service (accessed April 2017)

* DHB=District Health Board

Oral health of children

Oral health continues to improve

Overall, oral health in 5-year-olds and children in Year 8 improved between 2000 and 2015. Improvements can be seen in fluoridated and non-fluoridated communities. The largest improvement of oral health is in Year 8 children.

Between 2000 and 2015, the percentage of children in Year 8 that were caries-free increased from 42% to 61%. In the same time –frame, the percentage of 5-year old children that were caries-free increased from 52% to 59%. In 2015, a higher percentage of children in Year 8 were caries-free than 5-year-olds. Previously, 5-year-olds had consistently higher percentages of being caries-free (Figure 5 and Figure 6).

From 2000 to 2015, the difference in caries-free percentages between fluoridated and non-fluoridated areas decreased in both age groups. This might be due to the so-called 'halo effect': food and beverages that are produced with fluoridated drinking-water and consumed in non-fluoridated areas can reduce differences in caries-free percentages (Jiang et al 2014; Wright et al 1999).

Figure 5: Percentage of 5-year-olds who were caries-free, by fluoridation status, 2000-2015

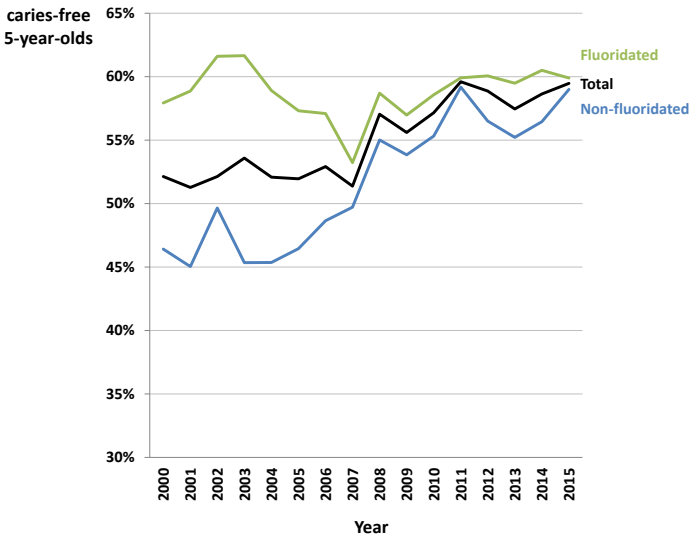
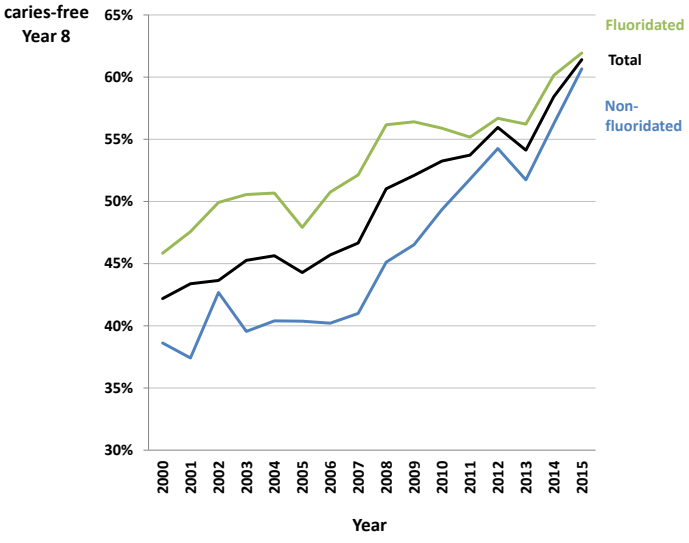


Figure 6: Percentage of children in Year 8 who were caries-free, by fluoridation status, 2000-2015



source for Figure 5 and Figure 6: Ministry of Health.(2017). Oral health data and stats 2015. URL: http://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/oral-health-data-and-stats/age-5-and-year-8-oral-health-data-community-oral-health-service (accessed April 2017)

Oral health of children

Oral health continues to improve

Between 2000 and 2015, the mean number of decayed, missing or filled permanent teeth (DMFT) of children in Year 8 dropped from 1.6 to 0.9 (Figure 8). This means, that on average, children in Year 8 had less than one decayed, missing or filled permanent tooth in 2015.

5-year old children had, on average, 1.8 decayed, missing or filled primary teeth in 2015 (Figure 7). The total mean number of decayed, missing or filled primary teeth (dmft) increased between 2000 and 2007 but decreased from 2008 to 2015. It is now at the same level as in 2000 (dmft of 1.8).

In general, children who live in communities with access to fluoridated drinking-water had a lower mean number of decayed, missing or filled primary and permanent teeth. The difference between fluoridated and non-fluoridated communities decreased over time, as was seen previously for percentages of caries-free children in Figure 5 and Figure 6.

Figure 7: Mean dmft* of 5-year old children, by fluoridation status, 2000-2015

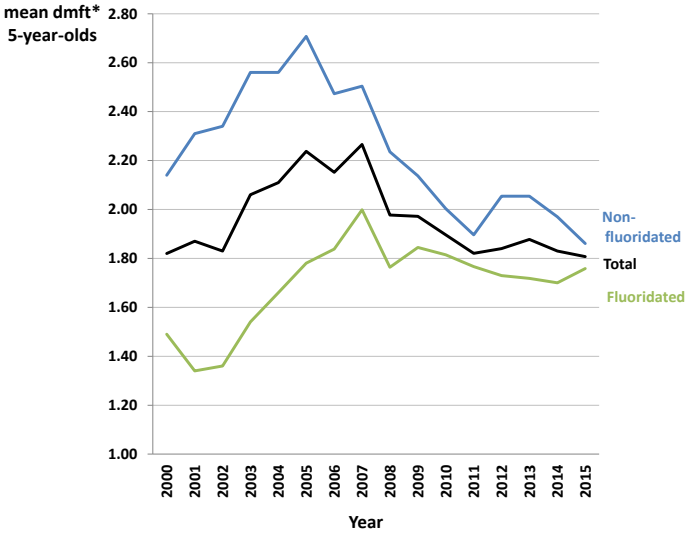
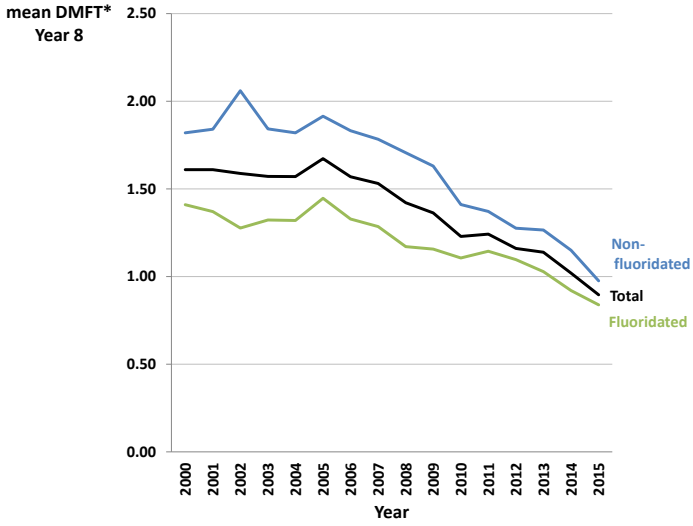


Figure 8: Mean DMFT* of children in Year 8, by fluoridation status, 2000-2015



source for Figure 7 and Figure 8: Ministry of Health.(2017). *Oral health data and stats 2017*. URL: http://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/oral-health-data-and-stats/age-5-and-year-8-oral-health-data-community-oral-health-service (accessed April 2017)

***mean dmft:** mean number of decayed, missing or filled primary teeth (5-year old children)

***mean DMFT:** mean number of decayed, missing or filled permanent teeth (children in Year 8)

Note: Patterns in dmft/DMFT score must be interpreted in light of shedding primary teeth and gaining permanent teeth with age. The loss of baby teeth and gaining of permanent teeth results in a reduction in absolute numbers of teeth with caries experience (Ministry of Health, 2010).

REFERENCES:

Jiang Y, Foster Page LA, McMillan J, Lyons K, Broadbent J, Morgaine KC. (2014). Is New Zealand water fluoridation justified?. *The New Zealand Medical Journal* 127(1406): 80—86.

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

Ministry of Health. (2015). *Annual Update of Key Results 2014/2015: New Zealand Health Survey*. Wellington: Ministry of Health.

Ministry of Health. (2017). *Age 5 and Year 8 oral health data from the Community Oral Health Service 2015*. Wellington: Ministry of Health. URL: http://www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/oral-health-data-and-stats/age-5-and-year-8-oral-health-data-community-oral-health-service (accessed March 2017)

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.

Wright JC, Bates MN, Cutress T, Lee M. (1999). *The Cost-Effectiveness of Fluoridating Water Supplies in New Zealand. A report for the New Zealand Ministry of Health*. Porirua: Institute of Environmental Science and Research Limited.

For more information, please contact Carolin Haenfling on ehnz@massey.ac.nz