

Water fluoridation in NSW

Increasing fluoridation of water in NSW

Based on recent outcomes in persuading local councils to fluoridate their water, the NSW Government believes that the most appropriate way forward is for Local Government to retain the responsibility for water fluoridation in NSW.

In August 2013 concern was raised when Lismore City Council decided that it would not support water fluoridation within its local government area and Ballina Shire Council reconsidered its position to support fluoridation.

Local dentists, general practitioners, paediatricians and other specialist doctors supported by the Northern NSW Local Health District, the Chief Health Officer and the NSW Australian Dental Association NSW worked to educate and inform councillors and their communities on the health benefits of fluoridated water and dispel myths that fluoridating water is a risk to the public's health.

With these interventions we have seen positive outcomes. Both councils have agreed to support fluoridation of their water supply.

It should be noted that once fluoridation has commenced, fluoridation cannot be ceased without permission from the Director General of NSW Health.

It is estimated that around 100,000 additional people could be provided with fluoridated water if councils with existing approval to fluoridate were to commence fluoridation. To ensure that these councils remain informed about the benefits of fluoride and continue to support water fluoridation, NSW Health and the NSW Office of Water will actively support these councils by:

1. Providing ongoing support with the design, construction and commissioning of the infrastructure
2. Providing advice and assistance with the necessary checks and testing following construction
3. Supporting the training of fluoridation plant operators in regional areas
4. Providing information to address community questions in regard to water fluoridation.

In addition, it is estimated that around 85,000 more people could be provided access to fluoridated water, if councils that have no current approval to fluoridate were to commence fluoridation. The NSW Chief Health Officer has already written to these councils, and one has responded seeking information on the options for fluoridation.

NSW Health will provide support to these councils by:

1. Continuing to engage with councils with no current approval to fluoridate the water on an annual basis, to provide advice and information on the benefits of fluoridation, and information on the options for fluoridation in their local community
2. Providing written information from the Chief Health Officer of NSW, regarding the benefits and lack of harm from water fluoridation, and the evidence of the poorer dental health in un-fluoridated areas of NSW.
3. Performing properly constructed surveys with random sampling to assess the community attitude to water fluoridation, and to encourage councils to seek approval to fluoridate where the majority of the community is in support. Note that when these surveys were previously conducted in NSW, the majority of the population were in support.
4. Providing further opportunities for community consultation and information sessions to inform local decision making where communities are not currently in favour of fluoridation, in partnership with the Australian Dental Association, the Australian Medical Association and the Royal Australian College of General Practitioners.

If councils do not wish to make a decision in relation to water fluoridation, they still may refer the question to the Director General of NSW Health.

Monitoring

Currently monitoring of council positions is ad-hoc, however, from 2013, NSW Health will annually monitor and assess the positions of each of the councils that do not have fluoridation or are in the process of fluoridating their water supply.

This will be undertaken via correspondence from the Chief Health Officer directly to the councils. The local public health unit will engage with the local councils to provide follow up support and information.

Funding for water fluoridation in NSW

The NSW Government has previously provided \$18.5 million to construct fluoridation plants for the water utilities with approval to fluoridate the water supply. All of these funds have now been committed to fluoridation plants for these utilities.

The Government will provide an additional \$5 million in the 2014/15 budget to support the construction of the fluoridation plants and associated capital works in areas where there is currently no approval to fluoridate. This funding will be used as an incentive, in addition to the education and information from the Chief Health Officer, for those councils which have not yet agreed to fluoridate their water supplies.

A further \$2.5 million will be available for the implementation of technological advancements allowing fluoridation to smaller communities in water utilities with current approval for fluoridation.

Facts about water fluoridation

- **Fluoride is a natural substance** found in water, soil and common foods.
- **Water fluoridation prevents dental decay in all ages.**
- It is a **safe, legal and ethical way of providing benefit to everyone** in the community, especially those who are disadvantaged.
- Even though fluoride toothpaste is widely available, there is still substantially **more tooth decay in un-fluoridated areas compared to fluoridated areas of NSW.**
- The Centers for Disease Control and Prevention in America have recognised water fluoridation as one of the **top 10 public health achievements** of the 20th century.

What is water fluoridation?

Fluoride is a natural substance found in water, soil and common foods such as tea. It is odourless and tasteless. Water fluoridation is the process of adding fluoride to drinking water source so that the level of fluoride in the water reaches that recommended for good dental health. In NSW fluoride is added to the water at water treatment plants up to 1 milligram per litre (mg/L) in line with the National Health and Medical Research Council recommendations.¹

Is it safe?

Yes. The scientific evidence regarding the benefits and potential harms of water fluoridation has been extensively reviewed. Water fluoridation has been recommended by many scientific and health organisations throughout the world including the National Health and Medical Research in Australia, the World Health Organization, and the Centers for Disease Control and Prevention in the USA.

The National Health and Medical Research Council *Australian Drinking Water Guidelines*² have established a health guidelines value (upper limit) of 1.5mg/L based on protecting against dental fluorosis. Dental fluorosis is a change in the way teeth look. It can vary from hard to see white spots to staining and pitting.

In NSW water utilities are required by law to test the concentration of fluoride in drinking water every day that they add fluoride to the water supply. Samples must also be collected from the distribution system twice every week. Each month a sample must be

¹ National Health and Medical Research Council. *NHMRC Public Statement. The Efficacy and Safety of Fluoridation 2007.*
http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/eh41_statement_efficiency_safety_fluoride.pdf

² National Health and Medical Research Council. *Australian Drinking Water Guidelines 2011.*
<http://www.nhmrc.gov.au/guidelines/publications/eh52>

independently tested to make sure the fluoride level is correct and the equipment used to collect the daily and twice a week samples is working properly. NSW Health follows up all water utilities that have missing records or results that do not meet the requirements for water fluoridation.

Does it work?

Yes. Adding fluoride to public water supplies to the recommended levels is one of the safest and cheapest ways to offer adults and children better dental health. Research shows that water fluoridation is the best way to prevent tooth decay.

Tooth decay can be very serious. Each year in NSW, over 3,700 children aged under eight years of age are admitted to hospital because of dental decay. Some of these children, such as the three-year old in the photo below, need all of their teeth removed because of dental decay.



Is it ethical?

Yes. Making a decision about whether a public health measure is ethical means looking at the benefits of the measure, the harms, the costs, overall fairness and individual rights.

After looking at all of these factors, water fluoridation is considered ethical. This is because there is good evidence that it prevents tooth decay, no scientific evidence of harm at recommended levels, it is cost-effective (good value for money) and fair.

Everyone who has access to a water supply that is fluoridated has access to this public health measure. This includes people with the poorest dental health such as disadvantaged people and Aboriginal people. Often these people have limited access to dental services and basic dental items such as toothbrushes and fluoridated toothpaste.

Some people argue that water fluoridation is mass medication. Fluoride is a naturally occurring substance. It is not possible to avoid fluoride as it occurs naturally in soil, water and many foods we consume.

Some people argue that it is not ethical to fluoridate the water supply as people cannot opt out of drinking fluoridated water. This is not correct. People can drink water from other sources such as water tanks and bottled water.

Are people in NSW in favour of water fluoridation?

The NSW Population Health Survey is an ongoing telephone survey of the health of people who live in NSW. The survey is done to assess changes over time in self-reported health behaviours, health status and health service use. The survey collects data from approximately 12,000 NSW residents annually. From 2005 to 2008 the survey included questions to assess the level of community support for water fluoridation.

In 2008, 87% of adults surveyed were in favour of fluoridating public water supplies. People in urban areas were slightly more likely to support water fluoridation (90%) than people in rural areas (82%). The questions were removed from the health survey after 2008 as there had been little change in the level of community support for water fluoridation since 2005.

Is water fluoridation cost-effective?

Yes. Studies overwhelmingly show that water fluoridation is cost-effective (good value for money). Recent Australian studies show that for every \$1 spent on fluoridation, \$7 to \$18 is saved due to avoided treatment costs.^{3,4} These studies underestimate the true savings as they do not include savings associated with children being admitted to hospital for the extraction or restoration of decayed teeth.

What is the current process for fluoridation of a water supply in NSW?

The addition of fluoride to public water supplies in NSW is controlled by the *Fluoridation of Public Water Supplies Act 1957* (the Act). The Act allows a water utility to add fluoride to the water supply in one of two ways: by approval or by direction.

By approval

A water utility can apply to the Director General of NSW Health for approval to add fluoride to public water that they supply. Although not required by the Act, the Director General may ask the Fluoridation of Public Water Supplies Advisory Committee (the Advisory Committee) for advice about whether to approve the application. The water utility can start adding fluoride to the water from the date of commencement advised by the Director General.

³ Cobiac LJ, Vos T. Cost-effectiveness of extending the coverage of water supply fluoridation for the prevention of dental caries in Australia. *Community Dentistry and Oral Epidemiology* 2012;40(4):369-76.

⁴ Ciketic S, Hayatbakhsh MR, Doran CM. Drinking water fluoridation in South East Queensland: a cost-effectiveness evaluation. *Health Promotion Journal of Australia* 2010;21(1):51-6.

By direction

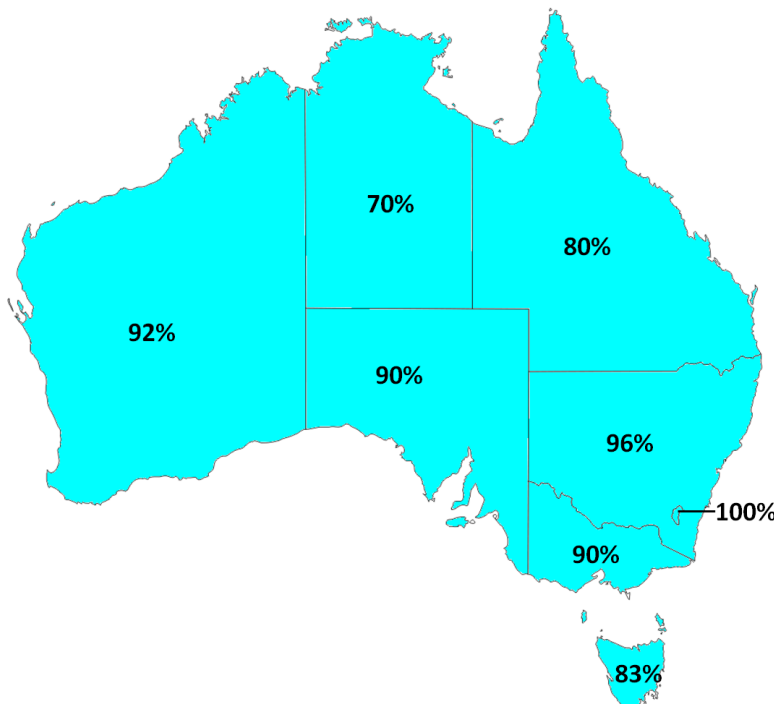
A water utility can ask the Director General of NSW Health to decide whether or not they should add fluoride to the water supply. The Director General will ask the Advisory Committee for advice and then make a decision about whether to direct a water utility to fluoridate a public water supply. If the Director General decides to direct a utility to fluoridate, the utility must start fluoridation under the terms set out by the Director General, which would include the commencement date and the level of fluoride that must be achieved.

Under the Act a water utility cannot start fluoridation of public water supplies without an approval or direction from the Director General. Once fluoridation has started, a water utility cannot stop fluoridating the water without the Director General revoking the approval or direction.

Do people in other Australian states and territories have access to fluoridated water?

Yes. Most people in Australia have access to fluoridated water. The map below shows the percentage of people in each state and territory who have access to fluoridated water. A higher percentage of people in NSW have access to fluoridated water than in any state or territory other than the ACT. All public water supplies in the ACT must be fluoridated.

Figure 2: Percentages of the resident population served by public water supplies who are receiving fluoridated water, by state or territory, August 2013



Note: Percentages sourced in August 2013 from data published by jurisdictional health authorities. These data were last updated in 2012 in some jurisdictions.

What is the extent of fluoridation in NSW?

Approximately 96% of the NSW population has access to fluoridated water.

What about the other 4%

There are a number of reasons why some water utilities do not fluoridate the water including a level of naturally occurring fluoride in the water that is sufficient for optimal dental health (e.g. Warren Shire Council), technical issues and perceived lack of community support. Some of these water utilities have recently begun a conversation with NSW Health about fluoridation of their public water supply, or to discuss the options for fluoridation. In addition:

1. Not all people in NSW have a reticulated (public) water supply to their home. These people get water from other sources such as water tanks and private bores. Some private bores may contain naturally occurring fluoride at levels sufficient for dental health benefits.
2. Some water utilities have current approval to fluoridate but fluoridation has not yet commenced. When all the water utilities with current approval to commence water fluoridation complete this process, it is estimated that an additional 100,000 people in NSW will receive fluoridated water. Reasons for delayed implementation vary, but include:
 - a. A need to re-design the fluoridation plant or construction of a new water treatment plant
 - b. Delays in construction
 - c. Delays in obtaining final approval to commence fluoridation
 - d. A lack of suitable staff to operate a fluoridation plant.
 - e. Legal action.
3. Some water utilities have no current approval to fluoridate their water. If all the water utilities that have no current approval to fluoridate and are feasible to fluoridate were to commence fluoridation, it is estimated that an additional 85,000 people in NSW could be provided access to fluoridated water. A lack of suitable local staff to operate the fluoridation plant is sometimes cited as a reason for non-fluoridation.

What can be done to assist fluoridation in these circumstances?

Smaller communities

About three years ago a simple, safe and low cost sodium fluoride saturator system was developed meaning many smaller water supplies can now be fluoridated. To date, the smallest water supply fluoridated in NSW is the Mendooran water supply, serving 400 people. For a number of small water supplies (serving less than 400 people) there may be a lack of suitable staff available locally to operate the fluoridation plant. This is taken into account when determining if a water supply can be fluoridated.

Aboriginal communities

Currently there are 62 Aboriginal communities supported by the NSW Aboriginal Communities Water and Sewerage Program. The Program is jointly funded by the NSW

Government and the NSW Aboriginal Land Council to support operation, maintenance and monitoring of water and sewerage services in discrete Aboriginal communities. Water utilities (generally local councils) or other service providers are contracted to support these communities.

Most discrete Aboriginal communities receive drinking water from a nearby water utility. However, seven communities provide their own drinking water. Currently 28 Aboriginal communities receive fluoridated drinking water. Fluoridation of a further 13 Aboriginal communities is pending commencement by the local water utility (approvals are in place). This includes Lismore City Council and Ballina Shire Council, which supply water to three Aboriginal communities. Fluoridation could be expanded to the remaining Aboriginal communities that are supplied by local water utilities, if those water utilities commenced fluoridation.

Fluoridation of the seven Aboriginal communities that provide their own drinking water may be more difficult. Most of these communities are quite remote. These communities receive regular visits (often weekly) from the supporting water utility or service provider to ensure the safe operation of the water supply and sewerage. However, if fluoridation were introduced a visit would be required each day. Under current staffing arrangements, the supporting water utilities and service providers may not be able to perform visits this frequently. An alternative would be to identify and train Aboriginal community members to operate the fluoridation plant. Some service providers have already employed Aboriginal community members, for example, from communities in Brewarrina Shire.

Technical oversight

The operation of fluoridation plant is normally part of the duty of a water treatment plant operator and the daily tasks take about one hour. Operators are usually TAFE qualified in water treatment, and need to be specifically trained to operate a water fluoridation plant.

There are challenges to recruiting and retaining skilled staff in some regional areas. The 2008 *Report of the Independent Inquiry into Secure and Sustainable Urban Water Supply and Sewerage Services for non-metropolitan NSW* found that with:

*'...the ageing of the labour force and the anticipated net decline in skilled labour in the next few years, local water utilities face a shortage of skilled people to adequately plan, maintain and operate water supply and sewerage systems across NSW. This could have serious implications for business efficiency, public health and environmental protection'*⁵ (p 19)

The challenges are greatest for small communities

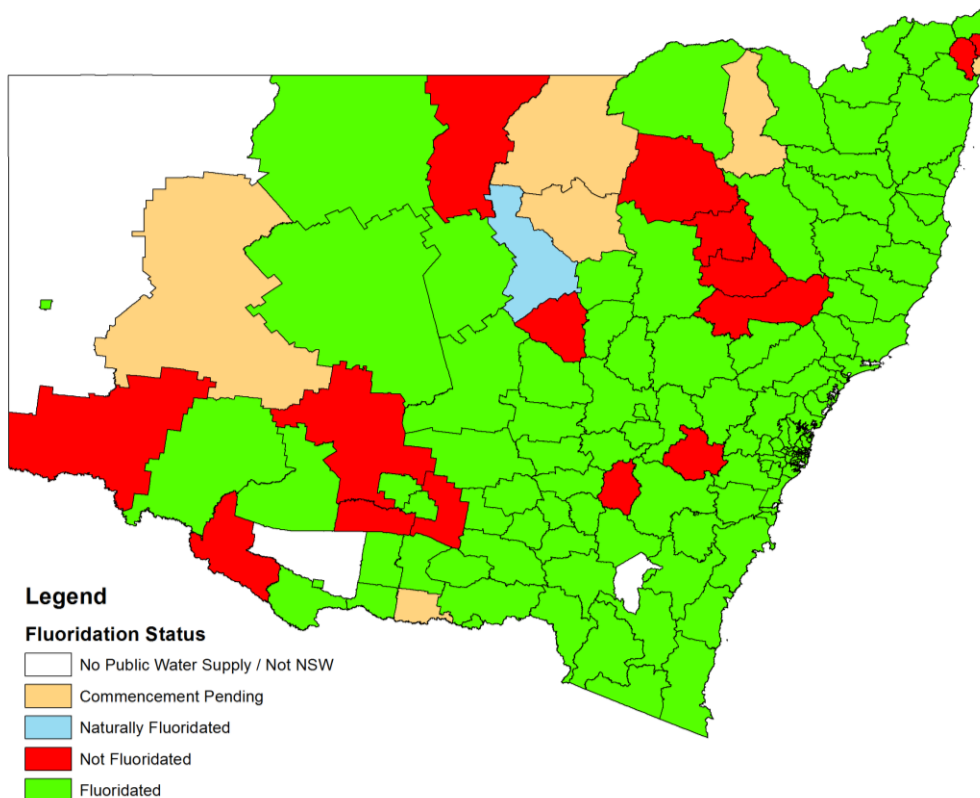
NSW Office of Water provides technical support to water utilities. Regional Water and Sewerage Officers (inspectors) support water utilities and Aboriginal communities in the operation of water and sewerage systems. This would include inspection of the fluoridation plants. The NSW Office of Water also provides support to NSW Health to ensure that fluoridation plants proposed and installed for water public supplies in NSW meet the NSW Code of Practice for Fluoridation of Public Water Supplies.

⁵ State of New South Wales. *Report of the Independent Inquiry into Secure and Sustainable Urban Water Supply and Sewerage Services for Non-Metropolitan NSW 2009*. <http://www.water.nsw.gov.au>

Which areas of the state are we talking about?

The map below shows Local Government Areas where fluoride is added to the public water supply (where all or part of the Area has access to this water), where approval has been given for fluoride to be added to the water supply but this has not yet started, and where fluoride is not added to the water supply.

Figure 1: Fluoridation status of Local Government Areas in NSW, as of 23 August 2013



Note: Not all local government areas listed as 'not fluoridated' have opposed fluoridation. Some of the 'non fluoridated' water utilities have expressed interest in fluoridating but have not commenced for a number of reasons. Fluoridation may not be feasible in very small communities.

Table 1: Estimated population with an un-fluoridated public water supply, where fluoridation commencement is pending or an approval has been granted ^a, by water utility

Water utility	Estimated population with an un-fluoridated public water supply ^b	Estimated population to be fluoridated	Total local government area population ^c	Additional Information
Rous County Council ^d				
Ballina Shire Council	34,012	34,012	41,677	Planning for construction of the fluoridation plant is underway.
Lismore City Council	31,603	31,284	42,765	Lismore Council voted in favour of fluoridation on 10 September 2013. Plans to commence fluoridation underway.
Richmond Valley Council	4,981	4,981	22,038	Casino is already fluoridated. Rocky creek system to be fluoridated. Plans to commence fluoridation underway.
Central Darling Shire Council	1,130	700 (Wilcannia)	1,992	Fluoridation works being carried out as part of refurbishment of the water treatment plant. Construction expected to be completed by the end of September 2013. Final approval to commence fluoridation will follow shortly.
Coonamble Shire Council	3,185	3,185	4,032	Fluoridation plant will be installed as part of the new water treatment plant. Awaiting final inspection and approval to commence fluoridation.
Corowa Shire Council	8,950	7,200	11,000	Fluoridation is expected to start at the end of September 2013.
Gwydir Shire Council	2,860	1,300	4,964	Bingara fluoridation plant completed. Council awaiting final inspection and approval to commence fluoridation.
Kempsey Shire Council	21,370	19,540	28,134	South West Rocks is already fluoridated. Council has submitted a concept design to the NSW Office of Water.
Walgett Shire Council	6,010	2,610	6,454	Awaiting final inspection and approval to commence fluoridation.
NSW total	114,101	104,112	163,056	

^a Other water utilities in NSW have majority fluoridation coverage, but some small communities may remain un-fluoridated – these are not listed here.

^b Provided by water utilities in September 2012.

^c Census 2011 estimates. The estimated number of people with un-fluoridated public water is lower than the total Local Government Area population as not all people in these Areas have access to reticulated (public) water supplies.

^d Rous County Council is the water utility that supplies water to Ballina Shire Council, Lismore City Council and Richmond Valley Council.

Table 2: Estimated population with a public water supply with no current approval to fluoridate ^a, by water utility

Water utility	Estimated population with an un-fluoridated public water supply^b	Total government population^c	local area
Boorowa Council	1,300	2,399	
Brewarrina Shire Council	1,390	1,766	
Byron Shire Council	20,470	29,206	
Cabonne Shire Council	2,050	12,824	
Carrathool Shire Council	2,312	2,585	
Gunnedah Shire Council	10,330	12,065	
Liverpool Plains Shire Council	5,503	7,480	
Murrumbidgee Shire Council	1,697	2,262	
Narrabri Shire Council	10,411	12,926	
Narrandera Shire Council ^d	5,000	5,901	
Narromine Shire Council ^d	4,500	6,584	
Oberon Council	3,000	5,438	
Upper Hunter Shire Council	11,200	13,754	
Wakool Shire Council	2,275	3,963	
Wentworth Shire Council	3,270	6,611	
NSW total	84,708	125,764	

^a Un-fluoridated means that fluoride has not been added to the water supply. Some water supplies have a moderate level of naturally occurring fluoride. In these Areas, there may still be some benefit to adding fluoride to the water to achieve the best level for dental health. Other water utilities in NSW have majority fluoridation coverage, but some small communities may remain un-fluoridated – these are not listed here. Warren Shire Council is not included in this list as the water supply is already naturally fluoridated to the best level for dental health.

^b Provided by water utilities in September 2012.

^c Census 2011 estimates. The estimated number of people with un-fluoridated public water is lower than the total Local Government Area population as not all people in these Areas have access to reticulated (public) water supplies.

^d Narrandera and Narromine Shire Councils have water supplies with naturally occurring fluoride. Assessment is currently underway to determine whether additional fluoridation is required.