

# Nutrition Guideline

## Healthy Infants and Young Children

### Water

*For Professional Reference Only*

Applicable to: Nurses, Physicians and Other Health Professionals

#### Recommendations

- Tap water, well water and commercially bottled water (except carbonated, vitamin, mineral or flavoured water) can be given to infants, either for drinking and/or in the preparation of food and other beverages, provided that it comes from a trusted source and/or has been tested.
- All tap water used in the preparation of infant formula or infant foods, or for drinking by infants, should come from the cold water tap. The cold water tap should run until it becomes cold in the morning to flush out the build-up of any contaminants such as lead or copper that can accumulate overnight in the pipes. The hot water tap should not be used as it may contain more metal contaminants than the cold tap.

#### Under 6 months of age:

- Supplemental water (i.e. for drinking by infants) is unnecessary in the first 6 months of age.
- All water used in feeding infants (i.e. for formula reconstitution) less than 4 months of age should be sterilized by bringing it to a rolling boil for 2 minutes to ensure it is pathogen free. This includes tap water, well water and commercially bottled water.

#### Over 6 months of age:

- Small amounts of water may be introduced as a beverage, in an open top cup after 6 months of age.
- Water should not replace the intake of breastmilk or infant formula in the first 12 months of age.
- After one year of age, water should be used to quench thirst between meals and snacks.

#### Health Benefits

Following these guidelines will support safe and appropriate water usage for infants and young children.

#### Key Questions

##### What types of water are appropriate for healthy term infants?

Water that is generally suitable for infant feeding includes tap water, well water that meets standards of safety, and commercially bottled water (natural spring water or treated water with a low mineral content).<sup>1,2</sup> However, these waters are not sterile<sup>1,2</sup> and would need to be sterilized before using if given to an infant less than 4 months of age.<sup>3</sup>

##### What types of water are inappropriate for healthy term infants?

Mineral water, vitamin water, flavoured water, treated water with a high mineral content, softened water and carbonated water, including club soda, should not be given to infants.<sup>1,2</sup> Water from carbon charcoal filtered taps/pitchers (i.e. Brita®) and fridge filtered water (i.e. built in filters) should be used with caution as filters may increase the bacteria content in the filtered water via build up. As such, it is important that filters be changed regularly, as recommended by the manufacturer.<sup>4</sup>

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Well water may contain chemicals (e.g. nitrates) or bacteria that can cause health problems. Well water should be tested for chemicals every two years and for bacteria every six months.<sup>5</sup> Well water that meets standards for chemicals and bacteria is appropriate for feeding infants.

Water testing can also measure the level of fluoride within well water. Fluoride is a natural element that supports dental health by protecting against tooth decay, and levels in water up to 1.5 mg/L are considered acceptable.<sup>6</sup> If well water has levels of fluoride greater than 1.5 mg/L, then parents:

- should use a different source of water with a lower fluoride concentration for reconstituting infant formula;<sup>2</sup> and
- may wish to contact the oral health or environmental health program at their local public health centre for more information on reducing the risk of developing dental fluorosis for children drinking the water.

For more information, refer to the AHS website on [water fluoridation](#).

Anyone who is obtaining drinking water from a source other than taps or wells (e.g. cisterns) should be directed to contact their local Public Health Inspector for guidance on water testing, treatment and use of the water for feeding an infant.

Distilled, demineralized, or “produced through reverse osmosis” waters may have minerals removed.<sup>4</sup> No recommendation can currently be made for or against the use of these waters in infant feeding.<sup>1,2,4</sup>

#### **Until what age does water need to be sterilized for healthy term infants?**

Water used in infant feeding should be sterilized for infants less than 4 months of age.<sup>3</sup>

Sterilizing water for healthy term infants less than 4 months of age has been historically recommended. By 4 months infants are commonly putting many non-sterilized objects in their mouths. Therefore 4 months has been chosen as the age for discontinuing the sterilization of water.

#### **Why does water need to be sterilized for healthy term infants under 4 months of age?**

Water used in preparation of infant formula must be safe.<sup>2</sup> Tap water, well water and commercially bottled water are appropriate to use in infant food preparation, but are not sterile.<sup>2</sup> The three main types of microorganisms that can be found in drinking water are bacteria, viruses and protozoa.<sup>7</sup> These can exist naturally or can occur as a result of contamination from human or animal waste.<sup>7</sup> The main goal of sterilization of drinking water is to remove or kill most of these organisms to reduce the risk of illness.<sup>7</sup> While it is not currently possible to completely eliminate the risk of waterborne disease, sterilization helps to reduce the risk.<sup>7</sup> The most common manifestation of waterborne illness is gastrointestinal upset (nausea, vomiting, and diarrhea), however; in susceptible individuals (such as infants) the effects may be more severe, chronic or fatal.<sup>7</sup>

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#### How do you sterilize water?

Only water from the cold tap should be used. Water from the hot water tap can dissolve or leach lead and other contaminants from water pipes.<sup>2</sup> If the tap has not been used in a while, such as overnight, the tap should run water until it becomes cold (to flush out the pipes).<sup>4</sup> This will reduce any lead and/or bacteria build-up and ensure the water is fresh.

To ensure water is safe, water should be brought to a rolling boil for 2 minutes.<sup>2</sup> Longer boiling is not recommended because it could increase the concentration of any contaminants like lead, copper or nitrates that could be present in the water.<sup>4</sup> Boiled water should be cooled and stored in appropriate sterilized containers that can be tightly sealed and can be stored in the refrigerator for 2-3 days or for 24 hours at room temperature.<sup>4</sup>

For more information on sterilizing containers refer to the *Nutrition Guideline*: [3.3 Safe Preparation and Handling of Infant Formula](#).

#### When can healthy term infants be introduced to water as a beverage?

Water may be introduced as a beverage after 6 months of age when an infant is learning to drink from a cup.<sup>1</sup> There is no recommended amount of water for an infant to drink between 6 and 12 months of age; however amounts should be limited to avoid interference with the intake of breastmilk/formula and solid foods. Expert opinion is that offering 2 – 3 oz of water at a time to an infant is considered appropriate and would likely not interfere with the intake of breastmilk/formula and solid foods. By 9 to 12 months children should be consuming regularly scheduled meals and snacks. Water can be offered to quench thirst in-between regular meal and snacks.

Water supplementation in early infancy (under 6 months of age) is not recommended because it can interfere with the amount of breastmilk or formula consumed by an infant.<sup>8</sup> This can contribute to breast engorgement, interfere with establishment of breastmilk supply and interfere with baby's weight gain.

#### Should water be introduced to healthy term infants who are less than 6 months of age during hot weather?

No. In hot weather, additional fluid can be obtained by more frequent breastfeeding or formula feeding. The water content of human milk or infant formula is sufficient to replace urinary and insensible fluid losses (i.e. water lost through skin and respiration) and to provide for growth of young infants,<sup>9</sup> including low birth weight infants (1500 g – 2500 g).<sup>10</sup>

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#### **Should water be provided to replace fluid loss during illness (i.e. fever, diarrhea)?**

No. Infants and toddlers who are experiencing fever, diarrhea or vomiting are at increased risk of becoming dehydrated.<sup>11</sup> Dehydration can be very dangerous, especially for infants and toddlers. Caregivers should continue to feed breastmilk or formula rather than water, to infants experiencing fever, diarrhea or vomiting. Providing water rather than breastmilk or formula may cause electrolyte imbalances. Oral rehydration therapy may be needed for infants and toddlers experiencing even mild to moderate dehydration.<sup>11</sup> Homemade oral rehydration solutions are not recommended as there is a chance for serious formulation errors.<sup>11</sup> Medical advice should be sought for additional information on how to prevent or treat dehydration.

#### **What are the risks of too much water for infants and young children?**

Although rare, rapid water intake in excess of an infant's requirements can result in oral water intoxication. This may occur when an infant has been given overly dilute formula, tap or bottled water as a supplemental feeding, excessive intake of dilute juice, or if given water in place of an oral rehydration solution to treat diarrhea.<sup>12</sup> Although oral water intoxication is rare, it can result in adverse medical effects such as hyponatraemic seizures.<sup>12</sup>

#### **Are there any handouts on water for healthy infants and children that I can use with my clients?**

For infant nutrition resources visit Nutrition Education Materials at <http://www.albertahealthservices.ca/nutrition/Page11115.aspx> and click on **Infants**.

For more information related to healthy infants and children see [Healthy Parents Healthy Children](#).

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#### References

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