

Reconstituted Infant Formula and Enamel Fluorosis: Evidence-based Clinical Recommendations¹

Levels of evidence and strength of recommendations: Each recommendation is based on the best *available* evidence. The level of evidence available to support each recommendation may differ. Lower levels of evidence *do not* mean the recommendation should not be applied for patient treatment.

Correlate these colors with the text and table below.



GENERAL RECOMMENDATION FOR INFANT NUTRITION:

The American Academy of Pediatrics guidelines for infant nutrition advocate exclusive breast-feeding until the child is aged 6 months and continued breastfeeding until the child is at least 12 months of age unless specifically contraindicated.²

Recommendations for infants who consume reconstituted infant formula as the main source of nutrition:

- Continue use of liquid or powdered concentrate infant formulas reconstituted with optimally fluoridated drinking water while being cognizant of the potential risk for enamel fluorosis. (D)
- Use ready-to-feed formula or liquid or powdered concentrate formula reconstituted with water that is either fluoride-free or has low concentrations of fluoride when the potential risk for enamel fluorosis is a concern. (C)

Note: The majority of bottled waters contain a less-than-optimal concentration of fluoride, but the fluoride content varies among brands. Bottled-water products that are marketed as “purified,” “distilled,” “deionized,” “demineralized” or “produced through reverse osmosis” typically contain no or only trace amounts of fluoride, unless they specifically list fluoride as an added ingredient.

¹Berg J et al. Evidence-based clinical recommendations regarding fluoride intake from reconstituted infant formula and enamel fluorosis *J Am Dent Assoc* 2011;142:79-87.

²Gartner LM et al. Breastfeeding and the use of human milk. *Pediatrics* 2005;115(2):496-506.

Making a shared decision

Considerations

Is reconstituted infant formula the main source of nutrition for the infant?

What type of formula is the infant consuming – powder or liquid concentrate or ready-to-feed?*

Does the child consume milk or soy based formula?*

How long will the child continue to consume formula?

What is the level of fluoride in the water being used to reconstitute formula?*

Discussion

Fluoride from reconstituted infant formula may add to the chance of developing fluorosis.

It is difficult to isolate the risk of developing fluorosis specifically from reconstituted formula.

Children are exposed to multiple sources of fluoride during the tooth development period.

Reducing fluoride intake from reconstituted infant formula alone will not eliminate the risk of fluorosis development

Decision

Provide information to the parents or caregivers and make a shared decision



Examples of dental fluorosis.³

*In general, liquid concentrate mixed with water has less fluoride than powder concentrate mixed with water. Ready-to-feed has the lowest concentration of fluoride compared to reconstituted formulas.

*Soy-based formulas have slightly greater fluoride content than milk-based formulas.

*You can learn the fluoride content of your tap water by contacting your local water supplier, the local/county/state health department or online at <http://apps.nccd.cdc.gov/MWF/Index.asp>

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