Fluoride and Cavity Protection

Fluoride works in 3 different ways in the prevention of dental caries:

1. **During tooth development (systemic functions):**
    - There is some action of fluoride in-utero on the development of baby teeth but the amount which the baby obtains through maternal blood is quite small. As a result baby teeth are not as strong as adult teeth.
    - Between the ages of 0 and 3-4 years, fluoride is active in helping to strengthen the enamel and the structure of the adult teeth. It is during this period that excess systemic fluoride can be harmful to tooth development.

2. **After tooth development (topical applications):**
    - Exposure of teeth to topical applications of fluoride helps to strengthen the enamel by making it more resistant to the loss of calcium ions. The fluoride gets incorporated into the enamel of the teeth.
    - Topical applications affect all surfaces of the teeth (tops and sides and between teeth).
    - There is no detrimental effect from topical applications of fluoride, as long as none is swallowed.
    - 90% of the action of fluoridated water occurs topically in the mouth. Fluoridated water is very effective because of frequent topical exposure.

3. **Fluoride diminishes bacterial activity in the mouth:**
    - A role of fluoride in preventing dental cares involves reducing the activity of the enolase enzyme produced by *Streptococcus mutans* bacteria in the mouth.

Questions and Answers on the Fluoride Mouth Rinse Program
Dr. Anil Joshi, Pediatric Dentist, Moncton

Questions and Answers:

1. Is there evidence that the Fluoride Mouth Rinse Program is an effective way to reduce dental caries, especially for children who drink fluoridated water, use toothpaste with fluoride and see their dentist on a regular basis?
   - *All children can benefit from topical applications of fluoride. The benefit is of course greater for children who are not receiving regular dental care, but there is still a benefit for any child. Topical fluoride strengthens all surfaces of teeth, even between teeth where children may not brush well.*

2. Is there any risk of children receiving the Fluoride Mouth Rinse Program if they are not at risk based on socioeconomic status?
   - *No. There is no risk to the* Fluoride Mouth Rinse Program *unless the child is swallowing the mouth rinse.*

3. Is the Fluoride Mouth Rinse Program supported by dental professionals?
   - *The New Brunswick Dental Society and the New Brunswick Dental Hygienist Association are supportive of the Fluoride Mouth Rinse Program as an effective way to reduce dental caries in children.*

4. Is the Fluoride Mouth Rinse Program more important in municipalities that do not have fluoridated water?
   - Yes. Most of N.B does not have access to added fluoride in their drinking water. Oromocto is the only municipal water system that has fluoridated water. Even children who do have access to fluoridated water still benefit from the topical application of fluoride through the Fluoride Mouth Rinse program.

5. Many children are drinking bottled water instead of tap water. Since many bottled waters are not fluoridated, does this mean that there is increased benefit of providing the Fluoride Mouth Rinse program?
   - *Yes*

6. If there are high levels of fluoride naturally present in the drinking water, is it recommended to withdraw from the program?
   - *No. Students will benefit from the topical application of fluoride and there is no risk as long as the fluoride mouth rinse is not swallowed.*

7. Is there any benefit of the Fluoride Mouth Rinse Program in preventing caries that occur between the teeth?
    - *Yes. FMP helps prevent cavities between teeth by strengthening the enamel. Topical fluoride actually helps more between the teeth than on the tops because it doesn't get rinsed away as easily.*

8. Does the Fluoride Mouth Rinse Program destroy all bacteria in the mouth?
    - *No it does not destroy all bacteria in the mouth. The fluoride in the fluoride mouth rinse only has an antibacterial effect on enolase enzyme produced by Streptococcus mutans. Other bacteria that are beneficial to oral health are not affected.*

9. Can the fluoride mouth rinse be offered to students after they eat breakfast at school as part of a school breakfast program?
    - *Yes. The Canadian Dental Association recommends waiting 20–30 minutes after eating before brushing your teeth to allow the pH of saliva to become less acid so the tooth enamel is not eroded by abrasive tooth paste.* ***However, Fluoride actually works better at an acidic pH and the rinse isn't abrasive, therefore no waiting period is required after eating.***

10. Can students eat or drink **after** rinsing with fluoride mouth rinse.
    - *It is recommended that students not have anything to eat or drink 30 minutes* ***after*** *rinsing with the fluoride mouth rinse.*