

Early Childhood Caries (ECC)

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What Is Early Childhood Caries?

Early Childhood Caries (ECC) is a transmissible infectious process that affects children younger than age 6 and results in tooth destruction.

ECC is a particularly virulent form of caries that rapidly spreads within the mouth and typically results in severe disease.



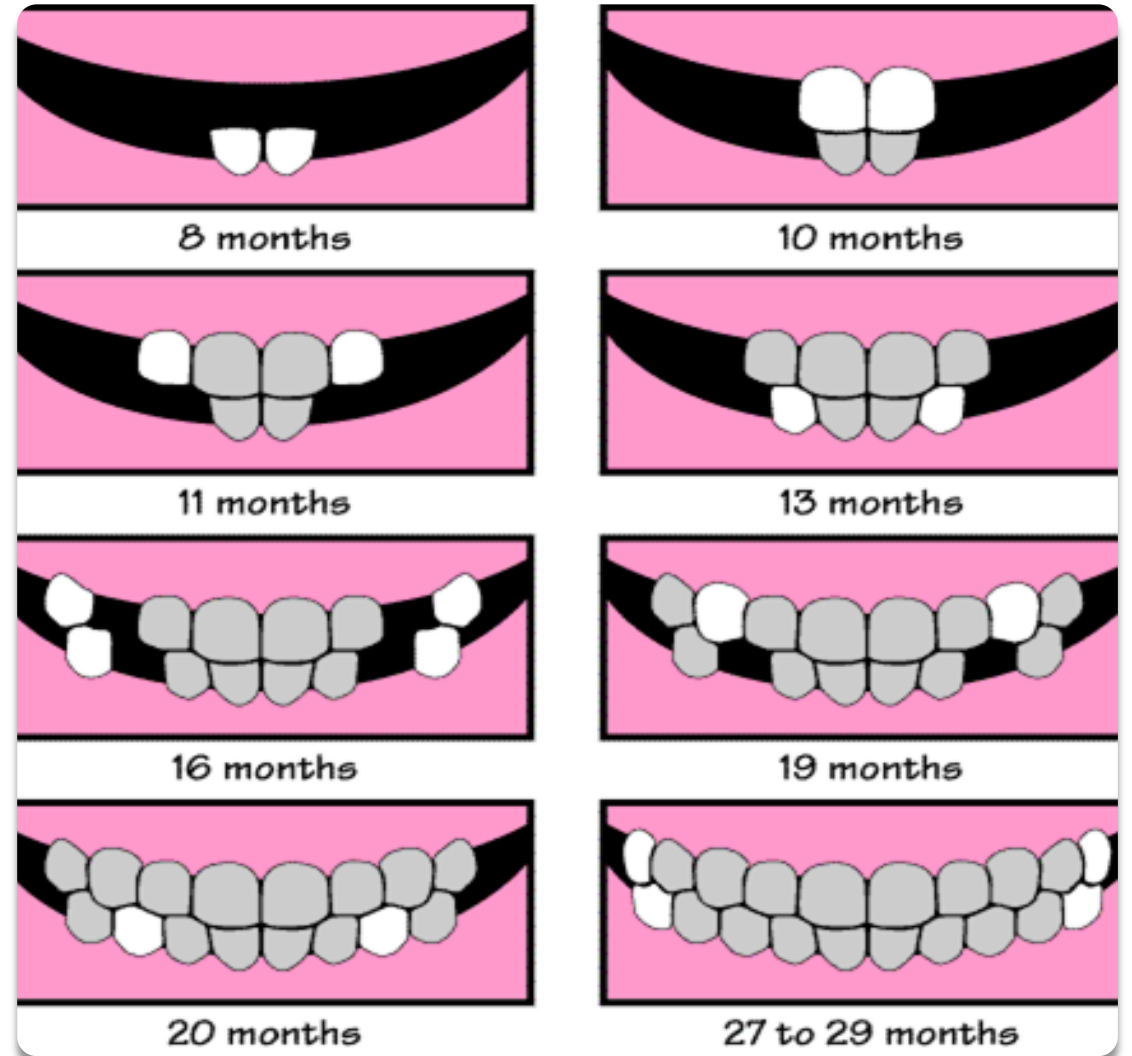
Presentation

Usual ECC progression:

Maxillary Incisors (first to erupt)

Maxillary Molars (grooved)

Maxillary Canines (smooth, late erupt)



Stages of ECC Plaque:

Dental plaque contains
cariogenic bacteria.



Stages of ECC

White Spots:

These usually begin along the gum line, which is the most important place to examine for ECC.



Stages of ECC Enamel Caries:

At this stage, demineralization has continued and there is now a visible defect in the enamel surface.



Stages of ECC

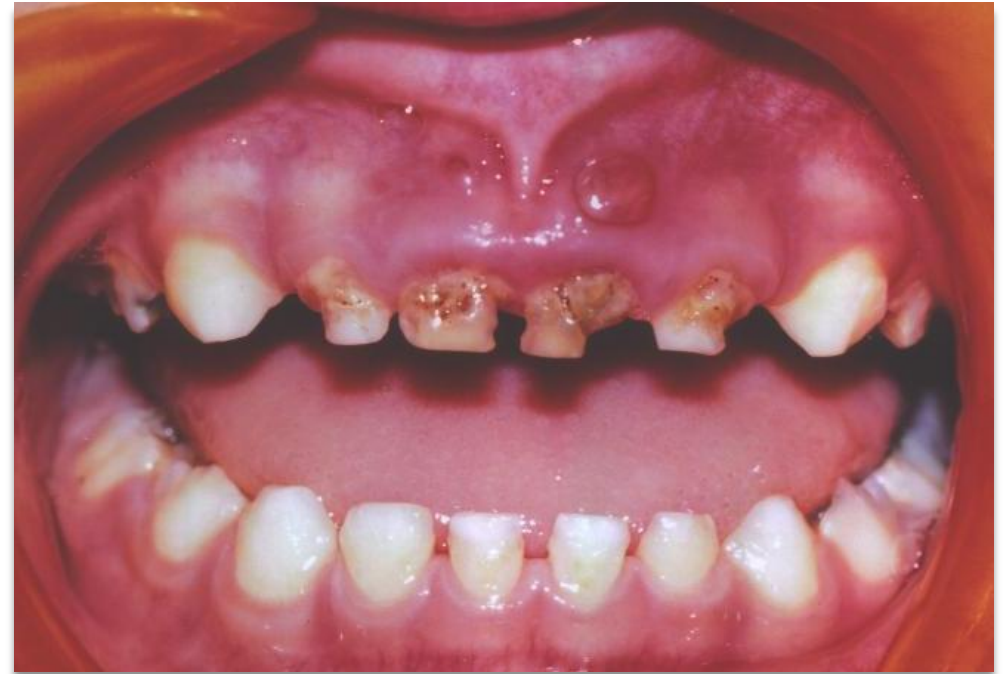
Dentine caries:

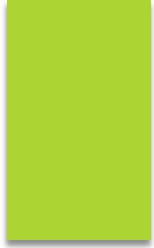
ECC has extended through the entire layer of enamel and into the dentine layer, where the nerve and pain fibers are located.



Stages of ECC Pulpitis:

The infection has spread so
that it now involves the pulp.





Impacts on Health

Difficulty chewing, which may lead to poor weight gain (failure-to-thrive).

Difficulty with articulation.

Oral infections, such as abscesses that can spread and lead to cellulitis or fistula formation.

Loss of sleep, difficulty concentrating, and interrupted learning.

Destruction and loss of teeth, which can lead to decreased self-esteem and impaired socialization.

Damage to permanent teeth, as ECC increases the risk of caries development in permanent teeth.



Impacts on Education

According to a 1992 study by Helen Gift, et al, approximately 51 million school hours per year are missed due to dental problems, most of which result from caries.

Missed school for children also translates into missed work and lost wages for caregivers.



Impacts on Finances

ECC results in increased office, dental, and ER visits, with such costs often far exceeding those of preventive dental care.

Several studies have investigated the cost of prevention versus treatment of disease and confirm that it is significantly more expensive to treat caries than to prevent them.



Risk Factors

Ethnicity, minority or low socioeconomic status; parents with less than a high school education

Limited or no dental insurance or access to care

Inadequate fluoride exposure

Caries in a parent or sibling (especially if caries occurred in the past 12 months) and high levels of Strep mutans in parents

Children with special health care conditions, such as developmental disabilities or a cleft lip/palate

Low birth weight (less than 2500 grams)



Risk Factors

Gingivitis

Chronic conditions that weaken enamel, promote gingivitis, or cause decreased saliva production

Visible plaque on the teeth

Caries in the child

Nutritional/Feeding Habits

Poor oral hygiene



Prevention

Best way to treat ECC
is to prevent ECC





Prevention: Best Practices During Pregnancy

Educate mother about ways to prevent ECC.
Support breastfeeding. Discourage tobacco use.

Provide an oral exam, periodontal disease screening, prophylaxis, and recommendations for completing dental treatment, caries control, and appropriate recall.

Assess caries risk and prescribe anti-bacterials like chlorhexidine or xylitol for high-risk mothers after the baby is born.



Prevention: Best Practices 0-2 year olds

Oral health assessment/screening soon after the first tooth erupts

Fluoride varnish treatments 4 or more times during the period from 9-24 months of age

Brush twice daily with a small smear of fluoride toothpaste beginning when the first tooth erupts

Consider sealants and caries stabilization with GI or Silver Nitrite/Diamine as appropriate



Prevention: Best Practices 3-6 year olds

Yearly dental exam.

Fluoride varnish treatments 3-4 times a year.

Brush twice daily with a pea-size dab of fluoride toothpaste.

Also recommend caries stabilization with GI sealants and restorations or silver nitrate/diamine as appropriate.





Treatment

Fluoride varnish

ITR's(ART)

Silver Nitrate/Silver diamine fluoride

Sedation

Operating room



Treatment Fluoride Varnish

Use fluoride varnish as
preventative or on white
spot lesions

Best if dry teeth with
gauze first



Treatment Interim Therapeutic Restorations

Used to be called ART

Prevent the progression of
caries

Reduce the levels of cariogenic
bacteria

Follow-up care including OHI,
fluoride toothpaste, and the
use of fluoride varnishes may
improve the treatment
outcome



Treatment Silver Nitrate/Silver Diamine Fluoride

One of the most promising
treatments of ECC

Arrests caries helps to form
secondary dentin

Atraumatic

NOT to be used if tooth is
symptomatic

Action of silver nitrate / fluoride varnish

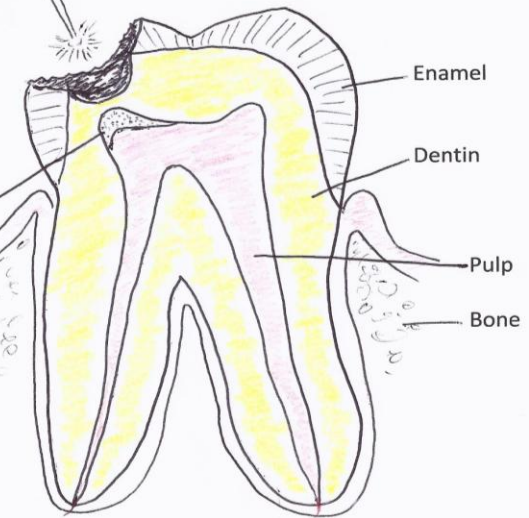
Silver nitrate / fluoride varnish
applied with microbrush

Decay turns black,
activity arrested
bacteria killed

Silver/fluoride
cause secondary
dentin to form
insulating nerve

Gums

Roots



Treatment Sedation

Can range from N2O to oral meds like versed

May allow child to be treated in office instead of OR



Treatment Operating Room

Treat the child without having to constantly adjust for the child's movement and without having to coach and encourage the child

All treatment can take place in one appointment





Conclusion

Early childhood caries (ECC) is a serious public health problem in both developing and industrialized countries.

But with prevention and early treatment, the most devastating effects can be stopped and our children can have bright healthy smiles!

