

- **dental decay in primary teeth is an infectious process that can be very painful and can spread and affect the development of the adult teeth**
- **dental decay in primary teeth most often means there will be dental decay in the adult teeth**
- **dental decay in primary teeth tends to progress more rapidly from initial surface demineralization to involvement of the dentin**
- **the enamel layer of primary teeth is thinner in all dimensions as compared to permanent teeth**

*****Radiographically, the appearance of primary teeth differs from that of permanent teeth because of the higher organic content found in primary teeth.** **Remember:** There must be 30-60% loss in mineralization before caries is radiographically evident with standard D-and E-speed intraoral films. Therefore, the clinical progress of a carious lesion is advanced, sometimes significantly, compared with its radiographic progress.

Amalgam has been used as a restorative material since early in the nineteenth century. In the past, as now, amalgam periodically has been the object of controversy. The cause of the controversy often has been its mercury content. Currently, amalgam also is being challenged by the introduction of other restorative materials. The new materials have many features that are more desirable than those of amalgam. **Key Point:** The use of amalgam is declining rapidly in pediatric dentistry.

The major force behind the decreasing use of amalgam in pediatric dentistry is the development of alternative materials with superior features. Some of the newer materials have the following excellent features: they are easy to use, they release fluoride, they are tooth colored, they adhere to enamel and dentin, and their durability is satisfactory.

Glass ionomers are among the most notable of the newer materials being used as alternatives to amalgam. Ionomers attach to both dentin and enamel as well as release fluoride. They are composed of fluoroaluminosilicate powder and polyacrylic acid. They are used for small Class I and very conservative Class II preparations (*they are not very strong*).

The **hybrid ionomer** materials truly revolutionized pediatric restorative dentistry when they were introduced in the 1980s. They have the advantages of both glass ionomers and resins.

- They adhere to enamel and dentin
- They can be light cured (*many hybrid ionomer products also self-cure*)
- They release fluoride
- They are more durable than the glass ionomers
- They are reasonably user-friendly

Compomer materials contain resin and ionomer material. They are more like composite materials than they are like ionomer materials. The most important advantage of compomers over hybrid ionomers is the strength of the material. **Note:** The hybrid ionomers release more fluoride to the adjacent tooth structure and are better caries inhibitors than the compomers.