

Epidemiology of Oral Diseases

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2021

Lecture Outline:

- Definition of Dental Caries
- Caries Susceptibility of Individual Teeth
- Etiology of Dental Caries
- Factors affecting Dental Caries Prevalence
- Current Trends in Caries Incidence

1-Dental Caries:



is defined as a progressive irreversible microbial disease affecting the hard parts of tooth exposed to the oral environment, resulting in demineralization of the inorganic constituents and dissolution of the organic constituent, thereby leading to a cavity formation

Caries Susceptibility OF Individual Teeth

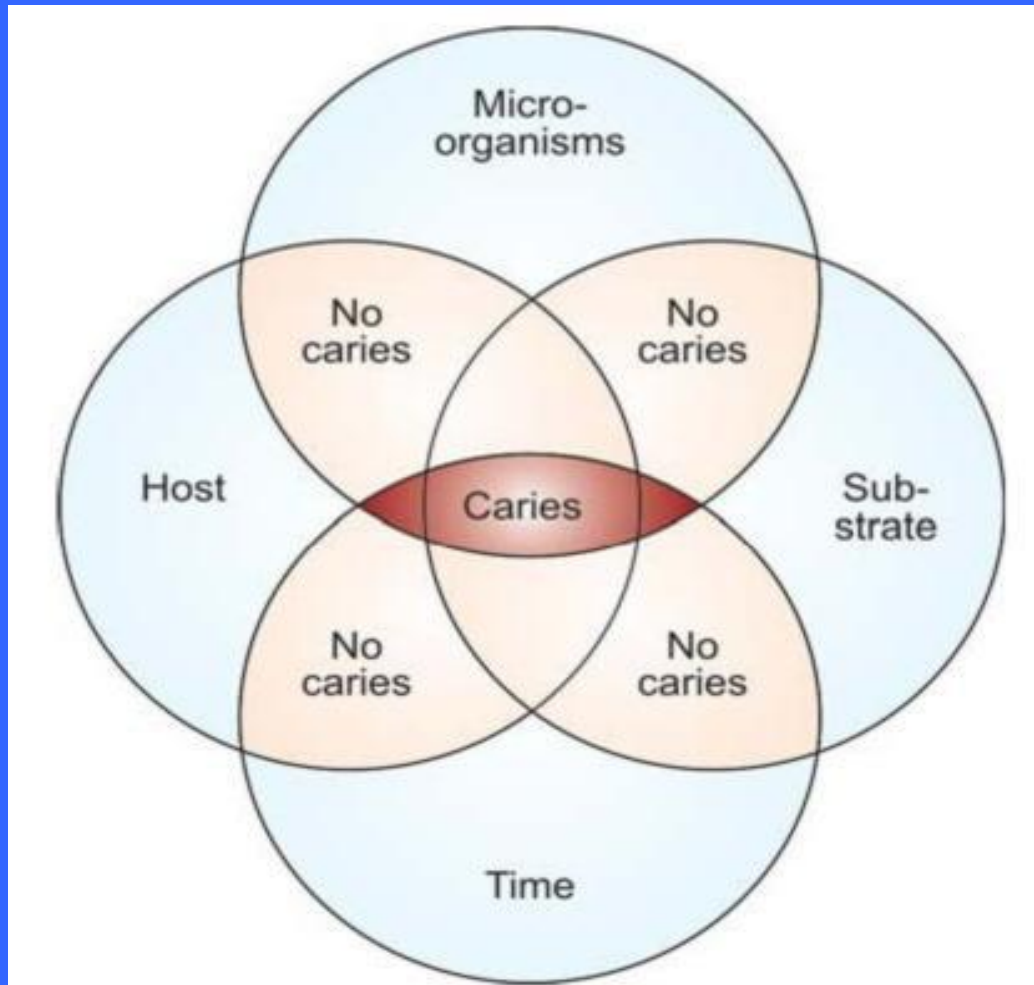
- Upper and lower first molar → 95%
- Upper and lower second molar → 75%
- Upper second bicuspid → 45%
- Upper first bicuspid → 35%
- Lower second bicuspid → 35%
- Upper central and lateral incisor → 30%
- Upper cuspids and lower first bicuspid → 10%
- Lower central and lateral incisor → 3%
- Lower cuspids → 3%

Teeth farthest back in the mouth are more frequently carious.

Caries susceptibility of individual tooth surface

occlusal > mesial > buccal > lingual

Etiologic Factors Of Dental Caries



➤ **Host Factor:**

1. Tooth:

- Composition

Levels	Enamel	Dentin	Cementum
Mineral	96%	70%	65%
Organic	1%	20%	23%
Water	3%	10%	12%

- Morphologic characteristics

- Position

➤ **Host Factor:**

2. Saliva:

✓ Composition: **Inorganic:-**

Positive ions:- Ca, Mg, K

Negative ions:- CO₂, Cl, F

Organic:-

Carbohydrates : glucose

Lipids : cholesterol, lecithin

protein :globulin, mucin

Enzymes: amylase

✓ PH increases with flow rate, normal PH 7.8

✓ Quantity Normal quantity 700-800 ml per day

✓ Viscosity Thick increases the dental caries

✓ Antibacterial properties of saliva

- I. Lactoperoxidase:
- II. Lysozyme:
- III. Lactoferrin
- IV. IgA

➤ **Bacteria:** The most common cariogenic oral flora is two type of bacteria (streptococcus mutans, Lactobacillus)

➤ **Diet**

➤ **Time**

Factors affecting caries prevalence

- **Age**
- **Gender:** Its higher in female than male could be explained in children by early eruption of teeth in females.
- **Race** Africa and India enjoyed greater freedom caries than Europeans.
- **Hereditary**
- **Emotional disturbance:** anxiety status influence the incidence of dental caries.
- **Socioeconomic factor**
- **Nutrition:** malnourished people
- **Tobacco smoking :** it may increase the risk of caries formation.
- **Oral hygiene habits:** tooth brushing, flossing
- **Pregnancy and Lactating :** neglect their oral hygiene
- **Use of medications:** drugs promote xerostomia.
- **Radiation:** increasing caries susceptibility.

Current Trends in Caries Incidence

- In developed countries, caries prevalence declined in last decade
 - ✓ water fluoridation
 - ✓ Use of fluoride dentifrices and supplements
 - ✓ Decrease in sugar consumption
 - ✓ Increase dental awareness
 - ✓ Preventive approaches

- In developing countries increase in caries prevalence, cause is increased use of refined carbohydrates

