# PEDIATRIC DENTISTRY

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# OUTLINE

- Patient assessment
- Treatment plan
- Child management
- Infant dental care
- Development and morphology of teeth
- Acquired disturbances of the teeth
- Eruption
- Dental caries
- Preventive dentistry
- Pulp therapy

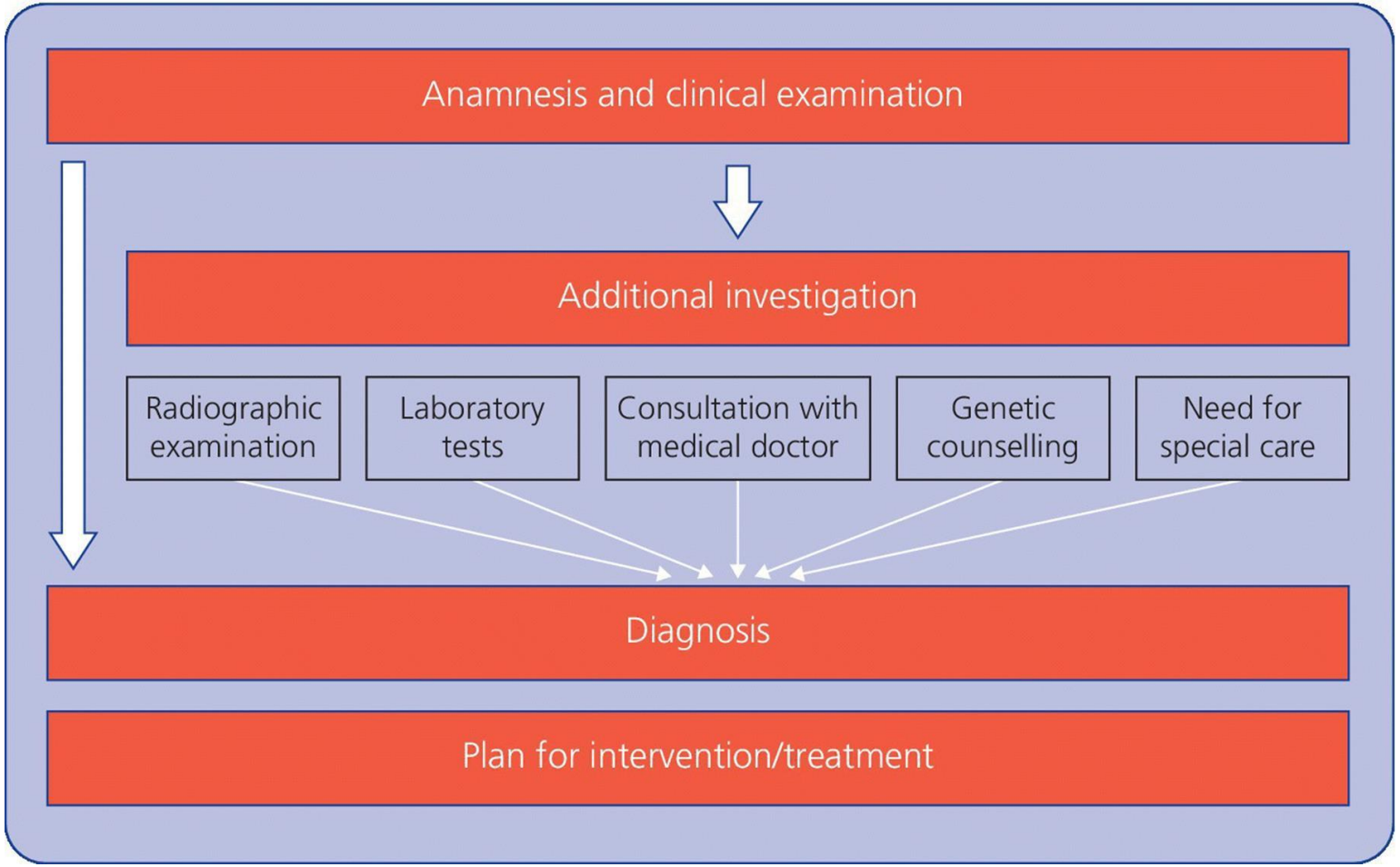
# Patient assessment

- **History** :current complaint,dental history, medical history, growth/development,family and social history.
- **Examination**:exta-oral,intra-oral
- **Charting**
- **Provisional diagnosis**
- **Special examination**:radiography,vitality test,blood investigation, microbiology
- **Definitive diagnosis**
- **Treatment plan**
- **Clinical conduct**

# Treatment plan

factors should be taken into consideration when treatment planning for a pediatric patient:

- **Dental age** (early or late developer)
- **Behavior**
- **Caries Risk Assessment**
- **Ability to cooperate**
- **Parental Compliance** and Recall likelihood
- **Finances** :present ideal treatment initially regardless of cost.


Anamnesis and clinical examination
Additional investigation
Radiographic examination
Laboratory tests
Consultation with medical doctor
Genetic counselling
Need for special care
Diagnosis
Plan for intervention/treatment

# Child management

- **Dental anxiety** is defined as abnormal fear or dread of visiting the dentist for preventive care or therapy and unwarranted anxiety over dental procedures. The most obvious cause of anxiety is previous experience with dental treatment or a history of dental pain.

- **Basic behavior guidance techniques (BGTs) such as :**

١. tell-show-do (TSD)
٢. voice control
٣. non-verbal communication
٤. positive reinforcement
٥. distraction
٦. parental presence/absence

- **Advanced BGTs include :**

١. protective stabilization
٢. Sedation : Nitrous-oxide-oxygen
٣. general anesthesia (GA)

# protective stabilization( papoose board)

**The indications for protective stabilization:**

**- Patients w/ uncontrolled movements due to disease**

**- Uncooperative patients who need emergency or limited treatment**

# INFANTS DENTAL CARE

- **The first visit** to the dentist should occur within ٦ months of the eruption of the first primary tooth(first year).

- anticipatory guidance can be given to parents for infants :
  ١. **Bottle**: don't sleep w/ bottle & stop use after ١ year, encourage cup use
  ٢.**Juice**: ideally don't let child drink juice, keep frequency low
  ٣. **Brushing**: use a smear of fluoridated toothpaste
  ٤. **Habits**: wipe child's mouth after feeding, review pacifier use (ended by ٢ years old)

# The functions of the primary dentition

١- **Mastication.**

٢- **Growth of jaws**: stimulated through mastication and forces imposed on the PDL allows for continuous bone turnover.

٣- **Speech:** however, they are not required for speech, only aid in speech.

٤- **Esthetic function**: more of an issue for parents than patients.

# Child management

## wright's classification:

- Cooperative
- Lacking in cooperative ability
- potentially cooperative

## Frankl scale:

- F١-Definitely Negative
- F٢-Negative
- F٣-Positive
- F٤-Definitely positive

# Development and morphology of teeth

## Life cycle of the tooth:

١.**Initiation**(bud stage): anodontia,supernummerary

٢.**Proliferation**(cap stage): odontoma

٣.**Histodifferentiation** and **morphodifferentiation** (bellstage): amelogenesis imperfecta, dentinogenesis imperfecta microdontia(peg teeth), macrodontia

٤.**Apposition** (matrix ,growth centers): hypoplasia, florosis

٥.**Calcification**(١٤ weeks of embryonic life):inter globular dentine, continue for ٢ years after eruption

# Supernumerary teeth


# Acquired disturbances of the teeth

- **Alveolar abscess:**

١.Acute-drainage,antibiotic therapy, extraction

٢.Chronic-lymphadenopathy,fistula-antibiotic, Rct, extraction.

- **Cellulites: diffuse soft tissue infection ,**drainage, antibiotic, hospitalization( ludwing angina).

Dental abscess

Cellulites

# Developmental anomalies of the teeth

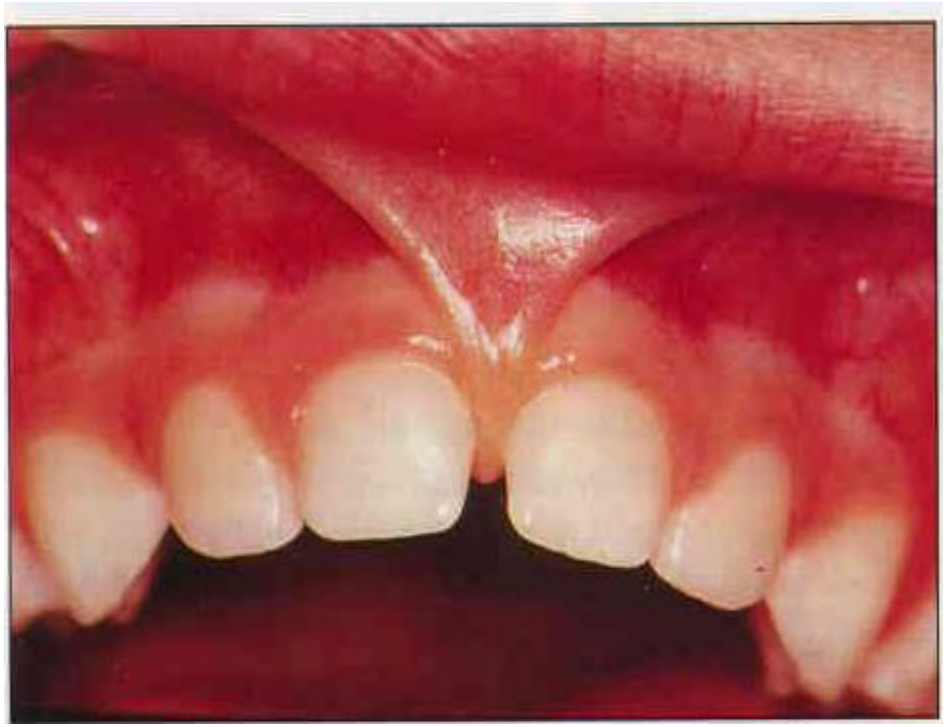
١. **Odontoma** : surgical removal

٢. **Fusion**: one crown, two roots

٣. **Gemination** : division of single tooth germ, one root.

٤. **Dense in dente**(dense invaginatus ):deep lingual pit

# Anterior diastema



# Early exfoliation of teeth

١. **Hypophosphatasia**:deficient cementum

٢. **Cherubism**(family fibrous dysplasia)

٣. **Acrodynia**: mercury exposure

٤. **Ricket** (vitamin D-resistant)

٥. **Cyclic netropenia**

# Enamel hypoplasia

١. Nutritional deficiencies
٢. Brain injury, neurologic defects
٣. Nephrotic  syndrome
٤. Allergies
٥. Lead poisoning
٦. Local infection and trauma
٧. Cleft palate/lip
٨. X-radiation
٩. rubella

# Anomalies of the tongue

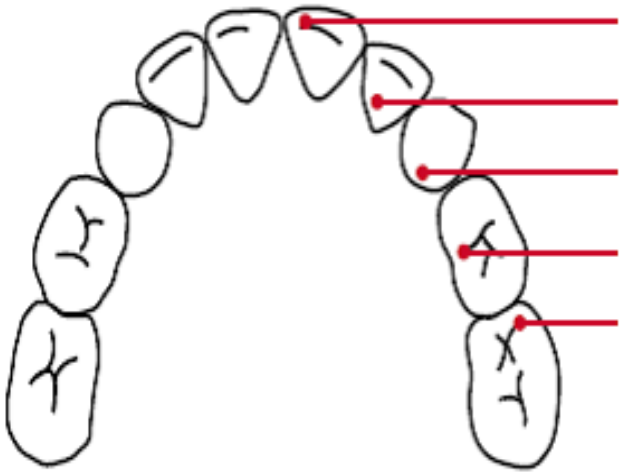
- **Macroglossia**: hypothyroidism ,Down syndrome
- **Ankyloglossia** (tongue –tie)
- **Fissured tongue**
- **Coated tongue**: decrease saliva
- **Hairy tongue** : antibiotic
- **Strawberry tongue**: Kawasaki, scarlet fever

# Eruption of the teeth

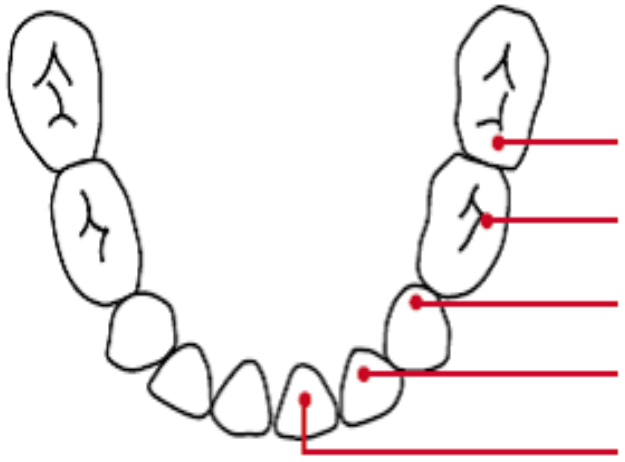
**primary teeth eruption facts:**

- A general rule is that for every ٦ months of life, approximately ٤ teeth will erupt.
- Girls generally precede boys in tooth eruption
- Lower teeth usually erupt before upper teeth
- Teeth in both jaws usually erupt in pairs-one on the right and one on the left
- Primary teeth are smaller in size and whiter in color than the permanent teeth that will follow
- By the time a child is ٢ to ٣ years of age, all primary teeth should have erupted

# Primary Teeth

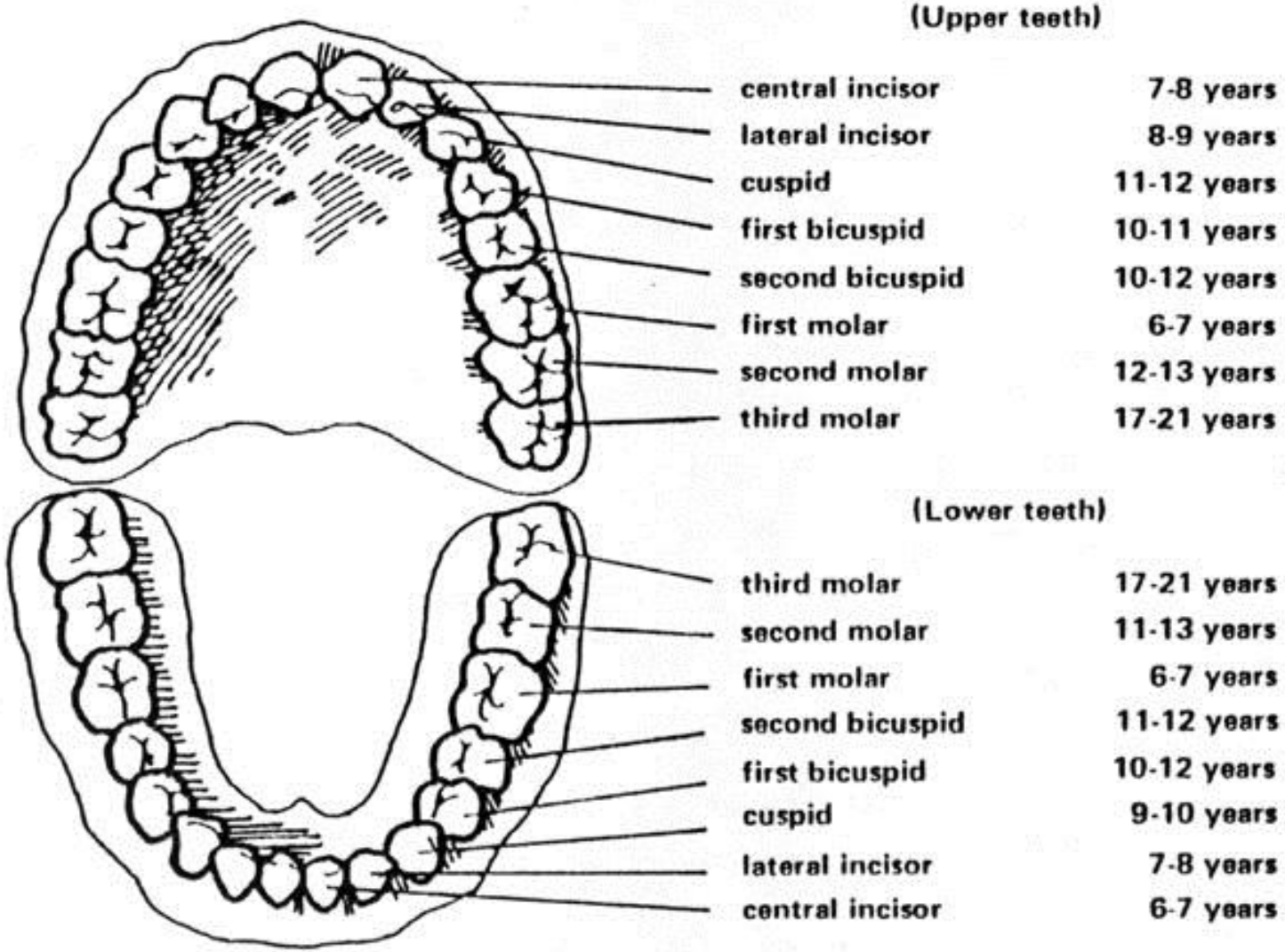


| Upper Teeth | Erupt | Shed |
|---|---|---|
| Central Incisor | 8-12 Months | 6-7 Years |
| Lateral Incisor | 9-13 Months | 7-8 Years |
| Canine (Cuspid) | 16-22 Months | 10-12 Years |
| First Molar | 13-19 Months | 9-11 Years |
| Second Molar | 25-33 Months | 10-12 Years |



| Lower Teeth | Erupt | Shed |
|---|---|---|
| Second Molar | 23-31 Months | 10-12 Years |
| First Molar | 14-18 Months | 9-11 Years |
| Canine (Cuspid) | 17-23 Months | 9-12 Years |
| Lateral Incisor | 10-16 Months | 7-8 Years |
| Central Incisor | 6-10 Months | 6-7 Years |

# Permanent teeth



# Delayed eruption of teeth

**١. Local factors:**

- Supernumerary
- Dilaceration
- Tumors
- Scars
- Lack of space
- Gingival fibromatosis

**٢.General factors:**

- Downs syndrome
- Nutritional deficit
- Cerebral palsy
- Hypothyrodism
- Cledocranial dysplasia
- Hypopituritism

**٣.Genetic factors:**

- Chrubism
- Dental dysplasia

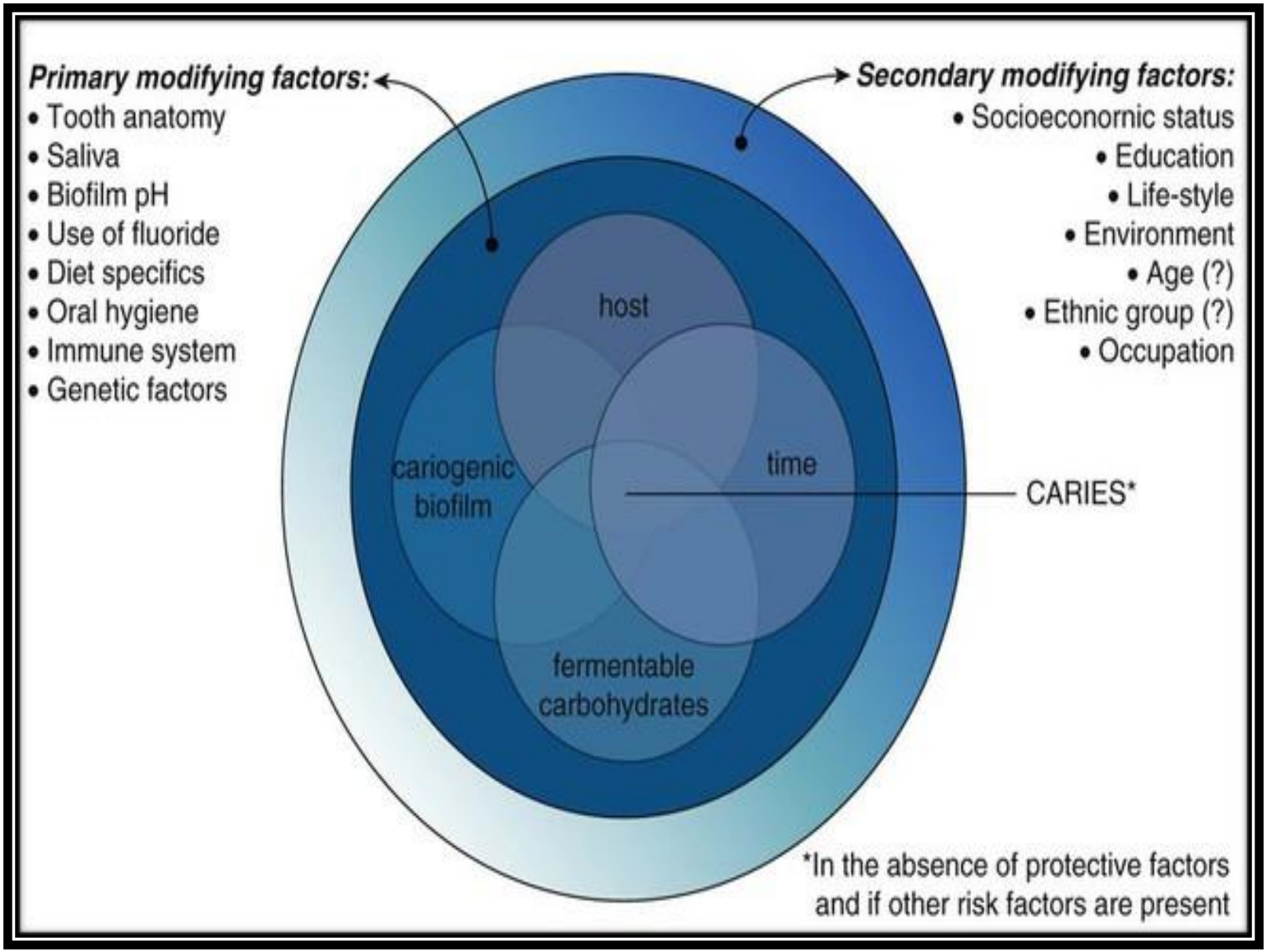
# Dental caries primary factors

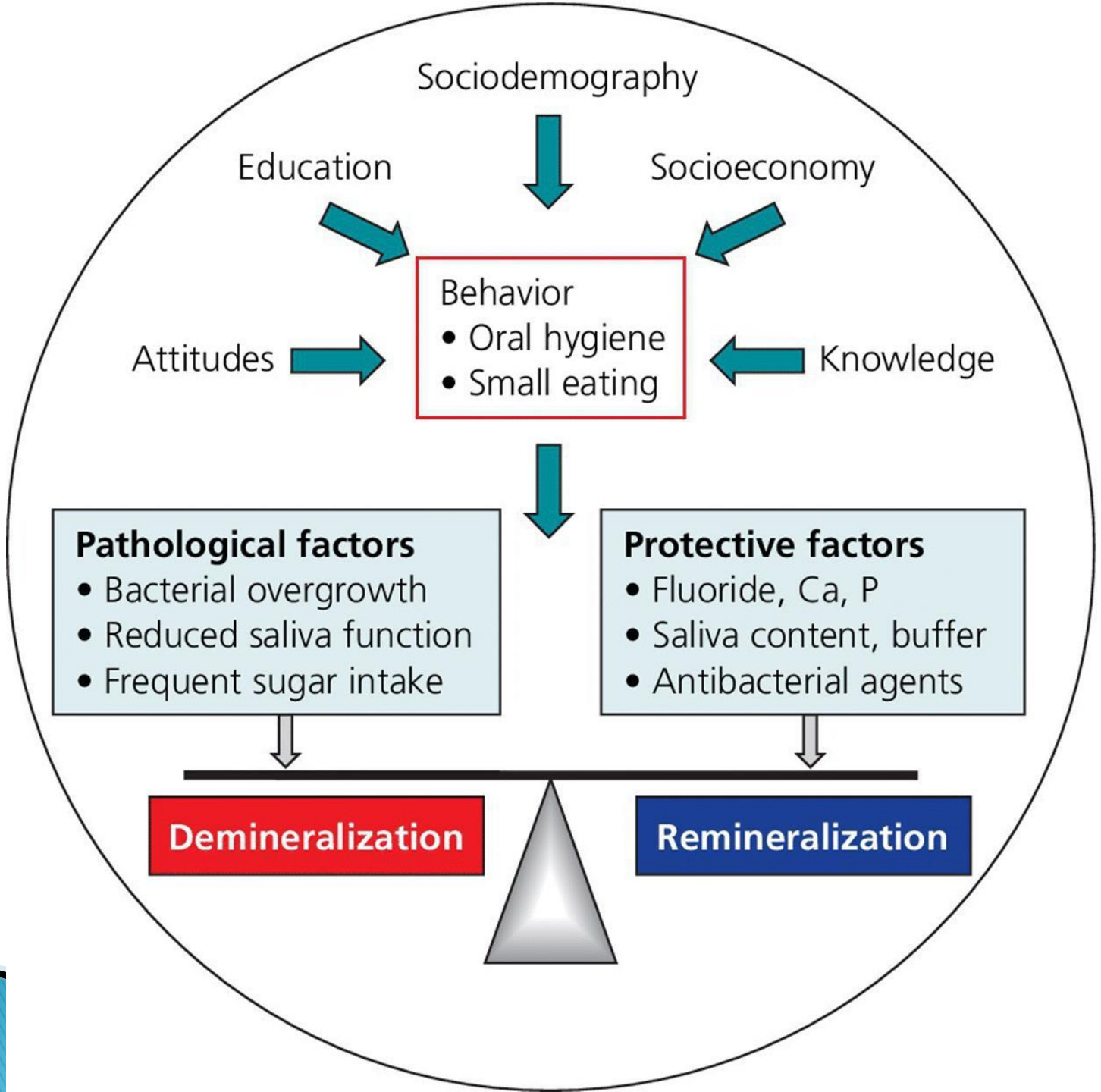
١. **Bacteria** :Streptococus mutans

٢. **Diet**: fermentable carbohydrate

٣. **Host** :susceptible tooth

٤. **saliva** :slow flow rate


Primary modifying factors:
• Tooth anatomy
• Saliva
• Biofilm pH
• Use of fluoride
• Diet specifics
• Oral hygiene
• Immune system
• Genetic factors
Secondary modifying factors:
• Socioeconomic status
• Education
• Life-style
• Environment
• Age (?)
• Ethnic group (?)
• Occupation
host
cariogenic biofilm
time
CARIES*
fermentable carbohydrates
*In the absence of protective factors and if other risk factors are present


Sociodemography
Education
Socioeconomy
Behavior
• Oral hygiene
• Small eating
Attitudes
Knowledge
Pathological factors
• Bacterial overgrowth
• Reduced saliva function
• Frequent sugar intake
Protective factors
• Fluoride, Ca, P
• Saliva content, buffer
• Antibacterial agents
Demineralization
Remineralization

# Early childhood caries ECC

- The disease of early childhood caries (ECC) is the presence of ١ or more **decayed** (noncavitated or cavitated lesions), **missing** (due to caries), or **filled** tooth surfaces in any primary tooth in a child ٧١ months of age or younger.

# Preventive dentistry

١. **Oral hygiene instructions(OHI)**:brushing,flossing

٢. **Diet modification**: ↓sugar frequency, soft drinks

٣. **Flouride** :

- **community water flouridation**-decrease caries in general population
- **Toothpaste** -NAF(٢٥٠-١٠٠٠ ppm)
- **rinses** -NAF(٢٢٠ ppm daily,٩٠٠ ppm/wk)
- **Fluorides gel** -(٩٠٠٠-١٢٣٠٠ ppm NAF)-٤ min application
- **Varnish**-(٥%NAF ٢٢٦٠٠٠ppm)- first apply silver nitrate, apply twice/year
- **Silver diamine flouride(٣٨%)**
- **pre-reacted** glass-ionomer (PRG) Barrier Coat that contains high levels of controlled-release fluoride.

# Preventive dentistry

٤. **Calcium and phpsphate** : casien phosphopeptide-amorphus calcium phosphate(CPP-ACP)- gum,paste, or mouthrinse. Used for sensitive teeth, ECC, hypoplasia, florosis

٥. **Fissure sealant** :high risk patients, any age, primary and permanent

٦. **Chlorhexidine (CHX)**:٠,١ to ٤٠% in solutions, gels, chewing tablets, and varnishes

٧. **Xylitol**: non-cariogenic sugar substitute. Xylitol is available in many forms (e.g., gums, mints, chewable tablets, lozenges, toothpastes, mouthwashes, oral wipes).(٣-٨gm/day)

# Florosis

- Dose- related : threshold dose ٠,١mg/kg wt
- Affect Enamel matrix formation
- Mild, moderate, severe

- Toxic dose of flouride:٥mg/kg wt.

# Restorative materials

١. **Amalgam**: simple.quick,cheap,durable
٢. **Composite**: adhesive,aesthetic,less wear
٣. **Glass ionomer**: adhesive, aesthetic, flouride
٤. **Resin-modified glass ionomer** : simple handling
٥. **Polyacid -modified composite:** compomers
٦. **Stainless steel crown /ssc**: durable

# Stainless steel crown

- **Indications:**

١. **Extensive decay** (line angle destroyed,, or caries on ٣ or more surfaces).

٢. **Pulp therapy**: pulpotomy or pulpectomy

٣. **Developmental defects**: hypoplastic teeth( primary or permanent).

٤. **Crown fracture** (trauma).

٥. **G.A(General anesthesia):**high risk pts

# Minimal interventions

- **A traumatic restorative technique(ART)**: no access to modern dental equipment, hand instruments, GIC filling

- **Preventive resin restoration(PRR)**: filling +fissure sealant

١. Enamel lesions
٢. Incipient lesion in dentine
٣. Small class ١

# Pulp therapy for primary teeth

**Contraindications:**

- Congenital heart diseases: infective endocarditis
- Medically compromised pts.: leukemia , nephrites, uncontrolled DM

**indications:**

- Bleeding disorders-haemophelia
- Oligodontia

- *the cooperation of the patient-very important factor*

# Pulp therapy for primary teeth

١.**Indirect pulp capping**

٢.**Pulpotomy:**

*theraputic agents* :MTA,formcresol,ferric sulphate, electrocautery

٣.**Pulpectomy :**

*Obturation materials* : zinc oxide euginol cement, vitapex(calcium hydroxide+iodoform)

# Pulp therapy for immature permanent teeth

١.**Indirect pulp capping**

٢. **Direct pulp capping**: small pulp exposure

٣, **Pulpotomy** (Apexogenesis): Induce root closure

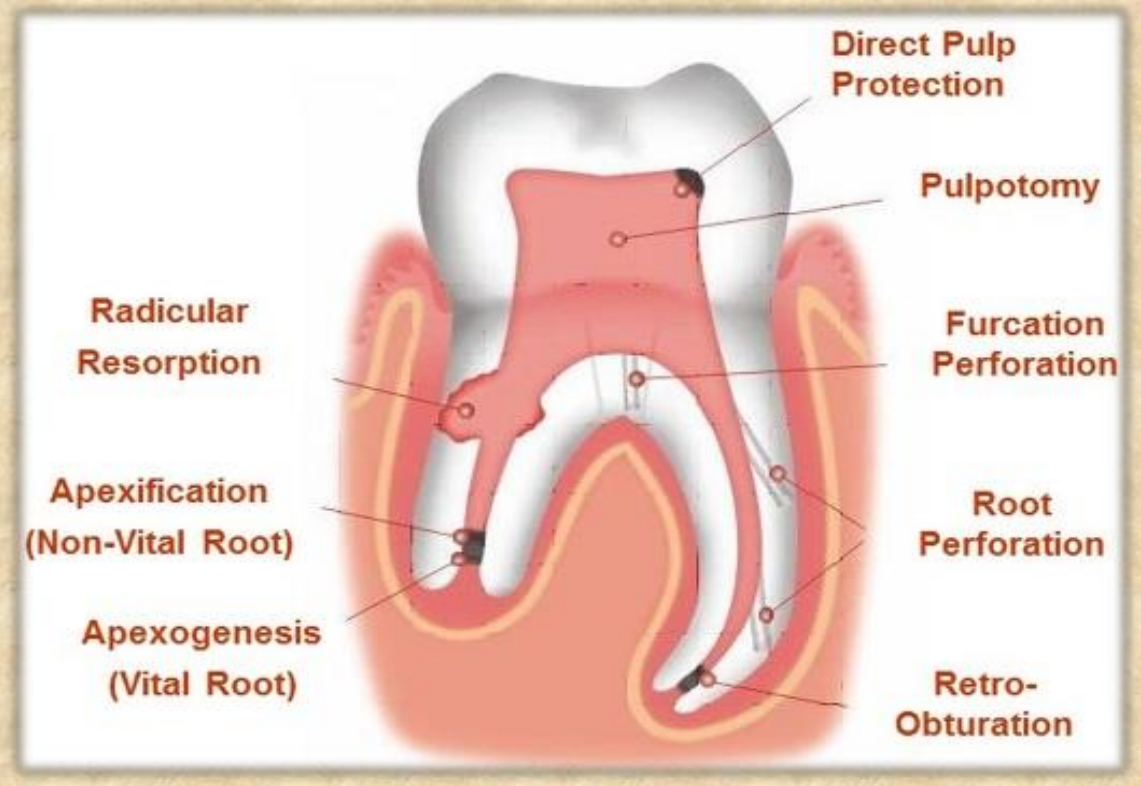
**a.Carious** exposure :vital

**b. traumatic** exposure : Partial pulpotomy (*CVEK pulpotomy*):١-٣ mm coronal pulp exposure

**Theraputic agents**: ( MTA, calcium hydroxide)

٤. **Pulpectomy**,(Apexification): open apex necrotic pulp,( MTA, calcium hydroxide )

# Clinical applications of MTA



# Trauma managment

- **Predisposing factors**
- Class ١١ div ١
- Overjet :٣-٦ mm

- **Trauma to primary teeth**

١. **Luxations**: most common injuries to primary teeth

٢. **Concussion** :ligament injury, no mobility

٣. **Subluxation**:slight mobility, not displaced

- Management :x-ray, soft diet, explain possible sequelae, follow up

# Trauma to primary teeth

٤. **Intrusive luxation**: upper ants, palatal displacement
leave to re-erupt , extraction

٥. **Extrusive and lateral luxation**: depend on extent of mobility

٦. **Avulsion**: should not re-implanted

- **Fractures of primary teeth**
- **Crown F /no pulp**: composite, GIC, strip crown
- **Crown F /pulp**: pulpectomy,ext
- **Crown/root F**: ext, small root piece in socket leave
- **Root F**: no treatment, depend on extent of mobility

# Complication of trauma to primary teeth

- **Complications to primary teeth**:
  Pulp necrosis, gray discoloration, abcess, Internal resorption, ankylosis.

- **Complications to Permanent teeth**:
  Hypoplasia, dilaceration (crown or root) , displacement , resorption of tooth germ.

# Crown and root fractures of permanent teeth

- **Crown F without pulp**: smooth sharp edge/restore

- **Crown F with pulp***:*

١. incomplete root (open apex):

**Vital***: CVEK* pulpotomy (apexogenesis)

**necrotic** : apexification

٢. complete root: RCT

- **Root Fracture :**

١.coronal –reposition, rigid splint ٤ months, follow up ٥ years

٢.apical part—no treatment

necrotic –RCT for coronal part

# Luxations of permanent teeth

١. **Concussion and subluxation** : releave from occlusion, soft diet ٢ wks

٢. **Extrusion and lateral luxation** :reposition ,flexible splint ٢wks, mouth rinse CHX ٠,٢% , antibiotic

٣. **Intrusion**: -Incomplete root: re-erupt,,

-complete root -reposition ,necrotic RCT in ٢١ days

٤. **Avulsion**: ٦٠ min ,reimplant immediately,,,,,,,don't use water

# THANK YOU