



सत्यमेव जयते
Ministry of Health & Family Welfare
Government of India



Training Manual on Oral Care for Medical Officer at Ayushman Bharat - Health and Wellness Centres



**Training Manual on Oral Care for Medical Officer
at Ayushman Bharat - Health and Wellness Centres**

2021



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Chapter 1: Primary Care in Oral Health

World Health Organization has defined 'Oral Health' as a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing. (WHO, 2012)

Oral health is an important part of general health, affecting not only the individual, but also the broader health system and economy. The consequences of widespread poor oral health can be seen on the personal, population, and health systems level, as caries and periodontal diseases deteriorate the individual health and wellbeing, decrease economic productivity, and act as significant risk factors for other systemic health ailments. Approximately 33% of adult population suffers from dental caries and 16% from periodontal problems which are easily preventable. Indians have relatively high incidence/prevalence of dental caries of permanent teeth and about 16% with periodontal problems. About a third of the population suffers from dental caries that require treatment. There is also a difference in oral health status between urban and rural populations, with enormous disparities in access to quality oral health care, predominantly in rural areas. India's 60-65% population is living in rural areas, where there is limited access to oral health care system. 40-45% of population have dental caries, often leading to pain and discomfort. More than 90% of the population has periodontal diseases. 19-32% of population aged more than 65 years is edentulous while 12.6 per one lakh population have oral cancer. The growing incidence of some chronic diseases like diabetes can further have a negative impact on oral health and adds to the burden.

In most developing countries including India, there is a limited access to oral health care services at the primary health care level. There is a huge unmet need for primary health care for oral health. Even at the secondary levels i.e., Community Health Centers and District Hospitals, where Dental surgeons are posted, comprehensive oral health services are largely unavailable due to inadequate instruments, equipment and dental materials. Currently assured oral health services are largely available at tertiary level which are mostly concentrated in urban areas. This leads to significant gap in demand and availability of services.

The National Oral Health Programme (NOHP), was launched in the year 2014-15 to address this issue by strengthening the public health facilities of the country for an accessible and affordable oral health care delivery. It provides support to states to set up Dental Care Units at District Hospitals and lower level facilities by equipping them with appropriate manpower, equipment and consumables.

¹ Operational Guidelines for Oral Health care at Health and Wellness Centres

² Burden of Oral Diseases (Multi Centric Survey 2007)

Comprehensive primary health care- Oral Health:

The National Health Policy, 2017 recommended strengthening the delivery of primary health care, through establishment of “Health and Wellness Centers” (HWCs) as the platform to deliver Comprehensive Primary Health Care (CPHC).

Ayushman Bharat- HWCs is an attempt to move from a selective approach to health care to delivering comprehensive range of services spanning preventive, promotive, curative rehabilitative and palliative care. As part of this initiative, about 1,50,000 existing Sub- Health Centres (SHCs) & Primary Health Centres (PHCs) in rural and urban area, will be transformed to Health & Wellness Centres (HWCs) to deliver Comprehensive Primary Health Care, that is universal and free to users, with a focus on wellness and the delivery of an expanded range of services close to the community. The wide range of services provided at these Health and Wellness Centres will encompass strengthening of existing Maternal and Child health and communicable disease related services and roll out of additional services such as Non-Communicable diseases, Oral health, Mental health, ENT, Ophthalmology, elderly care, palliative care and trauma care. Thus HWCs provide an opportunity to strengthen the delivery of integrated oral health care services in the country.

Basic oral health care has been introduced as one of the elements of Comprehensive Primary Health Care delivered through Health and Wellness Centers to expand the availability of all aspects of oral health including referral to appropriate health facilities.

This module will elaborate on roles and responsibilities of Medical Officer in provision of primary oral health care.

Chapter 2: Service Delivery Framework

The organization of services under AB- HWCs focuses on strengthening continuum of care across levels of care. Hence the delivery of quality services is envisioned as joint team effort of ASHAs at community level, Community Health Officers and Multi-purpose Workers at SHC- HWC level, Medical Officer at PHC- HWC level and specialists at secondary tertiary level care.

The service delivery begins with the ***ASHAs at Community Level***. Their role primarily is to promote healthy behaviors and create awareness about common risk factors. ASHAs would also be empowered with skills to identify common oral diseases, provide symptomatic pain relief, facilitate referral in case of emergencies and provide follow up care for patients undertreatment. In addition, ASHAs are expected to support the HWC team at community and various school oral health programs.

At HWC-SHC level, the Community Health Officer/ Mid-Level Health Providers and MPWs have a major role to play in early identification of nine common oral conditions, management of simple oral health problems with symptomatic treatment referral of any complicated oral health problems, follow up of all cases referred and organizing community programs for promoting oral hygiene and health

At HWC-PHC, if dentist is available, preventive, curative and rehabilitative services will be provided for oral conditions as per protocols for primary care. In case of non-availability of dentist, MO will provide the basic oral health care services such as emergency management of pain, uncontrolled bleeding, tooth avulsion and first aid management of trauma, and Atraumatic Restorative Treatment for deep occlusal cavities. In addition, PHC team will focus on oral health promotion, coordinate with school health programme, mentoring of SHC- HWC teams and monitoring delivery of services through HWCs.

At the referral centre, management of all oral diseases/conditions as per clinical protocols and supporting outreach activities under the facility catchment area.

Table 1 – Service Delivery Framework

Care at Community Level	Care at SHC-HWC	Care at PHC-HWC/UPHC-HWC
<p>Awareness generation and Health promotion (ASHAs, MPW and CHO)</p> <ul style="list-style-type: none"> Through home visits, VHNDs, VHSNC, MAS meetings etc. Measures for health promotion with special focus on pregnant women, mothers, children, elderly and medically compromised. Oral Health Education-addressing oral hygiene practices, habits, myths and taboos. Prevention of common oral diseases through dietary advice and tobacco cessation. <p>Screening and early detection</p> <ul style="list-style-type: none"> Population based screening for 0-18 years (under RBSK) and completion of Community Based Assessment Checklist (CBAC) for people > 30 years. Assessment of individuals for oral health conditions using CBAC form by ASHAs. Early identification of specified common conditions including pain and any potential malignant lesion by ASHAs and MPW and referral to CHO at Health and Wellness Centres. Follow-up care of identified cases for treatment adherence during home visits and outreach activities 	<p>Community Health Officer</p> <p>Screening and Identification</p> <ul style="list-style-type: none"> Opportunistic dental screening for individuals (18-29 years) who are not covered under CBAC for NCD screening. Early detection, screening and first level management of common dental diseases Identification and referral for tooth loss, mal-alignment of teeth/jaws, dental fluorosis, premalignant lesions, and oral manifestations of systemic conditions to facility where dentist is available and dental lab is functional. <p>Management</p> <ul style="list-style-type: none"> First level management of common dental diseases like arresting bleeding, temporary pain relief, antibiotic/anti-inflammatory medication etc. Maintaining case records and providing follow up care. Coordinate with RBSK and School health program to ensure oral health check-up for all children. Mentor ASHA and MPW for imparting preventive and promotive oral health education in coverage area Oral Health Promotion Oral health Promotion among out patients through: IEC activities Oral Health Education – Oral hygiene practices, habits, addressing myths and taboos Prevention of common oral diseases through dietary advice and tobacco cessation 	<p>Screening and identification (MO/dentist)</p> <ul style="list-style-type: none"> Opportunistic screening for dental conditions Examination of cases referred by ASHAs, MPW, CHO <p>Management</p> <p>MBBS MO:</p> <ul style="list-style-type: none"> Emergency management of pain, uncontrolled bleeding, tooth avulsion and first aid management for maxillofacial trauma. Topical application of fluoride for caries prevention. Atraumatic Restorative Technique (ART) after adequate training. <p>Additional services if dentist available:</p> <ul style="list-style-type: none"> Restoration of carious teeth using Glass Ionomer Cement (GIC) or Composites. Sealing deep pits and fissures with sealants when indicated. Scaling, root planning and polishing of teeth. Emergency access opening and pulp therapy to address infections of dental origin. Address fractured restorations and faulty restorations. Simple extractions and abscess drainage. Emergency management of dental/ facial trauma. Referral to CHC/DH for identified cases for tooth loss, mal-alignment of teeth/jaws, cleft lip/palate, dental fluorosis, premalignant lesions, and oral manifestations of systemic conditions Coordinate with school oral health programs, RBSK, NPPCF, RCH, ICDS, NTCP. Monitoring of activities undertaken at SHC-HWCs Capacity building of primary healthcare team at SHC-HWCs.

Role of Medical Officer:

1. Health promotion, health education

- Raising awareness on support networks, programmes and available services at higher centres to address habits such as tobacco and alcohol consumption.
- This is to be complemented by inter personal communication and group health education, and using platforms such as the Village Health and Nutrition Day (VHND), Meeting at Village Health Sanitation & Nutrition committee (VHSNC) or Mahila Arogya Samiti (MAS)
- Raising awareness on risk factors for developing caries and periodontal diseases.
- Demonstrating tooth brushing technique
- Reinforcing consumption of fibre rich food which are protective for tooth and gum health. Discourage consumption of aerated drinks, sticky and sweet food.

2. Management and Referral

- *Assured services (if only MBBS doctor available) -*
- Emergency management of pain, uncontrolled bleeding, tooth avulsion and first aid management for maxillofacial trauma.
- Topical application of fluoride for caries prevention.
- Atraumatic Restorative Technique (ART) after adequate training.

Others-

- Reinforced, one-on-one behavioral intervention for tobacco and/or alcohol cessation during all possible interactions with individuals/ families
- Identification and appropriate referral for cases of malocclusion, suspected cancer, dental fluorosis, cleft lip/ palate
- Decipher medical history and forewarn about possible oral health complications like pregnancy induced gum changes/ epulis, dramatic periodontopathy, effects of intake of anti-epileptic medicines/ antihypertensive
- Coordinate with school oral health programs, RBSK, NPPCF, RCH, ICOS and NTCP.
- Insist on regular oral health checkup particularly in special needs groups and geriatrics
- Emphasize on the role of hygiene, particularly in individuals with systemic compromise

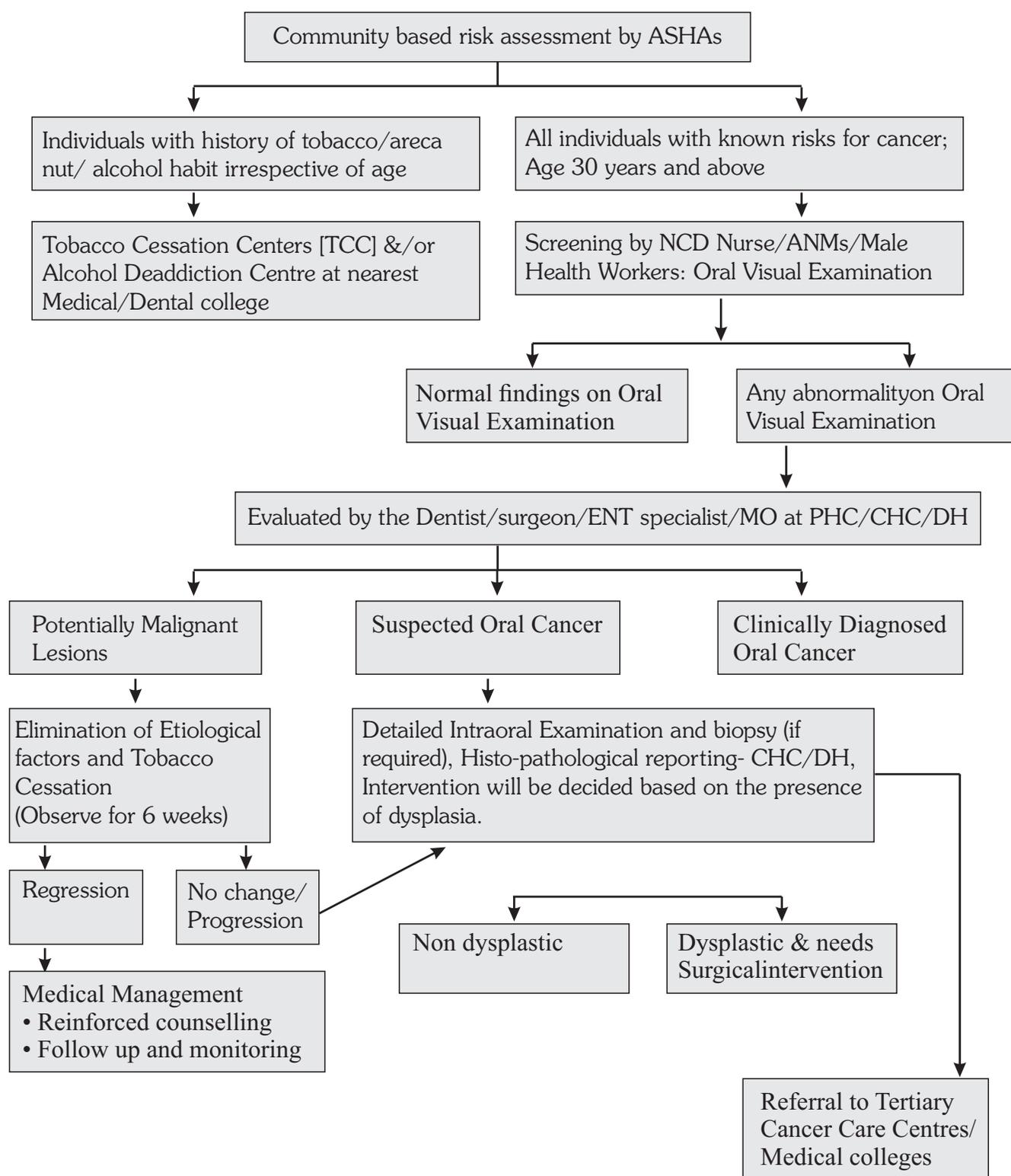
3. Capacity Building

- Medical Officer at PHC will mentor the staff at PHC and primary health care team at HWCs for delivering primary oral health care.
- They will conduct and coordinate oral healthcare trainings for various healthcare workers, school teachers, volunteers and other Self-Help Groups.
- They may also conduct Mock-a-mouth session where they can start role plays for better reception of trainings/ health talks

4. Monitoring and Supervision

- Technical support for PHC staff and staff at HWCs for appropriate maintenance of records and reports on screening, treatment, counselling, referral and follow up and timely submission to higher level.
- Monitoring and ensuring quality care and smooth functioning of oral health services at HWCs.
- Ensure proper inventory management of the health facility to prevent stock out of required consumables and medicines.

Referral pathway for Oral Health Care at Health and Wellness Centres



Chapter 3: Prevention and treatment protocol for common conditions/ diseases

3.1 General Oral Examination Procedure

In all cases the Medical Officer will do a general examination of all patients in the following manner:

1. History Taking

History recording is vital to find out the root cause of the current problem and similar associations in the past. Dental History taking includes asking and recording the following details for the patient presenting with dental problems:

- i. Demographic data- includes Name, Age, Sex, Contact details, Marital status, Residence etc
- ii. Chief complaints- includes recording the symptoms, problems, condition for which patient is seeking medical help
- iii. History of presenting illness- Followed by Chief complaint , includes recording the duration, location, Severity, Aggravation/relieving factors, Associated signs and symptoms etc
- iv. Previous History of Oral Illness- Includes history of problems of Dental origin or exposure to any Dental procedures in past
- v. Previous Medical History- History of Systemic diseases

2. Examination of the Oral cavity

The Oral examination constitutes systematic examination and an evaluation of the hard and soft tissues (see Fig 1) in conjunction with a thorough medical and dental history. The entire mouth should be inspected regardless of the patient's chief complaint and reasons for the visit

In Order to perform an Intraoral Examination following set of medical instruments are required:

- Mouth Mirror
- Gloves
- Torch
- Face mask

Steps involved in an Intra Oral systematic examination includes:

Step 1: Examination of Lips

Examine the outer surface and the inner lining of the lips along with borders. The inner part of the lip will be examined by gently turning the lip out. The inner lining would appear wet and shiny in a person with healthy oral cavity. Examine the lips for pigmentation, presence of ulcers, swelling and crusts.

Step 2: Examination of Cheeks

Examine the inside of the cheeks, using a mouth mirror to push back the inner part of the cheek to one side. The gloved index finger can also be used. The inner part should be smooth, moist, shiny and pink in color. You should inspect for change in color, presence of any swelling and patches.

Step 3: Examination of Gums

Inspect the gums for color, consistency, contour and size. Healthy gingiva is pink, and regular.

Step 4: Examination of Floor of the mouth

Examine by asking the patient to touch the roof of the mouth with tip of his tongue. Check for pooling of saliva in floor of the mouth. Any abnormal swellings or patches or crushing at the floor of the mouth should be noted.

Step 5: Examination of Tongue

The top of the tongue will be examined first, followed by the sides of the tongue, which may stretch the tongue slightly. The tip of the tongue will be held with a piece of gauze and the tongue moved from one side to the other. To examine the top of the tongue ask the patient to protrude the tongue forward, keeping the mouth open. To inspect the lower surface, patient is instructed to touch the roof of the palate with tip of his tongue. Particular attention should be paid to the sides of the tongue, movements of tongue and the floor of the mouth, as cancers develop in these areas more frequently than on the top of the tongue or the palate. Oral cancers may have the appearance of ulcers, masses, red areas, or white areas.

Step 6: Examination of Palate:

Hard Palate (bony part of palate): Examine the hard palate by using a mouth mirror. It is pink in color, firm and shows a corrugated pattern in anterior portion. Examine for change in color, swelling, ulcer, and cleft. Soft Palate (soft part behind hard palate): Normally, it is reddish pink in color. Examine for swelling or ulcers.

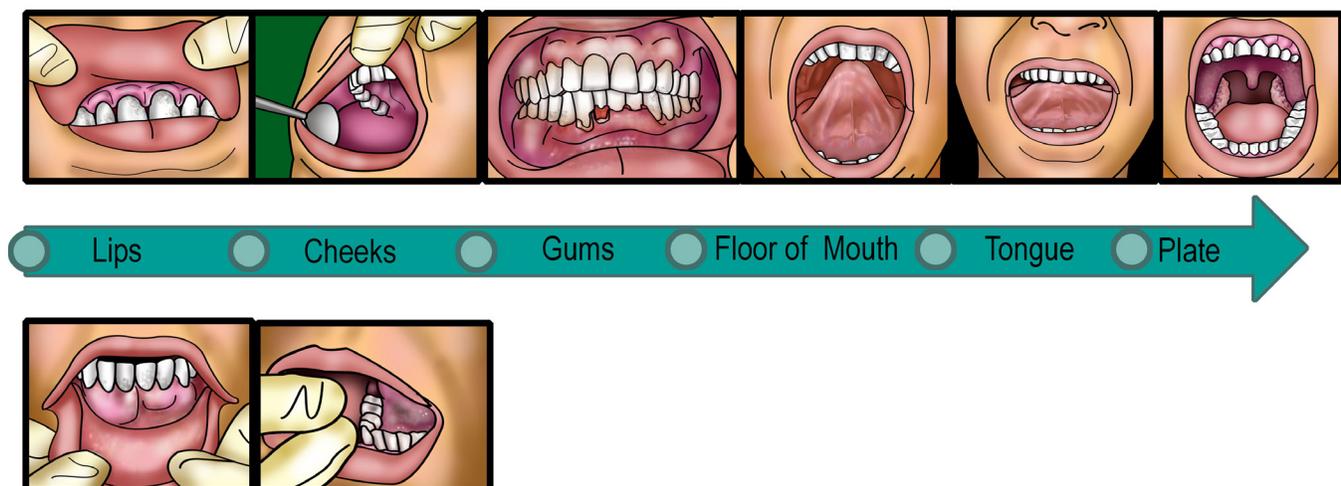


Figure 1 Steps in Systematic Oral Examination

Step7: Examination of Teeth:

Examine the surfaces of all teeth. Look for the following- tooth decay, missing teeth, brown/black discoloration on teeth, small pits and fissures, cavities on the tooth/between teeth.

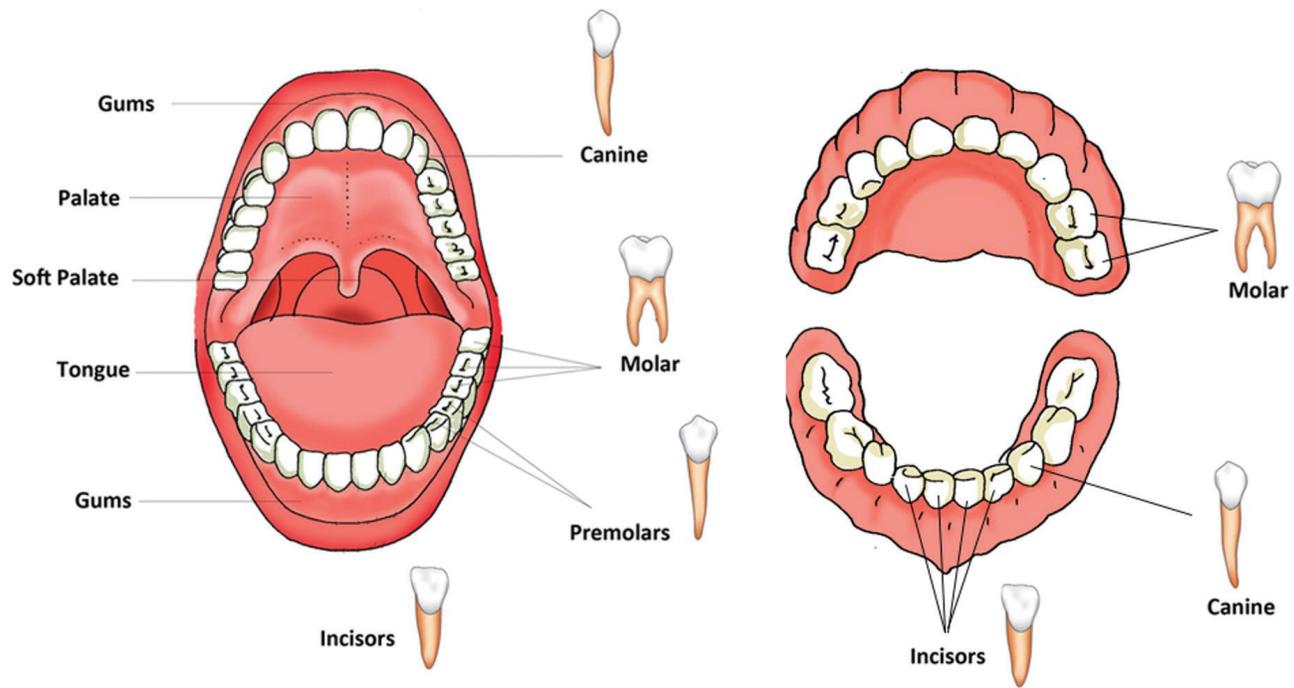


Figure 2 Dentition in Adults and Children

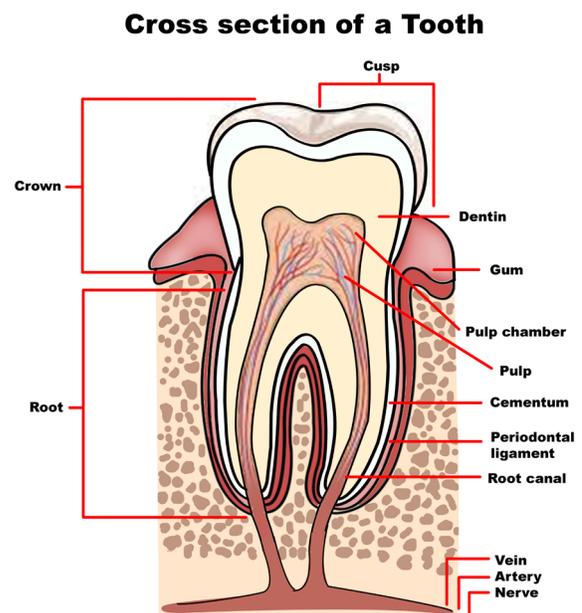
Morphology of Tooth:

Parts of teeth

Broadly tooth is divided into two parts- The visible white part above the gumline is called crown and the part below the gumline is called root.

Crown is covered by a outermost hardest part called as Enamel. Enamel protects the tooth. The inner part of enamel that is less hard and slight yellow in color is called as Dentin. It surrounds the Pulp containing blood vessels and nerves of the tooth. Blood vessels and nerves enter the pulp chamber through root canal. In the root portion, dentin is covered by Cementum.

Humans have two set of teeth: Milk teeth/baby teeth/ primary teeth and adult teeth / permanent teeth. There are total thirty two permanent teeth in adults, eight incisors, four canines, eight premolars and twelve molars in both upper and lower arches.



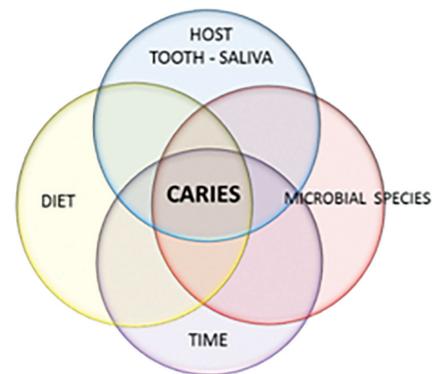
Important points to keep in mind:

- Wash your hands before starting oral examination and use disposable gloves
- Briefly explain to the patient what the examination involves
- Instruments need to be sterilized after each time they are used

3.2 Common Oral Hard Tissue Diseases/ Conditions:

3.2.1 Dental Caries/ tooth decay

- Dental caries is a multifactorial microbiological tooth disease characterized by demineralization of inorganic substance and dissolution or destruction of organic substance of the tooth. Dental caries primarily affects calcified structures of the teeth. Dental caries is mostly associated to the lifestyle factors, but sometimes it can be hereditary. Dental caries is characterized as brown or black spot or cavity on the tooth surface. If left untreated it can progress further leading to pulpal involvement.



- **Risk factors-** Consumption of sweet and sticky food (refined carbohydrates), in between snacking, lack of proper oral hygiene can lead to formation of caries.
- **Signs and Symptoms-**
 - Initial stages: Black or brown spot or discoloration on tooth surface. Patient often complains of sensitivity to hot or cold, sweet or sour food. It often leads to food lodgement in the cavity.
 - Later stages: If left untreated in addition to symptoms above dental caries can progress further leading to the involvement of pulp. Patient presents with severe pain which is often aggravated on lying down or consumption of food. It can also be associated with swelling and pus discharge.

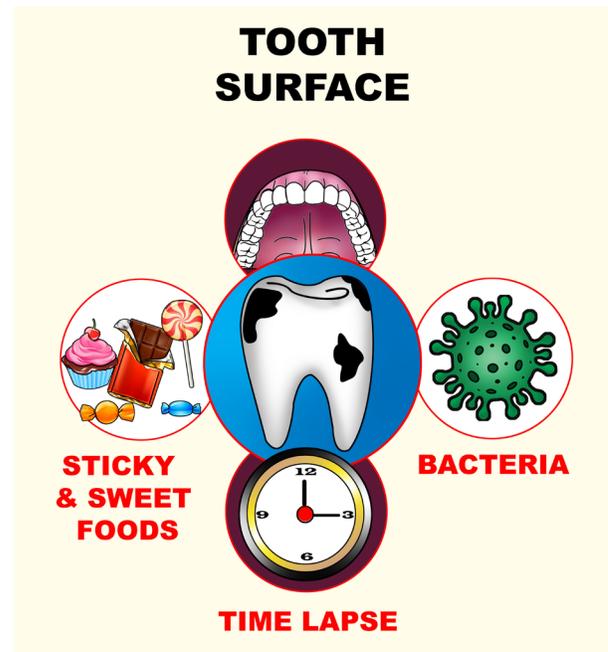


Figure 3 Risk Factor for Dental Caries

- **Prevention -**
 - Meticulous oral hygiene through proper brushing (annexure)
 - Dietary modifications: Reduced intake of refined carbohydrates and in between meal snacking. Consumption of food that stimulates saliva production.
 - Rinsing/swishing with water after consumption of any type of food
 - Topical fluoride application – Only for individuals with the risk of Dental caries



Figure 4 Dental caries affecting Molar



Figure 5 Dental Caries affecting Incisors

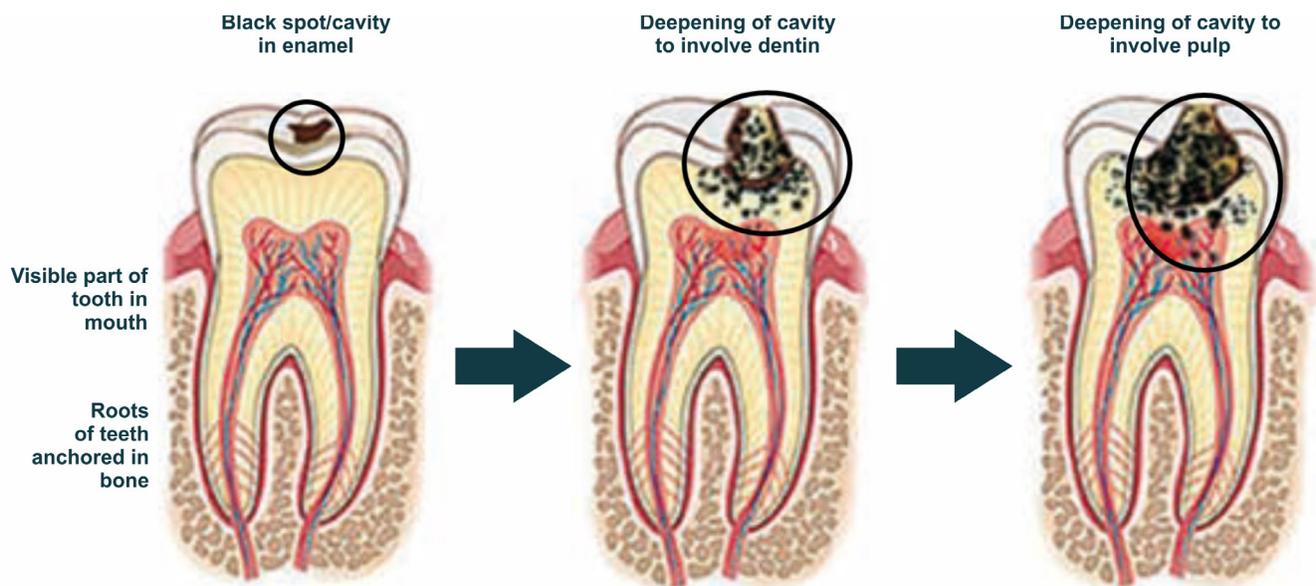


Figure 6 Progression of Dental Caries

Early childhood caries (ECC) has also been called nursing caries, nursing bottle caries, and baby bottle tooth decay. The cavities are mostly seen on upper front teeth but can affect other teeth also. This is only seen in small children (0-6 years age group), mainly in those who are drinking bottled milk.

ECC leads to early loss of milk teeth, delayed eruption of permanent teeth, difficulty in eating, pain, abscess and malnourishment.

Clinical Features:

- White spots on teeth initially along the gum line
- Brownish/black discoloration



Figure 7 Early Childhood caries

Risk Factors:

- Teeth exposed to sugary liquids for long periods of time.
- Children who fall asleep with a bottle in their mouths or who carry a bottle and drink sweetened liquids throughout the day.
- Lack of proper oral hygiene
- Frequent consumption of sticky/sweet food in-between meals
- Continuous presence of sweetened milk/sticky/sweet food in the mouth
- Prolonged Bottle feeding

3.2.1.1. Management of Caries -

Symptomatic management:

1. Dental decay unaccompanied by swelling or abscess: Treatment comprises of removal of the decay part of the tooth and restoring them with the restorative materials like amalgam, composites, glass ionomer cements etc. Restoration requires adequate training and should be performed by Dentists at CHC/DH.
2. Dental decay accompanied by swelling or abscess: Immediate pain relief should be provided through prescription of Analgesics and Antibiotics. Incision and drainage of the abscess should be performed for symptomatic relief.
3. Dental decay involving pulp: Treatment comprises of Endodontic Root Canal Treatment where nerves and vessels of tooth are removed and replaced with the restoration materials. Root Canal Treatment requires extensive training and should be performed by Dentists at CHC/ DH.

Other Management:

1. Atraumatic Restorative Technique (ART): A method in which the infected dentine and soft debris is excavated from the cavity using excavators, generally done for deep cavities on molars. Medical Officers of PHC-HWCs can perform ART treatment after adequate training. Details about the ART treatment is mentioned later.
2. Topical Fluoride application: fluoride treatments involves application in the form of rinse, foam, gel, or varnish. The treatment may be applied with a swab, brush, tray, or mouthwash. Details about the procedure is mentioned later.

3.2.1.2 Atraumatic Restoration Treatment (ART)

The ART was developed in Tanzania in mid-1980s as part of a community-based primary oral health program. The technique consists of caries removal using hand instruments only, followed by restoration of the cavity with an adhesive filling material, such as glass-ionomer cement (GIC)

As the name suggests this treatment procedure is atraumatic to the tooth. Word atraumatic means it provide minimal or no trauma to the tooth. The procedure involves the removal of soft and demineralized tooth tissue, with the help of hand instruments alone, followed by restoration with an adhesive restorative material, usually glass-ionomer cement. This technique is recommended by the World Health Organization for bringing

dental treatment to people who would not normally have access to dental care. It was also developed as a means of treating dental caries in areas where extraction would otherwise prevail.

Considerations for Atraumatic Restorative Treatment (ART)

- a. A method in which the infected dentine and soft debris is excavated from the cavity, generally done for deep cavities on molars.
- b. Once it is assured that a healthy, hard layer of dentine covers the underlying pulp, restorative materials like Glass Ionomer Cement or Zinc Oxide Cement mixed with eugenol(clove oil) are used to pack the cavity
- c. It is important to assure that there is no bleeding spot / pulp exposure once caries is excavated
- d. ART can be done only in cases where there is no pain and the cavity is not involving the pulp chamber. Deep cavities (involving pulp) with no pain are not recommended for ART Treatment.

Indications	Contraindications
<ul style="list-style-type: none"> - Small and Shallow cavities (involving dentine only) that are accessible to hand instruments - In High-risk caries cases as intermediate treatment - Dental caries not involving pain or any form of swelling 	<ul style="list-style-type: none"> - Presence of Swelling or abscess with the origin to the teeth - Carious tooth with pulpal exposure - Tooth with acute or chronic pain - Caries is inaccessible to hand instruments - Caries is present in proximal areas (in between teeth)

Why ART?	Why adhesive material?
Less trauma to the tooth during preparation	Chemical adhesion
Low cost of hand instruments	Minimizes cutting
No need of anesthesia	Fluoride release-prevents and arrests caries
Simplified infection control	Does not cause pulp inflammation
Reduces physiological trauma to patients	

Instruments	Materials
Mouth mirror	Cotton rolls
Tweezer	Cotton pellets
Hatchet	Petroleum jelly
Spoon excavator	Plastic strip
Carver	Wedges
Mixing pad and spatula	Type IX Glass Ionomer cement
Plastic filling instrument	
Enamel Hatchet	

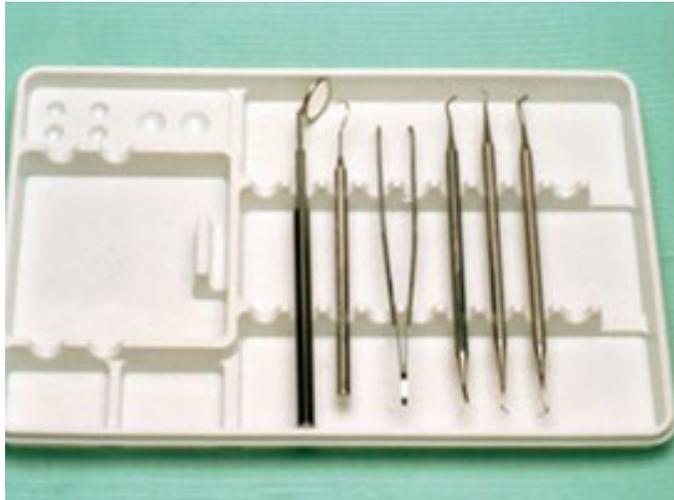


Figure 8 Instruments required for ART



Figure 9 Glass Ionomer cement for filling of carious lesions

Procedure

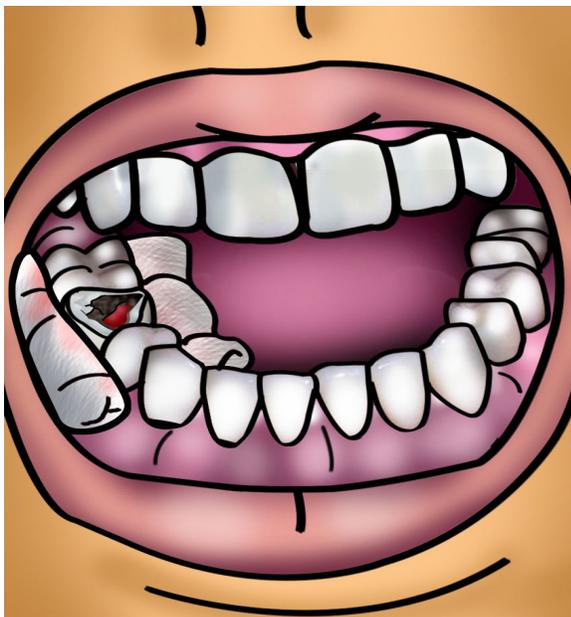
1. Position- Patient-supine on a simple table with head support and operator-head of table
2. Tooth Isolation- Isolate tooth with cotton.
3. Preparing the cavity
 - a. Clean the tooth surface to be treated with wet cotton
 - b. Soft caries is removed using spoon excavators in the circular scooping movements. If the opening of hole is narrow, Widen the entrance of lesion with hatchet Place the blade of the dental hatchet into the cavity and turn the instrument forward and backwards like turning a key in a lock.
4. Cleaning the prepared cavity:
 - a. Clean the prepared cavity using chemical solvents like dental conditioner or tooth cleaner or the liquid supplied with the glass-ionomer cement
 - b. 10% solution of polyacrylic acid is used cavity cleaning or conditioning. Apply a drop of conditioner on a pad or the slab. Dip a cotton wool pellet in the drop and clean the entire cavity for 10-15 seconds.
 - c. Immediately wash the cavity after conditioning with the cotton pellet dipped in clean water and let the cavity dry
5. Mixing of Restorative material:
 - a. Follow the manufacturer instructions carefully with respect to the powder and liquid ratios.
 - b. Place powder on the glass slab or mixing pad and using mixing spatula divide the powder into two equal portions
 - c. Dispense a drop of liquid next to the powder and start mixing the one half of the powder using spatula. Roll the powder into the liquid gently wetting the particles without spreading them around.

- d. As soon as all powder particles are wetted, the second portion is folded into the mix
 - e. Mixing should be completed within 20-30 seconds depending on the brand of the cement and final mixture should look smooth like chewing gum
6. Restoring cavity:
- a. Insert the cement mixture into the prepared cavity immediately. Use applicator/carver to place the small amount of mixture into the cavity and fill the cavity incrementally. Entire procedure should be completed in 30-40 seconds
 - b. Rub a small amount of petroleum jelly on the gloved index finger and press the material firmly into the cavity and remove the excess of the cement with the carver.

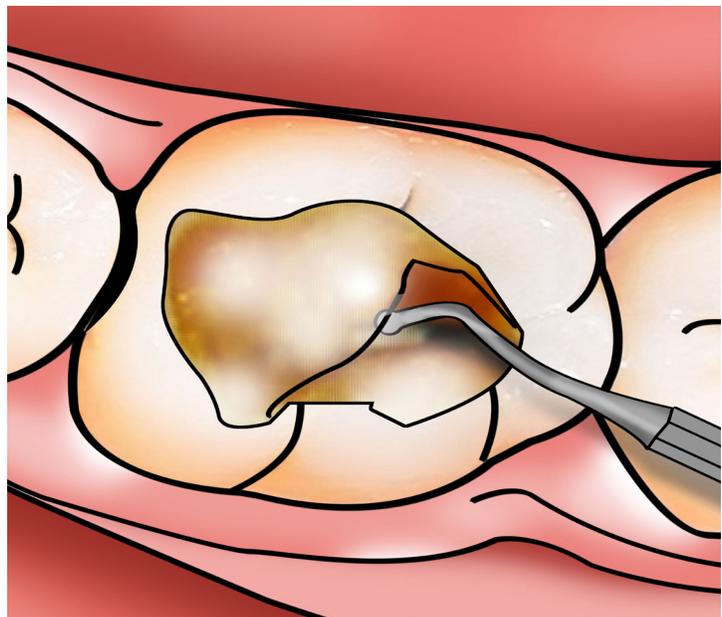
Advantages

- Easily available instruments, less expensive
- Conservation of tooth structure
- No noise
- No water and suction required
- Minimal pain
- Less anxiety
- Minimal operator training
- Steps in Art Treatment

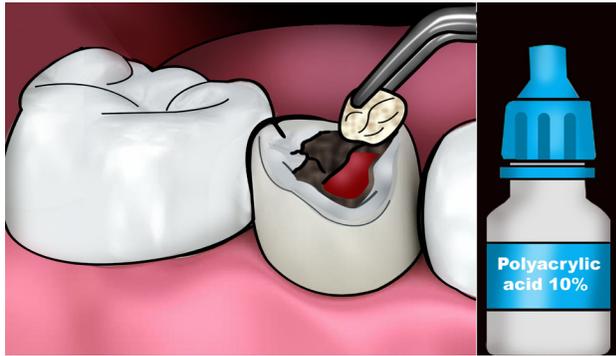
1. Isolation of Carious tooth with Cotton



2. Removal of Soft Caries with Excavator



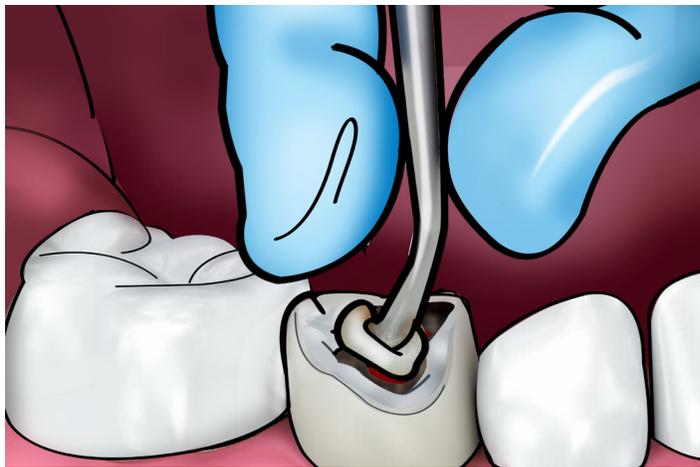
3. Condition prepared cavity with Polyacrylic acid



4. Mix Glass Ionomer cement



5. Filling the conditioned cavity with mixed GIC Cement



6. Carving the finishing the filling



4.2.1.3 Fluoride Application

Topical fluoride treatment is the direct application of fluoride onto the teeth in the form of varnishes, paste, gel or foam. It works by binding to the tooth structure at the molecular level, thereby forming a protective layer. This layer is more resistant to bacterial decay and reduces the risk of caries.

Indications:

- Individuals with the High or Moderate risk of caries
- Patients with reduced salivary flow, or following periodontal surgery, and patients with fixed or removable prostheses
- Patients with exposed roots

Advantages of Topical Fluoride Application -

- Prevention of Dental Caries:** Fluoride treatment is recommended for individuals who are prone to or have a higher risk of developing caries. Direct application of fluoride is especially beneficial in all children shortly after the eruption of new milk or permanent teeth, in order to reduce the risk of developing tooth decay in the future. Fluoride can also be used to 'heal' initial caries lesions which present as white spots on the teeth. These spots are porous and the accumulation of a high concentration of fluoride prevents further decay in the area.

- ii. **Treatment of Sensitive Teeth:** Sensitive teeth can be treated with fluoride application as the protective layer of 'fluorapatite' formed over tooth structure acts as a barrier over the teeth when exposed to cold air or water.

Required instruments and materials:

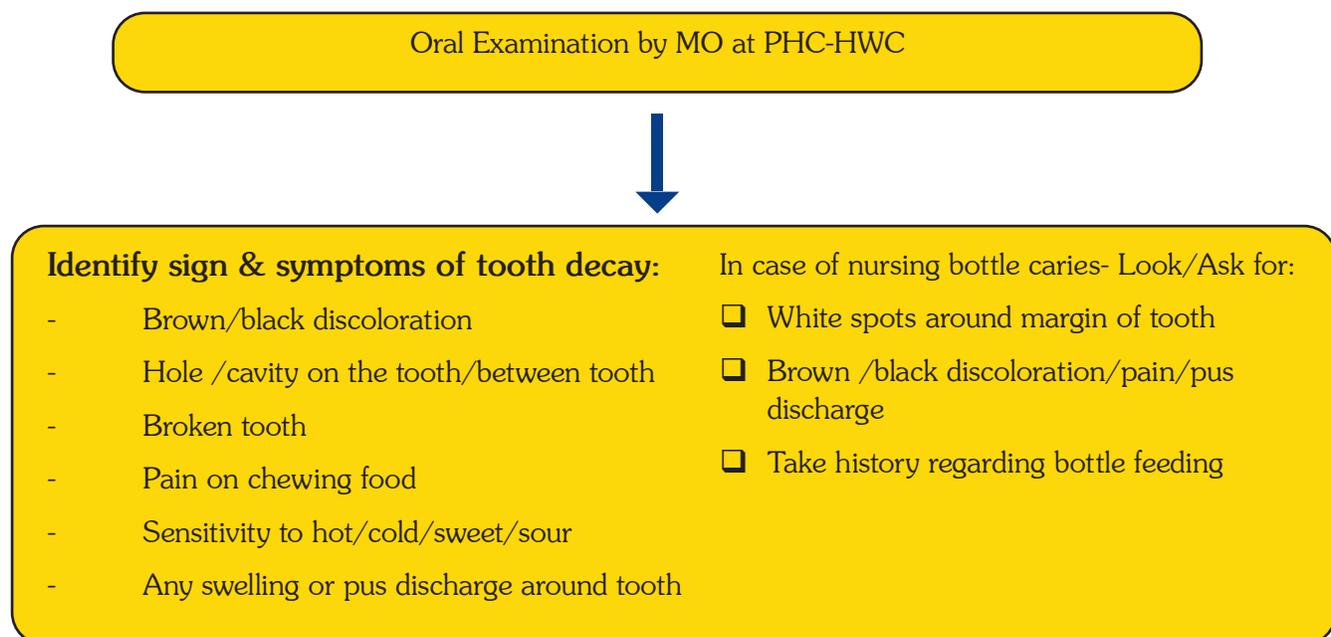
- Applicator tip
- Varnish
- Gauze / cotton

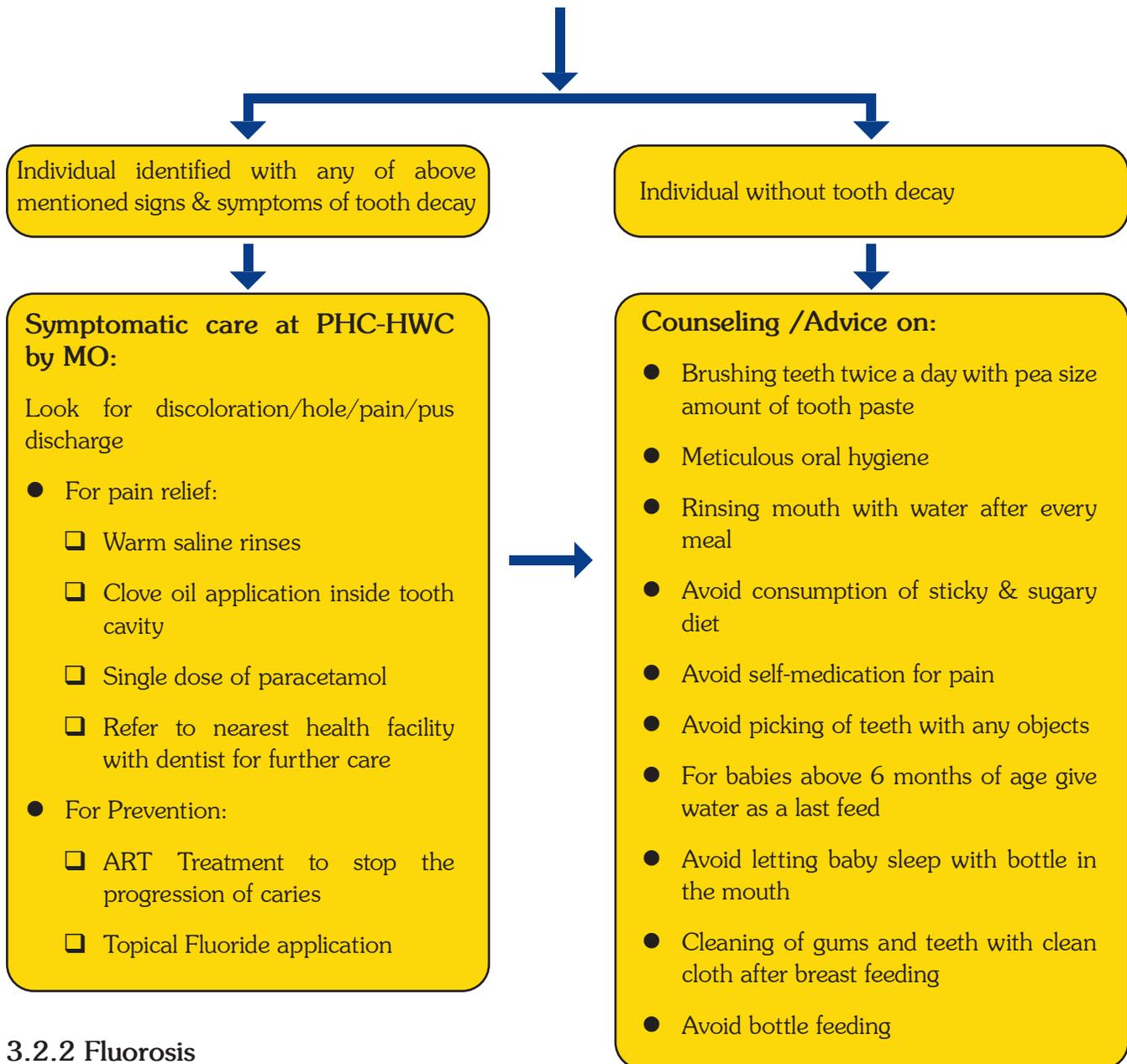
Steps:

1. Wipe off plaque from teeth using brush / gauze
2. Dry the teeth with cotton / gauze / compressed air
3. Put two drops of fluoride varnish on primary teeth and use the brush to apply a thin layer of brush on the tooth. Once the varnish comes in contact with the saliva, it sets.
4. Instruct the patient to not eat foods / drink anything for several hours so that varnish stays in contact for as much time as possible
5. Inform the caregiver that the Varnish will leave a light yellow tinge on teeth till it dissolves or is brushed off several hours later.

Semi-annual application should be recommended. However, care should be taken that Fluoride application should be avoided in the High fluoride endemic areas.

3.2.1.4 Standard Care Pathway for Dental Caries/Tooth Decay





3.2.2 Fluorosis

- What is fluorosis?
 - Teeth have brownish-yellow spots on them and sometimes they also have rough surfaces and jagged margins. The condition could be due to the presence of high amount of fluoride in the drinking water supply and is called Fluorosis.
 - Many areas in our country have more than the normal limits of fluoride, which result in fluorosis. This is a regional problem.
 - The excessive fluoride gets incorporated into the developing teeth and manifests in various forms like chalky white teeth, brownish yellow stains, and pitting on the surface.
 - If the fluoride level is greater than 4 PPM (Parts Per Million) can also cause more debilitating conditions like skeletal fluorosis



Figure 10 Dental Fluorosis affecting lower incisors

- Requirement of optimum fluoride-

It is necessary to mention here that optimum level of fluoride (1ppm) is beneficial for dental health. If optimal amount of fluoride ion gets incorporated into the tooth enamel, it makes enamel less prone to dissolution by bacterial products: acids. One of the reasons why, the dentist prescribes fluoridated toothpaste for children.

- Management-

Referral to the higher centre

ROLE OF THE MO IN DENTAL FLUOROSIS

DO:

- When such cases are reported to PHC MO, he/she should coordinate water sample collection from respective villages or localities for testing presence of high fluoride levels in water.
- If high fluoride levels are confirmed, then engage in further management regarding defluoridation of water, conduct awareness session in community, etc.

ADVISE

- Advise on use of very little (pea size) toothpaste for brushing.
- Advise on use alternative source of water for drinking in fluoride endemic areas

3.2.3 Irregular arrangement of teeth and jaws- Malocclusion

- Signs
 - Excessive crowding of teeth
 - Spacing between the teeth
 - Teeth may be placed abnormally forwards or backwards or be rotated
 - The entire upper or the lower jaw may be placed abnormally forward or backward.
 - A defect in the form of a cleft may be present in the upper lip or palate or both.



Crowding (Crooked teeth)

Figure 11 Malocclusion due to crowding



Figure 12 Deep Bite

- Symptoms
 - Difficulty in pursing lips
 - Unpleasant appearance
 - Difficulty in keeping teeth clean because of the abnormal position
 - Recurring dental decay
- Causes of malocclusion
 - Early loss of milk teeth due to dental decay.
 - Oral habits causing abnormal pressure on teeth and surrounding structures such as thumb and finger sucking, tongue thrusting, mouth breathing, nail biting, clenching and bruxism.
- Untoward effects of malocclusion-
 - Increased chances of dental decay and gum problems
 - The joint between the upper and lower jaw bones can get affected
 - Teeth that are very forward can easily get traumatized due to a blow or a fall.
 - Appearance- Personality
- Prevention-
 - Identification of habits like thumb sucking/ mouth breathing
 - Counselling the parents about correct feeding techniques
- Management-
 - At PHC- identification of malocclusion and health education about brushing technique
 - Providing information about untoward effects and treatment availability at higher center.

3.2.4 Tooth loss

Untreated and advanced dental caries, periodontal diseases, trauma and old age can lead to loss of permanent teeth.

- Untoward effects of missing teeth
 - Migration of other teeth in edentulous area leading to malocclusion
 - Some sharp cusps of isolated teeth may cause a traumatic ulcer
 - Difficulty in chewing, eating
 - Compromised aesthetics

- Management
 - Health education about untoward effects of missing teeth
 - Referral to the higher centre for replacement of missing teeth
 - If person is using dentures, look for ulcers/ epulis/ candidiasis and give symptomatic relief
 - Look for faulty dentures, if any



Completely edentulous



Missing anterior tooth(partial edentulous)



Missing posterior teeth(partial edentulous)

Figure 13 Missing tooth/teeth

3.3 Common Oral Periodontal Diseases/ Conditions:

3.3.1 Periodontal diseases/ gum diseases

Healthy gums are pink in color with some pigmentation. The edges are firmly attached around the tooth, and do not bleed on normal brushing. When oral hygiene is neglected, gums tend to swell and bleed. Early stage of the disease is called Gingivitis.

Signs and symptoms of gingivitis

- Change of color to red from coral pink /pigmented
- Bleeding from the margins of the gum during brushing
- Swollen gums that might bleed even on the slightest touch
- Later, the bleeding may even occur spontaneously. Even at this late stage, the condition may be painless.
- Sensitivity to hot and cold food/water

If Gingivitis is not treated, the disease may progress to involve the surrounding bone, leading to a gap

between the gum and the tooth known as pocket, leading to Periodontitis or Pyorrhoea. The same condition if seen in children is termed as Juvenile Periodontitis.

Symptoms of periodontitis

- Itching sensation around tooth and on gingiva
- Dull constant ache
- Food lodgement/ impaction
- Loose teeth/ increase in mobility of teeth
- Bad odour from the mouth
- Migration of teeth and exposed root surfaces- gingival recession
- Sensitivity to hot and cold food/water



Figure 14 Healthy Gingiva in Adults



Figure 15 Healthy Gingiva in Children



Figure 16 Gingivitis



Figure 17 Periodontitis

• Causes:

- Gum diseases are caused by plaque accumulation. Bacteria present in plaque form toxic substances that may cause inflammation of gums.
- If plaque is not removed regularly, it may harden to form calculus (tartar).
- This tartar with its rough surface attracts further deposition of plaque and bacteria, sustaining the inflammation and destruction of supporting bone.

- Management:
 - Symptomatic relief- Suggest warm saline rinses, suggest not to stop brushing
 - Management of abscesses
 - Refer to the nearest dentist for mobility of teeth and other complications.

ROLE OF THE MO IN HANDLING PERIODONTAL DISEASES/ GUM DISEASES

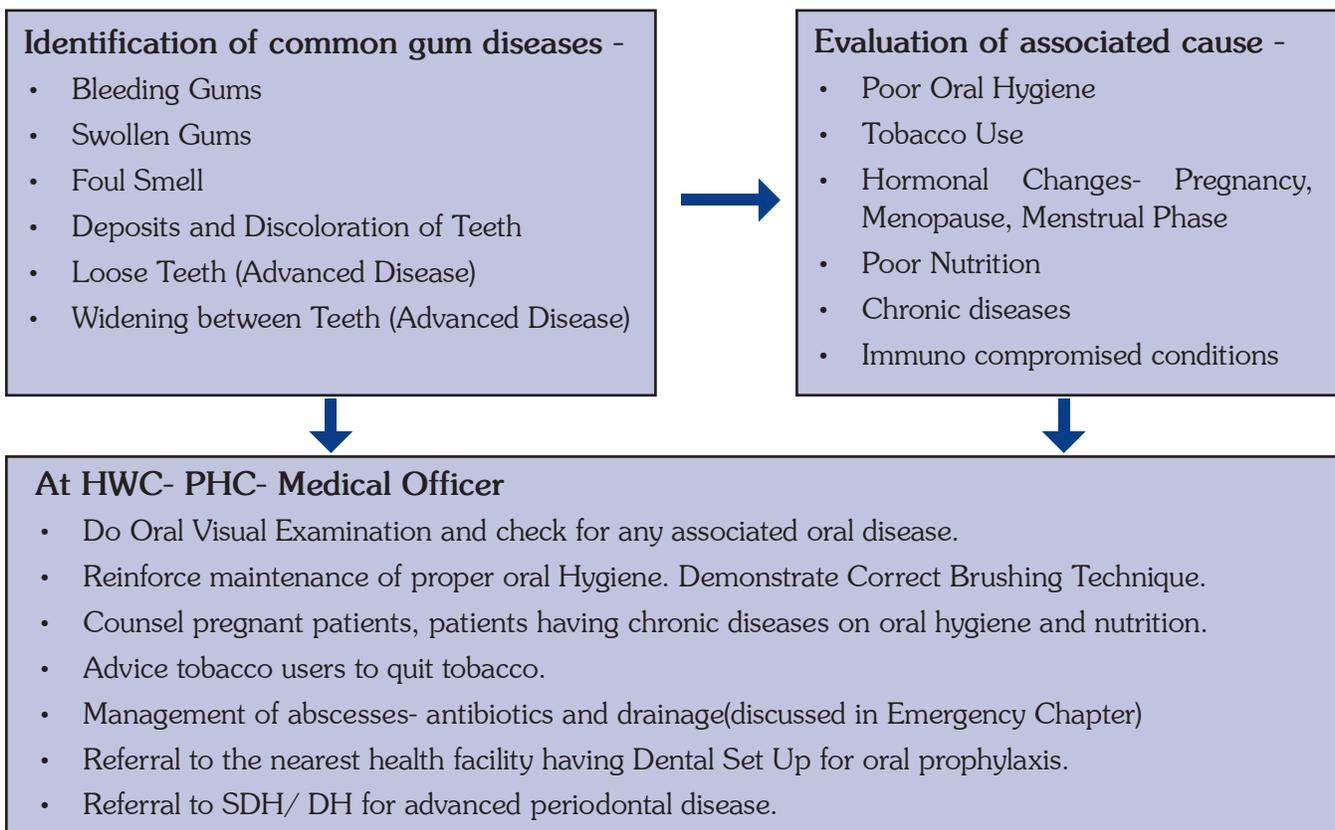
DO:

- Check gums for bleeding and change in color from normal
- Patient having diabetes, heart diseases or any regular medication will require extra care and precautions.
- Management of abscesses- antibiotics and drainage Refer to nearest facility where dentist is available in case you see above symptoms

ADVISE:

- Rinse mouth with warm saline water
- Brushing of teeth twice a day
- Avoid picking teeth using any objects

3.3.1.1 Standard Care Pathway for Gum Diseases



3.3.2 Oral infections and oral symptoms of systemic conditions

a. Diabetes:

Research reveals that there is an increased prevalence of gum disease among patients with diabetes, thereby adding gum/periodontal disease to the list of other complications associated with diabetes, such as heart disease, stroke, kidney disease etc. This relationship between periodontal disease and diabetes is two-way. Periodontitis has been identified as the sixth complication of diabetes.

Not only the people with diabetes are more susceptible to periodontal disease, but periodontal disease may also have the potential to affect blood glucose control and contribute to the progression of diabetes.

Oral Changes in Patients with Diabetes

- Cheilosis
- Mucosal drying and cracking
- Burning mouth and tongue
- Diminished salivary flow
- Alterations in the flora of the oral cavity
- Increased rate of dental caries
- consistent foul odour from mouth
- yellowish plaque deposits

Periodontal Changes in Patients with Diabetes

- pus exuding from gums, tenderness or swelling in gums
- red and swollen gum that bleeds on brushing
- Enlarged gingiva
- Sessile or pedunculated gingival polyps
- Polypoid gingival proliferations
- Abscess formation
- Periodontitis and loosened teeth mobility of teeth



Fig 18 Periodontal condition in patients with diabetes (Source- Textbook on Clinical Periodontology by Newman and Carranza)

Line of Management

- Control of blood glucose levels is the key to control and prevent dental problems.
- Also, maintenance of good oral hygiene, warm saline rinsing may help keep inflammation under check
- Smoking cessation is highly recommended in such patients because of documented negative impact of smoking on diabetic complications.

b. Pregnancy and Oral Health / Hormones and oral health

A number of hormonal conditions affect the periodontal tissues, including diabetes mellitus and fluctuations in female sex hormones associated with puberty, pregnancy, and menopause. Changes in corticosteroid and thyroid hormone homeostasis may also affect the oral cavity. Hormonal changes may directly alter the periodontal tissues or may change the way the host responds to accumulation of local factors such as plaque and calculus. In addition, the presence of certain hormonal conditions may require alterations in dental treatment.

Various hormones can impact the development or progression of gum diseases

Hormonal changes occur throughout a woman's life during puberty, menstruation, pregnancy and menopause. Research data reveal that the fluctuating female hormone levels can impact conditions inside the mouth, allowing bacterial growth, increase blood flow to gingival tissues, and aggravate health issues, such as fetal death, pre-term births and bone loss.

· Puberty

During puberty, there is surge in production of the female sex hormones which can increase the blood flow to the gums and change the way gum tissue reacts to irritants in plaque, causing the gum tissue to become red, tender, swollen, and more likely to bleed during brushing and flossing.

· Pregnancy

As with other systemic conditions, pregnancy itself does not cause gingivitis. Gingivitis during pregnancy is caused by bacterial plaque, just as it is in non-pregnant women. The hormonal changes of pregnancy accentuate the gingival response to plaque and modify the resultant clinical picture.

However, an increased level of progesterone is considered to cause gum diseases, especially during second to eighth month of pregnancy. Gums may feel sore, itchy or may even bleed while brushing. Also, pregnancy sometimes may be associated with overgrowth of gum tissue leading to formation of pregnancy epulis/granuloma.



Figure 19 Pregnancy Induced Gingival Enlargement

Menstruation

During the menstrual period, the prevalence of gingivitis increases. Some patients may complain of bleeding gums or a bloated, tense feeling in the gums during the days preceding menstrual flow. The exudate from inflamed gingiva is increased during menstruation, which suggests that preexisting gingivitis is aggravated by menstruation; however, the crevicular fluid of normal, healthy gingiva is unaffected.

• Menopause

As a result of decline in female hormone levels, women in this phase may experience altered taste, burning sensation of mouth or tongue, dryness of mouth. Also, low estrogen levels may impact the bone density during this period.

c. Medicines and Oral Health

Effect of systemic drug therapy on periodontium can range from various adverse effects on periodontal tissues to increased periodontal breakdown to affording some degree of protection.

- Drug induced gingival enlargement (DIGE) is well known adverse reaction of systemic medications like some anticonvulsants, immunosuppressant's, and calcium-channel blockers such as phenytoin, cyclosporine. The condition may create speech, mastication, tooth eruption, and esthetic problems.



Figure 20 Drug Induced Gingival Enlargement

- The nature and the course of periodontal disease can also be affected by those medications that interact with immune and inflammatory responses like anti-inflammatory drugs, corticosteroids and immunosuppressant.
- Dry mouth, Abnormal bleeding from gums, altered taste, inflammation of soft tissues of mouth, enlarged gums, color change of teeth and gums are some of the common side effects of medications affecting oral health.

- Antihistamines, decongestants, antihypertensive, antidepressants, sedatives, painkillers, blood thinners, oral contraceptives are some of the medications that can impact oral health.
- Hormonal contraceptives aggravate the gingival response to local factors in a manner similar to that seen during pregnancy; when these drugs are taken for longer than 1.5 years, there is an increase in periodontal destruction. Although some brands of oral contraceptives produce more dramatic changes than others, no correlation has been found to exist on the basis of differences in the progesterone or estrogen content of various brands.

Management

- Patients taking medications impacting periodontal health may need adjunctive plaque control agents and more rigorous monitoring of the status of the periodontal tissues.
- Patients taking aspirin or other anticoagulants should inform dentist beforehand about these medications. Use of a soft tooth brush with gentle strokes and flossing might reduce the chances of bleeding.
- For the patients taking medications that causes dryness of oral cavity, frequent sipping of water, chewing sugarless gum and regular brushing is necessary.
- Gums enlargement or overgrowth requires professional diagnosis and management. Depending on severity, dentist may consult physician to substitute a drug or may perform prophylaxis followed by gum surgery if overgrowth interferes with function or esthetics of the patient.

3.4 Common Oral Soft Tissue Conditions:

3.4.1 Abnormal growth, patch or ulcers

- Abnormal growth, patch- white or red or chronic non-healing ulcers can be indications of precancerous lesions.

- Risk factors

Tobacco chewing is the single most important risk factor for oral cancer. Other risk factors include alcohol use, betel nut chewing, and chronic trauma to oral mucosa by sharp tooth or ill-fitting dentures. Chronic exposure to these risk factors causes changes in the oral mucosa and these changes are visible as pre-cancerous lesions. Over a period of time, malignancy may develop in these lesions.

- Pre-cancerous lesions

Pre-cancerous lesions or conditions are local/generalized disturbances that predispose to malignancy in a particular site. Leukoplakia, erythroplakia, palatal changes associated with reverse smoking or beedi smoking and submucous fibrosis are local pre-cancerous lesions. Plummer Vinson syndrome, syphilis, and erosive lichen planus are generalized pre-cancerous conditions. All these conditions are amenable to early diagnosis, and treatment is possible in many cases.

3.4.1.1 White Patch/ Leukoplakia

Oral leukoplakia is a precancerous condition that causes white or gray patches inside the mouth or on the tongue that can be thick and develop slowly over time.

Causes:

- Smoking/tobacco/ betel nut use
- Injury to the inside the cheek, such as from biting
- Rough, uneven teeth
- Dentures, especially if improperly fitted
- Chronic alcohol abuse

Clinical features:

Symptoms	Signs
Restricted mouth opening	Patch of white or grey color over inner surface of lips, cheeks, gums or tongue.
Decreased tongue movements associated with lesion over base of tongue or near floor of mouth.	Thick, hard and raised surface over the lesion

ROLE OF THE MO IN HANDLING WHITE PATCH/ LEUKOPLAKIA

DO:

- Identify white to red patches on tongue, inner lining of lips and cheeks
- Redness may be a sign of cancer. Refer immediately to dentist if you see any patches or patches with red spots.
- For all abnormal growths, patch and ulcers follow the protocols as per population based screening program for NCDs.

ADVISE

- Stop smoking or chewing tobacco and alcohol
- Intake of food rich in antioxidants such as spinach and carrots.
- Maintain good oral hygiene by brushing and mouth rinsing

ROLE OF THE MO IN HANDLING WHITE PATCH/ LEUKOPLAKIA

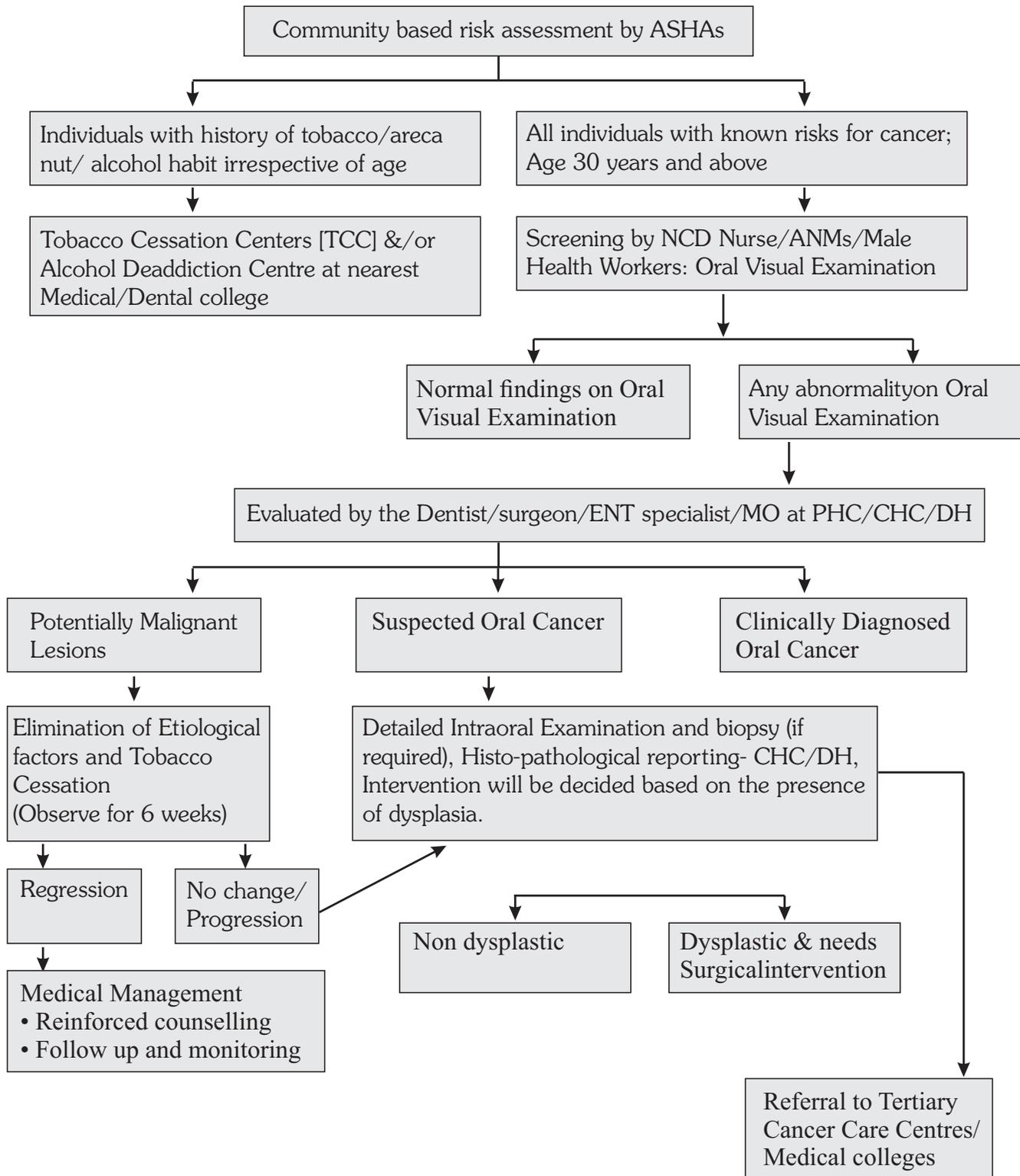
DO:

- Identify white to red patches on tongue, inner lining of lips and cheeks
- Redness may be a sign of cancer. Refer immediately to dentist if you see any patches or patches with red spots.
- For all abnormal growths, patch and ulcers follow the protocols as per population based screening program for NCDs.

ADVISE

- Stop smoking or chewing tobacco and alcohol
- Intake of food rich in antioxidants such as spinach and carrots.
- Maintain good oral hygiene by brushing and mouth rinsing

Universal NCD screening protocol



3.4.1.2 Candidiasis

It is the most common oral fungal infection. It can present as an acute or chronic condition.

Causes:

- Poor oral hygiene, especially in individuals using artificial teeth/ dentures.
- Systemic condition- diabetes, immuno-compromised patients
- Smoking
- Use of Steroids

Signs and symptoms

- Patchy white layers on tongue/inner surface of cheeks and lips, tongue etc.
- In individuals wearing dentures, redness will be observed on the palate and at corners of lip



Figure 21 Oral Candidiasis

Management

- Check for signs of systemic diseases like diabetes
- Suggest topical anti-fungal medications
- Advise rinsing mouth with warm saline
- Refer to dentist for ill-fitting dentures

3.4.1.2 Recurring Oral Ulcers

Recurring oral ulcers are among the most common problems reported. A person presenting with symptoms of recurring oral ulcers should be asked for history of systemic diseases. If the systemic condition is ruled out, Recurrent Aphthous Stomatitis (RAS), is usually the most common condition.

Recurrent aphthous stomatitis is characterized by recurring ulcers confined to the oral mucosa in patients with no other signs of disease.

Predisposing factors:

1. Genetics
2. Trauma
3. Tobacco use



Figure 22 Aphthous Ulcers affecting floor of the mouth

4. Medicines
5. Hematinic deficiency
6. Hormonal changes
7. Stress

Signs and symptoms:

Most common presentation- shallow painful ulcers (8-10 mm in size) on inner surface of lips, cheek and on the floor of the mouth. These ulcers heal within 10-14 days without scarring.

Management:

For minor ulcers- symptomatic treatment

- Application of protective emollient
- Application of topical anesthetic agent
- Advice on eating soft, non-spicy food for rapid healing.
- Cooling mouth rinses with cold water or applying ice on ulcer
- Avoid very hot food and drinks
- Referral to dentist in case of traumatic ulcers due to sharp tooth/ dentures

Advice on maintaining oral hygiene

- Advise on rinsing the mouth with salt water
- Advice to follow health oral care practices as brushing twice a day
- Bland and healthy diet rich in vitamin B,C and zinc

Treatment of major ulcers

1. Local application of betamethasone with neomycin ointment helps to reduce the healing time. Fluocinolone gel, clobetasol cream, beclomethasone spray have been tried.
2. Dissolve 250 mg of tetracycline in 50 ml of water and rinse mouth 4 times a day for 5–6 days (Special considerations for pregnant mothers and breastfeeding mothers).
3. Levamisole tablet (anthelmintic) 150 mg 1 tablet twice a day for 2 days has been tried. Levamisole is an immune-potentiating drug that restores deficient phagocytic function and cutaneous delayed hypersensitivity reaction and increases absolute and relative T cell count
4. Tab Rebamipide 100 mg BD for 7 days
5. PMNR—intralesional injection of steroids
6. Since ulcers are extremely painful, topical protective orabase can be used
7. Lactobacillus therapy

8. Vitamin B complex tablets
9. Iron replacement
10. In severe cases tranquilizers; chemical cautery with phenol has been used
11. Gentian violet
12. Fermented milk

ROLE OF THE MO IN HANDLING ORAL ULCERS/APHTHOUS ULCER

DO:

- Cooling mouth rinses with cold water or applying ice on ulcer
- Avoid very hot food and drinks

ADVISE:

- Advise on rinsing the mouth with salt water
- Advice to follow health oral care practices as brushing twice a day
- Bland and healthy diet rich in vitamin B,C and zinc

3.4.2 Cleft lip/ palate

Cause:

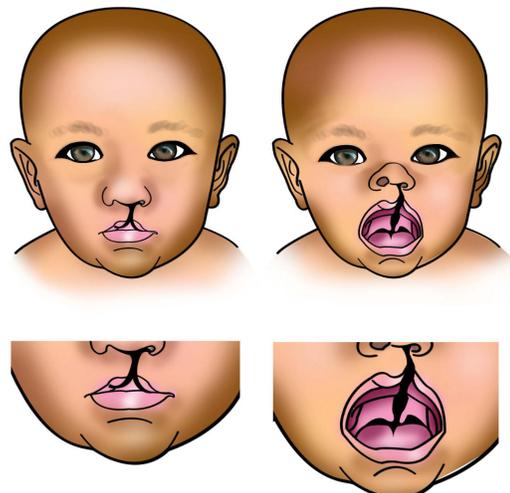
- Genetic disorders
- Deficiency of folic acid during pregnancy
- Smoking and drinking alcohol during pregnancy

Sign & Symptoms:

- Spilt lip/palate or both
- Difficulty in feeding, swallowing and speech
- Unpleasant appearance of the face

Child Health Screening and Early Intervention Services under RBSK envisage to cover 30 selected health conditions for screening, early detection and free management including cleft lip and palate. Under Rashtriya Bal Suraksha Karyakram, District Early Intervention Centre's (DEIC) are operational in all districts of the country for providing management of cases referred from the blocks and also link identified children with tertiary level health services, in case surgical management is required.

Cleft lip or Palate



Cleft Lip

Cleft Lip and Cleft palate

A team consisting of Pediatrician, Medical officer, Dental officer, Staff Nurses, Paramedics from multiple disciplines engaged to provide a holistic service to children in these centers.

ROLE OF THE MO IN CLEFT LIP/PALATE

DO:

- Refer identified cases of cleft lip and palate to District Early Intervention Centre's (DEIC)
- Do detailed examination of all systems and from head to toe for screening of other deformities

ADVISE

- Advise pregnant women to take full course of Iron Folic Acid tablets during pregnancy.

Chapter 4: Oral care-emergency Management protocol

4.1 Pain, swelling/ abscess

• Tooth/Pulpal pain:

- It is spontaneous, strong, often throbbing, exacerbated by temperature, and outlasts the evoking stimulus. Localization is poor, and pain tends to radiate to the ear, temple, or cheek.
- The pain may subside spontaneously, but the patient should still be referred for dental advice because the pulp has probably necrosed, dental abscess will probably follow. Root canal treatment or tooth extraction is required.
- Management at PHC, if dentist not available: Analgesic prescription and referral to the nearest dentist.



Figure 23 Periapical Abscess

• Pain in tooth and around the tooth- periapical abscess

- Pain is spontaneous, severe, persists for hours, is well localized, and is exacerbated by biting. The adjacent gum is often tender to palpation.
- An abscess may form (gumboil), sometimes with facial swelling, fever, and illness.
- In the absence of immediate dental attention, it is best to incise a fluctuant abscess and to give antimicrobial agents (such as amoxicillin) and analgesic medication.
- The acute situation usually then resolves, but the abscess will recur because the necrotic pulp will become reinfected unless the tooth is endodontically treated or extracted.
- A chronic abscess, however, may be asymptomatic apart from a discharging sinus. Rarely, this may open on to the skin.



Figure 24 Dental abscess with sinus opening

Endodontic Emergencies Presenting with Pain

Pain is one of the oldest universal medical and dental problems. The management of pain in endodontics is primarily achieved by a combination of endodontic therapy and pharmacotherapy. The two groups of

analgesics that are commonly employed are elaborated below -

Pharmacotherapy for Endodontic Pain Management

1. Non-narcotic analgesics

- a. Acetaminophen (325–1000 mg)
- b. NSAIDs
- c. Ibuprofen (200–800 mg)
- d. Aspirin (325–1000 mg)
- e. Diclofenac (sodium/potassium) (50–100 mg)
- f. Others

2. Opioid analgesics

- a. Codeine (60 mg)
- b. Tramadol (50 mg)

Endodontic Emergencies presenting with swelling

The emergency treatment of suppurative lesions involves establishing drainage. This procedure releases the purulent exudate from the periapical tissues and aids in relieving pain and pressure. After initial management, MO may refer the case to the nearest facility with dentist.

4.2 Avulsion/Fractured Tooth

Avulsion

Definition: It is defined as the complete and total displacement of the tooth from its socket. The incidence of avulsion varies from 0.5 to 3% of traumatic injuries in permanent dentition and 7 to 13% in primary dentition. The main etiological factors for avulsion are sports and fight injuries. The maxillary central incisors are the most frequently avulsed teeth.

The avulsed or luxated tooth is both a dental and an emotional problem. It is usually the result of trauma to an anterior tooth of a child or young adult. The shock and pain of the injury and the loss of a tooth needed for eating, speaking, and smiling often lead to emotional upheaval in patient and parent. The situation is compounded by the need for emergency treatment, to enhance the prognosis. The longer the luxated tooth is out of its socket, the less likely it will remain in a healthy, functional state after replantation.

Avulsed permanent anterior teeth can be replanted successfully in a child, particularly if the root apex is not completely formed (children younger than 16 years). Avulsed primary teeth should not be replanted.

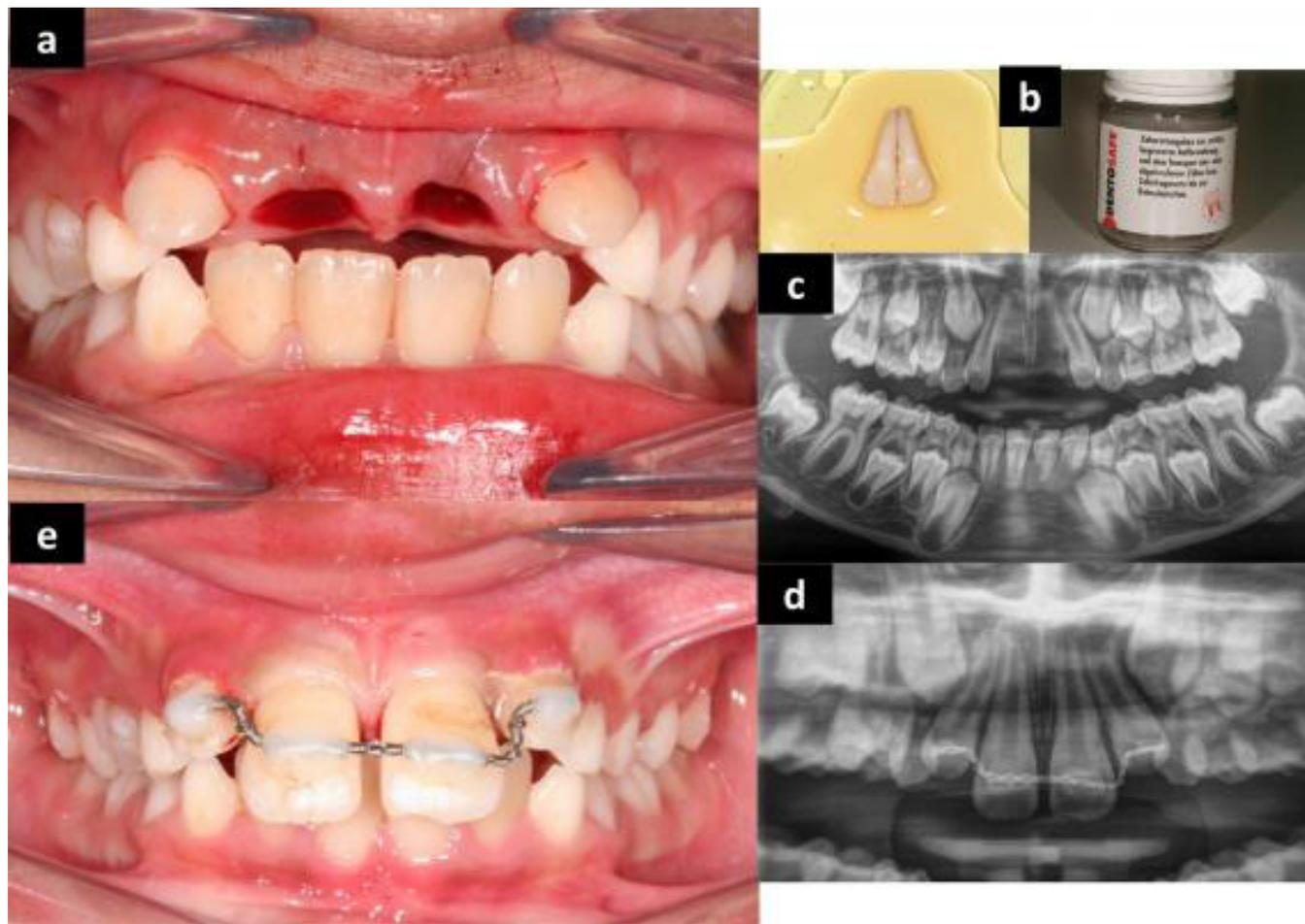


Figure 25 Picture showing avulsion of Central Incisors, Storage in HBSS, Intraoral Image, Restoration with Dental splints and Post-Operative Xray (as per sequence)

The tooth has already been replanted at the site of avulsion –

The following instructions should be given to the parent or patient as soon as the MO/ dentist has been informed of the accident and in preparation for an imminent visit.

- i. Carefully hold the tooth by the crown and gently wash the tooth in running water without brushing or cleaning it, and examine it to be certain that the tooth is intact.
- ii. Avoid touching or scraping the root surface of the tooth.
- iii. Have the patient to rinse his/her mouth.
- iv. Replace tooth in its socket using gentle, steady finger pressure.
- v. If the patient is cooperative and able, have the patient gently close the teeth together to force the tooth back into its original position.
- vi. Refer the patient to the nearest dentist immediately. Further course of treatment would depend on whether the apex is open/closed.

The tooth has been kept in special storage media with the extraoral dry time less than 60 minutes. If the patient or parent cannot replace the tooth in its socket, then care in transporting that tooth to the dentist becomes essential. The tooth must be carried in a moist vehicle to maintain the viability of the torn PDL. The most readily available vehicle is the patient's mouth, in which the tooth is bathed in saliva at body temperature. If this cannot be safely done (if the patient is too young), then the tooth has to be placed in a suitable storage while transporting it to the dental office for further management.

Transport Medium for an Avulsed Tooth –

The choice of storage media for preserving the avulsed tooth is extremely important for the success of future replantation. Suggested storage media are as follows:

1. HBSS (Hank's balanced salt solution)
2. Patient's own saliva (a) Vestibule of the mouth (b) Container into which the patient spits
3. Milk
4. Coconut water

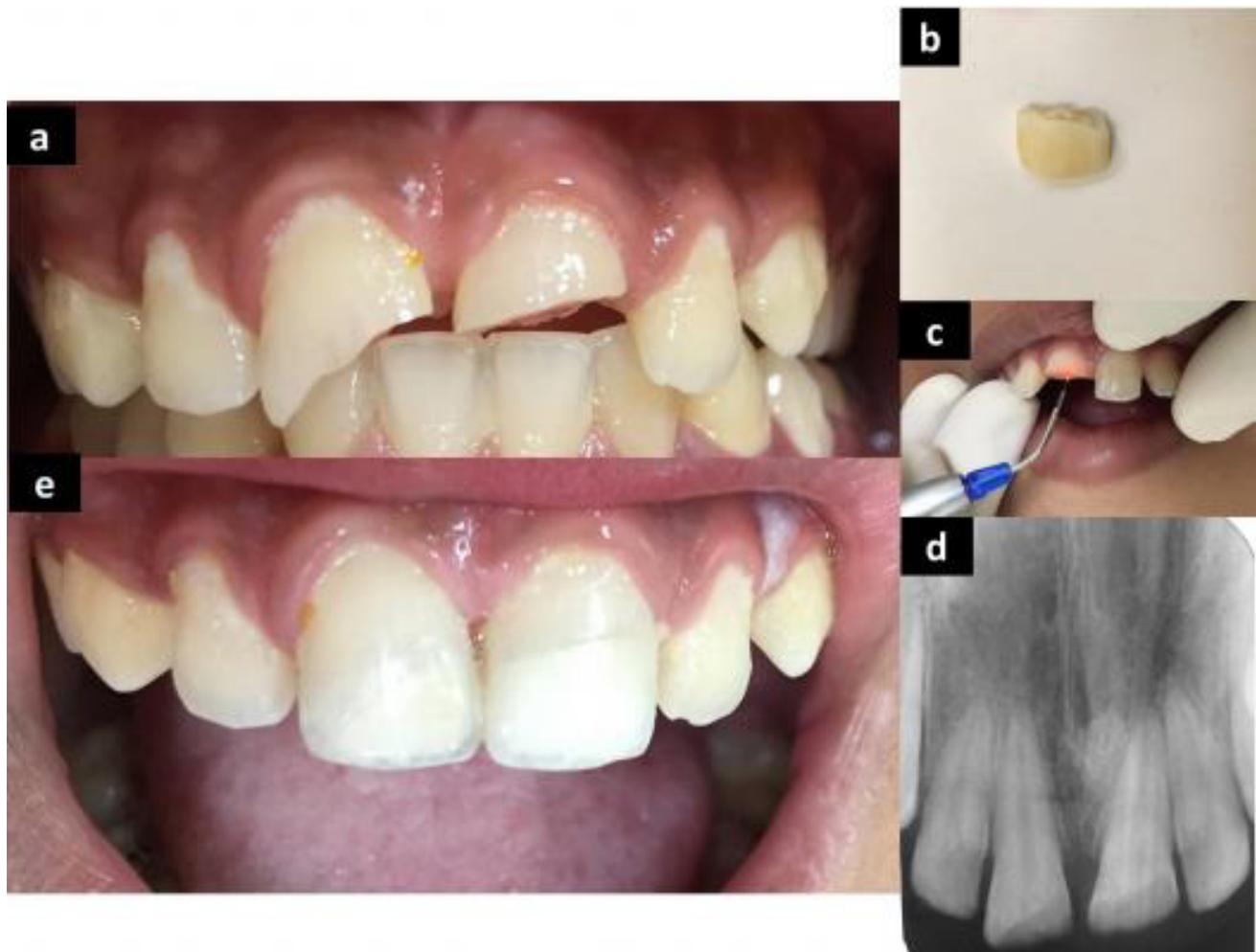


Figure 26 Restoration of Fractured tooth

4.3 Haemorrhage

Whilst haemorrhage from the oro-facial region may present spontaneously, particularly from gingival tissue as a result of a bleeding diathesis or a haematological abnormality such as leukaemia, the most common cause is in response to trauma or a post-operative haemorrhage following dental extraction. The history should help to determine the precise cause of a presenting haemorrhage, but a thorough and detailed clinical examination should be expedited to assess the patient's general condition, and pulse and blood pressure measurements should be taken to determine the risk of hypovolaemic shock. The management of an intra-oral haemorrhage is summarised below-

Management of Intra-oral haemorrhage

- Review medical history and any recent surgery.
- Assess patient's general condition and measure pulse and blood pressure.
- Reassure patient and clean away excess blood.
- Careful oral examination in good light with adequate suction.
- Identify the precise source of bleeding.
- Administer local anaesthesia and apply pressure to wound for 10 minutes.
- Suture with or without packing of wound.
- Re-examine to confirm haemostasis. If persistent bleeding, refer to maxillofacial unit for specialist surgical management.

Fracture of the tooth involving pulp will need management similar to that of tooth pain- pulpal pain

4.4 Management of Maxillo-facial Trauma

Note- In addition to the content here, to supplement your learning, please refer to Emergency and Trauma Management in Emergency Module Training.

Trauma or accident is the most common type of emergency. ***Although often dramatic in appearance, maxillofacial injuries by themselves are rarely life-threatening. Patients with maxillofacial injury often have significant associated injuries which confer increased mortality.*** These include airway obstruction, head and cervical spine injury, and cavitory organ injury with ongoing hemorrhage. A thorough understanding of the basic management principles of the multi-injured trauma patient is therefore essential.

Though it can be fatal, major disability or even death can be prevented by providing stabilization using two modes:

- Immobilization
- Control of bleeding

The primary survey is performed to identify immediately life-threatening injuries.

1. Airway control with cervical spine protection
2. Breathing and ventilation
3. Circulation with hemorrhage control
4. Disability: neurological status
5. Exposure-environment control

First check the victim's level of consciousness and check for HABCDE to assess the status of the victim.

Keep **DRS** in mind: **D**anger (check the scene for danger), **R**esponse (check for the victim's consciousness) and **S**end someone to call for help.

Moving the victim:

- Victim should be moved very carefully keeping in mind the immobilization and bleeding.
- Immobilise the victim and provide support to injured body parts, retain the helmet in case of a motorcycle accident.
- If the victim presents with branch of tree, steering wheel, any other object lodged in the body, do not attempt to remove it since it will cause uncontrollable damage.
- When the victim has been carried to your PHC-HWC in a stretcher, removing the patient from the stretcher has to be carried out in one swift movement.
- If ASHA is present with the victim, or any other first responder is present, gather and understand the details of the victim and the accident.

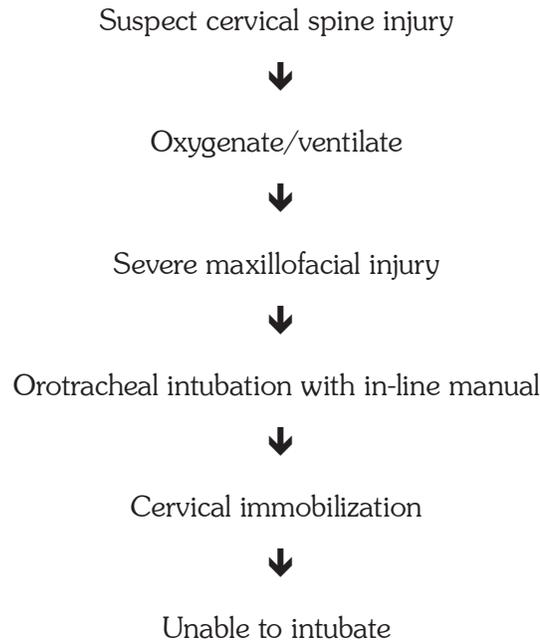
*Remember that you can only help the victim, if you yourself are safe. Before attending to the victim, make sure that any open wounds, skin tears on your body are covered so there is no spread of infection.

Airway Management in Trauma Setting

The first priority in treatment of the trauma patient is assessment of airway patency, adequate oxygenation, ventilation, and protection from aspiration. Airway compromise can occur insidiously and rapidly as a result of facial injury. The upper airway may be obstructed by the tongue or dislodged teeth. Blood, vomitus, a foreign body, or swollen tissues may also compromise the airway. If the obstruction is due to tissue laxity or posterior displacement of the tongue, a simple jaw thrust or chin lift maneuver may quickly alleviate the problem. However, if the blockage is due to a foreign body, distorted tissue, or vomited material, evacuating the airway becomes crucial. Important information regarding previous difficult intubations; major comorbid diseases; medications; allergies; drug or alcohol use; and oropharyngeal, laryngeal, or dental diseases is not available in the trauma setting. Dysphonia, nasal or pharyngeal intonation, and other speech abnormalities noted during the initial examination may suggest either laryngeal injury or nasoethmoid or basilar skull fracture, with retropharyngeal or parapharyngeal edema.

Noisy breathing such as snoring, gurgling, and crowing sounds (stridor) may be caused by partial obstruction of the pharynx or larynx. Hoarseness (dysphonia) implies functional laryngeal obstruction. Edema and/or hematoma of the neck is a harbinger impending airway loss and should lead to early intubation.

Immediate Need for Definitive Airway



4.5 Non healing ulcer

Ulcers are full-thickness breaks in the continuity of oral mucosa, usually caused by death of epithelial cells, whilst erosions refer to areas of superficial epithelial tissue loss. A variety of mucosal disorders may present acutely as ulcerations. Definitive diagnosis and management usually requires referral to oral medicine services but there are a series of important clinical observations every clinician should make when examining an ulcer

Causes of acute mucosal ulceration	Examination of an ulcer
<ul style="list-style-type: none"> ➤ Trauma: Mechanical/thermal/chemical ➤ Drug induced: Cytotoxic/nicorandil/NSAIDs ➤ Recurrent aphthous stomatitis ➤ Mucocutaneous disorders: Lichen planus/pemphigoid/pemphigus/erythema multiforme ➤ Haematological disease: Anemia/leukaemia ➤ Malignancy: Squamous cell carcinoma/minor salivary gland carcinoma 	<ul style="list-style-type: none"> ➤ Define anatomical site ➤ Single or multiple ➤ Size (measure accurately) ➤ Shape – round/oval/irregular ➤ Base – soft/indurated/fixed ➤ Floor-smooth/granulating/sloughing/fungating ➤ Edge – distinct/raised/everted <p>Examination of an ulcer</p> <ul style="list-style-type: none"> ➤ Define anatomical site

Whilst multiple persistent ulcerations may represent mucocutaneous diseases such as pemphigoid or lichen planus, the most significant clinical presentation is, of course, the solitary non-healing ulcer present for longer than 2 weeks and which persists in the absence of an obvious traumatic cause. Here, one must consider oral squamous cell carcinoma as a possible cause. Classic signs of malignancy include irregular ulcer margins, raised or everted edges, induration (hardness) of the ulcer base and fixity to the surrounding tissues. Figure below illustrates the classical appearance of an invasive oral squamous cell carcinoma. Oral cancer may present in a number of ways, however, and these are summarised. It is also worth remembering that non-healing ulcerated or nodular lesions on the face, representing skin cancers such as basal cell carcinoma or squamous carcinoma may be noticed, often as incidental findings, during oro-facial examination and practitioners should be alert to recognising and documenting such lesions during patient examination.

- Clinical presentation of oral cancer**
- Oral ulceration (non-healing) Red or white patches
 - Abnormal swellings
 - Loss of tongue mobility
 - Cauliflower-like growths
 - Abnormal, localised tooth mobility
 - Non-healing tooth sockets
 - Colour changes in mucosa (brown/blue)
 - Erosions in mucosa



Figure 27 Non-Healing Intraoral Cancer

Patient education points:

- Avoid self-medication
- Avoid picking teeth / in between teeth
- Avoid placing camphor/ tobacco/ petroleum products/ salt/ pain balm at site of pain
- Avoid application of heat or any pain relief cream on the cheek
- Avoid application of heat or any pain relief balm at the site of swelling
- Avoid continuous medication

Oral Cancer and Premalignant Lesions: Early Detection Can Be Life Saving

Low risk	Risk factors	High risk
 Leukoplakia	 +	 Oral submucous fibrosis
 Lichen planus	 +	 Erythroplakia
 Candidiasis	 +	 Proliferative verrucous leukoplakia

Table 4.1 Do's and Don'ts in emergencies

Symptoms	Do's	Don'ts
PAIN	<ul style="list-style-type: none"> • Identify the reason for pain • Give One Dose Paracetamol STAT • Refer to the nearest dentist. 	<ul style="list-style-type: none"> • Avoid continuous medication
SWELLING/ ABSCESS	<ul style="list-style-type: none"> • Decipher the cause of swelling: <ul style="list-style-type: none"> - decay - gum problem - cancer - postextraction/Trauma 	<ul style="list-style-type: none"> • Avoid continuous medication

	<ul style="list-style-type: none"> • Rule out systemic cause like diabetes for multiple unhealed abscesses • Analgesic and Antibiotic prescription • Drainage of abscess 	
TRAUMA/ AVULSION	<ul style="list-style-type: none"> • Manage the wound and try to arrest the bleeding • Refer to the nearest dentist 	<ul style="list-style-type: none"> • Do not tamper with the tooth if unsure
ULCER	<ul style="list-style-type: none"> • Follow the guidelines in the Population Based Screening, Management and Control of NCDs. • Educate the community on mouth self examination and tobacco cessation 	<ul style="list-style-type: none"> • Avoid delay in referral • Trying pain relief / relief of symptoms using other medications
UNCONTROLLED BLEEDING	<ul style="list-style-type: none"> • First aid • Arrest bleeding • Rule out systemic causes for uncontrolled bleeding • Report to higher centre 	<ul style="list-style-type: none"> • Delay in referral • Trying pain relief / relief of symptoms using other medications

References

Guidelines -

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2. Rashtriya Bal Suraksha Karyakram Guidelines

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2. Alliance for a Cavity-Free Future. 2010: 1-5

Picture Courtesy -

1. National Oral Health Programme, Ministry of Health and Family Welfare
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Annexures:

Annexure I (a): Atraumatic Restorative Technique (ART) after adequate training.

ADDITIONAL REQUIREMENTS	
Basic Dental Kit	<ul style="list-style-type: none"> • Drugs for pain relief (Paracetamol) • Clove oil • Basic diagnostic instruments: <ul style="list-style-type: none"> • Dental explorer • Mouth mirror • Tweezer • Povidone Iodine (mouth wash) • 0.2% Chlorhexidine Gluconate Mouth Wash • Tannic Acid Astringent Gum Paint • Interdental cleaning aids (Interdental brush) • Consumables like gloves, cotton, gauge, mouth masks. • Torch • Wooden spatula
ART WHO Specified	<ul style="list-style-type: none"> • Spoon excavators • Cement carriers • GIC cement • Petroleum jelly/ Vaseline • Cement slab and spatula • Amalgamator (for premix GIC) • Cellophane strips • Articulating paper
Diagnostic X ray machine	<ul style="list-style-type: none"> • Preferably digital (RVG)– as the dark room/ black box for developing the X rays will require additional resources, where the dental chair, equipment is available and dentists are provisioned

Annexure 1 (b)

Annexure I(b): Medicines and Consumables

S.No	Level	Essential Requirements
1	Community Level	<ul style="list-style-type: none"> Analgesics – Paracetamol
2	HWC	<ul style="list-style-type: none"> Sufficient stock of analgesics and antibiotics as per Essential Medicine List 0.2% Chlorhexidine Gluconate Mouth Wash Tannic Acid Astringent Gum Paint Anaesthetic gel for topical application Wooden spatula Torch with white light for oral visual examination Emergency kit – cold pack/ pressure pack, container for keeping avulsed tooth. Betadine and Chlorhexidine mouthwash Cotton
3	PHC/UPHC	<ul style="list-style-type: none"> Kit for ART as recommended by WHO Analgesic and antibiotic medicines as per Essential Medicine List. Anaesthetic gel / spray for topical application Denture fixatives Premix (amalgamated) Glass Ionomer Cement (GIC) Mouth mirror Spoon excavator Emergency kit – cold pack/ pressure pack, container for keeping avulsed tooth. Betadine Cotton Suture Material: Local Anesthetic (2% Lignocaine) Syringes Tissue holding forceps Needle holder/ artery forceps Needle Suturing material Scissors Curved Hemostat Scalpel <p>Blade No.11 and 15</p>

Frencken JE, Leal SC, Navarro MF. Twenty-five-year atraumatic restorative treatment (ART) approach: a comprehensive overview. *Clinical Oral Investigations*. 2012;16(5):1337-1346

Annexure II- Myths and Facts about Oral Health

As you age, it is normal to lose teeth

The life of your teeth depends on how well you keep them. Factors like diet, correct oral hygiene practices, regular dental check-up are very vital for healthy teeth. If you take care of teeth and gums they are with you all your life

Using gul manjan, coal, brick powder, ash, charcoal powder is beneficial to teeth.

These substances have abrasives that wear out the tooth structure at a fast rate and are not recommended to clean your teeth. Gul manjan has nicotine as one of its components and can get one addicted to the use of tobacco therefore, it must be avoided altogether

Keeping /chewing tobacco numbs tooth pain

Tobacco should not be considered as a remedy for tooth pain, one can start warm saline rinses or take medicines as prescribed by a qualified doctor and visit the dentist at the earliest to identify the cause of dental pain and seek dental treatment.

Tooth extraction can lead to loss of eyesight

Tooth removal has no known impact on the vision / eyesight.

Scaling weakens the teeth and loosens them,

Scaling is done with special instruments to facilitate the removal of tartar and calculus only, They do not have detrimental effects on the teeth or the gums. Scaling is recommended at timely intervals to maintain good gum health

Tooth powder is a better alternative to toothbrush and toothpaste

Tooth powder/dantmanjan has abrasives in high quantities that can wear off and damage teeth over a period of time. Hence, it is recommended to clean your teeth using toothbrush and toothpaste everyday

Worms can be removed from teeth upon noticing decay and cavity.

There are no worms in a tooth that are visible to naked eye. Small microscopic organisms called bacteria can damage the tooth structure and lead to cavities. However, these organisms are too small to be appreciated without microscopes. The dentist can remove the damaged tooth structure and place a filling to prevent deepening of existent cavities or perform a root canal treatment if the cavity involves pulp.

Cavities on milk teeth can be left untreated as they will shed and new teeth will come in their place.

Cavities if left unfilled, may lead to destruction and loss of milk teeth. Premature loss of milk teeth may lead to chewing and speaking difficulty in children and result in irregular alignment of permanent teeth.

Milk teeth should only be brushed after all of them erupt

As soon as the first tooth erupts in the mouth, one must start brushing the tooth/teeth using a baby tooth brush

Cleft is caused because of curse or exposure during eclipse

Cleft of the lip or palate in a child can occur due to some reasons like lack of nutrition including Iron and folic acid in the mother, consumption of alcohol/ tobacco products during pregnancy, as a result of

consanguineous marriages, in certain genetic diseases or syndrome.

Brushing during pregnancy can worsen the gum bleeding/gum enlargement

The gum disease gets aggravated during pregnancy due to changes in hormone levels. Continue with brushing and consult a dentist for further advice and treatment.

Oral health has no impact on General Health

Oral cavity is the mirror of your body. It is very important to maintain good oral health and go for timely dental checkups. Poor oral health can impact overall health

Annexure III: Oral health promotion- points for health education

- Brush your teeth twice daily
- Avoid aerated drinks sticky/ sweet food Snacking between meals Consumption of raw food rich in fibre, Vitamin A
- Brushing and rinsing mouth with water
- Do not quit brushing during pregnancy

Brushing technique

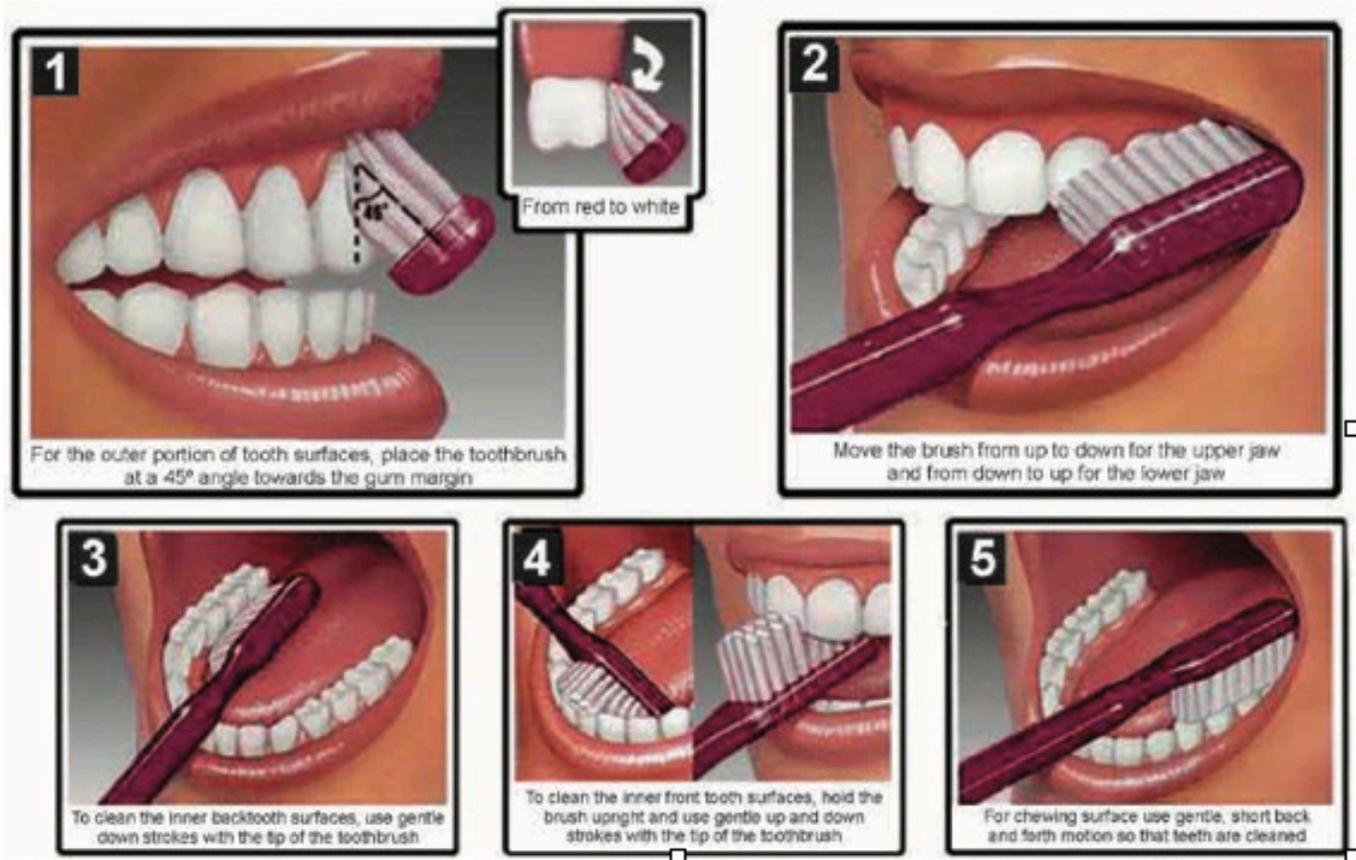


Figure 27 Brushing Technique

- For the outer portion of tooth surfaces, place the toothbrush at a 45-degree angle toward the gum margin and move the brush from above to down for the upper jaw and from down to above for the lower jaw.
- To clean the outer front tooth surfaces, hold the brush upright and use gentle up and down strokes with the tip of the toothbrush.
- For the chewing surface use gentle, short back and forth motion so that teeth are cleaned.
- After brushing the teeth make sure to clean the tongue also, you can use the same toothbrush and apply gentle strokes. Kindly avoid using stainless steel tongue cleaners as they get rusted in time and may cause infection.
- After brushing do not forget to massage gums with finger and rinsing thoroughly.

Annexure IV – Service Delivery Framework for different Oral conditions/ Diseases

Table Service delivery framework for dental caries/tooth decay care

ASHA	HWC- ANM and MHP	PHC- MO	Referral center's (where dentist is available)
<ul style="list-style-type: none"> • Early identification • Educate about healthy habits: brushing, rinsing with water, consumption of raw, fibre rich food • Reinforce families to avoid sticky/sweet foods and aerated drinks • Promote self-examination to identify early signs of decay like black spots/ food lodgement • Demonstrate tooth brushing technique 	<ul style="list-style-type: none"> • Competencies of the ASHA + • Putting clove oil in a visible cavity • Symptomatic pain relief and referral • Reinforce healthy hygiene and diet 	<ul style="list-style-type: none"> • Competencies of the CHO/ MLHP and MPW • Topical Fluoride Application • Symptomatic pain relief and referral • Atraumatic Restorative Treatment and referral 	<ul style="list-style-type: none"> • Pit and fissure sealant / fluoride application • Permanent Restoration • Root canal treatment followed by crown/ prosthesis • Extraction of tooth

Table 4.2 Service Delivery Framework for gingivitis and periodontitis

ASHA	HWC- ANM and CHO/MLHP	PHC- MO	Referral center's (where dentist is available)
<ul style="list-style-type: none"> • Early identification • Educate about healthy habits: brushing, rinsing with water • Reinforce finger massage of gums after brushing • Educate on not stopping brushing even when bleeding gums are found • Educate pregnant women to not neglect oral hygiene and to continue tooth brushing 	<ul style="list-style-type: none"> • Competencies of the ASHA + • Mouth rinses with warm saline 	<ul style="list-style-type: none"> • Competencies of the CHO/ MLHP and MPW + • Management of abscesses-antibiotics and drainage 	<ul style="list-style-type: none"> • Reinforce healthy habits • Demonstrate tooth brushing technique • Advise mouth rinsing • Advise finger massage of gums after brushing • Advise warm saline rinses in case of severe inflammation

<ul style="list-style-type: none"> • Promote self examination to identify early signs of gum disease • Demonstrate tooth brushing technique 			<ul style="list-style-type: none"> • Scaling- cleaning of teeth • Periodontal surgery, if required • Extraction of mobile teeth which cannot be saved
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Table 4.3 Service delivery framework for emergencies

Community: ASHA	HWC: MPW and CHO/MLHP	PHC	Referral centres (where dentist is available)
<ul style="list-style-type: none"> • Symptomatic pain relief-painkiller stat • Advise for keeping tooth intact and store the same in milk in case of avulsed tooth • In case of swelling, advise not to foment the swelling using any source of heat • Advise pregnant women not to neglect oral hygiene, insist on warm saline rinses in case of bleeding gums 	<ul style="list-style-type: none"> • Keeping the avulsed tooth intact as per protocol • Symptomatic relief-analgesic • Emergency management-arresting bleeding, suturing if required • Swelling/ abscess-antibiotic and analgesic 	<ul style="list-style-type: none"> • Symptomatic relief, • Arresting bleeding, suturing if required • Swelling/ abscess- antibiotic and analgesic and drainage if required. 	<ul style="list-style-type: none"> • Replantation of avulsed tooth • Emergency access opening • Abscess drainage • Tooth removal • Biopsy for establishing oral cancer diagnosis • Perform dental treatment for the pregnant woman in the safe trimester-1st and 3rd

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Namaste!

You are a valuable member of the Ayushman Bharat – Health and Wellness Centre (AB-HWC) team committed to delivering quality comprehensive primary healthcare services to the people of the country.

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