UNIT 6 SCREENING AND MANAGEMENT OF COMMON DENTAL CONDITIONS

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6.0 INTRODUCTION

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. One can’t be healthy if one is not Orally Healthy. Oral health is very essential to general health and quality of life. It is a state of being free from periodontal (gum) disease, tooth decay, tooth loss, mouth and facial pain, oral and throat cancer, oral infection and sores, and other diseases and disorders that limit an individual’s capacity in biting, chewing, smiling, speaking, and psychosocial well-being.

The burden of oral and dental diseases worldwide is very high, inspite of the fact that most of these diseases are non-communicable and preventable with simple measures.

This is proven by the following World Health Organisation (WHO) world data:
- 60–90% of school children have dental cavities.
- 15–20% of middle-aged (35–44 years) adults suffer from severe periodontal (gum) disease, causing loss of tooth
- About 30% of people aged 65–74 have no natural teeth.

Most established oral diseases are irreversible, will last for a lifetime and have impact on quality of life and general health. The target population for these diseases mainly includes children and elderly, especially in the poor and disadvantaged population groups. One fifth of the world’s population is adolescent (10 and 19 years of age), hence preventive strategies, if applied at the initial years of life,
can tremendously help reduce this burden of increasing dental and oral health problems. Also, since oral diseases are usually progressive and cumulative, a large number of elderly suffer from its effects. The process of ageing itself may directly or indirectly increase the risk of oral disease, compounded by various co-morbidities (like diabetes, cardiovascular disease, and hypertension etc.) and the various medications for these conditions.

Here we will discuss the common dental and oral diseases, their identification in a community, the risk factors associated with their development and progression and the strategies for their early identification and management.

### 6.1 OBJECTIVES

After completing this unit, you shall be able to:

- enumerate most common dental and oral diseases/conditions;
- list screening methods for common dental & oral diseases/conditions;
- discuss preventive strategies for common dental & oral diseases/conditions;
- formulate strategies to educate the general population about causes of oral cancer and other oral conditions; and
- prevent and manage common oral and dental diseases.

### 6.2 ANATOMY AND PHYSIOLOGY OF ORAL CAVITY

The oral cavity represents the first part of the digestive system. It houses various hard and soft tissue structures, the primary function of which, is to serve as the entrance of the alimentary tract and to initiate the digestive process by salivation and propulsion of food downwards. The hard tissues are the teeth and the jaw bones (maxillae and mandible). The soft tissues include mainly the gums around the teeth (gingiva), the lips, the cheek, the hard and soft palate and the tongue containing various teeth buds (Fig.6.1).

![Anatomy of Oral Cavity](image)

**Fig. 6.1 : Anatomy of Oral Cavity**

Development of teeth begins during the early second trimester of pregnancy. There are two sets of teeth in humans. The deciduous teeth (primary or temporary teeth) are the first to emerge in the oral cavity and are progressively replaced by
the permanent (or adult) dentition. There are 20 deciduous teeth, comprising 8 molars, 4 canines (or cuspids), and 8 incisors. The permanent dentition consists of 32 teeth: 12 molars (including 4 so-called wisdom teeth or third molars), 8 premolars (or bicuspsids), 4 canines, and 8 incisors.

The 20 primary teeth start appearing in the mouth by 6 months of age, are in place by age 3 and remain until around 6 years of age when they begin to fall out to make way for the permanent set of teeth. Adult teeth start to grow in between 6 and 12 years of age. A tooth is divided into two basic parts: the crown, which is the visible, white part of the tooth, and the root, which extends below the gum line and anchors the tooth into the bone (Fig. 6.2). Each tooth has the following 4 parts:

1) **Enamel.** The visible substance that covers the tooth crown. Harder than bone, enamel protects the tooth from decay. Enamel is made up of phosphorous and calcium.

2) **Dentin.** Underneath the enamel is the dentin, which is calcified and looks similar to bone. Dentin is not quite as hard as enamel, so it is at greater risk for decay should the enamel wear away.

3) **Cementum.** It covers the tooth root and helps anchor it (cement it) into the bone.

4) **Pulp.** It is found at the centre of your tooth and contains the blood vessels, nerves, and other soft tissues that deliver nutrients and signals to your teeth.

![Fig. 6.2: Parts of human tooth](image)

Similarly, the various soft tissues around the teeth help in the functions of mastication, deglutition, speech etc. Surrounding major and minor salivary glands produce and secrete saliva into the oral cavity that helps in digestion, swallowing, speech, cleansing of oral cavity and protection from various diseases. Hence, even minor disruptions in the function of the oral cavity can seriously jeopardise an individual’s quality of life.

### 6.2.1 High Risk Factors of Dental and Oral Diseases/Conditions

High risk factors for oral diseases include:

- **Tobacco:** In any form (smoke, smokeless, snuff) is one of the most significant risk factors associated with the development of gum diseases and oral cancer. Additionally, use of tobacco can lower the chances for successful treatment.
- **Poor oral hygiene**: An unhealthy oral cavity is the source of all systemic infections.

- **Unhealthy diet**: Both, excessively sugary and malnourished diets and in-between meals are detrimental to dental and oral tissues.

- **Hormonal changes in girls/women and adolescents**: These changes can make gums more sensitive and make it easier for gingivitis to develop.

- **Diabetes and other immunocompromising systemic conditions**: People with diabetes are at higher risk for developing infections, and poor healing. Diseases such as AIDS, leukemia etc. have similar effects.

- **Medications**: There are hundreds of prescription and over the counter medications that can reduce the flow of saliva, which has a protective effect on the dental and oral tissues. Without enough saliva, the mouth is vulnerable to infections such as gum disease. And some medicines can cause abnormal overgrowth of the gum tissue; this can make it difficult to keep teeth and gums clean.

- **Genetic susceptibility**: Some people are more prone to severe gum disease than others.

These are also risk factors for the four leading non-communicable chronic diseases – diabetes, cardiovascular diseases, cancer, and chronic respiratory diseases – and hence, oral diseases are often linked to these chronic diseases. Social determinants in oral health are also very strong. Healthy oral practices and health seeking behaviour is lacking in people from uneducated and lower socio-economic populations, that also contributes mainly to increased oral disease prevalence and severity.

### 6.2.2 Common Dental Conditions and their Signs and Symptoms

Now we present a list of most common dental diseases/conditions:

1) Dental Caries and Early Childhood Caries
2) Periodontal Diseases
3) Dental Erosion
4) Dental Attrition
5) Dental Abrasion
6) Malocclusion
7) Oral Cancer and Potentially Malignant Disorders
8) Wisdom tooth related problems
9) Dental Fluorosis
10) Oro-dental Trauma
11) Congenital Defects
12) Oral Manifestations of Systemic Diseases

Now, let us discuss these conditions:
1) **Dental Caries**

Tooth decay (dental caries or cavity) occurs when the bacteria in plaque is given the chance to settle on teeth. It produces an acid that slowly eats away at the tooth enamel and forms holes. These bacteria are particularly prevalent after eating sugars and starches. When the root of a tooth becomes infected and fills up with bacteria, it damages the nerves and the pulp tissue inside the tooth itself. The most severe root infections cause patients to develop painful abscesses. These appear in the form of painful facial swellings.

**Causes:** Bacteria in presence of food particles stuck to the teeth and a moist environment will produce acid, which ultimately decalcifies the tooth.

**Signs and symptoms**
- Sensitivity to cold/hot/sweet/acidic foods
- Pain while chewing
- Spontaneous pain in advanced stage (irreversible cases)
- Loss of tooth structure (catch the tip of a dental probe in soft caries, cavity in advanced cases)
- Halitosis (foul smell in mouth) from food lodgment and decay

**Early Childhood Caries (ECC):** Early Childhood Caries is defined as the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries) or filled tooth surfaces in any primary tooth in a preschool-age child between birth and 71 months of age. The term “Severe Early Childhood Caries” refers to “atypical” or “progressive” or “acute” or “rampant” patterns of dental caries (see Fig. 6.3 and Fig. 6.4).

![Fig. 6.3 : Early Childhood Caries (ECC)](image1)

![Fig. 6.4 : Dental Caries](image2)

2) **Periodontal Diseases**

Plaque is the soft, sticky bacterial deposit that readily forms on exposed surfaces of teeth. It is easily removed by brushing and flossing. It calcifies over time, forming tartar (calculus) which can only be removed by a Dental Surgeon or Dental Hygienist using special instruments. Plaque results in a local inflammatory reaction known as gingivitis.

Gingivitis is the mildest form of a spectrum disease and can progress to periodontal disease (Fig. 6.5).
Fig. 6.5: Periodontal disease

**Causes:** Local causes- The most at risk individuals are those with poor dental hygiene, lapsed brushing and flossing techniques.

Systemic causes- Pregnancy and adolescence stages with hormonal variations, diabetes mellitus and other immunocompromised states, cigarette smoking and other less common causes like platelet disorders, Vitamin C deficiency, Vascular conditions, Leukaemia and HIV infection.

<table>
<thead>
<tr>
<th>Direct</th>
<th>Indirect</th>
<th>Distant</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Poor oral hygiene resulting in accumulation of dental plaque and calculus</td>
<td>• Food impaction</td>
<td>• Socioeconomic status</td>
</tr>
<tr>
<td>• Traumatic occlusion</td>
<td>• Chewing and smoking of tobacco</td>
<td>• Literacy level</td>
</tr>
<tr>
<td></td>
<td>• Malnutrition—deficiency of vitamins A and C</td>
<td>• Access to oral health care facility</td>
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<tr>
<td></td>
<td>• Endocrine disturbances —physiological (puberty, pregnancy and the menopause)</td>
<td>• Oral health knowledge and awareness</td>
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<tr>
<td></td>
<td>—pathological (hyperthyroidism, hyperparathyroidism and diabetes mellitus)</td>
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<tr>
<td></td>
<td>• Decreased immunity—HIV infection, persons on immunosuppressive drugs</td>
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<tr>
<td></td>
<td>• Blood disorders—anaemia, leukaemia</td>
<td></td>
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<tr>
<td></td>
<td>• Idiopathic—gingival fibromatosis</td>
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<tr>
<td></td>
<td>• Drug induced—phenytoin sodium, nifedipine, etc.</td>
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</table>

**Signs and symptoms**

- Red or swollen gums
- Tender or bleeding gums (on brushing or simple probing)
- Food lodgement in between teeth (pockets) causing itchy sensation, difficulty and pain in chewing
- Loose teeth
- Sensitive teeth - sensitivity to cold/hot/sweet foods
- Receding gums or longer appearing teeth
- Calculus (tartar), plaque and stain deposits on teeth
- Bone loss on dental x-rays (Fig. 6.7)
3) **Dental Erosion**

Dental erosion is the loss of dental hard tissue, associated with extrinsic and/or intrinsic acid that is not produced by bacteria (Fig. 6.10).

**Causes:** Dental erosion is caused by sustained direct contact between tooth surfaces and acidic substances. It has long been recognised that demineralisation of dental enamel will occur once the oral environmental pH reaches the critical threshold of 5.5. Acids in the mouth originate from three main sources: produced in situ by acidogenic bacteria, ingested extrinsic acids as dietary components and dislocated intrinsic acids through the backflow of gastric contents. Acids of bacterial origin cause caries, while extrinsic and intrinsic acids cause dental erosion.

**Signs and symptoms**

- Discolouration
- Rounded Teeth/ Dents in teeth
- Severe Tooth Sensitivity
4) **Dental Attrition**

A type of tooth wear caused by tooth-to-tooth contact, resulting in loss of tooth tissue, usually starting at the incisal or occlusal surfaces. Tooth wear is normally a physiological process and is commonly seen as a normal part of aging.

**Causes**

1) Physiological - aging process

2) Pathological - caused by bruxism, which is clenching and grinding of the teeth

![Fig. 6.11 : Dental Attrition](image)

**Signs and Symptoms**

- Loss of tooth anatomy
- Sensitivity or pain
- Tooth discolouration
- Altered occlusion due to decreasing vertical height, or occlusal vertical dimension.

5) **Dental Abrasion**

Abrasion is the loss of tooth structure by mechanical forces from a foreign element. If this force begins at the cementoenamel junction, then progression of tooth loss can be rapid since enamel is very thin in this region of the tooth. Once past the enamel, abrasion quickly destroys the softer dentin and cementum structures.

**Causes:** Includes toothbrushes, toothpicks, floss, and any dental appliance frequently set in and removed from the mouth.

![Fig. 6.12 : Dental Abrasion](image)

**Signs and symptoms**

- Loss of tooth anatomy
- Sensitivity or pain
- Tooth discolouration
6) Malocclusion

A malocclusion is a misalignment or incorrect relation between the teeth of the two dental arches when they approach each other as the jaws close.

Causes

- Dental arch discrepancy
- Craniofacial anomalies

Signs and symptoms

- Crowding / mal-alignment of the teeth
- Skeletal disharmony

Fig. 6.13: Dental malocclusion

Fig. 6.14: Skeletal malocclusion

7) Oral Cancer and Potentially Malignant Disorders

Oral cancer can affect any area of the oropharyngeal cavity including the lips, gum tissue, check lining, tongue, jaw the hard or soft palate and throat. It often starts as a tiny, unnoticed white or red spot or sore or swelling anywhere in the mouth or throat. The incidence of oral cancer ranges from one to 10 cases per 100,000 people in most countries. The prevalence of oral cancer is relatively higher in men, in older people, and among people of low education and low income.

Causes:

<table>
<thead>
<tr>
<th>Direct</th>
<th>Indirect</th>
<th>Distant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco smoking/chewing</td>
<td>Industrial pollution—asbestos, lead, leather and textile industries</td>
<td>Low socioeconomic and literacy level</td>
</tr>
<tr>
<td>Pan masala/gutka chewing</td>
<td>Compromised immune status</td>
<td>Poor access to oral health care facilities for prevention and early detection</td>
</tr>
<tr>
<td>Infections—HPV, HSV, AIDS, syphilis, candidiasis</td>
<td>Nutritional deficiencies (vitamins A and B complex, and zinc)</td>
<td>Poor oral health awareness</td>
</tr>
<tr>
<td>Chronic irritation—faulty prosthesis, sharp teeth</td>
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<tr>
<td>Exposure to radiation</td>
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</tbody>
</table>

Signs and symptoms

- Sores (ulcers) that bleed easily or do not heal
- a thick or hard spot or lump
- a roughened or crusted area
- numbness, pain or tenderness
- a change in the way your teeth fit together when you bite down.
- neck lymph nodes — enlarged, fixed
8) **Wisdom Tooth related problems**

3rd permanent molars are 4 in no. (2 upper & 2 lower). They are also called vestigial organs, as our ancestors required heavy masticatory forces to chew on uncooked food. These days it is common to have these teeth fully erupted/partially erupted/missing or unerupted. With time our upper and lower jaws/arches size is reduced. Impacted wisdom teeth (partially erupted or unerupted) should not be removed unless they have associated significant dental or other oral disease. It is also common to have some pathology associated with the wisdom tooth eg. Dentigerous Cyst, Ameloblastoma etc.

**Causes**

- Physiological
- Pathological
Signs and symptoms

- Pain
- Swelling
- Inability to open mouth

9) Dental Fluorosis

This is the intrinsic staining of teeth due to presence of excessive fluoride in diet (specially drinking water) during the formative stages of teeth (see Fig. 6.17).

![Fig. 6.17: Dental Fluorosis](image)

<table>
<thead>
<tr>
<th>Causes</th>
<th>Direct</th>
<th>Indirect</th>
<th>Distant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exposure to high levels of fluorides: &gt;1 ppm of fluoride in drinking water</td>
<td>Tropical climate—excess ingestion of water and beverages with a high fluoride content</td>
<td>Poor nutritional status—deficiency of vitamin D, calcium and phosphates</td>
</tr>
<tr>
<td></td>
<td>Airborne fluoride from industrial pollution (aluminium factories, phosphate fertilizers, glass-manufacturing industries, ceramic and brick products)</td>
<td>Presence of kidney diseases affecting the excretion of fluoride</td>
<td>Decreased bone phosphatase activity is linked to fluoride toxicity</td>
</tr>
<tr>
<td></td>
<td>Fluoride-rich dietary intake—sea food, poultry, grain and cereal products (especially sorghum), tea, rock salt, green leafy vegetables, etc.</td>
<td>Thyroid and thyrotrophic hormones have a synergistic effect on fluoride toxicity</td>
<td></td>
</tr>
</tbody>
</table>

Signs and symptoms

- Mild cases show mottling of enamel (white patches, loss of enamel translucency)
- Advance cases show brown spots on teeth
- Advanced cases show skeletal changes due to excessive fluoride

10) Oro-Dental Trauma

Across the world, 16–40% of children in the age range 6 to 12 years old are affected by dental trauma. Any Facial trauma in children and adults would result in

- **Soft tissue injuries** - cuts, abrasion, laceration loss of tissue etc.
- **Hard tissue injuries** - fracture of tooth or jaw bones.

Causes

- unsafe playgrounds
- unsafe schools
- road traffic accidents
- violence

Fig. 6.18 : Tooth fracture

Fig. 6.19 : Facial Fracture

Signs and symptoms
- Severe pain
- Inability to bite properly (teeth not meeting properly)
- Inability to open/ close mouth
- Oral/ nasal/ ear bleeding
- Deformity of face

11) Congenital Defects

Various congenital and birth related defects are seen in teeth and oro-facial region. The common ones are cleft lip and palate, hemifacial microsomia and dental defects like abnormal shape and number of teeth. Not much can be done for their prevention and genetics has a major role to play in the development of these conditions.

Causes
- Genetic
- Nutritional deficiency
- Environmental

Fig. 6.20 : Congenital defect of teeth (abnormal shape)
Signs and symptoms:

- Cleft lip
- Cleft palate
- Dental- Ectodermal Dysplasia, Cleidocranial Dysplasia, Dentinogenesis Imperfecta.
- Hemifacial microstomia

12) Oral Manifestations of Systemic Diseases

Oral cavity/ Mouth is the mirror of systemic health. Almost half (40–50%) of people who are HIV-positive have oral fungal, bacterial or viral infections. These often occur early in the course of HIV infection.

![Fig. 6.21: Oral fungal infection](image)

**Signs and symptoms**

Certain systemic conditions are manifested by prodromal signs in the oral cavity:-

- Measles- Koplik spot
- Diabetes- Severe Periodontal diseases
- Pregnancy- Gingivitis, Pregnancy tumor
- CVS- Periodontal disease
- HIV- Hairy leukoplakia
- Coeliac disease- Dental erosion

### 6.2.3 Role of Health Worker in Prevention and Management of Oral/ Dental Diseases

**Dental Caries:** Prevention can be discussed as follows:

<table>
<thead>
<tr>
<th>Medical interventions</th>
<th>Non-medical interventions</th>
<th>Other interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of systemic and topical fluorides</td>
<td>Oral health education</td>
<td>Make oral health care more accessible and affordable</td>
</tr>
<tr>
<td>Use of pit and fissure sealants</td>
<td>Nutrition and diet</td>
<td>Improve the socioeconomic and literacy level of the population</td>
</tr>
<tr>
<td>Preventive restorations</td>
<td>Proper methods of maintaining oral hygiene</td>
<td>Include oral health care in general health insurance</td>
</tr>
<tr>
<td>Different types of restorations and endodontic treatment</td>
<td>—use of fluoride toothpaste and brush</td>
<td></td>
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<tr>
<td>Regular dental check-up</td>
<td>—use of dental floss and interdental brushes, etc.</td>
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<tr>
<td></td>
<td>—antiseptic mouth washes (under prescription)</td>
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</table>
The burden of dental and oral diseases and other non-communicable chronic diseases can be decreased simultaneously by addressing the common risk factors. Moreover, control of oral disease depends on availability and accessibility of oral health systems but reduction of risks to disease is only possible if services are oriented towards primary health care and prevention. These include:

- Well balanced nutritious diet
- Avoid Tobacco and Alcohol
- Exercise regularly and lead a healthy lifestyle
- Ensure proper oral hygiene
- Use of protective sports gear and wearing helmet and seatbelts while driving to reduce the risk of facial injuries.

Dental cavities can be prevented by maintaining a constant low level of fluoride in the oral cavity. Fluoride can be obtained from fluoridated drinking water, salt, milk and toothpaste, as well as from professionally-applied fluoride or mouth rinse. Long-term exposure to an optimal level of fluoride results in fewer dental cavities in both children and adults.

- High relative risk of oral and dental diseases relates to socio-cultural determinants such as poor living conditions; low education; lack of traditions, beliefs and culture in support of oral health. Education and creating awareness regarding these diseases should be given prime importance.

**Periodontal Diseases:** Preventive measure as shown below:

<table>
<thead>
<tr>
<th>Medical interventions</th>
<th>Non-medical interventions</th>
<th>Other interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Scaling and polishing of teeth</td>
<td>• Oral health education</td>
<td>• Make oral health care more accessible and affordable</td>
</tr>
<tr>
<td>• Oral and systemic antibiotics</td>
<td>• Nutrition and diet</td>
<td>• Improve the socioeconomic and literacy level of the population</td>
</tr>
<tr>
<td>• Use of mouthwashes</td>
<td>• Proper methods of oral hygiene maintenance</td>
<td>• Include oral health care in general health insurance</td>
</tr>
<tr>
<td>• Gingival and periodontal surgery — gingivoplasty, gingivectomy, flap surgery, mucogingival surgeries, guided tissue regeneration, synthetic bone grafts, etc.</td>
<td>• use of toothpaste and tooth brush</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• use of inter-proximal cleaning devices such as interdental brushes, dental floss and water pik, etc.</td>
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<tr>
<td></td>
<td>• Regular dental check-up</td>
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</table>

**Oral Cancer / Pre Cancer:** Prevention and treatment measures include the followings:

<table>
<thead>
<tr>
<th>Medical interventions</th>
<th>Non-medical interventions</th>
<th>Other interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Biopsy of pre-malignant lesions</td>
<td>• Stop all oral abusive habits such as tobacco smoking and chewing</td>
<td>• Self-examination of the oral cavity</td>
</tr>
<tr>
<td>• Surgery</td>
<td>• Improve oral hygiene</td>
<td>• Prevent initiation of harmful habits</td>
</tr>
<tr>
<td>• Radiotherapy</td>
<td>• Remove all irritants from the mouth</td>
<td>• Industrial safety legislation and protection of the health of workers</td>
</tr>
<tr>
<td>• Chemotherapy</td>
<td>• Improve the nutritional status</td>
<td></td>
</tr>
<tr>
<td>• Combination treatment</td>
<td>• Undergo regular oral check-up</td>
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</tbody>
</table>

- Potentially malignant conditions should be diagnosed in the early and initial phase for a better 5 year survival. This can only be achieved by oral screening the high risk groups of age 30–60 years every 5 years, and also teaching and creating awareness regarding self oral examination. Tobacco Cessation counselling should also be carried out among the high risk groups regularly and repeatedly.

- The **GOLD STANDARD** in regard to diagnosis of Oral cancer is Biopsy. It can be
• Incisinal
• Excisional
• Punch

Management

Prevention is better than cure. Five year survival rate is higher in patients diagnosed early. However, 3 modalities of treatment or in combination are available. These are
• Radiotherapy
• Surgery
• Chemotherapy

Fluorosis: Prevention can be done by the following measures:

<table>
<thead>
<tr>
<th>Primary prevention</th>
<th>Secondary prevention</th>
<th>Tertiary prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Specific guidelines on the use and appropriate dose levels of fluoride</td>
<td>• Improve the nutritional status, especially of expecting mothers, newborns and</td>
<td>Treat the discoloured/disfigured dentition by appropriate aesthetic treatment such</td>
</tr>
<tr>
<td>supplements, and use of fluoride toothpaste for young children</td>
<td>children up to the age of 12 years.</td>
<td>as bleaching, micro-abrasion, laminate veneers, etc.</td>
</tr>
<tr>
<td>• In high fluoride areas</td>
<td>• Treat other causes of fluoride toxicity such as kidney and thyroid diseases, etc.</td>
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</tr>
<tr>
<td>—provide an alternate supply of drinking water</td>
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<td></td>
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<tr>
<td>—employ defluoridation techniques at the community or individual level</td>
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Gingivitis can be prevented by good personal oral hygiene practices, including brushing and flossing which are important also to control advanced periodontal lesions. Community water fluoridation is effective in preventing dental caries in both children and adults. Water fluoridation benefits all residents served by community water supplies regardless of their social or economic status. Salt and milk fluoridation schemes are shown to have similar effects when used in community preventive programmes. Professional and individual measures, including the use of fluoride mouthrinses, gels, toothpastes and the application of dental sealants are additional means of preventing dental caries.

Lifestyle behaviour that affects general health such as tobacco use, excessive alcohol consumption and poor dietary choices affect oral and craniofacial health as well. These individual behaviours are associated with increased risk of craniofacial birth defects, oral and pharyngeal cancers, periodontal disease, dental caries, oral candidiasis and other oral conditions. Oral health care providers can also play a role in promoting healthy lifestyles by incorporating tobacco cessation programmes and nutritional counselling into their practices.

Nutrition:

Today the world faces two kinds of malnutrition, one associated with hunger or nutritional deficiency and the other with dietary excess. Diet and nutrition affects oral health in many ways. Nutrition, for example, influences cranio-facial development, oral cancer and oral infectious diseases. Dental diseases related to diet include dental caries, developmental defects of enamel, dental erosion and periodontal disease. The major challenges are: to implement nutritional counselling, covering not only the general health aspects of having good nutritional behaviour but also emphasising the aspects directly linked with oral health. The
posteruptive effect of diet in terms of sugar consumption is one of the aetiological factors for dental caries.

Awareness-raising activities to promote breastfeeding are to be facilitated. Among other important health benefits, breast milk prevents the occurrence of rampant early childhood caries. Early childhood caries is caused by frequent and prolonged exposure of the teeth to sugar and is often the result of a child going to bed with a bottle of a sweetened drink or drinking at will from a bottle during the day. Advise in regard to decreasing the consumption of sugary soft drinks, a major risk factor in dental caries, should be taken seriously. Also, dental erosion seems to be a growing problem and in some countries an increase in erosion of teeth is associated with an increase in consumption of beverages containing acids. We should promote a rational and healthy diet among people living in deprived and more remote areas by encouraging the use of natural products with good nutritional values instead of refined, industrialised food. We should advocate a healthy diet which can also help prevent oral cancer viz. fresh yellow-green fruits and vegetables including salads since these have been identified as beneficial and also Vitamin A, C and E supplements. Excessive consumption of alcohol is an important risk factor in the aetiology of oral precancerous and neoplastic lesions and such habits should be discouraged.

**Prevention of other tooth problems**

The following measures need to be adopted:

- Prevention of malocclusion (especially crowding of the teeth) by referral to a dental surgeon.
- Prevention of premature loss of deciduous teeth by regular dental checkups.
- Restoration of missing permanent teeth by prostheses (dentures) by referral to a dental surgeon.
- Making sugar-free chewing gum freely available and affordable in the country.
- Using sugar substitutes such as saccharine, xylitol, mannitol, aspartame, etc. in paediatric medicinal syrups, bakery products, jams, marmalade, etc.
- Making toothbrushes and fluoridated toothpaste available to the masses at low cost. Regular use of fluoridated toothpaste is proven to reduce the incidence of dental caries by 30%.

**6.2.4 Taking Appropriate Decision and Referral**

Most oral diseases and conditions require professional dental care, however, due to limited availability or inaccessibility, the use of oral health services is markedly low among young, older people, under privileged, people living in rural areas, and people with low socio-economic status. Traditional curative dental care is a significant economic burden for many high-income countries, where 5–10% of public health expenditure relates to oral health. In low and middle-income countries, public oral health programmes are rare. The high cost of dental treatment can be avoided by effective prevention and health promotion measures. However, once these dental diseases are established, they should be managed by trained doctors and specialists of the particular disease. It is recommended that one should see a Dental Surgeon every 6 months so that any oral and dental disease can be diagnosed and referred at any early stage.
As most of the dental/oral diseases are not life threatening, it is not a priority both for the Government as well as the Community. However, as these diseases result in loss of productivity and loss of man days, oral health care is being integrated into the health care delivery system in PHC and CHC level. Creating awareness and providing facilities with regard to manpower (Dental Surgeon) and infrastructure (machinery and materials) at the PHC and CHC level has done wonders in decreasing the burden of dental and oral diseases as well as diagnosing and referring the potentially malignant conditions to higher centres.

6.2.5 Care of Patients Who are Already Suffering from Dental Problems

The following general measures should be followed:

- Creating awareness in regard to diet and nutrition
- Stop Tobacco and Tobacco Cessation counselling
- Regular exercise and life style changes
- Proper oral hygiene instructions – tooth brushing twice a day after meals using junior tooth brush and a pea size of toothpaste, or brushing with Datun or Neem, but NOT chewing. Professional cleaning of Teeth (Scaling) to be carried out once in 3–5 years by a dental professional.

Dental Caries: Treatment comprises removal of decay by operative procedures and restoration with appropriate materials such as silver fillings, gold inlays, composite resin, glass ionomer cement, full metal or porcelain crowns, etc. In advanced cases, where the pulp of the tooth is involved, endodontic treatment may be required. Where there is extensive destruction of the tooth structure or when endodontic treatment is not feasible, extraction of the tooth and replacement by an artificial prosthesis may be required.

Postsurgical complications

A post-extraction bleeding tooth socket should be treated by using a wad of wet gauze placed over the socket and the patient should be advised to bite down (for 30 min.) and arrest the haemorrhage through pressure; any medications that promote bleeding should be temporarily discontinuation and the patient should seek dental advice if the symptoms do not settle, as suturing may be necessary.

6.3 SCREENING FOR GINGIVITIS, DENTAL CARIES AND ORAL CANCERS

Screening as a method for diagnosing diseases and conditions is of prime importance in regard to oral diseases and conditions. This not only helps in diagnosing diseases and conditions in the early stage but also helps in diagnosing the progress of potentially malignant conditions to oral cancer thus increasing the 5 year survival rate in regard to Oral cancer.

6.3.1 What to do When you Encounter Suspected Case of Oral Cancer?

Diagnose the condition with the help of Biopsy, and start Tobacco Cessation
including healthy lifestyle counseling immediately. Referral of diagnosed Oral cancer cases to specialist higher centres.

6.3.2 Care of Diagnosed Case of Dental /Oral Condition
Institute the therapy to manage these conditions as soon as possible, and at the same time provide oral health prevention and promotion strategies.

6.3.3 Importance of Counselling in Dental Conditions
It is pertinent to point out that when a patient sits in a Dental Chair and is asked to open his mouth, the Dental Surgeon while carrying out a screening of the oral cavity can use his skills in counselling the patient who has no option but to listen.

6.4 MANAGEMENT AND TREATMENT FOR VARIOUS DENTAL CONDITIONS
WHO recommends for public health that every effort must be made to develop affordable fluoridated toothpastes for use in developing countries. Water fluoridation, where technically feasible and culturally acceptable, has substantial advantages in public health; alternatively, fluoridation of salt and milk fluoridation schemes may be considered for prevention of dental caries.

Thus PREVENTION and PROMOTION is better than CURE in regard to dental and oral conditions.

6.5 LET US SUM UP
Most of the common dental diseases are from preventable causes. Early identification of these diseases, preventive strategies and patient education are the key factors that can help control the morbidity from them. Hence, all steps should be taken to intercept these diseases in the initial stages, by identifying the high-risk population and risk modification by life-style changes. Once these diseases set-in, proper treatment should be undertaken from specialists, without delay.

6.6 ACTIVITY
Visit any of the places mentioned below during your community posting and identify dental problems,

- School
- Old Age Home
- Dental OPD
- Working place of your choice

Plan health education programme on Oral/Dental Health Promotion and document in the log book provided to you.
6.7 REFERENCES

1) Oral health for adults in care homes; NICE Guidelines (July 2016).

2) Oral health promotion: general dental practice; NICE Guidance (December 2015).
