

# **Preventive Dentistry**

## **Identification of High Risk Groups**

### **For Dental Caries**

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Assessment of the individual patient's current caries activity and risk of future caries progression is an important part of recent dental practice. Always the dentist must remember that treat patients not just individual lesions.

In an effort to optimize the identification of improved caries diagnostic, prevention, treatment strategies ,to assess the quality of the data on existing diagnostic and treatment plan.

#### **Objectives of future Caries progression assessment**

At the individual basis ,non operative treatments should be focused on who need them the most .Dentist must identify which of the many risk factors involved and operating according to it to insure an effective management.

Dental care neither begins or ends with a single course of treatment but is on going treatment. With recall intervals and radiographic recall based on this assessment. Patients should be made aware of their relative risk for developing new lesions and for progression of existing lesions.Patients ,as well as professionals should be alert of the possible changes in risk status.

The strongest evidence of caries activity is the presence of active carious lesion (cavitated or non- cavitated) at the time of examination .

In this situation it is important to note how many lesions are located .

Also note the number of new caries ,progressing or filled lesion observed over the past 2-3 years.

## **Activity status**

When estimating the activity status due consideration should be given to the stage of development of the dentition. Children , Adolescents, Adults and elderly people

## **Identifying caries risk factors:**

According to Beck( 1998),a risk factor is defined as "an environmental ,behavioral ,or biological factor confirmed by temporal sequence, usually in longitudinal studies, which if present, directly increases the probability of a disease occurring, and if absent or removed, reduces the probability. Risk factors are part of the causal chain, or expose the host to the causal chain. Once disease occurs, removal of a risk factor may not result in a cure."

Important biological and environmental risk factors include salivary flow, level of oral hygiene, some dietary aspects and fluoride exposure, all of which are the determinants of the disease.

## **Identifying biological and environmental risk factors**

It is good practice to list the factors thought to be responsible for the individual's caries risk status .This defines what should be modified for that particular individual. It may also define factors that cannot be modified, e.g. a dry mouth consequent to destruction of the salivary glands. Such a patient will always be a high caries risk.

## **Steps for Diagnosis of High Risk Groups**

### **1-Medical history**

Current and past diseases

Current medications

Xerostomia

### **2-Dental history**

a- Current activity state of caries lesions

b- Past history of caries

c- Current oral hygiene practices and proficiency

d- Current exposure to topical fluorides from toothpastes, rinses or tablets

e- Current dietary pattern

### Categorizing caries-activity status and caries-risk status

On the basis of the history and examination the patient may be allocated to one of the following caries activity and caries risk categories.

• **Caries inactive/caries controlled:**

no (or maximally one) active lesion and no history of recent restorations.

**Caries active but all relevant risk factors can potentially be changed (e.g. plaque control, fluoride, diet) :**

presence of active lesions and a yearly increment 2-3 new/ progressing /filled lesions in the preceding 2-3 years.

Caries control may be achieved through changes in the risk factors.

**Caries active but some risk factors cannot be changed (e.g. some dry mouths, some medications) or risk factors cannot be identified :**

presence of active lesions and a yearly increment 2-3 new /progressing /filled lesions in the preceding 2-3 years.

This patient category will always be at high risk of caries, but it may be possible to control caries development by maximal control of the risk factors.

**Non-operative treatments are available:**

1-plaque control

  Tooth brushing

  Interdental cleaning

  Professional tooth cleaning

2- Use of fluoride.

3-Dietary modification.

4- Recall interval

  a-Examining the mouth at recall

  b-Assessment of compliance at recall

c-Recording changing in oral health behavior and carious lesion activity at recall

d- Resetting the recall interval

## **Caries Risk Groups**

### **1- Dietary habits contribute to caries risk.**

Fermentable carbohydrate consumption fuels acid formation and demineralization and is associated with caries, particularly in the absence of fluoride. The amount, consistency, and frequency of consumption determine the degree of exposure. Long-term regular doses of medications containing glucose, fructose, or sucrose

#### The interventions included

application of acidulated phosphate fluoride gel (APF), fluoride varnish, chlorhexedine gels, pit and fissure sealants, use of dentrifices and other products containing noncariogenic sweeteners

### **2-Identifying social and demographic risk factors**

Although not directly involved in the caries process, social factors can have an over riding influence on health and disease and on what lifestyle changes patients can make.

Low indices of socioeconomic status (SES) have been associated with elevations in caries, although the extent to which this indicator may simply reflect previous correlates is unknown.

Low SES is also associated with reduced access to care, reduced oral health importance, low self efficacy, and health behaviors that may enhance caries risk.

### **3-Children and Adolescent**

The cornerstones in caries control (**plaque control, use of fluoride, proper diet**) are the same for all ages, but up to the age of about 12 years it is the parents (or those who bring the child up) who play the most important role. When caries-control strategies are planned for children it

should be remembered that caries in the child is the result of decisions taken by adults.

### **a. Early childhood caries**

Children in the age group 12-30 months have a special caries pattern that differs from older children. Caries affects the **maxillary primary incisors first primary molars** in a way that reflects the pattern of eruption.

The longer the tooth has been present and exposed to the caries challenge, the more it will be affected. The upper incisors are most vulnerable, while the mandibular incisors are protected by the tongue and saliva from submandibular and sublingual glands.

### **b. Children**

The most consistent predictor of caries risk in children is past caries experience. There is evidence of matrilineal transmission of mutans streptococci in early childhood. Hence, the presence of caries in the mother and siblings increases risks for the child.

#### **Management in Children**

Regular brushing of tooth surfaces using a fluoride-containing dentifrice, reduces caries risk. Conversely, inadequate exposure to fluoride confers increased risk.

Conditions that compromise the long-term maintenance of good oral hygiene are also positively associated with caries risk. These include

- 1- certain illnesses.
- 2- physical and mental disabilities.
- 3- and the presence of existing restorations or oral appliances.

### **3- Children with orthodontic treatment**

Children undergoing orthodontic treatment with fixed appliances have an additional risk for caries development, especially where there is frequent consumption of sugar-containing soft drinks.

Daily **tooth brushing** with fluoride-containing toothpaste, combined with use of a **fluoride mouth rinse**, is also the basic prevention method in this group.

Patients with active caries are at special risk and consideration should be given to the use of **professional tooth cleaning with fluoride applications during visits** . It is also reasonable to suggest that orthodontic treatment is unwise in those where current caries status designates them as high risk.

Combination Interventions these include :

- 1- combined fluoride interventions,
- 2-chlorhexedine plus fluoride,
- 3-chlorhexedine plus sealants,
- 4- chlorhexedine plus xylitol.
- 5-All studies included instructions in dietary modification and oral hygiene and instructions for control and experimental groups.

In general, these combination treatments have been shown to be effective in preventing caries in children.

#### **4-Patient with a dry mouth**

These patients are a particularly challenging group because their situation is often permanent. Thus, preventive measures may have to be intensified and continued throughout life and despite these efforts, it is not always possible fully to control disease progression. However, some patients with moderately decreased salivary secretion (unstimulated flow between 0.2 and 0.3 ml/min) can possibly be managed by a combination of improved self-performed plaque control with fluoride toothpaste, and limiting sugar intakes.

#### **Medical Conditions affecting Saliva**

Medical conditions such as Sjögren's syndrome, pharmacological agents with xerostomic side effects, And therapeutic radiation to the head and neck, lower salivary flow rate to pathological levels and dramatically elevate a patient's risk of caries. Normal salivary flow rate is protective against caries.

Some studies indicate that low buffering capacity, low salivary IgA, and low salivary calcium and phosphate are weakly linked to increased caries as well.

## Conservative measures to relieve the symptoms

The following measures are helpful to relieve the discomfort that accompanies a severely dry mouth:

- sipping water frequently all day long.
- restricting the intake of substances that exacerbate dryness, such as cigarettes, caffeine-containing drinks and alcohol.
- avoiding astringent products such as alcohol-containing or strong mint-flavored mouthwashes, and strongly flavoured toothpastes.
- coating the lips with lip salve or Vaseline.
- humidifying the sleeping area.

## 5-Elderly

the inability to maintain good oral hygiene and xerostomia are risk factors of special significance among the elderly, and gingival recession uniquely increases the risk of root caries in elderly

## 6-People who cannot care for themselves

Some individuals need help to do such basic things as wash and clean their teeth. Perhaps they are disabled by illness, which may be physical (e.g. cancer and its treatment, stroke) or neurological (e.g. dementias, Parkinson's disease, multiple sclerosis).

Many of these conditions are associated with old age, but this is not invariably the case. These people are sometimes referred to as 'functionally dependent'. They may be living at home with assistance from carers, who may or may not be family members, or they may be in residential or nursing homes.