SECTION 2

Measuring tooth decay and gum disease

How is tooth decay measured ?

The extent and severity of tooth decay is measured by an universally adopted measurement, known as the DMFT index.

The damage to the tooth caused by decay is irreversible. Therefore, the visible state of a decayed tooth can be : decayed and left untreated (DT), missing (i.e. extracted due to decay) (MT), or filled (FT). The total number of teeth affected by tooth decay in an individual is the sum of DT + MT + FT , which is known as the DMFT value. Each adult normally has 32 permanent teeth, and its DMFT value may range from 0 to 32. Small letters (dt, mt, ft and dmft) are used to denote decay experience in the primary teeth (milk teeth or baby teeth). Each child normally has 20 primary teeth, and its dmft value may range from 0 to 20.

The severity of tooth decay in the population is measured by the mean (average) DMFT value for age 12 and above, and the mean dmft value for children below age 6. The mean DMFT/dmft are useful values in making comparisons among population where almost everyone is affected by tooth decay. This may not be the case among population where prevention of tooth decay has been effective and a significant proportion within the population were free from tooth decay. Under such situation, the mean DMFT/dmft value can be misleading, as the average number of DMFT/dmft among affected people only, may be much higher than the mean DMFT/dmft among the whole population.

In addition to assessing the severity of tooth decay, it is equally important to assess the extent of tooth decay in the population. The extent of tooth decay is measured by the percentage of people with decay experience, i.e. DMFT > 0 for adults and dmft > 0 for children. 0 denotes no decay experience or free from tooth decay.

To more accurately assess the problem of tooth decay which are left untreated in a population, it is necessary to include the mean DT/dt value and the percentage of people with untreated decay, i.e. DT > 0 for adults and dt > 0 for children.

With the emerging presence of decay of root surfaces in the adult and older person groups, its presence is recorded separately for monitoring and surveillance purposes. The state of a root surface can either be decayed and left untreated (D-root) or filled (F-root), and the total experience of root surface decay for an individual is measured by the DF-root value.

How is gum condition measured ?

The health status of the gum and supporting tissue is measured by two indices, i.e. Community Periodontal Index (CPI) and the loss of attachment (LOA).

CPI measures and classifies gum condition into one of the following categories : healthy gum, presence of gum bleeding, presence of calculus deposit, presence of shallow pocket, and presence of deep pocket. According to the World Health Organization recommendation, examination for pockets do not apply to 5 and 12-year old children. This categorization does not represent the stages of progression of gum disease. Different category of gum condition merely indicates different levels of treatment need.

LOA measures the accumulative loss of tooth supporting tissues in millimeters (mm) from the original level of gum margin to the existing level of gum attachment. LOA ≥ 12mm and LOA ≥ 9mm are considered to be severe loss of gum attachment, LOA ≥ 6mm includes moderate and severe loss of gum attachment, and LOA ≥ 4mm includes any loss ranging from mild to severe.

While the DMFT value is a measure of decay experience in all the teeth present in a person's mouth, the CPI and LOA values for an individual are the highest corresponding values recorded on examination of the gums. Such examination may be performed on all teeth present, which is considered time consuming and not practical. The recommendation of the World Health Organization is to examine a representative tooth in each of the six sextants in the mouth. The mouth is divided into six sextants. The extent of gum disease in any person's mouth is represented by the number of sextants with a specific degree of destruction as measured by CPI or LOA. The number may range from 0 to 6.