

Indices used for assessment of periodontal disease

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Lecture Outline:

- General Definitions
- Periodontal Indices

General Definitions

- **Dental plaque**
- **Gingival inflammation**
- **Periodontitis**
- **Calculus**
 - supra gingival calculus
 - sup gingival calculus



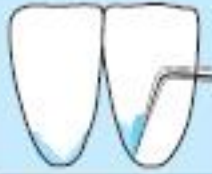
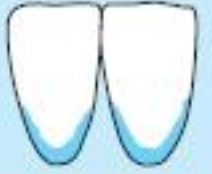
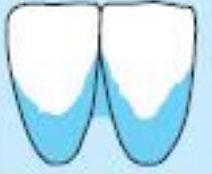
Periodontal Indices

1. Dental plaque index

- Described by (Silness and Loe 1964)
- used for assessment the thickness of plaque at the gingival area of the tooth
- 4 gingival areas (facial, lingual, mesial and distal) are examined
- Only 6 teeth used for scoring of this index:
- No substitution for any missing teeth

6	2	4	E	B	D
<hr/>			<hr/>		
4	2	6	D	B	E

Scoring criteria

Grade 0	No Plaque			
1	Thin plaque layer at the gingival margin, only detectable by scraping with a probe			
2	Moderate layer of plaque along the gingival margin; interdental spaces free, but plaque is visible to the naked eye			
3	Abundant plaque along the gingival margin; interdental spaces filled with plaque			
			Abbreviation	Grade
			PI	0-3

Calculation

$$PII \frac{\text{Sum of all individual palque scores}}{\text{Total no. of surfaces}} \text{ this for individual}$$

For a group

$$\frac{\text{total scores of individuals in a group}}{\text{Total no. of individual in a group}}$$

Calculation

	Upper right six	Upper right lateral incisor	Upper left 1st premolar	Lower left six	Lower left lateral incisor	Lower right 1 st premolar		
Buccal	1	1	2	1	0	0	24 ÷ 24 = 1	
Mesial	2	1	1	1	0	1		
Lingual	0	1	2	2	1	1		
distal	1	1	1	1	1	1		

2.Calculus Surface Index (CSI)

- developed by Ennerver et al in 1961
- assess the presence or absence of supra gingival or sub gingival calculus on four or six mandibular incisors, by visual or tactile examination
- Each incisor is divided into 4 scoring units
- Calculation of index= total no. of surfaces with calculus is considered the CSI score pre person.

3. Gingival index(G1)

- **developed** by Loe and Silness in 1963
- assess the severity of gingivitis and its location in all teeth or selected teeth and in all surfaces or selected surfaces
- using blunt explorer probe
- widely used due to its validity, reliability and easy to use
- the teeth selected as the index teeth the same of plaque index teeth(PLI)

Scoring Of Gingival index(GI)

Grade	Abbreviation	Grade	Description
		0	Normal gingiva; no inflammation; no discoloration (erythema); no bleeding
		1	Mild inflammation; slight erythema; minimal superficial alterations. No bleeding
		2	Moderate inflammation; erythema; bleeding on probing
0-3	GI	3	Severe inflammation; severe erythema and swelling; tendency to spontaneous bleeding; possible ulceration.

Indices used for measuring periodontal diseases

Periodontal Disease Index (PDI):

- Developed by SIGURD P. RAMFJORD in 1959
- PDI measure the level of the periodontal attachment related to the Cemento- enamel junction of teeth
- Teeth examined: **(FDI)** system tooth numbers are in this index:

upper	16			21	24	
lower		44	41			36

Component of Periodontal Disease Index:

1. Plaque component of PDI

- developed by Ramfjord in 1959
- Use a numerical scale to assess the extent of plaque covering the surface area of tooth
- The scoring is done on the six Ramfjord (index) teeth
- the surfaces scored are the Facial, lingual, mesial and distal

Scoring criteria:

- 0 no plaque present
- 1 Plaque present on some but not on all interproximal, buccal and lingual surface of the tooth.
- 2 Plaque presents on some or all interproximal, buccal and lingual surfaces, covering less than one half of these surfaces.
- 3 Plaque extending over all interproximal, buccal and lingual surfaces, covering more than one half of these surfaces

Note:

- Only fully erupted teeth should be scored
- Missing teeth should not be substituted.

Component of Periodontal Disease Index:

2. Calculus component of PDI

- Developed also by Ramfjord in 1959
- to assess the presence and extent of calculus
- The scoring is done on the six Ramfjord (index) teeth
- The surfaces scored are the Facial, lingual

Scoring criteria:

- 0 Absence of calculus
- 1 Supra gingival calculus extending only slightly below the free gingival margin (not more than 1 mm)
- 2 Moderate amounts of supra gingival and sub gingival calculus or sub gingival calculus alone
- 3 An abundance of supra gingival and sub gingival calculus

Component of Periodontal Disease Index:

3. Gingival component of PDI

- Developed also by Ramfjord in 1959
- by combining the assessments of gingivitis and gingival depth
- The scoring is done on the six Ramfjord (index) teeth

Scoring criteria:

- 0 absence of signs of inflammation
- 1 Mild to moderate inflammatory gingival change, not extending around the tooth
- 2 Mild to moderate severe gingivitis extending all around the tooth
- 3 Severe gingivitis characterized by marked redness, swelling tendency to bleed and ulcerate

Indices used for Treatment Needs Assessment:

Community Periodontal Index of Treatment Needs (CPITN):

- developed by WHO and F.D.I 1982
- The examination done by special probe (CPITN probe)
- The mouth is divided in to 6 parts (sextant)
- Index teeth: the score is identified by examination of specified index teeth.

6	1	6
6	1	6

Criteria of CPI index

- 0 No need for care
- 1 Gingival bleeding on gentle probing
- 2 Presence of calculus and other plaque retentive factors
- 3 Presence of 4 or 5mm pocket
- 4 Presence of 6mm or deeper pocket

Criteria of TN index

- 0 no treatment need
- 1 A need for improving of personal oral hygiene
- 2 A need for professional cleaning (scaling and polishing) and requirement for oral hygiene instruction and for shallow pocket 4-5mm need scaling and root planning
- 3 Deep pocket 6mm or deeper need deep scaling, root planning and more complex procedure

Advantages of CPITN

- Simplicity
- Speed
- International uniformity
- Records the common treatable conditions like periodontal pockets, gingival inflammation and calculus

Indices used for dental fluorosis measurement:

Dental fluorosis is hypoplasia or hypo mineralization of tooth enamel or dentine produced by the chronic ingestion of excessive amounts of fluoride during the developing period of teeth

Dean's Fluorosis Index:

- Introduced by ***Dean in 1942*** , assessment of dental fluorosis
- Recommended in survey of (WHO) 1997

Scoring criteria:

- 0 **Normal Enamel**

- 0.5 **Questionable** Enamel discolored(ranging from a few white flecks to occasional white spot)

- 1 **Very mild** Small, opaque , paper, white area scattered irregularly over the tooth, but not involving as much as approximately 25% of tooth surface

- 2 **Mild** The white opaque areas in the enamel of teeth are more extensive, but not involve as much as 50% of tooth

- 3 **Moderate** All enamel surfaces of teeth are affected and subject to attrition show wear., brown stains is a disfiguring feature

- 4 **Sever** All enamel surfaces of teeth are affected and **hypoplasia** is so marked that general form of the tooth may be affected

