Dental Indices and Scoring Methods

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Purpose
- Individual Assessment Score
- Clinical Trial
- Epidemiologic Survey
- Community Surveillance

Index
- Expression of clinical observation in numeric value
- Used to describe status of individual or group with respect to condition being measured
- Use of a numeric scale results in index score that is more consistent and less subjective than word descriptions of condition

Examples in Dentistry
- Caries (crown and root)
- Gingival bleeding
- Plaque accumulation
- Oral Hygiene Status
- Gingivitis and Periodontal Disease
- Fluorosis

General Categories & Types
- Simple Index
  - Measures presence or absence of condition
- Cumulative Index
  - Measures all of the evidence of the condition (past and present)
- Irreversible
  - Measure conditions that will not change
- Reversible
  - Measure conditions that can be changed

Properties of a Good Index
- Clear (easy to understand)
- Reliable (consistent)
- Evaluative (can be used by statisticians)
- Valid (does what it was intended to do)
- Acceptable (not harmful or painful)
- Sensitive (measures small changes)
- Simple (easy to calibrate)
- *Quantifiable and Objective
Caries Indices (determine total caries experience past and present)

- DMFT, DMFS, deft, RCI
- DMFT & DMFS = permanent dentition
- deft = primary/deciduous dentition
- RCI = root caries
- IRREVERSIBLE

DMFT

- Teeth not counted if removed or restored for reasons other than decay
- D, M, and F scores recorded separately then totaled
- Increase incidence of D = ?
- Increase incidence of F and M = ?

DMFS

- Decayed, Missing, Filled SURFACES
- X-rays required
- Posterior = 5 surfaces
- Anterior = 4 surfaces
- Max score = 128

deft

- Measures observable caries in primary teeth
- "e" represents tooth indicated for extraction due to caries
- 20 teeth evaluated
- Missing teeth ignored

RCI (Root Caries Index)

- Recession MUST be present
- Score reported as %
- Numerator is all decayed and filled root surfaces
- Denominator is all M, D, B, & L surfaces with recession

Maximum DMFT = ?
Indices that measure Oral Hygiene Status

- Biofilm, Debris, Calculus

Clinical setting
- patient education, motivation

Community setting
- findings help determine how daily oral care is being provided and monitor the results of community oral hygiene programs (nursing homes, etc)

Plaque Index (PL I)
(Silness and Loe)

- Assess biofilm thickness along cervical 1/3 tooth
- Eval entire dentition or selected teeth
- 4 gingival areas
  - M, D, L, F
- Scale of 0 (no biofilm) to 3 (abundant biofilm/debris in pocket)
- Ratings
  - Excellent = 0
  - Good = 0.1 – 0.9
  - Fair = 1.0 – 1.9
  - Poor = 2 – 3

Plaque Control Record
(O’Leary, Drake, & Naylor)

- Record presence of biofilm on individual tooth surfaces so patient can SEE progress while learning biofilm control
- M, D, B, L surfaces all teeth evaluated
- Disclose and count all surfaces stained with biofilm then divide by # surfaces present
- 0% is goal; 10% more realistic

Plaque Free Score

- All B, L, M, D surfaces evaluated
- Disclose and count number of surfaces without stained plaque
- Calculate percent of surfaces without plaque
  - 100% is the goal

Patient Hygiene Performance (PHP)

- Teeth
  - 3, 8, 14, 19, 24, 30
  - 2nd molar used if 1st is missing, crowned, or partially erupted
  - Adjacent central used missing incisor
- Divide surfaces into 5 sections
- F surfaces of incisors and Max molars and L surfaces of Mand molars examined
- Count divisions that have plaque
- Calculate score
  - 5 surfaces/tooth
  - 6 teeth
  - Max = 30
- Report as percent
  - Divide maximum score by total # surfaces
- Ideally, PHP should decrease as OH improves
Assess oral cleanliness by estimating tooth surface covered with debris and/or calculus.

2 components:
- Simplified Debris Index (DI-S)
- Simplified Calculus Index (CI-S)

6 teeth (max molars buccal, mand molars lingual, incisors facial) + proximal

Record 6 debris scores
Record 6 calculus scores

Scores = 0, 1, 2, 3
2 scores may be used individually (DI-S and CI-S) or combined for the OHI-S
0 = excellent
3.1–6 = poor

Gingival Indices
- GI
- SBI
Periodontal Indices
- PSR
- CPITN
- PI
- PDI

Reversible
Designed to detect early symptoms of gingivitis
Useful in short-term clinical trials

B, L, M, D surfaces of maxillary and mandibular anterior teeth only
Sulcus gently probed then observed after 30 seconds
Scale of 0, 1, 2, 3, 4, and 5
0 = no bleeding, up to 5, spontaneous bleeding
Examiner calibration critical
Gingival Bleeding Index (GBI)

- Determine presence/absence gingival inflammation
  - Observe bleeding in interproximal sulci
- Floss all interproximal areas
- Visualize for 30 seconds

No attempt to quantify

Eastman Interdental Bleeding Index

- Wooden interdental cleaner inserted into interproximal space
- Presence/absence of bleeding noted within 15 seconds after final insertion
- Can report as percent or # bleeding sites

Gingival Index (GI)

- Subjective measure of amount of gingivitis
- B, L, M, D of all or selected teeth evaluated
- Score
  - 0 = none
  - 1 = slight redness, no spontaneous bleeding
  - 2 = moderate redness, some bleeding
  - 3 = spontaneous bleeding, ulceration, deep red

Subjective measure of amount of gingivitis

B, L, M, D of all or selected teeth evaluated

Score
- 0 = none
- 1 = slight redness, no spontaneous bleeding
- 2 = moderate redness, some bleeding
- 3 = spontaneous bleeding, ulceration, deep red

Community Periodontal Index of Treatment Needs (CPITN)

- Developed by World Health Organization (WHO)
- Requires use of specially designed probe – WHO probe
  - .5mm ball on end
    - Aids in detection of calc., overhangs, root surface irregularities
  - Color coded band between 3.5 mm and 5.5 mm
  - 5 Codes: 0, 1, 2, 3, 4, (*)

Subjective measure of amount of gingivitis

B, L, M, D of all or selected teeth evaluated

Score
- 0 = none
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CPITN index

Adopted by ADA and AAP in 1992

Used in clinical practice as screening procedure to determine need for CPE

Requires WHO probe

Evaluate by sextant

5 Codes: 0, 1, 2, 3, 4, (*)

CPI Readings

- 0 = Entire black band visible, healthy tissues, no bleeding
- 1 = Entire black band visible, bleeding upon probing
- 2 = Entire black band visible, calculus present
- 3 = Black band partially hidden, 4–5 mm pockets
- 4 = Black band entirely hidden, Greater than 6 mm pockets
- * place by code for furcation involvement, mobility, mucogingival problem, marked recession, or all

Periodontal Screening & Recording (PSR)

- Modified version of CPITN index
- Adopted by ADA and AAP in 1992
- Used in clinical practice as screening procedure to determine need for CPE
- Requires WHO probe
- Evaluate by sextant

5 Codes: 0, 1, 2, 3, 4, (*)
Other Indices

- "Periodontal Index (PI)
- "Periodontal Disease Index" (PDI)
- Not used much today
- CAMBRA—caries management by risk assessment
  - Caries Risk assessment form
  - Assessing risk factors and attempting to manage them through behavioral, chemical, and minimally invasive procedures

Fluorosis Index

- Developed by Dean to measure amount of fluorosis in communities
- Smooth surface enamel of all teeth examined
- Numerical score: 0 = normal up to 5 = severe

Community Needs Assessment

- Examination methods
  - Type I = Complete Exam
    - Mirror, explorer, lighting, x-rays, study models, diagnostic tests, etc
  - Type II = Limited Exam
    - Mirror, explorer, lighting, posterior BWX and select PA’s
  - Type III = Inspection
    - Mirror, light
  - Type IV = Screening
    - Tongue depressor, light

Case Study

- Two dental hygienists evaluated the oral cavity of 10 expectant mothers at a childbirth class. They utilized mouth mirrors and a flash light to assess gingival health. After completing all of the assessments, the hygienists determined this group of mothers would benefit from oral hygiene instructions. During the next childbirth class the hygienists were given 15 minutes to provide individualized OHI for each mother. They conducted follow-up assessments in the hospital after each mother gave birth. At this assessment they used tongue depressors and flashlights.

- 1. What type of exam method was used during the initial assessment of the mothers’ gingival health?
- 2. What type of exam method was used during the post-delivery assessment of the mother’s gingival health?