Complete and Partial Edentulism

Examination, Diagnosis and Treatment Planning for

Edentulous Patients

PhD Oleg Solomon.

INTRODUCTION

- Successful complete denture therapy begins with thorough assessment of patient's physical and psychological condition and determining a treatment that will deliver functional complete denture therapy & satisfies patient's expectations.

Procedures Carried Before Denture Treatment

- General information
- Chief complaint & patient expectations
- Medical history & current medication
- Dental history
- Visual & manual examination of the mouth and head and neck
- Radiographic examination

Continue

- Referring for additional tests or medical consultation
- Referring for second opinion
- Making alginate impressions & preparing mounted study models
- Discussion of diagnosis, treatment planning & prognosis with patient
- Finalizing the fees & obtaining a signed consent

The First Meeting

- Most important
- Prior to meeting, you should review general information
- Your confidence is as important as the treatment itself
- You should be a good listener
- Your communication should be in a simple & truthful manner

Recording General Information

1. Name
2. Race
3. Occupation
4. Address and telephone no.
5. Previous dentist

Age

With advancing age*:

1. Decrease capacity of tissue to tolerate stress
2. Tissue takes longer time to heal
3. Many diseases are prevalent in older age
4. Women at postmenopause may have psychological disturbances (exacting or hysterical)
5. Men at this age may be concerned with only comfort & function (indifferent)

Psychological Evaluation (House Classification of Denture Patients)

- Philosophical patient: well motivated, cooperative, calm & composed even in difficult cases.
- Exacting (critical): likes each step in detail, makes alternative treatment for dentist, makes severe demands.*

Continue

- Indifferent: not very interested in treatment, blames the dentist for any mishap, not follow instructions, been coerced to come by friend, relative….*

- Hysterical: easily excited, highly apprehensive, unrealistic expectations*
- Skeptical: bad results from previous treatment, doubtful, often have severely resorbed ridges and poor health, might have psychological disturbances from recent personal trajedy #

Medical History*

- Diabetes Mellitus
- Cardiovascular diseases
- Diseases of joints: osteoarthritis
- Diseases of skin: pemphigus ?
- Neurological disorders (Bells balsy and Parkinson)
- Sjogren's syndrome
- Transmissible diseases

Radiation Therapy Vs. Dentures

- Consequences of Radiation therapy
- Preprosthetic surgery
- Wearing of previous denture *
- Denture Fabrication #

Denture Fabrication in Radiation Therapy Patient

- Avoid impression material that dry tissue (impression plaster) or heavily flavored materials (ZOE)
- Consider non-anatomic teeth
- Teeth set in neutral zone
- Slight reduction in vertical dimension
- Soft liners are controversial due to porosity and possibility of candida

Current Medication

- Insulin *
- Anticoagulants
- Antihypertensive: dryness & postural hypotension
- Corticosteroids: dryness, confusion & behavioral changes
- Antiparkinson agents like Norflex and Akineton: dryness, confusion & behavioral changes

Dental History

- History of tooth loss: cause, time*
- Edentulous period

“Bag of Dentures” *

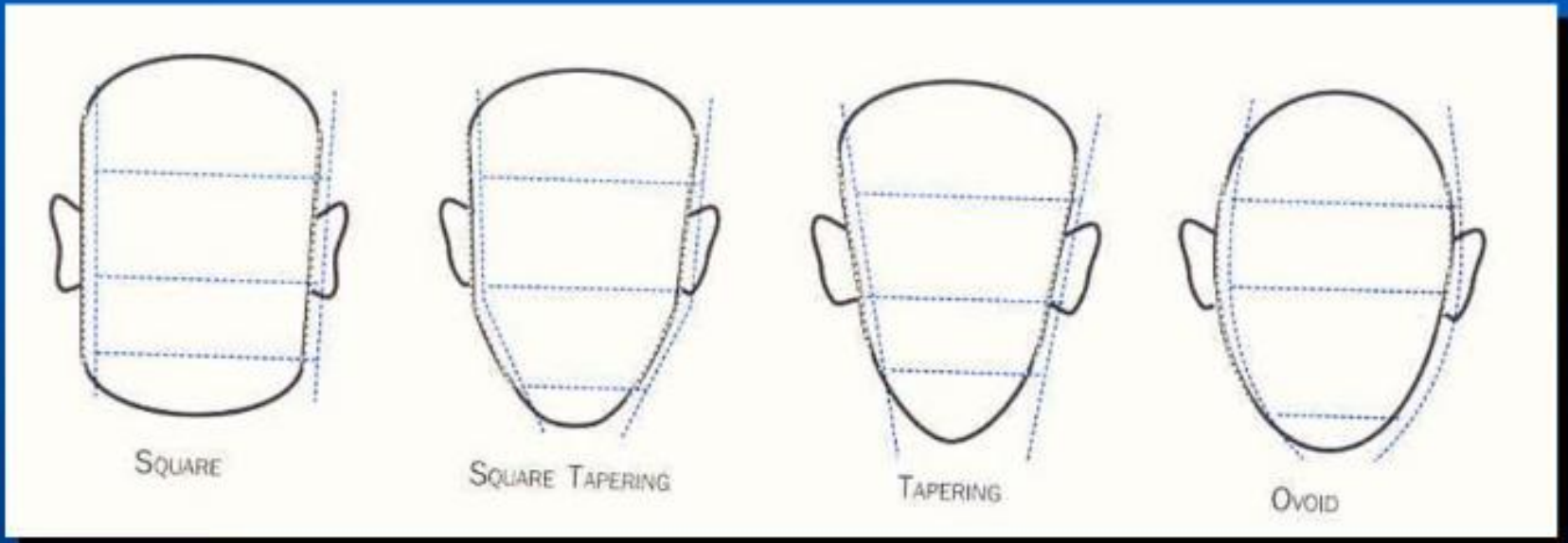
Extraoral Examination

- General appearance (healthy, signs of proper nourishment?)
- Facial symmetry
- Skin: color, deep wrinkles
- Palpation of the head & neck (lymph nodes & muscles)

Extraoral Examination

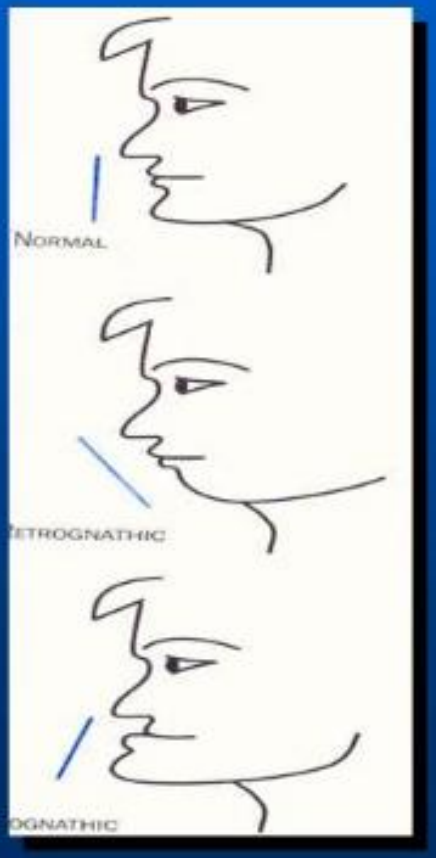
- Muscle tonus
- Neuromuscular coordination*
- TMJ examination

Classification of Frontal Face Forms (House, Frush & Fisher) *



Classification of Lateral Face Forms

- Normal
- Retrognathic
- prognathic



Lips

- Length*
- Thickness
- Mobility
- Smile line

Lip (smile) line *

High smile line

Normal smile line

Intraoral Examination

Cheeks, tongue, floor of the mouth (FOM), maxillary tuberosity, hard palate, soft palate, arch relationship, residual ridge form, saliva, undercuts

Cheeks

- Draping of the cheeks over the buccal flanges essential for peripheral seal
- Opening of Stenson's duct
- Location for many lesions (lichen planus, submucosal fibrosis, leukoplakai, malignancies as sqauamous cell carcinoma (SCC))

Leukoplakia

The Tongue

- Favorable tongue is average sized, moves freely, covered by healthy mucosa
- Normally, it should rest in a relaxed position on lingual flanges, this will retain denture & contributes to denture stability by controlling it during speech, mastication & swallowing.

Tongue Size

- Normal
- Large *

How to Manage Large Tongue?

1. Lower the occlusal plane
2. Use narrower teeth
3. Increase the intermolar distance
4. Grind off the lingual cusps
5. Avoid setting a second molar

Tongue Position

- Normal: normal size and function. Lateral borders rest at level of mandibular occlusal plane while dorsum is raised above it. Apex rests at or slightly below the incisal edges of mandibular anteriors

Tongue Position

- Retruded tongue position deprives pt of border seal of lingual flange in sublingual crescent and also may produce dislodging forces on distal regions of lingual flange

Tongue Mucosa

The specialized mucosa covering the tongue is said to be a "window" on systemic diseases. *

Frenal Attachments

- Fold of mucosa found at different locations in the sulcus region of upper & lower ridge

- Classification
  Class I: sulcal or low attachment
  Class II: midway betw. sulcus & crest of ridge
  Class III: crestal attachment (frenectomy)

Floor of the Mouth

- If FOM is near the level of the ridge crest, retention & stability of denture is less.
- Hyperactive FOM reduces retention & stability
- If great ridge resorption, FOM in sublingual and mylohyoid regions spills on the ridge
- Patency of submandibular ducts *

Other diseases and conditions of the teeth and supporting structures

Classification of edentulism based on the etiology of tooth loss

- Trauma
- Extraction
- Periodontal Disease

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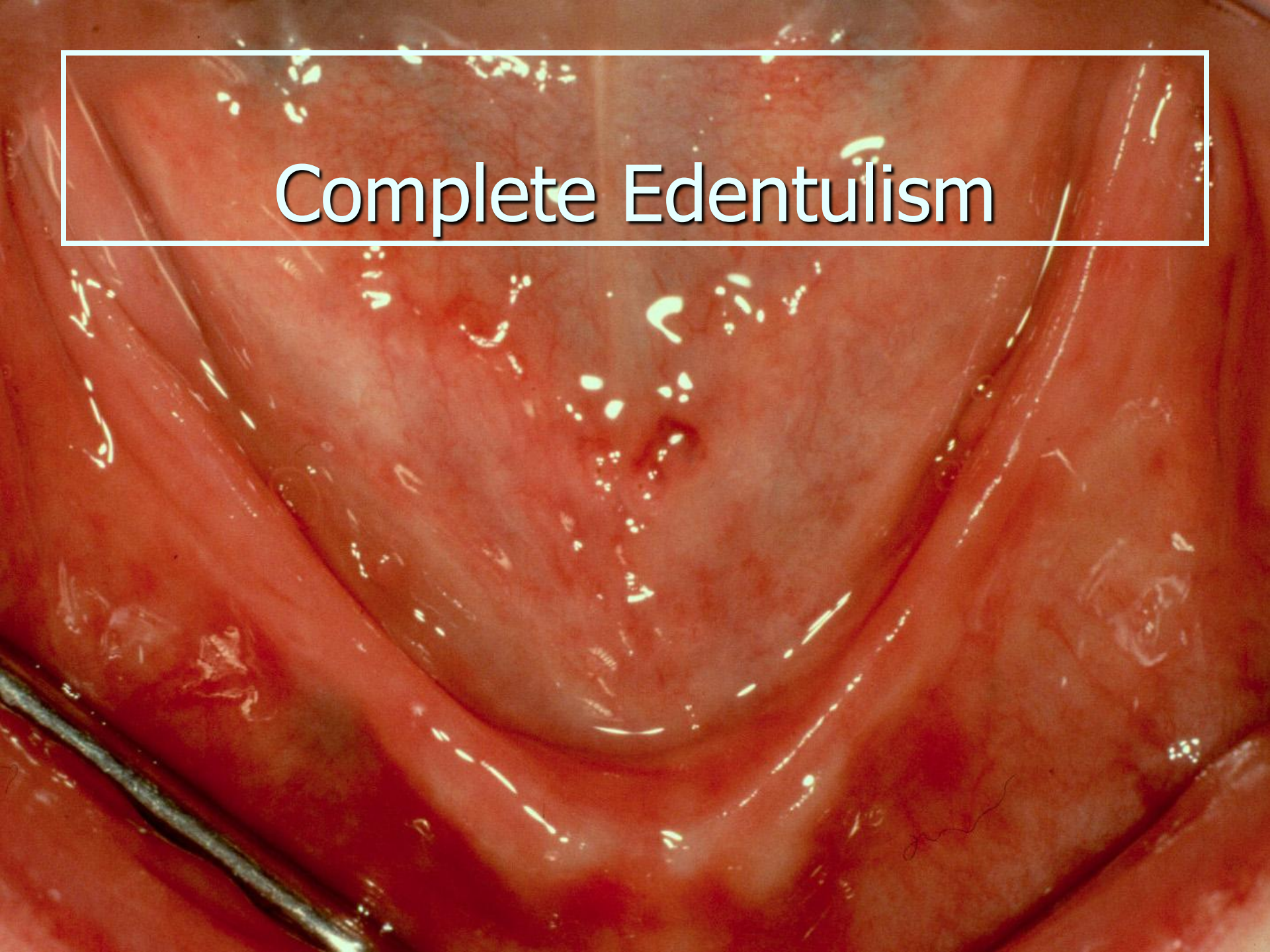
Complete Edentulism


Complete Edentulism

Complete Edentulism

- Edentulism, defined as total tooth loss, is more prevalent among persons with less than a high school education, those without dental insurance, non-Hispanic blacks, and current everyday smokers (CDC, 1999)
- Between the 1950s and the early 1990s the prevalence of edentulism in the United States decreased from 50% to 42% among people aged 65 and older, from 28% to 11% for 45- to 64-year-olds, and from 5% to 2% for persons 18 to 44 years old (Oliver & Brown, 1993)

1998 National Health Interview Survey, National Center for Health Statistics, and the 1999 Behavioral Risk Factor Surveillance System, CDC

Other diseases and conditions of the teeth and supporting structures

- Classification of complete edentulism based on the severity of the completely edentulous predicament

Complete Edentulism

- **Classification System for Complete Edentulism**

McGarry TJ, Nimmo A, Skiba JF, Ahlstrom RH, Smith CR, Koumjian JH

J Prosthodont. 1999 Mar;8(1):27-39

Classification System for the Completely Edentulous Patient

Class I → Ideal or minimally compromised

Class II → Moderately compromised

Class III → Substantially compromised

Class IV → Severely compromised

Diagnostic Criteria

1. Bone height--mandibular
2. Maxillomandibular relationship
3. Residual ridge morphology-maxilla
4. Muscle attachments

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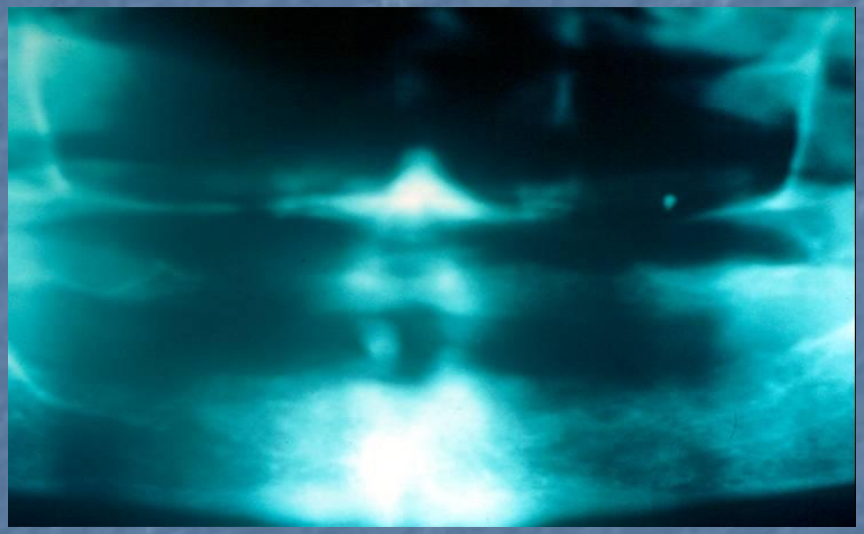
1. Bone Height

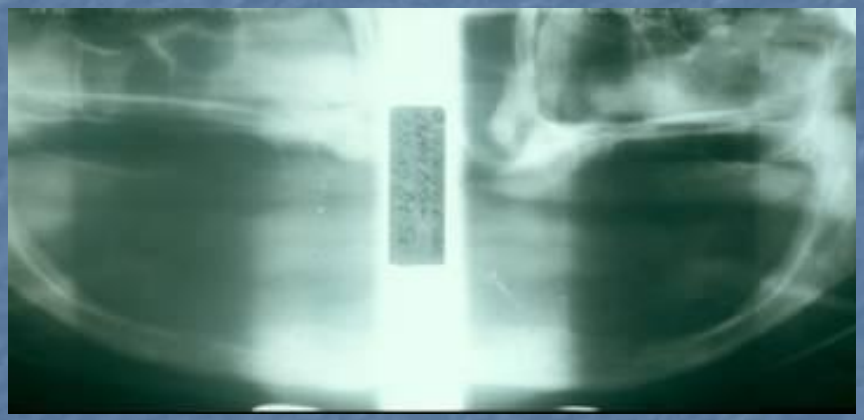
Mandibular

Type I

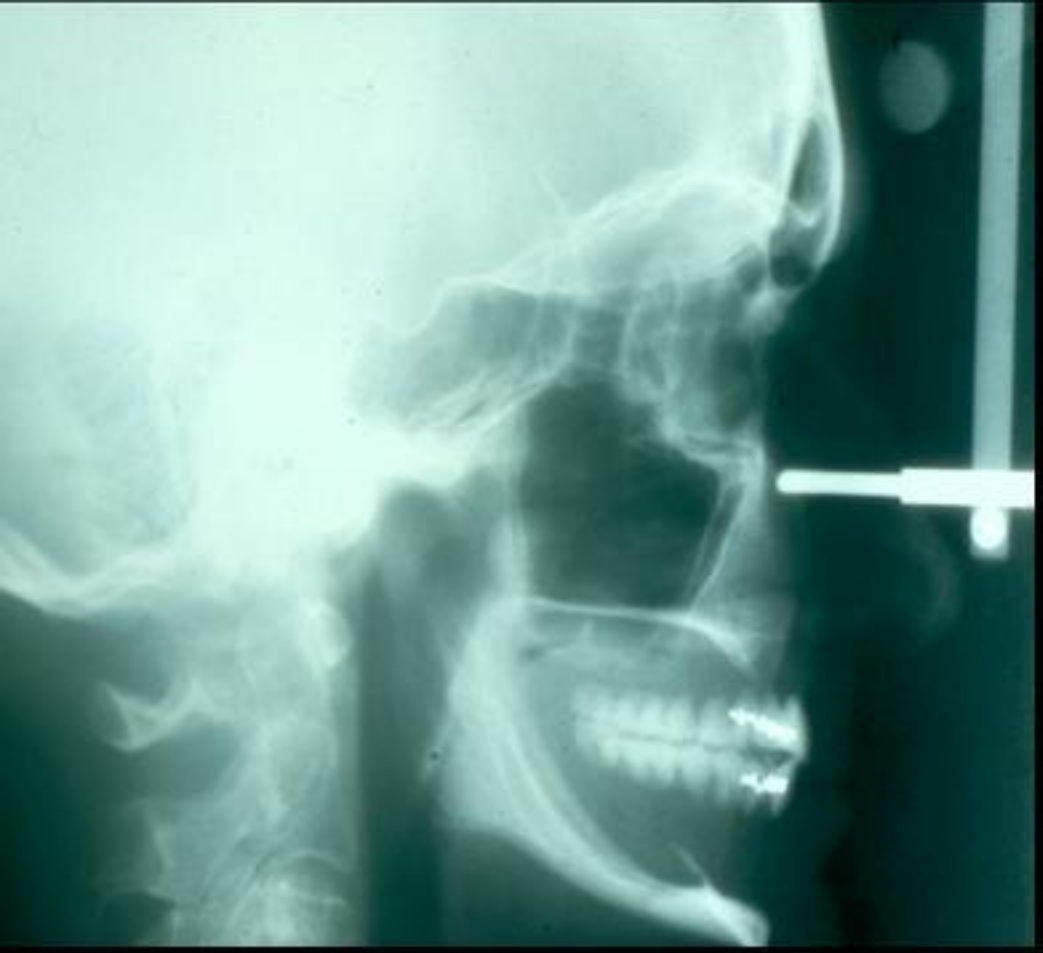


Residual bone height of 21mm or greater measured at the least vertical height of the mandible.

Type IV



Residual vertical bone height of 10 mm or less measured at the least vertical height of the mandible



2. Residual Ridge Morphology

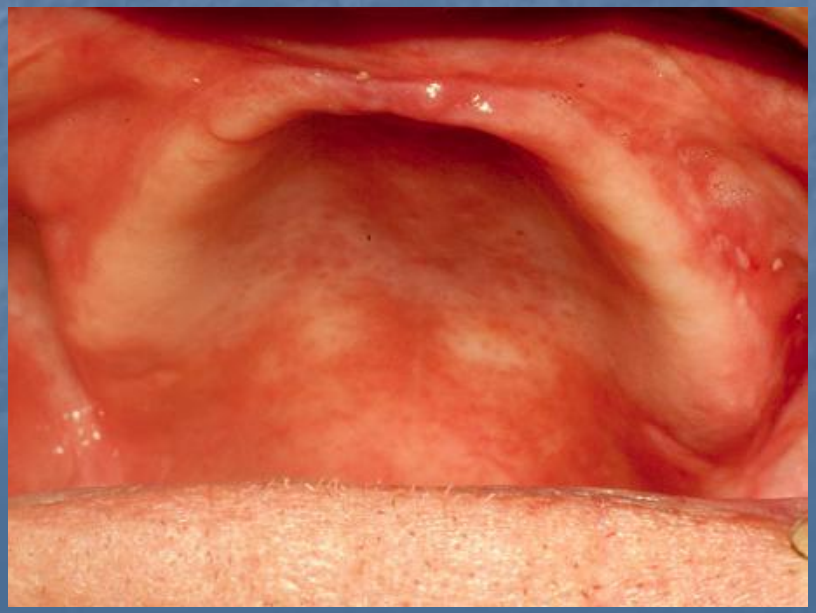
Maxilla

Type A

- Anterior labial and posterior buccal vestibular depth that resists vertical and horizontal movement of the denture base
- Palatal morphology that resists vertical and horizontal movement of the denture base
- Sufficient tuberosity definition that resists vertical and horizontal movement of the denture base
- Hamular notch is well defined to establish the posterior extension of the denture base
- Absence of tori or exostoses

Type D

- Loss of anterior labial and posterior buccal vestibules
- Maxillary palatal and/or lateral tori-rounded or undercut- that interferes with the posterior border of the denture
- Hyperplastic, redundant anterior ridge
- Palatal vault morphology that does not resist vertical or horizontal movement of the denture base
- Prominent anterior nasal spine

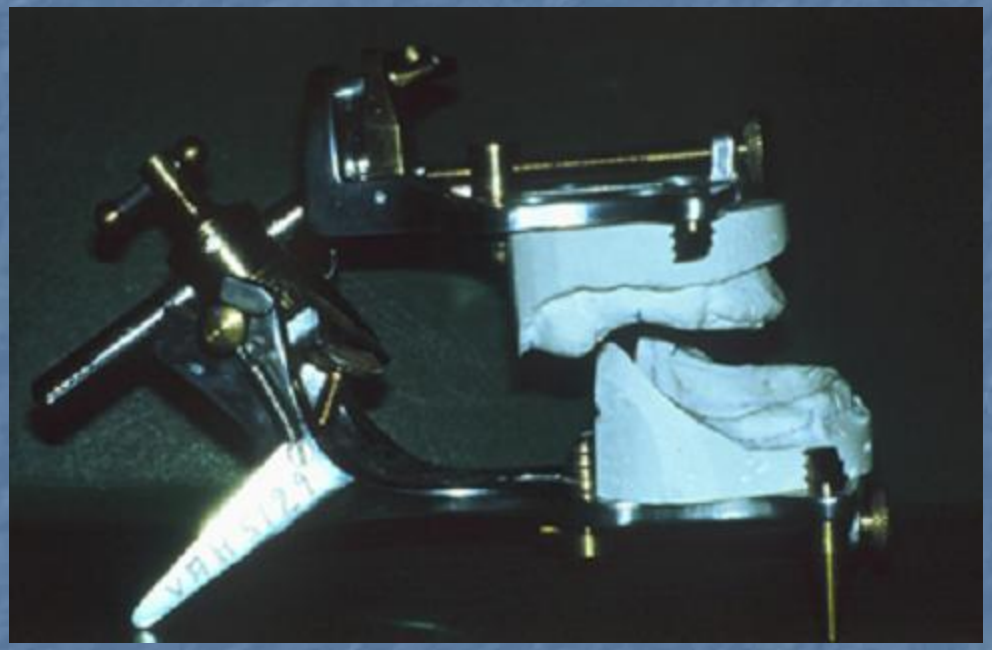


3. Maxillomandibular Relationship

Class I

Maxillomandibular relationship allows tooth position that has normal articulation with the teeth supported by the residual ridge.

Class III



Maxillomandibular relationship requires tooth position outside the normal ridge relation in order to attain phonetics and articulation;
i.e., crossbite—anterior or posterior, tooth position not supported by the residual ridge.

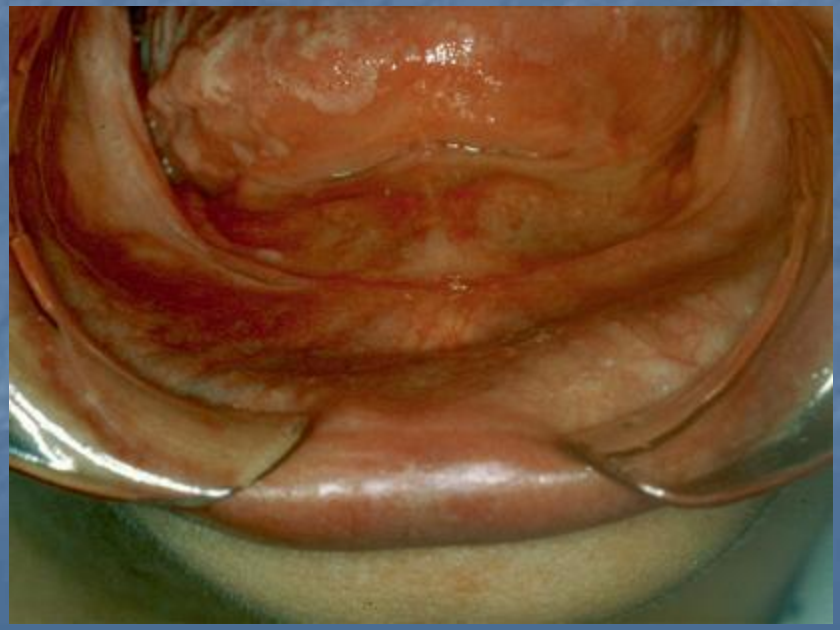
4. Muscle Attachments

Type A

Adequate attached mucosal base without undue muscular impingement during normal function in all regions.

Type D

- Adequate attached mucosal base only in the posterior lingual region
- All other regions are detached



Diagnostic Classification of Complete Edentulism

Class I

This classification level describes the stage of edentulism that is most apt to be successfully treated by conventional prosthodontic techniques with complete denture prosthesis.

All four of the diagnostic criteria are favorable.

Class I

- Residual bone height of 21 mm or greater measured at the least vertical height of the mandible
- Class I maxillomandibular relationship

Class II

This classification level distinguishes itself with the noted continuation of the physical degradation of the denture supporting structures and in addition is characterized with the early onset of systemic disease interactions, localized soft tissue factors and patient management/lifestyle considerations.

Class II

- Residual bone height of 16-20 mm measured at the least vertical height of the mandible
- Class I maxillomandibular relationship
- Residual ridge morphology that resists horizontal and vertical movement of the denture base—Type A, B--Maxilla

Class III

This classification level is characterized by the need for surgical revision of denture supporting structures to allow for adequate prosthodontic function.

Additional factors now play a significant role in treatment outcomes.

Class III

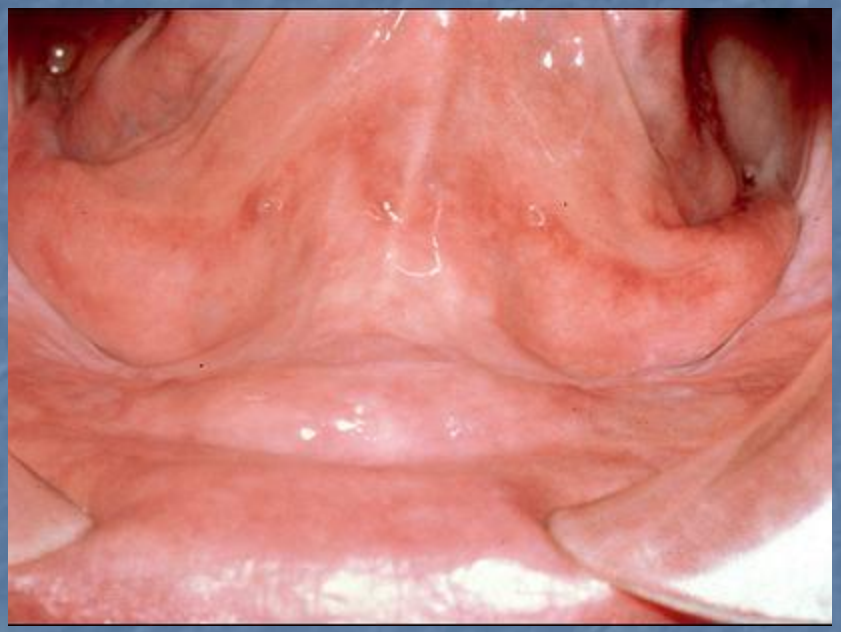
- Residual bone height of 11-15 mm measured at the least vertical height of the mandible
- Class I, II and III maxillomandibular relationship
- Residual ridge morphology has minimum influence to resist horizontal or vertical movement of the denture base—Type C—Maxilla
- Location of muscle attachments with moderate influence on denture base stability and retention—Type C--Mandible

Class IV

- This classification level depicts the most debilitated edentulous condition
- Surgical reconstruction is almost always indicated but can not always be accomplished due to the patient's health, desires, past dental history and financial considerations
- When surgical revision is not selected, prosthodontic techniques of a specialized nature must be used in order to achieve an adequate treatment outcome

Class IV

- Residual bone height of least vertical height of the mandible
- Class I, II and III maxillomandibular relationships
- Residual ridge offers no resistance to horizontal or vertical movement – Type D—Maxilla

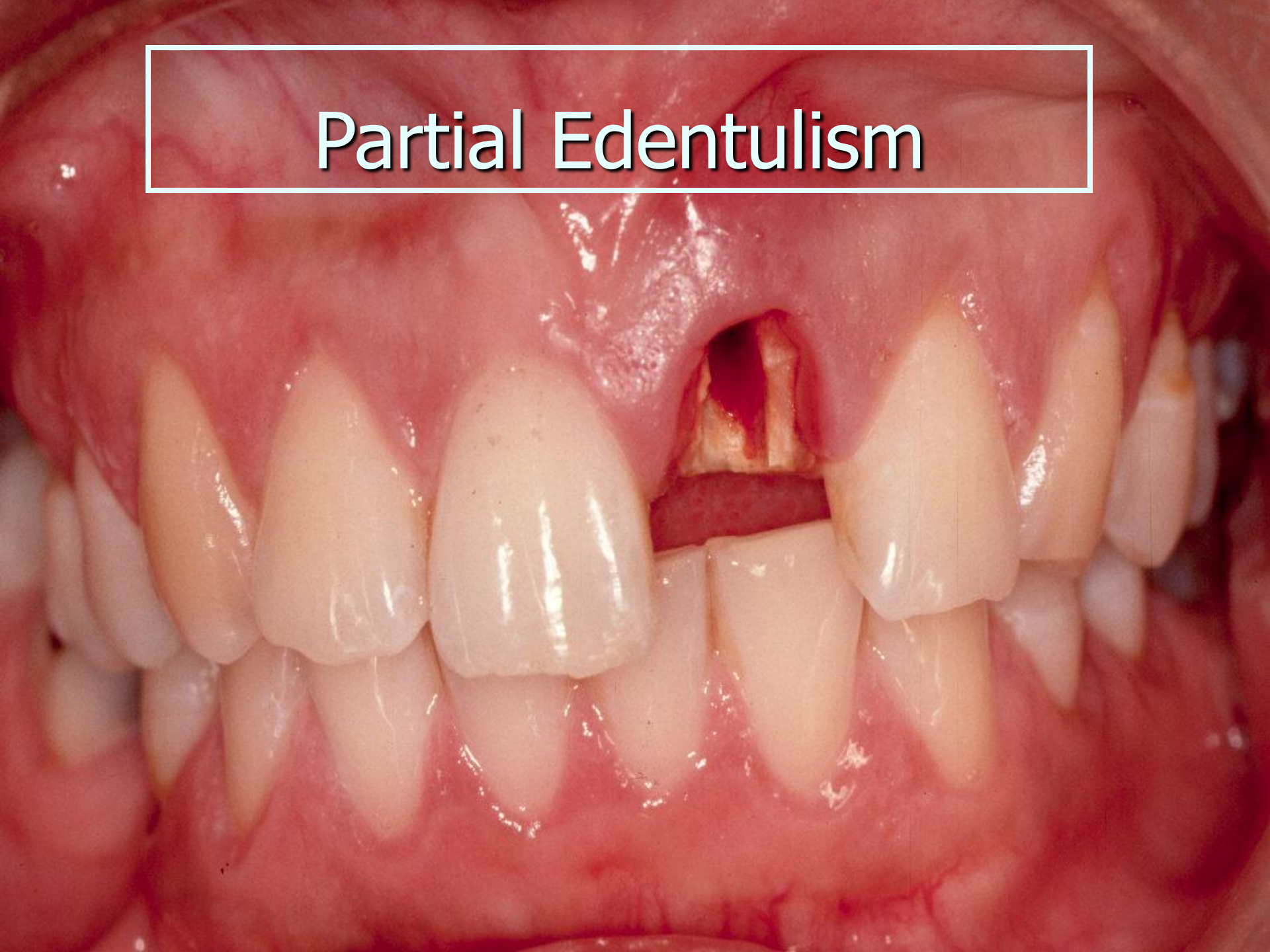


- Location of muscle attachments with significant influence on denture base stability and retention— Type D and E--Mandible

Completely Dentate

Partial Edentulism

Partial Edentulism




Partial Edentulism

525 Other diseases and conditions of the teeth and supporting structures

- 525.5 Classification of partial edentulism based on the severity of the partially edentulous predicament

Partial Edentulism

- **Classification System for Partial Edentulism**

McGarry TJ, Nimmo A, Skiba JF, Ahlstrom RH, Smith CR, Koumjian JH, Arbree NS

J Prosthodont. 2002 Sep;11(3):181-93

Classification System for the Partially Edentulous Patient

Class I → Ideal or minimally compromised

Class II → Moderately compromised

Class III → Substantially compromised

Class IV → Severely compromised

Diagnostic Criteria

1. Location and extent of the edentulous area(s)
2. Condition of the abutment teeth
3. Occlusal scheme
4. Residual ridge

DIAGNOSTIC CRITERIA

1. Location and extent of the edentulous area(s)
2. Condition of the abutment teeth
3. Occlusal scheme
4. Residual ridge

		Class I	Class II	Class III	Class IV
Location & Extent of Edentulous Areas					
	Ideal or minimally compromised-single arch				
	Moderately compromised-both arches				
	Substantially compromised- >3 teeth				
	Severely compromised-guarded prognosis				
	Congenital or acquired maxillofacial defect				
Abutment Tooth Condition					
	Ideal or minimally compromised				
	Moderately compromised-local adjunctive tx				
	Substantially compromised-mod adjunctive tx				
	Severely compromised-extensive adjunctive tx				
Occlusal Scheme					
	Ideal or minimally compromised				
	Moderately compromised-local adjunctive tx				
	Substantially compromised-occlusal scheme				
	Severely compromised-change in VDO				
Residual Ridge					
	Class I Edentulous				
	Class II Edentulous				
	Class III Edentulous				
	Class IV Edentulous				
Conditions Creating a Guarded Prognosis					
	Severe oral manifestations of systemic disease				
	Maxillomandibular dyskinesia and/or ataxia				
	Refractory patient				

Partial Edentulism

UIC College of Dentistry

- Committed to developing a dental educational curriculum that is diagnosis driven
- The only dental school in the third largest city in the US providing service to more than 100,000 patient visits per year
- Need for clinical studies that have a common, transparent and systematic diagnosis. Achieved by employing the evidence-based process to assemble, organize and synthesize clinical research in a rigorous and transparent fashion. This body of evidence, coupled with clinical expertise, will lead to the creation of guidelines designed to enhance clinical judgment and decision-making

Concluding Remarks

- The codes being proposed are part of normal diagnostic data collection that occurs for all patients, meeting with the existing standard of care in dentistry
- The proposed new codes are within the scope and conventions of the existing classification
- By adopting these codes into the public domain, dental educators, researchers and clinicians will be able to contribute significantly to the body of evidence