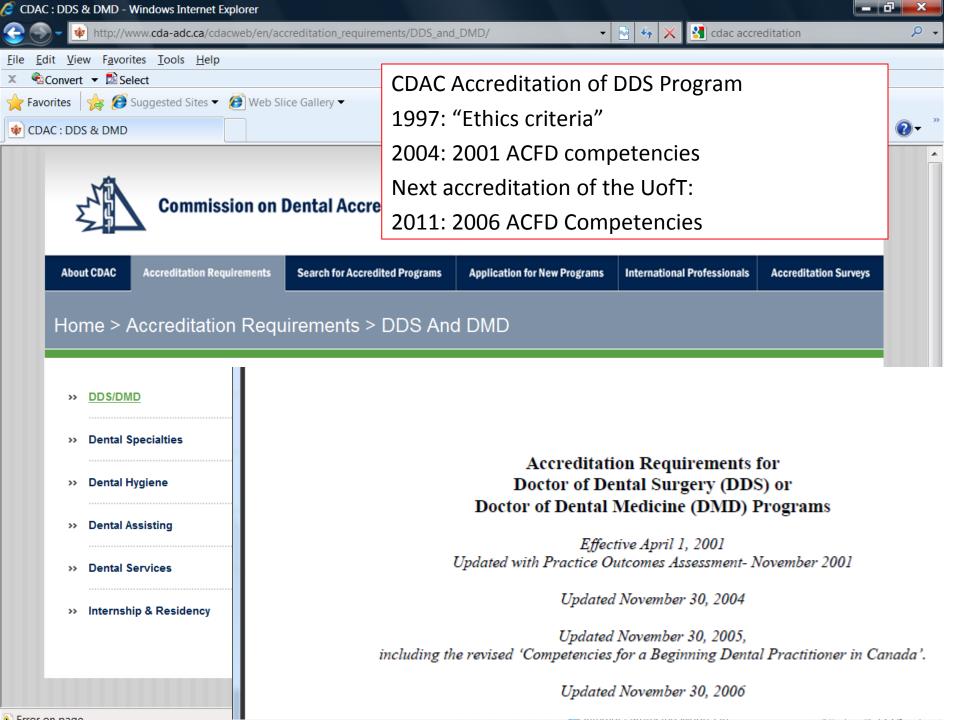


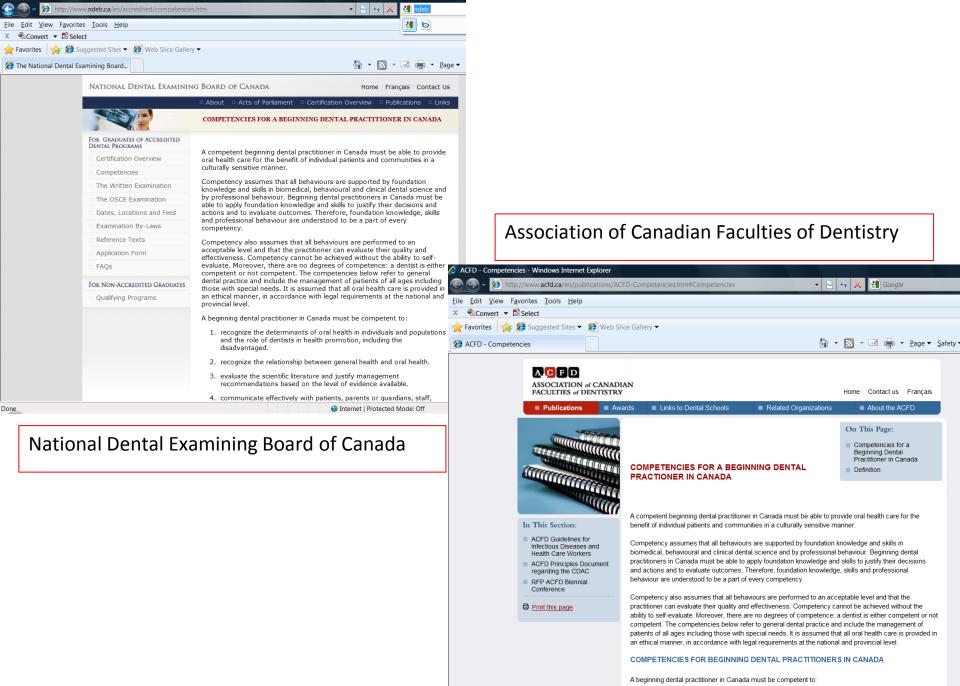
#### Orientation

## Prosthodontics

Asbjørn Jokstad, DDS, PhD Professor and Head, Prosthodontics Faculty of Dentistry, University of Toronto

# The prosthodontics component of the Undergraduate Dentistry Curriculum





Done

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The National Dental Examining Board of Canada - Competencies for a Beginning Dental Practitione - Windows Internet Explorer

#### NDEB Competencies for a Beginning Dental Practitioner in Canada applied to the Prosthodontic Curriculum

2009-2010 Prosthodontics, Faculty of Dentistry, University of Toronto.

**NDEB Original** statement:

1 Recognize the determinants of oral health in individuals and populations and the role of dentists in health promotion, including the disadvantaged

Particular to

1modif. Recognize the determinants of oral health in individuals with an intraoral prosthesis and the role of dentists in prosthodontics health promotion, including the disadvantaged

This competency is within the domain: Critical Thinking

Competencies to be developed within the:

1. Affective dimensions

Treatment phase (1 --> 7): General

Patient with a restorable complete dentition restored with: Crowns --> See: 42d.xx

Patient with single tooth missing restored with: Implant supported crown --> See: 42s.xx Patient with partially edentulous jaw restored with: Fixed prosthesis --> See: 42pe.1

Patient with partially edentulous jaw restored with: Removable prosthesis --> See: 42pe.2

Patient with partially edentulous jaw restored with: Implant supported prosthesis --> See 42pe.3

Patient with fully edentulous jaw restored with: Removable prosthesis --> See: 42e.1 Patient with fully edentulous jaw restored with: Implant supported prosthesis --> See 42e.2

Patient with prosthesis on fully edentulous jaw restored with: Reline/rebase removable prosthesis--> See 42e.3

Patient with an unrestorable dentition restored with: Immediate prosthesis --> See: 42e.4

**NDEB Original** statement:

2 Recognize the relationship between general health and oral health

Particular to prosthodontics

Fundamental core competency not particular to specific aspects of the prosthodontics curriculum

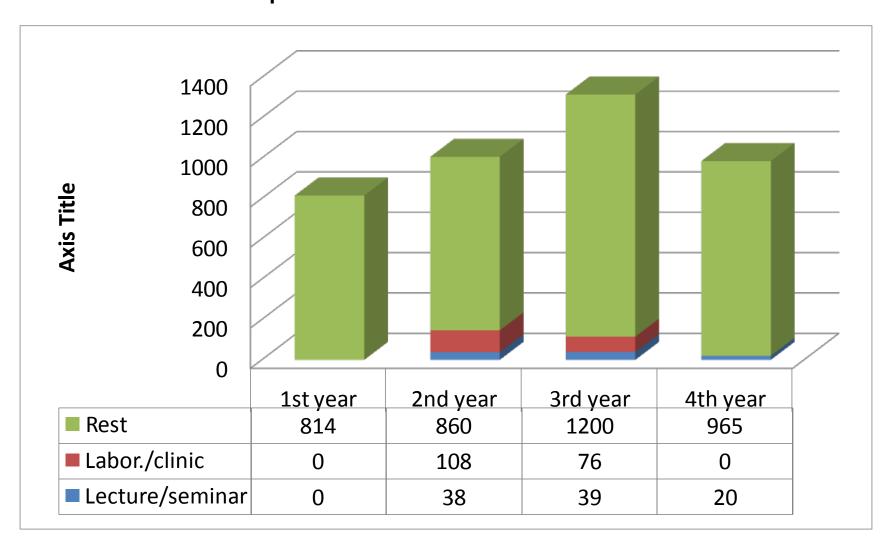
Taught: Learning experience In course: Format: 4 & 3 & 277/333-377/477 Clinic

Not tested -Grading of skills in clinic

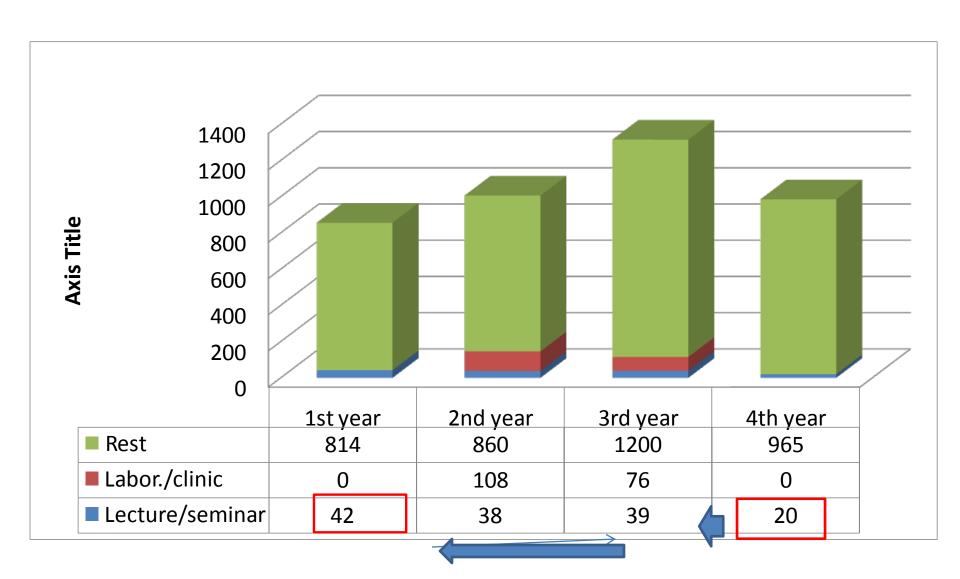
Competency attainment test:

(H/P/NI)

## Prosthodontics Curriculum $\rightarrow$ 2009 QP program converted to IADPP in 2006 $\rightarrow$ major reallocation of prosthodontics curriculum contents

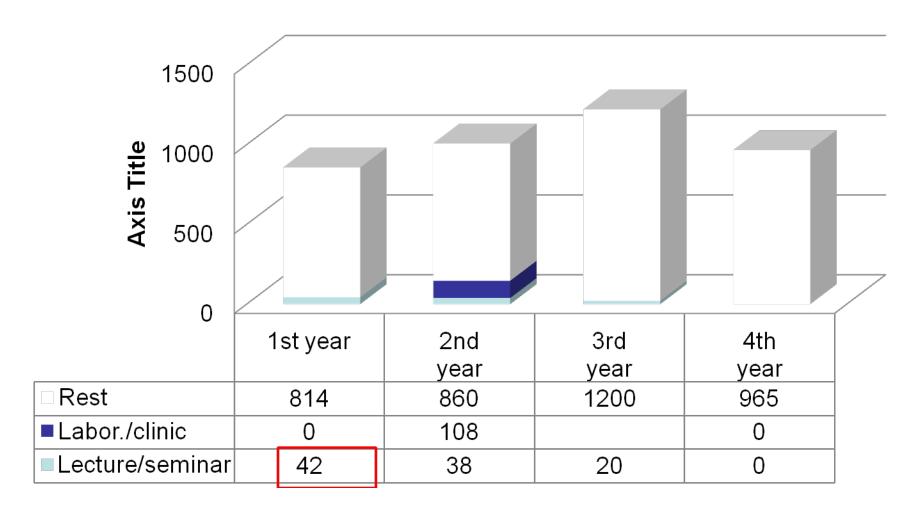


#### Prosthodontics Curriculum – 2010 → 2012

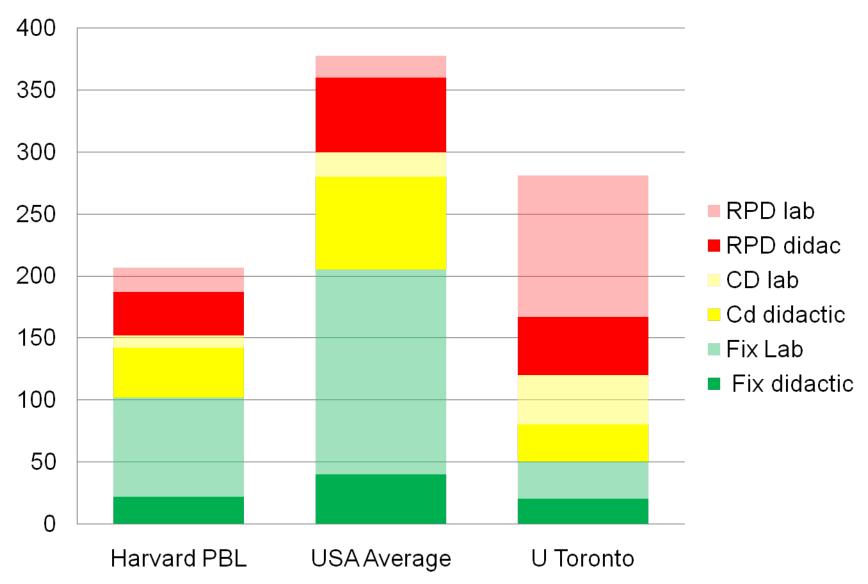


#### Prosthodontics Curriculum – 2010 → 2012



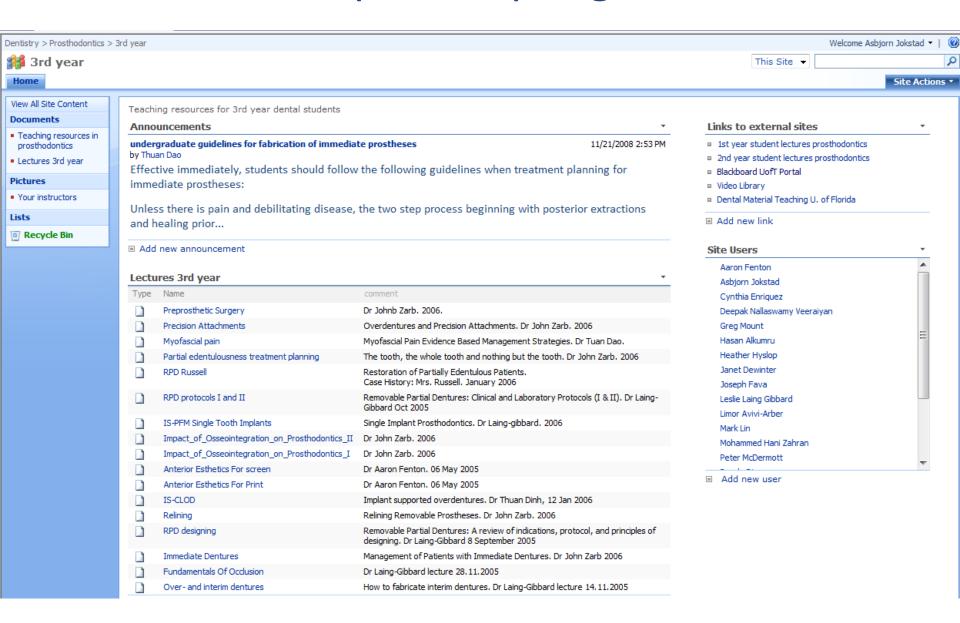


#### **Prosthodontic Hours -- North America\***



From: Sukotjo ea 2008 J Prostho 17: 495

## Sharepoint - spring 2006



#### Blackboard - fall 2006

UNIVERSITY OF

TORONTO

written marks

Item is not available.

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Hello everyone.

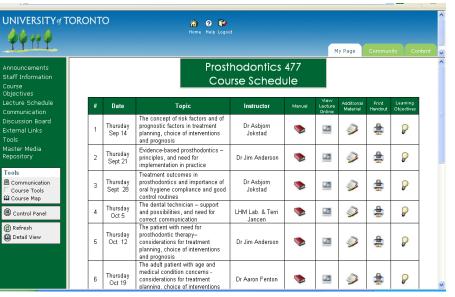
COURSE MANAGEMENT

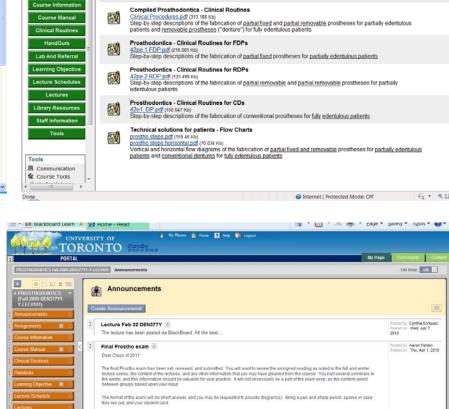
Done:

DEN377Y Lecture Jan 18,2010

PROSTHODONTICS (FALL-2009-DEN477Y1-Y-LEC0101) > CLINICAL ROUTINES

**Clinical Routines** 





There are 9 questions of equal value. The exam is worth 60% of your final mark. Good luck in your preparations and performance. A FestivoR

Dear Class of 2011: as announced, the written marks have been adjusted + 10. Welcome back. a

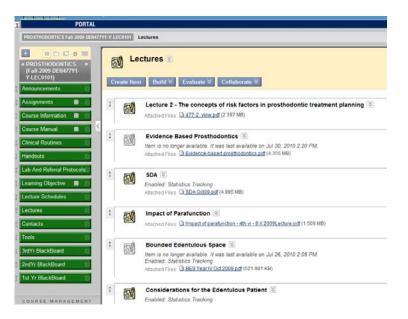
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Posted by: Cynthia Enriques

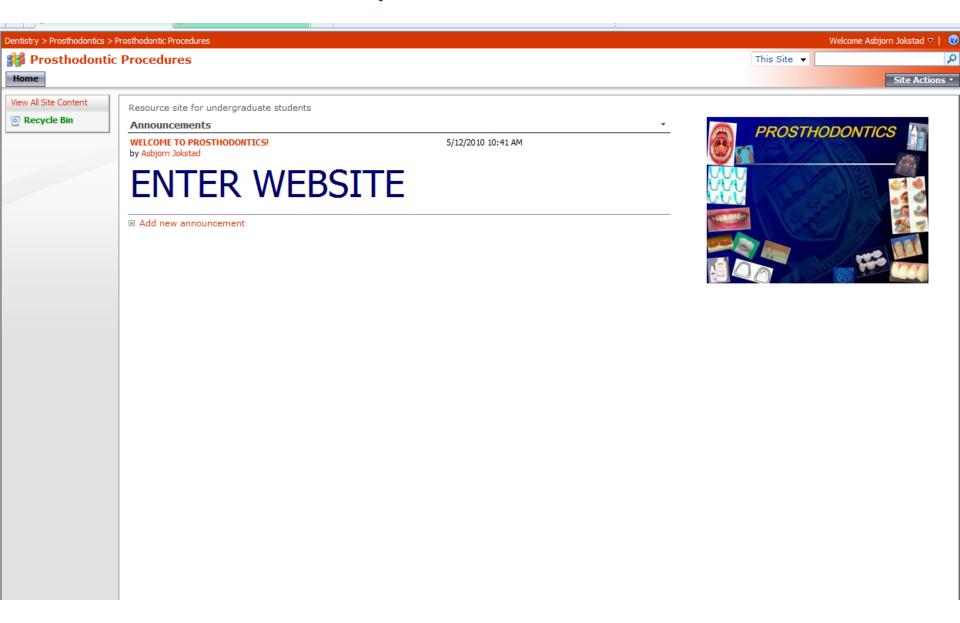
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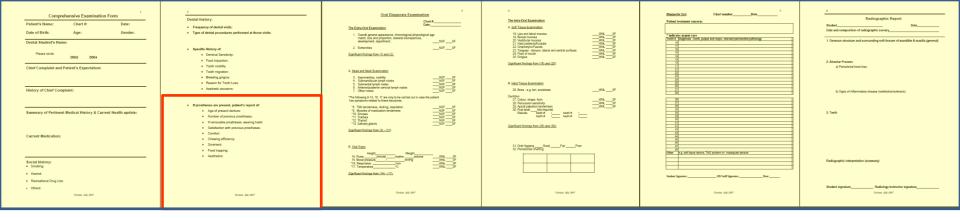
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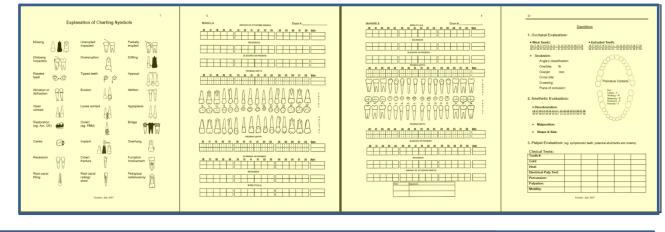


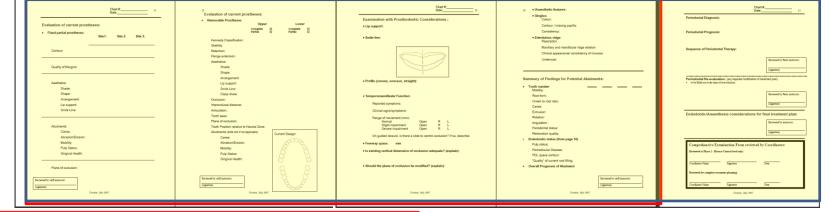
## Sharepoint – Fall 2010



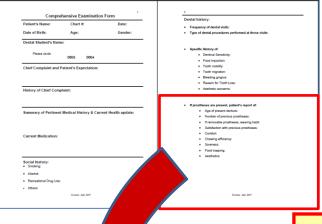


## CCP "Yellow" Comprehensive Examination Form





**Prosthodontics components** 

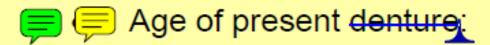


If prostheses are present, patient's report of:

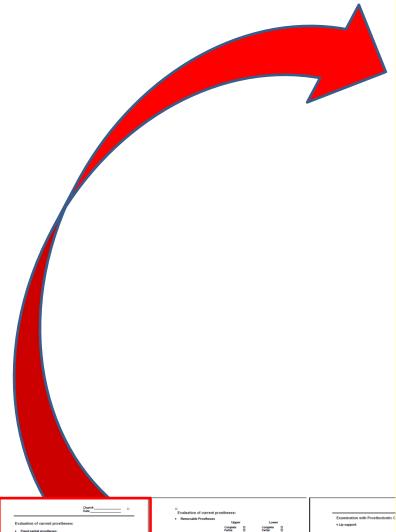
- Age of present denture:
- Number of previous prostheses:
- If removable prostheses, wearing habit:
- Satisfaction with previous prostheses:
- Comfort:
- Chewing efficiency:
- Soreness:
- Food trapping:
- Aesthetics:

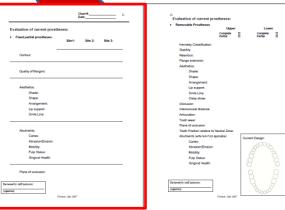


If prostheses are present, patient's report of:



- Number of previous prostheses:
- If removable prostheses, wearing habit:
- Satisfaction with previous prostheses:
- Comfort:
- Chewing efficiency:
- Soreness:
- Food trapping:
- Aesthetics:
- Cleaning access/ability:







#### **Evaluation of current prostheses:**

Fixed partial prostheses:
 Abutment / pontic Abutment / pontic Abutment / pontic Site 2: Site 3:

Contour: 📒 🥊

Quality of Margins:

Aesthetics:

Shade: 📁 🥊

Shape: 🗐 🥊

Arrangement: =

Lip support:

Smile Line:



Caries:

Abutments:

Abrasion/Erosion:

Mobility:

Pulp Status:

Gingival Health:

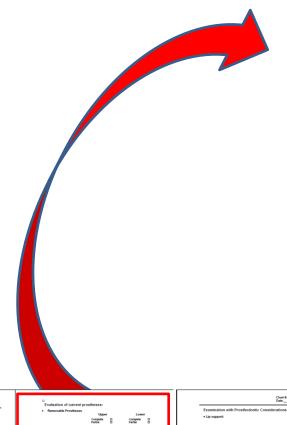
Occlusion:
Plane of occlusion:

Articulation:

eviewed by staff instructor:

#### Evaluation of current prostheses:

•	Removable Prostheses			
		Upper		Lower
		Complete Partial		Complete  Partial
	Kennedy Classification:	<b>=</b>		
	Stability: 📜 🥃			
	Retention:	<del></del>		
	Flange extension: 📁 🥫			
	Aesthetics:			
	Shade: 📁			
	Shape:			
	Arrangement: 🗐			
	Lip support:			
	Smile Line:	<b>)</b>		
	Clasp show:	<b>=</b>		
	Occlusion:			
	Interocclusal distance:			
	Articulation ÷			
	Tooth wear:			
	Plane of occlusion:			
	Tooth Position relative to Ne	eutral Zone:		1
	Abutments (write N/A If not app	ilicable):	Cu	rrent Design:
	Caries:			
	Abrasion/Erosion:			any
	Mobility:			8 8
	Pulp Status:			8 8
	Gingival Health:			d d
				H H
Rem	iewed by staff instructor:			7
				J. J.
(sig	nature)			2000
	1	Version: July 200	97	



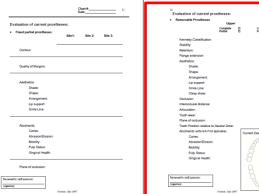


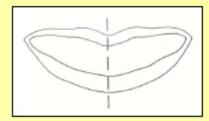




Chart #:	
Date:	13

#### **Examination with Prosthodontic Considerations:**

- Lip support: 😑 😑
- Smile line:



- · Profile (convex, concave, straight):
- Temporomandibular Function:

Reported symptoms:

<del>-</del>-

Clinical signs/symptoms:

Range of movement (mm):

Normal Open Slight impairment Open Severe impairment Open R R Pain Muscle/TMJ?: Y/N
Pain Muscle/TMJ?: Y/N
Pain Muscle/TMJ?: Y/N

On guided closure, is there a slide to centric occlusion? If so, describe:

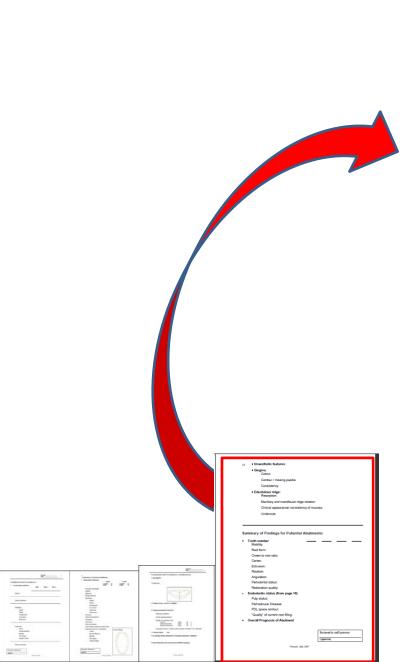
- Freeway space: mn
- Is existing vertical dimension of occlusion adequate? (explain):

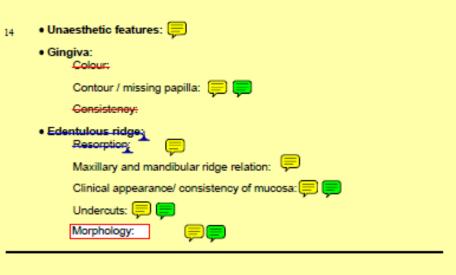


Summary of Findings for Potential Abutments:

Should the plane of occlusion be modified? (explain):







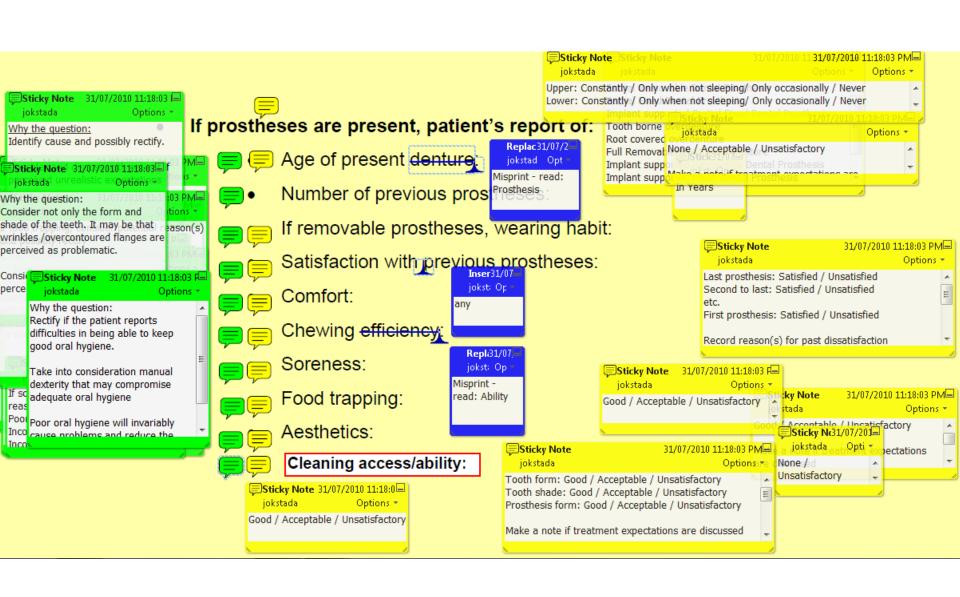
#### Summary of Findings for Potential Abutments:

 Tooth number = Abutment 1 Abutment 2 Abutment 3 Abutment 4 Abutment 5 Mobility: Root form: Crown to root ratio: Caries: Extrusion: Rotation: Angulation: Periodontal status: Restoration quality: Endodontic status (from page 10) Pulp status: Periradicular Disease: PDL space contour: "Quality" of current root filling:

Overall Prognosis of Abutment

Reviewed by staff instructor: (signature)

Version: July 2007





## Implant Prosthetics teaching in Undergraduate Curriculum

Since late 80'ies.

Educational support from implant industry (Nobel Biocare) established in 2006

## Guiding Principles for teaching implant prosthetics 1/3

- Implant prosthetics is today a routine procedure in many dental practices. It is therefore essential that dentists consider the modality amongst other alternative prosthodontic technical solutions for restoring / replacing lost tissue.
- In implant prosthetic management there are multiple risks of adverse treatment outcomes and a correct patient selection is essential.
- In the undergraduate program we strive to treat only patients with **low risk of adverse outcomes**.
- Even though we decline going forward with implant prosthetics in the undergraduate program, the students should realize that their patients can benefit from implant prosthetics, but will require a higher level of competency.
- In future professional practice best care of the patients in this category should be to refer to a specialist.
- Hopefully, students will be motivated to learn more about implant prosthetics once graduated and a few years of clinical experience.

## Guiding Principles for teaching implant prosthetics 2/3

- Each patient is considered individually with regard to risk of adverse outcomes. Risk factors are:
  - Specific local anatomical or general medical conditions
  - "Ridge preservation" or Bone augmentation
  - Multiple adjacent implants
  - Implants in esthetically challenging locations
  - Implant supported bridges
- In practice: Single tooth restored with implant+crown <u>or</u>
   Edentulous mandible restored with an overdenture supported by two ball attachments

Journal of Dental Education 2006: 70: 580-588

#### Association Report

# Teaching Implant Dentistry in the Predoctoral Curriculum: A Report from the ADEA Implant Workshop's Survey of Deans

Vicki C. Petropoulos, D.M.D., M.S.; Nancy S. Arbree, D.D.S., M.S.; Dennis Tarnow, D.D.S.; Michael Rethman, D.D.S., M.S.; Jay Malmquist, D.M.D.; Richard Valachovic, D.M.D., M.P.H.; W. David Brunson, D.D.S.; Michael C. Alfano, D.M.D., Ph.D.

Abstract: In 2004, a survey of the deans of U.S. and Canadian dental schools was conducted to determine the implant dentistry curriculum structure and the extent of incorporating implant dentistry clinical treatment into predoctoral programs. The question-naire was mailed to the deans of the fifty-six dental schools in advance of the ADEA Implant Workshop conference held in Arizona in November 2004. Out of the fifty-six, thirty-nine responded, yielding a response rate of 70 percent.

### Conclusions –predoctoral students

- Single-tooth implant restorations & implant-retained overdenture prostheses are performed in most schools
- There is no clinical competency requirement for <u>surgical implant</u> <u>placement</u> in all schools and <u>implant prosthodontics</u> in most schools
- Prosthodontic specialty faculty are often responsible for teaching implant prosthodontics
- Periodontics and oral and maxillofacial faculty are commonly responsible for teaching implant surgery
- Support from implant companies is common, with most providing for implant components at discounted costs
- There is a lack of adequately trained faculty in implant dentistry, which is a significant challenge in providing predoctoral students with clinical experience with dental implants.

Journal of Dental Education 2006: 70: 580-588

Types of implant-related procedures restored by predoctoral students

Answer	Number of Responding Schools (	(%)
Single tooth molar	27 (90%)	
Single tooth bicuspid	26 (87%)	
Implant overdenture with two implants and ball or stud attach	ment 25 (83%)	
Single tooth anterior	18 (60%)	
Simple 2-3-4 unit free-standing fixed partial denture	10 (33%)	
Implant overdenture with two implants and a bar attachment	5 (17%)	
No limit	1 (3%)	
Other*		

Nivesland of

\*"Other" answers given:

Assessed on a case-by-case basis for complexity.

 We are at the very beginning of a new clinical education program. Many answers reflect what we plan to do but have not reached the point yet of doing.

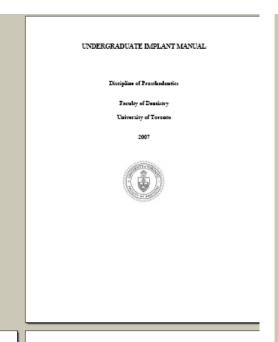
 No full mouth rehab, but do fixed-detachable mandibular prosthesis.

 Many times two implants will be placed in the posterior region of the mouth. These implants are typically restored as single crowns although occasionally they are splinted together.

Simple two-unit free-standing fixed partial denture.

We practically have no limits. The reason we can
provide this type of experience is in part due to our
surgical support from perio and oral surgery as well as
the time that I invest with the students to guide them
through the experience. My only specific restrictions
are cases that we prefer to be under the supervision
of grad prosthodontics, such as: immediate loading,
fixed detachable, complex implant supported bar
overdenture prostheses, and other full-mouth
rehabilitations.

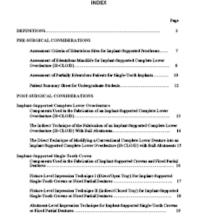
#### **Student Information**

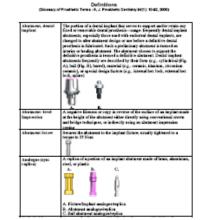


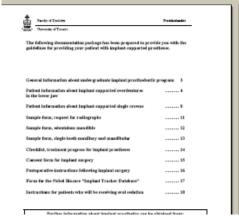
Implant Prosthodontics in the undergraduate clinics

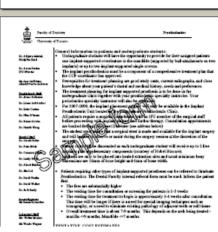
> Faculty of Dentistry University of Toronto

> > September 2007









#### **Undergraduate implant Manual**

## Implant Prosthodontics in the undergraduate clinics

#### **Student Information**



**Undergraduate implant Manual** 

**Student Kits** 

#### **Student Information**



Dr. Asbjørn Jokstad, Discipline Head

Dr. Aaron Fenton IPU Director

Ms Janet deWinter, Administrative Assistant

Prosthodontic Staff Dr. James Anderson

Dr. Limor Avivi-Arbe Dr. Ester Canton

Dr. Nina D'Souza

Dr. Reena Garcha Dr. Natalie Wong

Surgical Staff

Dr. Peter Birek

Dr. Cameron Cloki

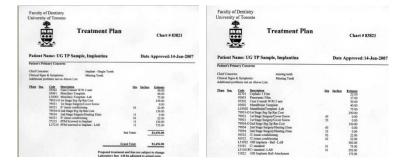
Dr. Lesley David

Dr. Albert Haddad

General information to patients and undergraduate students:

- Undergraduate students will have the opportunity to provide for their assigned patients
  one implant-supported overdenture in the mandible (supported by ball attachments on two
  implants) or up to two implant-supported single crowns.
- The implant prosthodontics must be a component of a comprehensive treatment plan that the CCP coordinator has approved.
- Prerequisites for treatment planning are good study casts, current radiographs, and close knowledge about your patient's dental and medical history, needs and preferences.
- The treatment planning for implant supported prosthesis is to be done in the undergraduate clinic together with your prosthodontic specialty instructor. Your periodontics specialty instructor will also be consulted.
- For 2007-2008, the implant placement surgery will only be available in the Implant Prosthodontic Unit located in the Postgraduate Prosthodontic Clinic.
- All patients require a surgical consultation with an IPU member of the surgical staff before proceeding with implant surgery and further therapy. Consultation appointments are booked through Ms Janet Dewinter (see address below)
- The student must assure that a surgical stent is made and available for the implant surgery and will be able to observe or assist during the surgery session at the discretion of the surgeon.
- Patient costs will be discounted as each undergraduate student will receive up to 2 free implants plus supplementary components (courtesy of Nobel Biocare).
- Implants are only to be placed into healed extraction sites and usual minimum bony dimensions are 10mm of bone height and 6mm of bone width.

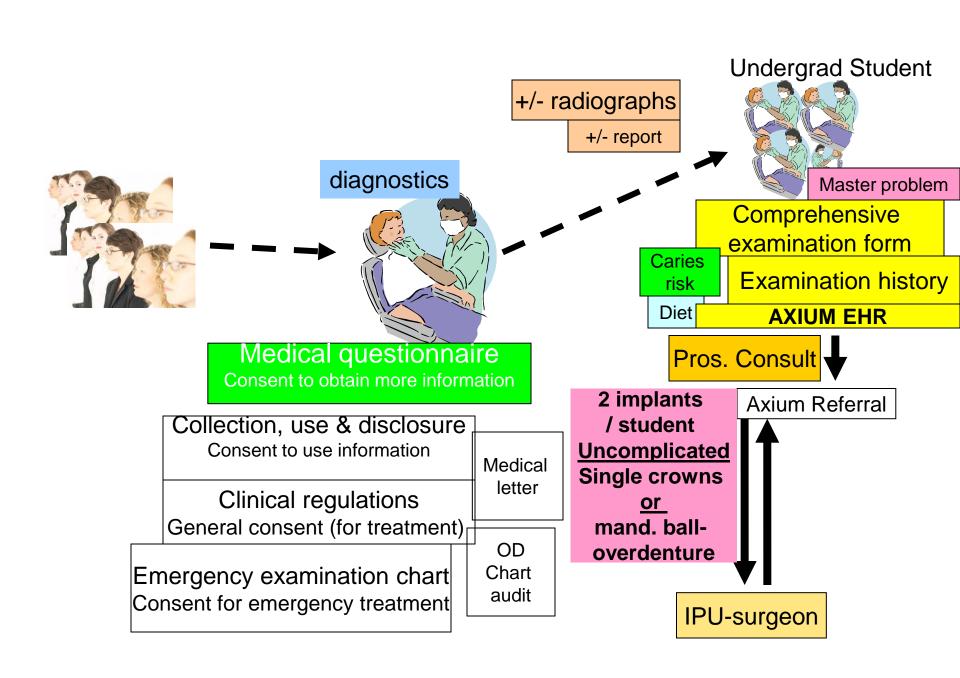
#### **General Information**



**Cost estimates (Implantina)** 

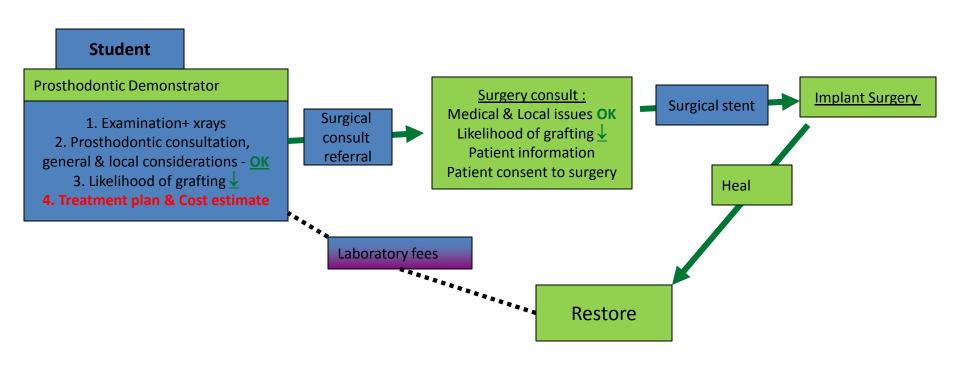


Implant Prosthodontics in the undergraduate clinics



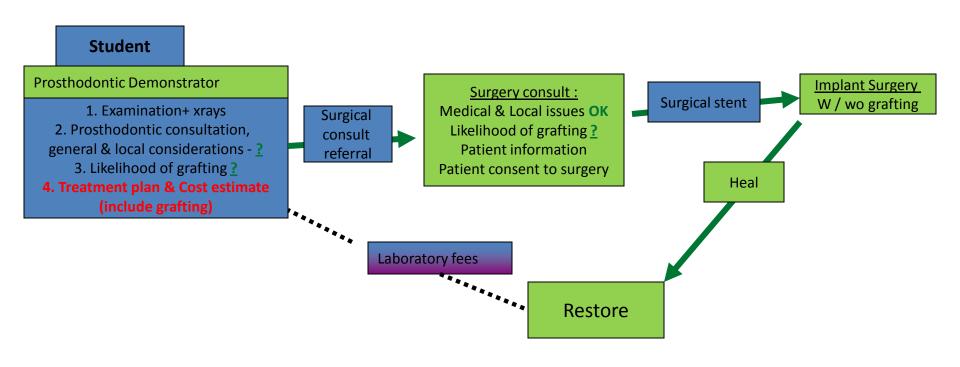
<u>Planned</u> patient flow from the undergraduate Clinics

Scenario 1 – No reason to suspect need for grafting



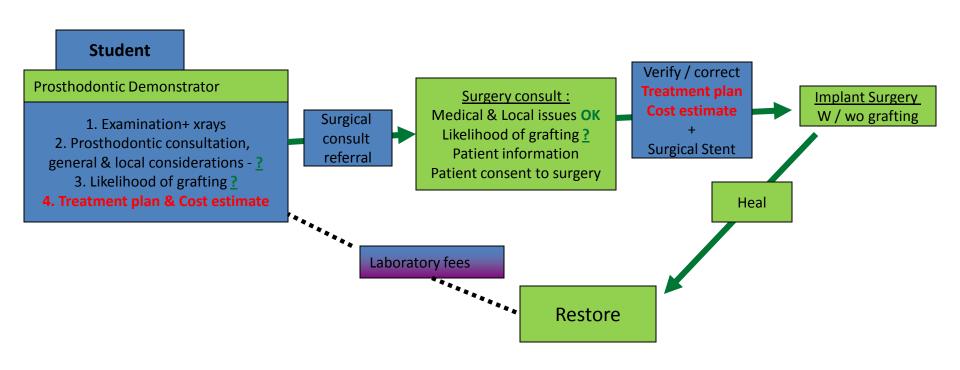
Planned patient flow from the undergraduate Clinics

Scenario 2 - <u>Possible need</u> for grafting during surgery identified before surgical consultation. Include grafting in txplan and fees.



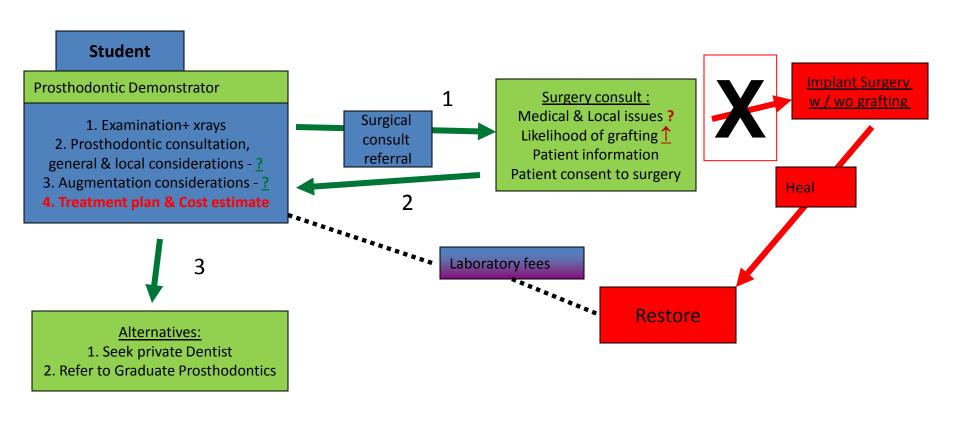
Planned patient flow from the undergraduate Clinics

Scenario 3 - <u>Possible need</u> for grafting during surgery identified by surgical consultatation. Txplan/fees must be corrected/adjusted and signed before proceeding

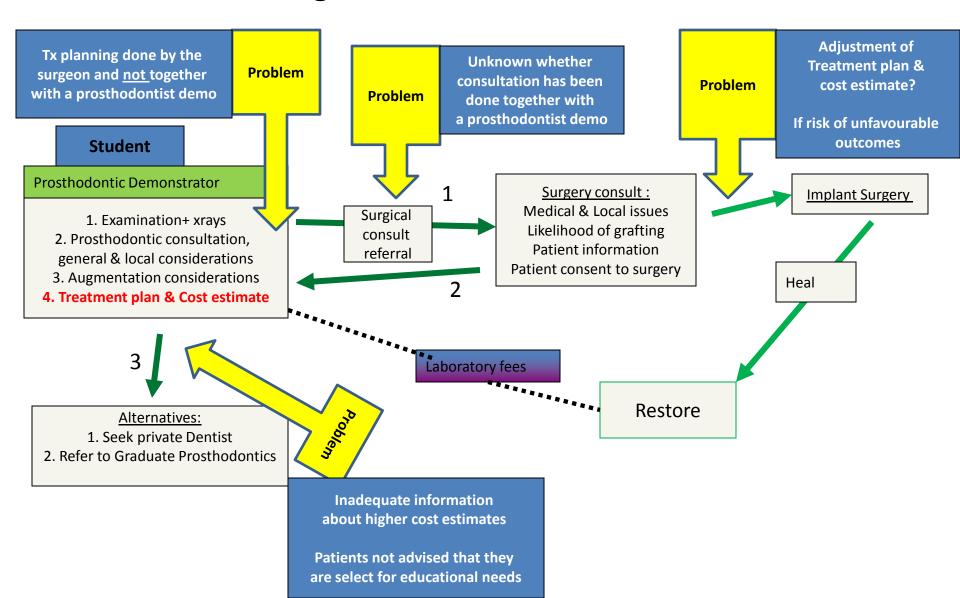


<u>Unplanned</u> patient flow from the undergraduate Clinics

Scenario 4: <u>Grafting need</u> identified before or during surgical consultation and patient still undergoes implant surgery



## Current problems causing <u>unplanned</u> patient flow from the undergraduate Clinics



## Information sheet 1/3

- Undergraduate students have the opportunity to provide one implant-supported overdenture supported by ball attachments on two implants in the mandible or up to two implant-supported single crowns for an assigned patient.
- The implant supported prostheses must be a component of a comprehensive treatment plan approved by your Comprehensive Care Program (CCP) Coordinator and signed by the patient.
- The treatment planning of the implant supported prosthesis is to be done in the undergraduate clinic together with your prosthodontic speciality instructor. Your periodontology speciality instructor should also be consulted.

## Information sheet 2/3

- Implants are only to be placed into healed extraction sites and usual minimum bony dimensions are 10mm of bone height and 6mm of bone width.
- The implant placement must be done in the Implant Prosthodontic Unit (IPU) located in the Graduate Prosthodontic Clinic.
- All patients require a surgical consult with an IPU staff surgeon before proceeding with implant surgery and further therapy.
   Appointments for consultation are booked through the IPU patient manager office (room 355) (see details below).
- For the actual implant surgery the student must assure that a surgical stent has been made and is available. He/she will be able to observe/assist during surgery at the discretion of the surgeon
- Patient costs will be discounted as each undergraduate student will receive up to a maximum 2 free implants plus supplementary components (courtesy by Nobel Biocare).

## Information sheet 3/3

- Patients in need of more than 2 implants <u>or</u> other types of implant-supported prostheses <u>or</u> any need of bone grafting cannot be treated in the undergraduate clinic. The patient may be considered for treatment in the graduate clinic if a thoroughly completed referral form has been forwarded together with adequate radiographs and study casts. Inform the patient that:
- The patients are accepted on basis of the graduate clinic research and educational needs
- The fees are substantially higher in the graduate clinic
- The wait time for screening new patients is at least 3 weeks.
- The overall treatment time is minimum 9 months.

## Guiding Principles for teaching implant prosthetics 3/3

 Basically, our philosophy is compatible with treating patients according to the ITI "SAC (Straight-forward / Advanced / Complex) criteria. We deal only with the "S" category.



## The SAC Assessment Tool

click to continue

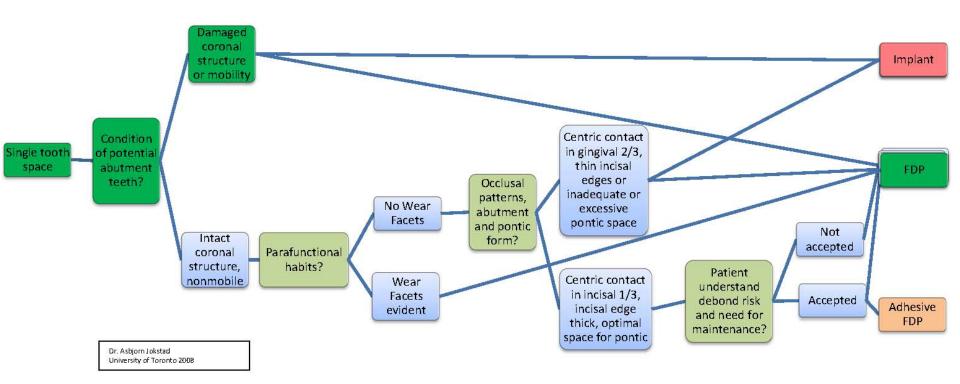
S Straightforward

A Advanced

C Complex

http://www.iti.org/var/external/sac-tool/default-1000.htm

## Single tooth space – treatment decisions





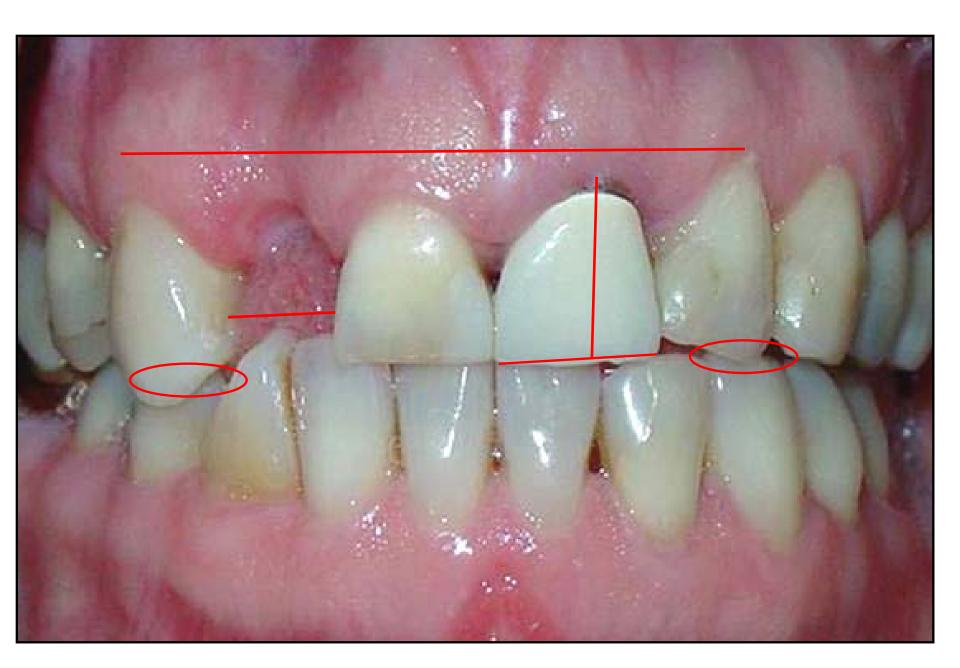














# Proposed treatment plan

- Endo assessment 11 and 21
- Preliminary crown preparations 11 and 21 with preliminary temporisation
- Esthetic crown lengthening area 11-21 and connective tissue graft area 12
  - Final temporisation
  - 3 units FPD X-11-21



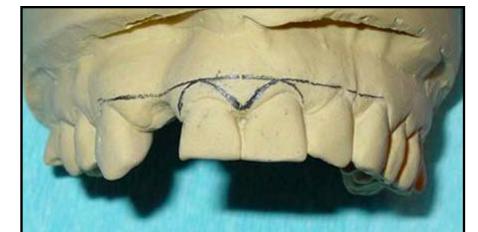








Periodontal surgery













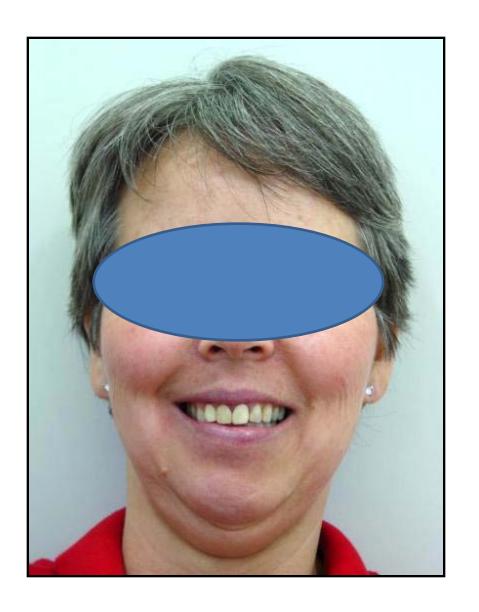
# 3 weeks post-op







































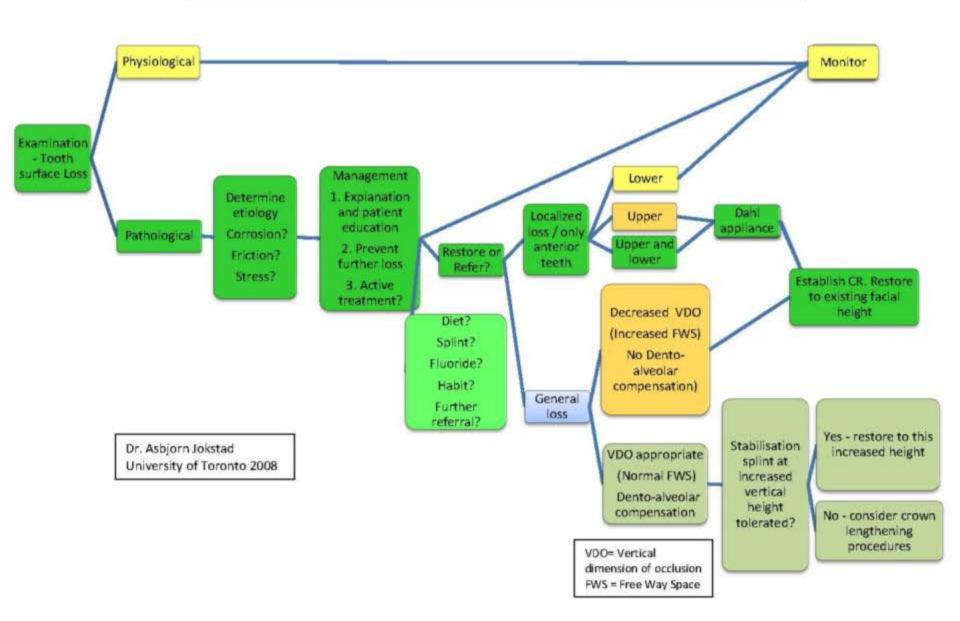








### Tooth Substance Loss - treatment decisions



#### I No lost of vertical dimension of occlusion and the remaining dentition not compromited by carries, periodontal support, restorations or wear



From:
The
Prosthodontics

Sharepoint Website

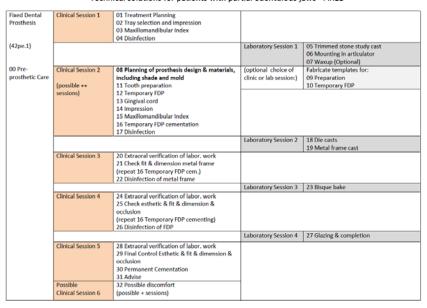
#### Technical solutions for patients with partial edentulous jaws

	Clinic session 1	PRESCRIPTION FOR: Laboratory Session 1	Clinic session 2 (/++)	PRESCRIPTION FOR: Laboratory Session 2	Clinic session 3 (/++)	PRESCRIPTION FOR: Laboratory Session 3	Clinic session 4	PRESCRIPTION FOR: Laboratory Session 4	Clinic session 5 (/++)	PRESCRIPTION FOR: Laboratory Section 5	Clinic session (/++)
Fixed Dental Prosthesis 42pe.1	00 Preprosthetic Care 01 Treatment Planning 02 Tray selection and impression 03 Masillomandibul ar Index 04 Disinfection	05 Trimmed stone study cast 06 Mounting in articulator 07 Waxup (Optional)	O7 Verify laboratory work  08 Planning of provithesis design & materials, including shade and mold  11 Tooth preparation  12 Temporary FDP  13 Ginglyal cord  14 Impression  15  Mauillomandibular Index  16 Temporary FDP cementing	Optionals: 09 Template for altrument preparation 10 Template for temporary FUP (Custom Inicial guide table for articulator)  18 Master cast with dies 19 Metal frame casted	20 Verify laboratory work 21 Check fit & dimension metal frame (reseat 16 Temporary FDP) 22 Disinfection	23 Bisque bake	24 Verify laboratory work 25 Check esthetic & fit & dimension & occlusion (repeat 16 Temporary FDP cementing) 26 Disinfection	27 Glasing & completion	28 Verify laboratory work 29 Final Control Esthetic & fit & dimension & occlusion 30 Permanent Cementation 51 Advise (possible + sessions) 32 Possible discomfort	-	
Removable Dental Prosthesis 42pe.2	01 Treatment Planning 02 Tray selection and impression If possible: 03 Maxillo- mandibular relations index 04 Facebow registration 05 Disinfection	06 Trimmed stone shudy cast Cast O7 Articulator mounting (Alternative 8: 3b Occlusal Rim (if needed) O8 Occlusal Rim (if needed) O8 Occlusal nindex O4 Facebow relations index O4 Facebow registration O5 Disinfection O7 Articulator mounting)	17 Disinfection OS Verify laboratory work 09 Pentative plan for prosthesis design	10 Surveyor analysis 11 Individual impression tray	12 Verify laboratory work 13 Planning of proothesis design 8 materials 14 Tooth preparation 15 Impression technique 16 Impression 17 Maxillo- mandibular relations index 18 Facebow Registration 19 Disinfection	[Optional: [20a Masster cast + 20b Was-up framework] + 21 Verify was-up+disinfect] 20c Framework cast	21 Verify laboratory work 22 Intraoral Check 23 Tooth shade/mold selection 24 Disinfection	[Optional: [25a Occlusal rim with wax + 26 Customise wax-up + disinfect] 25b Tooth setup in wax	26 Verify laboratory work 27 Intraoral check 28 Disinfection	29 Completion of RDP	30 Verify laboratory w 31 intraoral check 32 Patient advise oral hygiene 33 Adjustme appointment + + Possible Session 34 Possible discomfort

#### 42pe.1 Partial Fixed Dental Prosthesis (PFDP) Clinical Session 0 42pe.2 Partial Removable Dental Prosthesis (PRDP) PREPROSTHETIC TREATMENT No remaining caries Clinical Session 0 Periodontal disease has been addressed and patient in hygiene phase Gross occlusal interferences has been corrected PREPROSTHETIC TREATMENT Clinical Session 1 No remaining caries Periodontal disease has been addressed and patient is in a hygiene phase Gross occlusal interferences have been corrected TREATMENT PLAN AND CONSENT 1. Treatment plan options have been discussed and patient has consented to proceed with Clinical Session 1 fixed prosthesis TREATMENT PLAN AND CONSENT PRELIMINARY IMPRESSIONS 1. Treatment plan options have been discussed and patient has consented to proceed with a 2. A correct tray of appropriate size has been selected removable prosthesis The impression material has been handled properly The impression has been checked for clear details. There are no voids or tears in critical PRELIMINARY IMPRESSIONS AND STUDY CAST 2. A correct tray of appropriate size has been selected LABORATORY PR 3. Accurate maxillo-mandibular relations index for mounting master casts The impression material has been handled properly The impression(s) and index disinfected according to protocol →→→→ The impression checked for clear details and without voids or tears in critical areas Verify and rectify if: Improper tray selection

Inaccurate impression (does not include all anatomical landmarks

#### Technical solutions for patients with partial edentulous jaws - FIXED



#### 42e.1 Removable Dental Prosthesis ("Denture")

#### Clinical Session 0

1 42e1. DP.pdf (SECURED) - Adobe Acrobat Pro

#### PREPROSTHETIC TREATMENT

If teeth present in antagonist jaw:

No remaining caries

Periodontal disease has been addressed and patient in hygiene phase

Gross occlusal interferences has been corrected

#### Clinical Session 1

#### TREATMENT PLAN AND CONSENT

1. Treatment plan options have been discussed and patient has consented to proceed with a full denture

#### PRELIMINARY IMPRESSIONS

- 2. A correct tray of appropriate size has been selected
- · The impression material has been handled properly
- . The impression has been checked for clear details of anatomical landmarks (retromolar pads and tuberosities). The impression has an appropriate border extension. There are
- no voids or tears in critical areas

#### LABORATORY PRESCRIPTION 1: 4 Trimmed stone study cast 5 Customized impression tray

Adequate Disinfection Procedure Followed