PROSTHODONTICS

4th year - Fall 2008

The costs and benefits of prosthodontic interventions:

Treatment outcomes in prosthodontics and importance of oral hygiene compliance and good control routines

Asbjørn Jokstad
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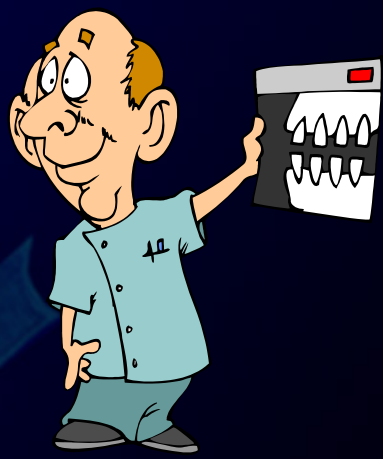
Learning objectives

1. Understand the rationale for and adopt a five step process prosthodontic treatment planning

How should we proceed when discussing prosthodontic treatment options with our patients?



Choice of technical solution ?

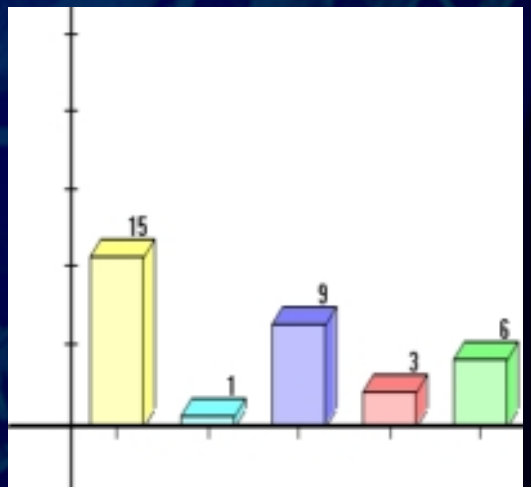
A. Conservative only, no prostho

B. Cast partial denture

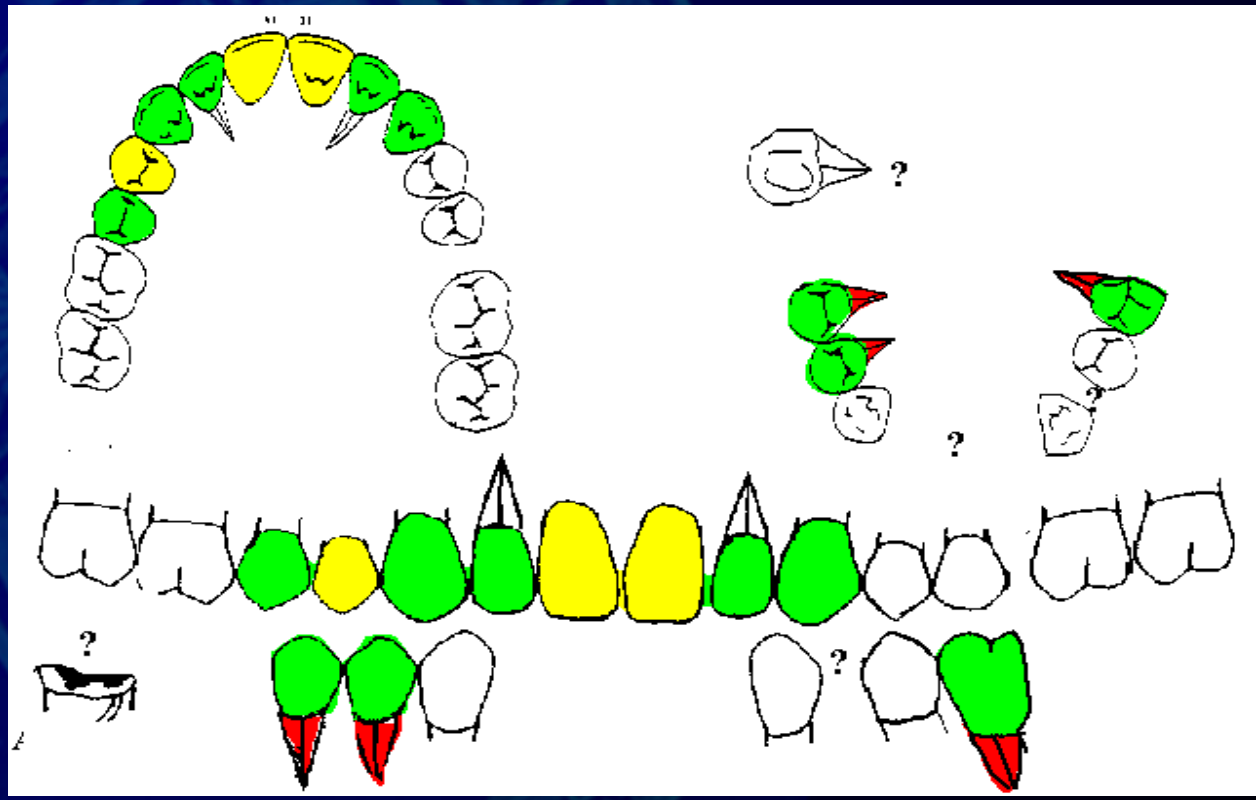
C. Crowns and partial denture

D. Fixed bridge

E. implant retained prosthesis

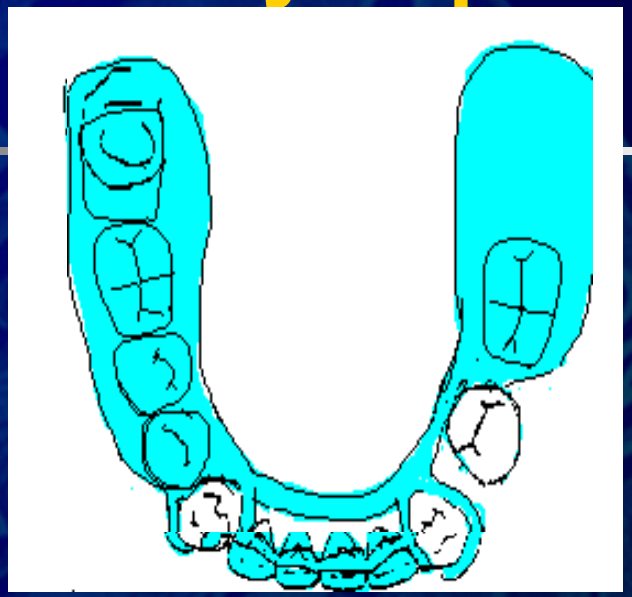


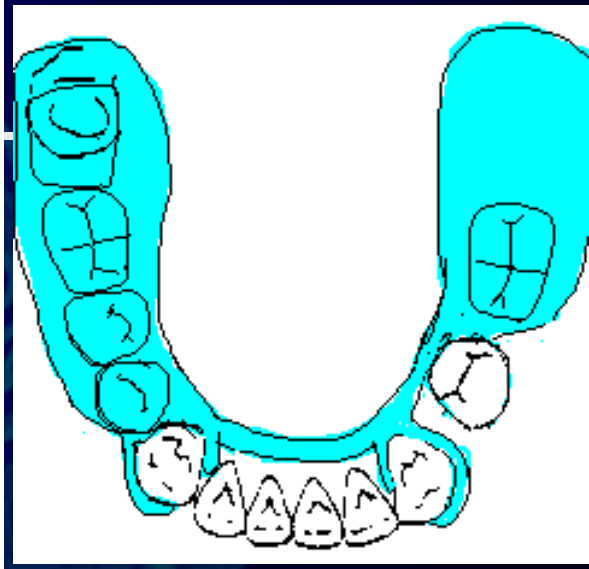
Remove pathology:



Choice of restorative material? -retrograde endodontics?- extractions? - furcation surgery? - root separation? - orthodontics? -occlusal correction? ....

Acrylic partial denture

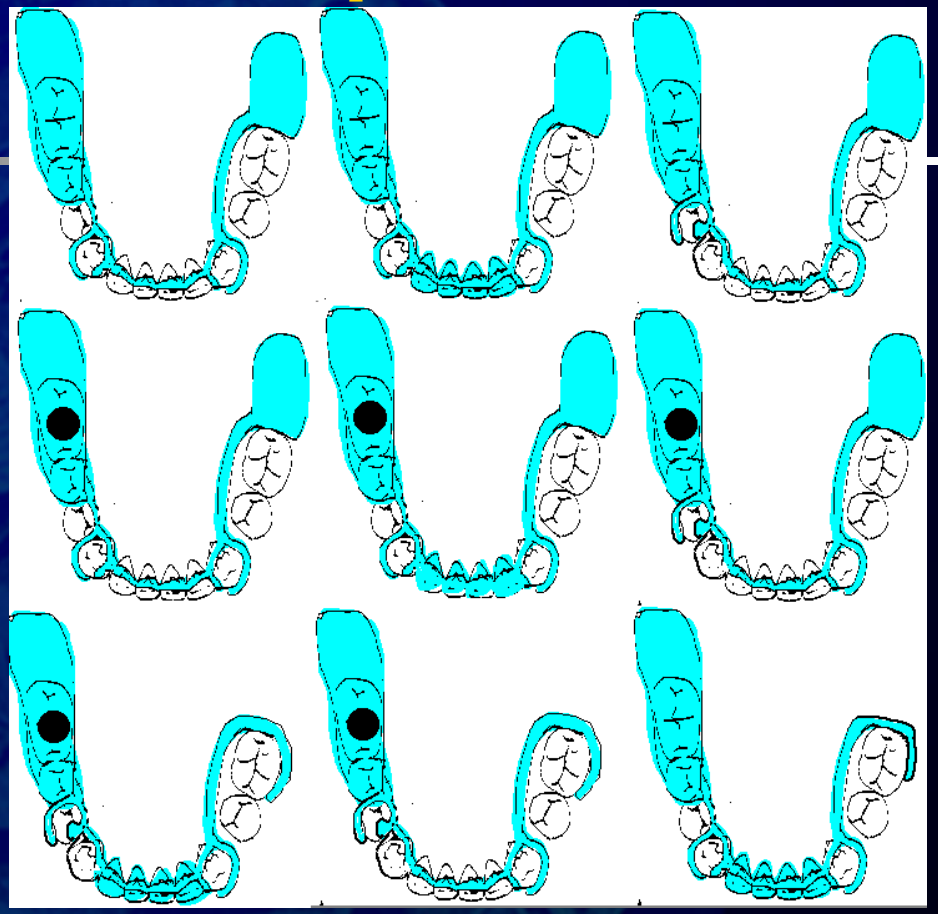




Clinical knowledge

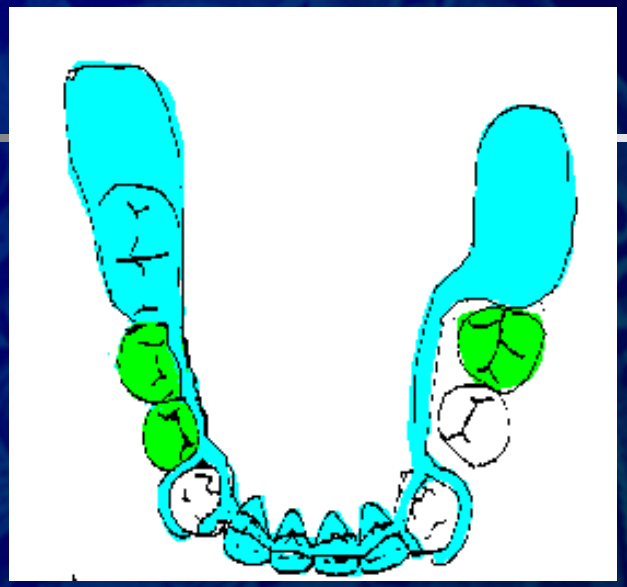
- Prosthesis design
- Prognosis

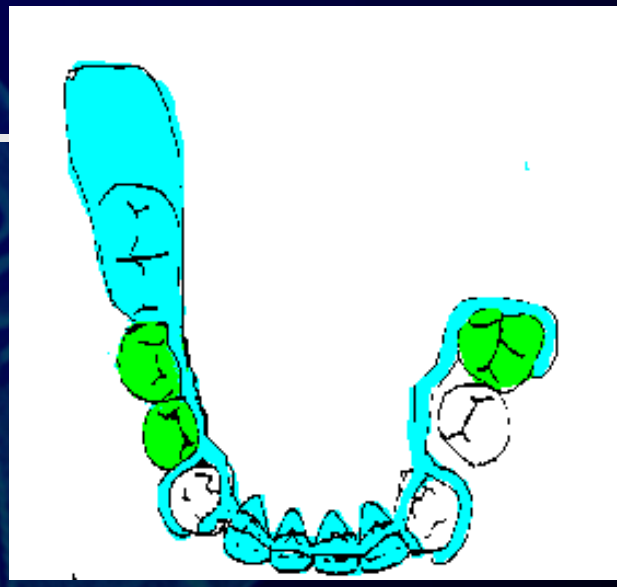
Cast partial denture



Clinical knowledge
Prosthesis design
Prognosis
Retention

Crowns + cast partial dentu





Additional clinical knowledge

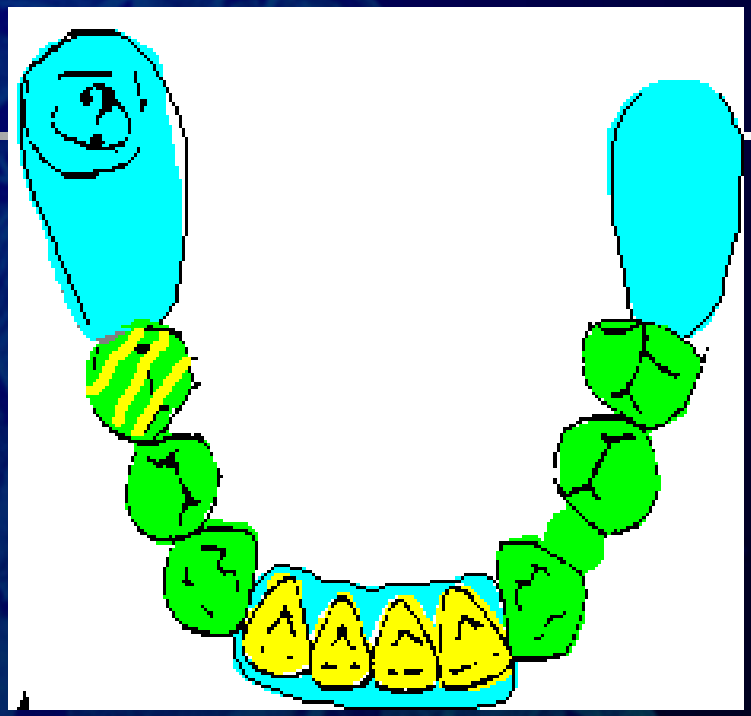
36 extraction or crown?

Soldered 44 + 45?

Milled crowns?

Intra- or extracoronal attachments?

Conus bridge

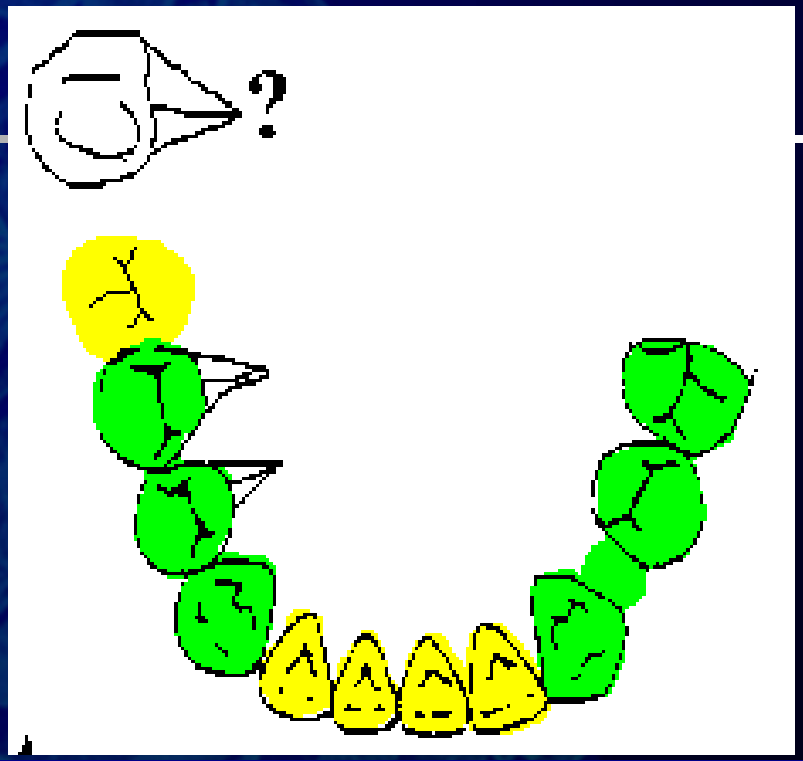


Clinical knowledge:

47, 36, 45: extraction … gold coping … attachment?

43/44/45: separation?

Fixed bridge



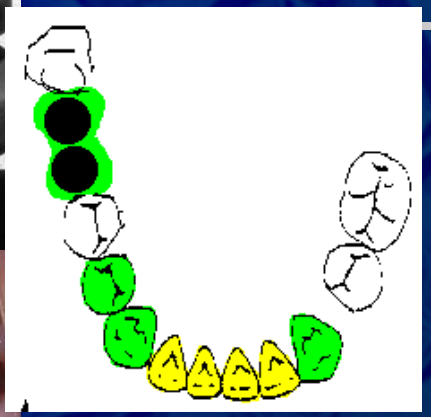
Clinical knowledge

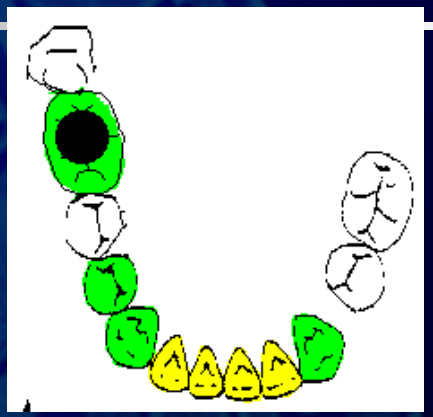
Conventional alloy, titanium-ceramic or gold acrylic?

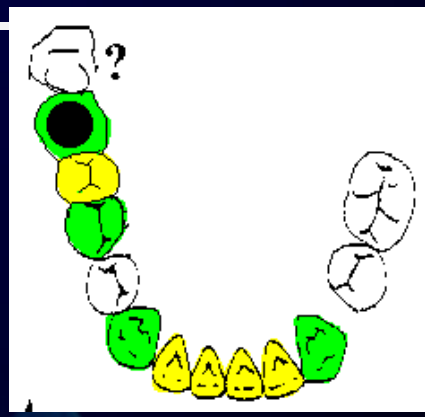
Zn-phosphate, GIC or resin cement?

Bridge extension 46? 46+47 ?

Implant retained prosthesis







<u>Clinical knowledge</u>

One / two implants?

Wide collar - standard diameter?

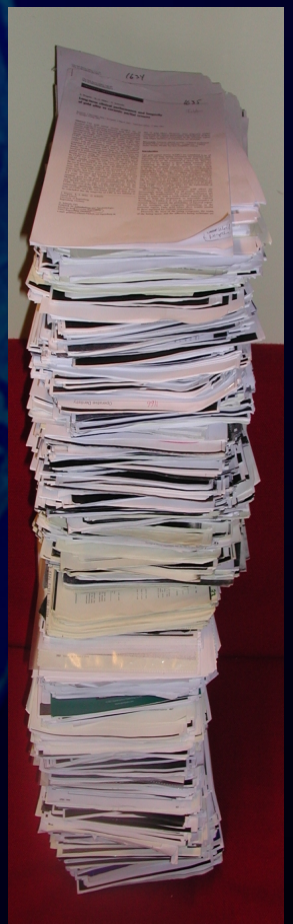
Splintet - non-splintet FPD?

Cement / screw-retained ?

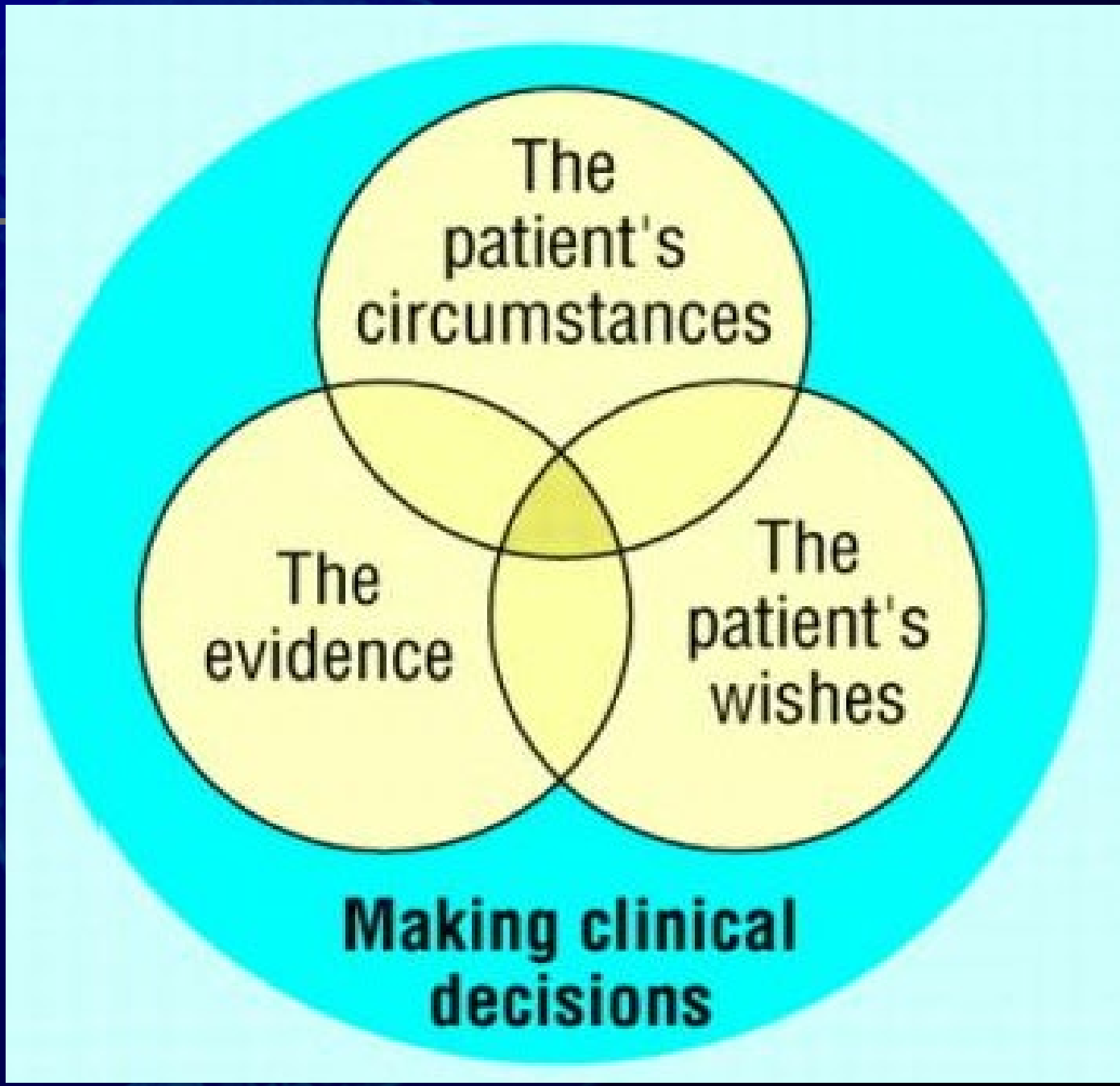
Nobelbiocare, AstraTech, 3i, Endopore, Straumann, Friadent…?

Treatment planning

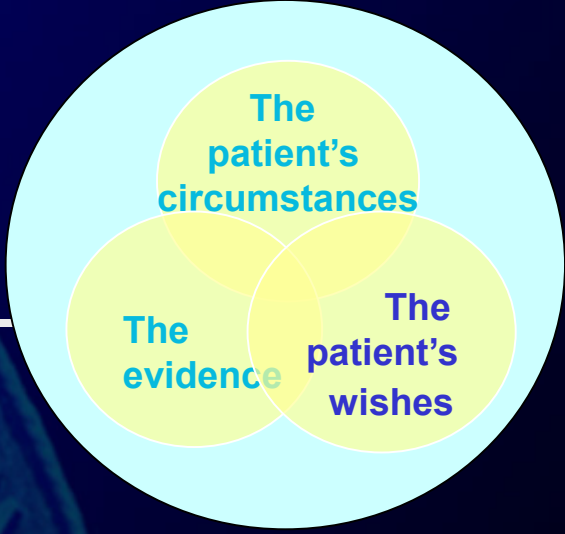
Overwhelming task to appraise and present evidence without first communicating with the patient!



Advent of Evidence -based dentistry



Five-step treatment planning



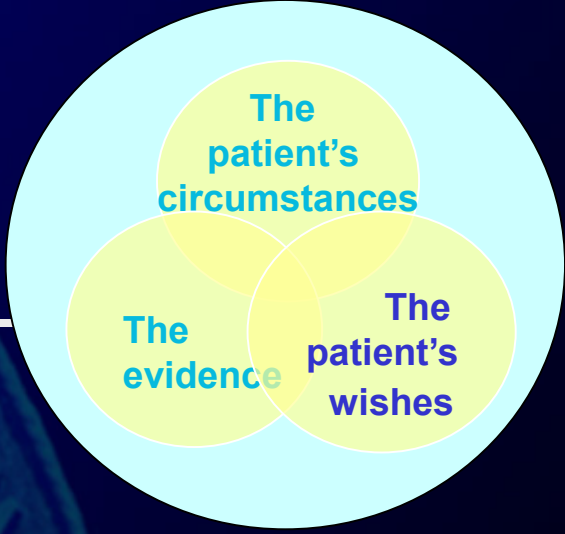
1. Identify the patient's views, choice of values and objectives for seeking treatment

Addressing the patients' preferences

- √ Total rehabilitation or minimal solution?
- √ Demand for longevity, 1 y. - 30 yrs.?
- √ Risk attitude to iatrogenic damage, i.e. future prognosis of tooth?
- √ Demand for fixed (or removable) prosthetic solution?
- √ Expectance of treatment?
- √ Patient economy (?)

Harm-benefit-cost evaluations must be individualized

Five-step treatment planning



1. Identify the patient's views, choice of values and objectives for seeking treatment

→ Individualized treatment

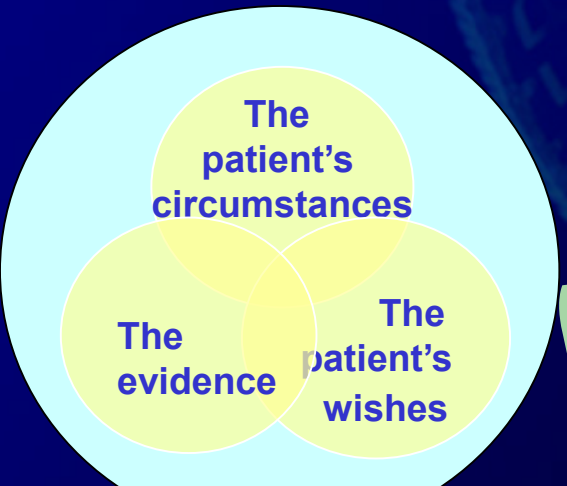
Five-step treatment planning

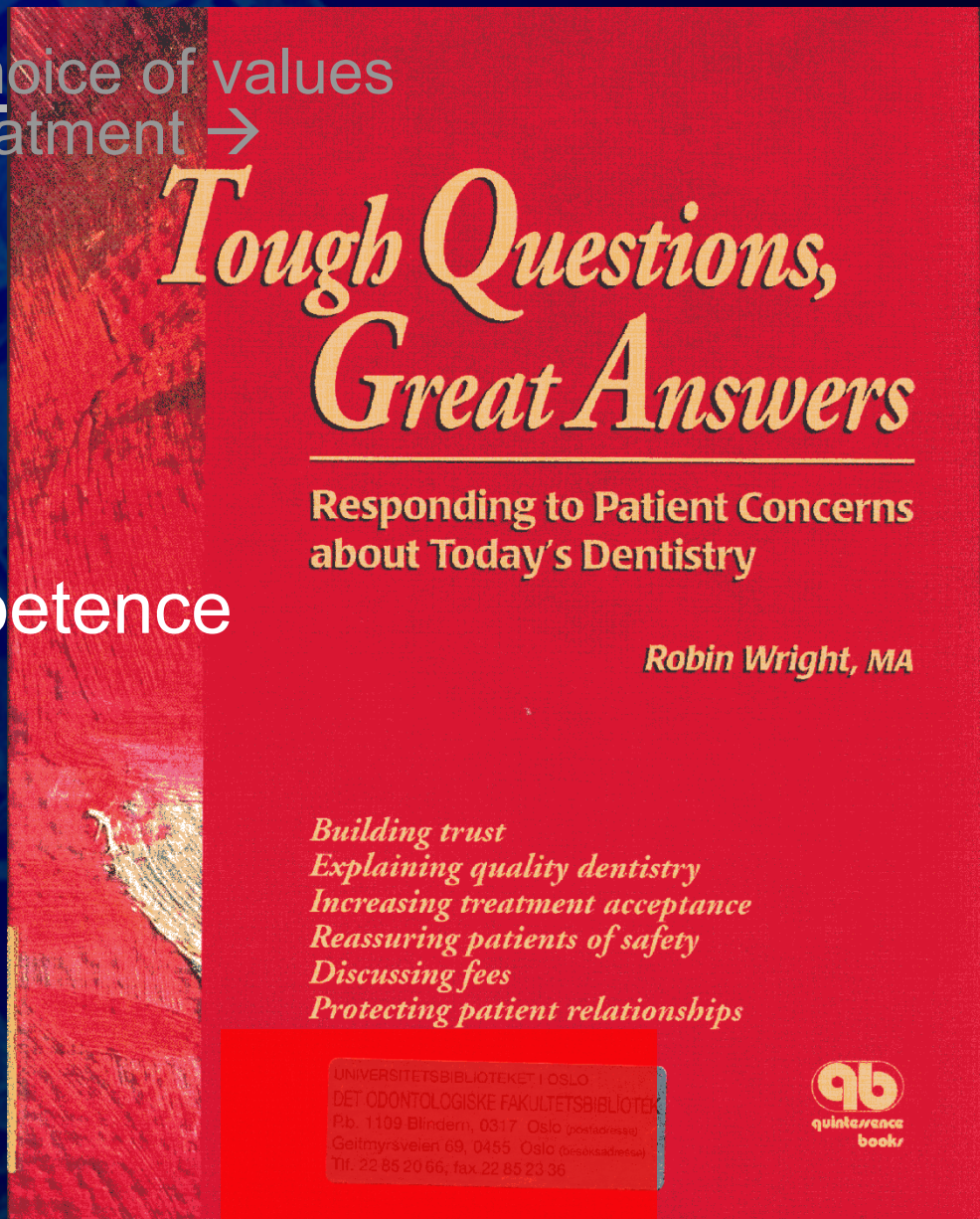
1. Identify the patient's views, choice of values and objectives for seeking treatment → Individualized treatment plan

2. Communicate

Be cognizant of your:

- Interpersonal manners
- Perceived technical competence
- Communication skills





Abstract

Health Communication
1994, Vol. 6, No. 2, Pages 137-158
(doi:10.1207/s15327027hc0602_4)

Dentist Communication and Patient Utilization of Dental Services: Anxiety Inhibition and Competence Enhancement Effects

Mark A. Hamilton, Ruby A. Rouse, Jeffrey Rouse

Research on the relationship between dentists and their patients indicates that communication plays a central role. In two studies, communication increased patient utilization of dental services by inhibiting patient treatment anxiety and by enhancing the perceived technical competence of the dentist, as predicted by Corah, O'Shea, and Bissell(1985). Information sharing enhanced competence and inhibited treatment anxiety. Information contained in comforting messages had an overall effect of reducing anxiety, although the mere mention of pain may heighten anxiety somewhat. Comforting messages also indirectly enhanced patient perceptions of the dentist's competence through information sharing. The knowledge displayed during information sharing enhanced competence directly. Information sharing also had an indirect effect on competence, mediated by the interpersonal attractiveness of the dentist. The second study replicated these findings, but also found that utilization depended on the subjective norm of the patient, and the patient's intention to support the dentist (i.e., by returning for future appointments and recommendations).Intent to support mediated the link between dentist competence and utilization. A possible link between dentist orientations toward their patients and information sharing is discussed.

Dentist-Patient Communication and Patient Satisfaction in Prosthetic Dentistry

Katarina Sondell, DDS[a]
Björn Söderfeldt, PhD, DrMedSc[b]
Sigvard Palmqvist, DDS, Odont Dr/PhD[c]

Purpose: Dentist-patient verbal communication dimensions on patient satisfaction were investigated in a prosthodontic context, controlling for the age and gender of patients and dentists and the amount of delivered prosthodontic treatment. Two concepts of satisfaction were defined, one for the single visit (satisfaction with care), and one for the overall result (satisfaction with treatment outcome). **Materials and Methods:** Audio recordings of 61 patients meeting 15 dentists were made in three specialist clinics of prosthetic dentistry. The prosthodontic treatment periods with fixed tooth- or implant-supported prostheses, on average 20 months, were monitored by questionnaires. One visit near the end of each treatment period was audio recorded. The recorded verbal communication was analyzed with the Roter Interaction Analysis System–Dental. **Results:** Bivariate analysis showed that patients of female dentists were more satisfied in the long-term perspective than patients of male dentists. In logistic multivariate regression models, the verbal communication dimensions "information–dentist horizon" and "information–patient horizon," together with the mouth involvement of the prosthodontics, influenced patient satisfaction with treatment outcome. **Conclusion:** Patients undergoing extensive prosthodontic rehabilitation should be given the opportunity to ask and talk about their dental health, and dentists should minimize their question-asking and orientating behavior during the encounters to help improve patient satisfaction with treatment outcome. *Int J Prosthodont 2002;15:28–37.*

Katarina Sondell, DDS[a]
Björn Söderfeldt, PhD, DrMedSc[b]
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The Dentist's Communicative Role in Prosthodontic Treatment

Katarina Sondell, LDS, Odont Dr/PhD[a]/Sigvard Palmqvist, LDS, Odont Dr/PhD[b]/
Björn Söderfeldt, PhD, Dr Med Sc[c]

Purpose: Dentist-patient verbal communication is important for patient satisfaction. The aim of this study was to investigate the dentist's role in the provider-patient relationship as to verbal communication and patient satisfaction with the treatment outcome in prosthetic dentistry. The dentist-specific properties were analyzed in random coefficient modeling. ***Materials and Methods:*** Sixty-one dentist-patient pairs were followed through 61 prosthodontic treatment periods. The treatment performed was fixed prosthodontic restorations on teeth or implants. One encounter at the end of each treatment period was tape recorded. The verbal communication on the recordings was analyzed using an interaction analysis instrument. Various measures of communication were used, summarizing the variational pattern of verbal interaction. Two different aspects of the patient satisfaction concept were used as dependent variables: cure (overall patient satisfaction with prosthodontic treatment), and care (patient satisfaction with a particular dental encounter during the prosthodontic treatment period). ***Results:*** In the multilevel model for care, the dentist variance was mostly explained by the communication variables. In the cure model, there was no dentist variance. The communication patterns used by the dentists thus influenced patient satisfaction in a short-term perspective but not in an intermediate perspective. ***Conclusion:*** Patient evaluation of the care during an encounter is dependent on the dentist's verbal communication activity during the encounter, but this communication has no impact on the patient evaluation of overall prosthetic treatment outcome in the intermediate time perspective. *Int J Prosthodont 2004;17:666–671.*

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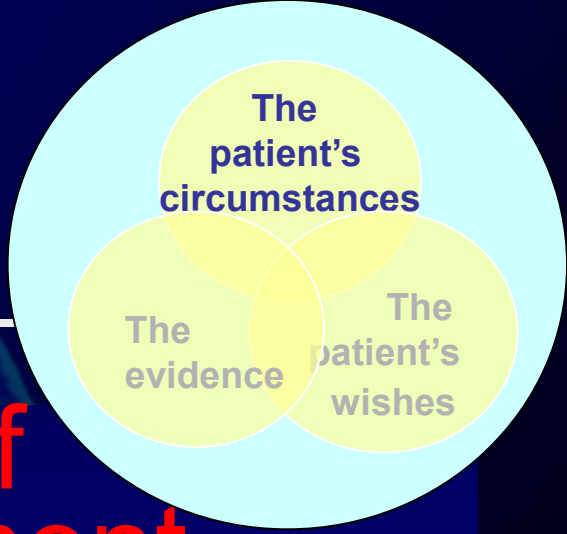
Prosthodontics and the Patient: What Is Oral Rehabilitation Need? Conceptual Analysis of Need and Demand for Prosthodontic Treatment. Part 1: A Conceptual Analysis

Birger Narby, DDS[a]/Mats Kronström, DDS, PhD/Odont Dr[b]/Björn Söderfeldt, PhD, DrMedSc[c]/
Sigvard Palmqvist, DDS, PhD/Odont Dr[d]

Purpose: The concepts of need and demand are central in studies on dental care. In the literature, a normative definition is often used, but it pays little attention to the individual's personal comfort and quality of life. Need and demand for prosthodontic services are difficult to measure, as prosthodontic treatment is highly individual and not closely related to edentulousness. Need, however defined, does not always lead to demand for treatment, depending on a variety of factors. ***Materials and Methods:*** The present article is part of a larger study in which the intention is to evaluate need and demand for prosthodontic treatment among the participants in a 1989 and 1999 longitudinal study of a population sample. As the first step, this article reports a conceptual analysis of the need concept from the literature. ***Results:*** Need is stated as socially established in the interaction between patient and clinician. It makes demand dependent on available treatment options from the care provider and society. In the prosthetic treatment decision-making process, the emancipatory perspective with the patient-clinician dialogue is of utmost importance to achieve an optimal treatment result. ***Conclusion:*** The professional attitude toward need must be that there is no true objective or subjective need. Need is established only in a communicative dialogue with mutual respect between the professional and the patient. *Int J Prosthodont 2005;18:75–79.*

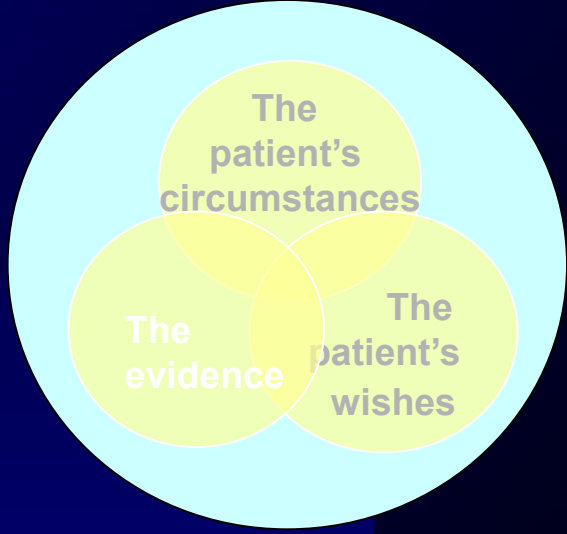
Five-step treatment planning



1. Patient views, choice of values and aim of treatment
2. Patient communication

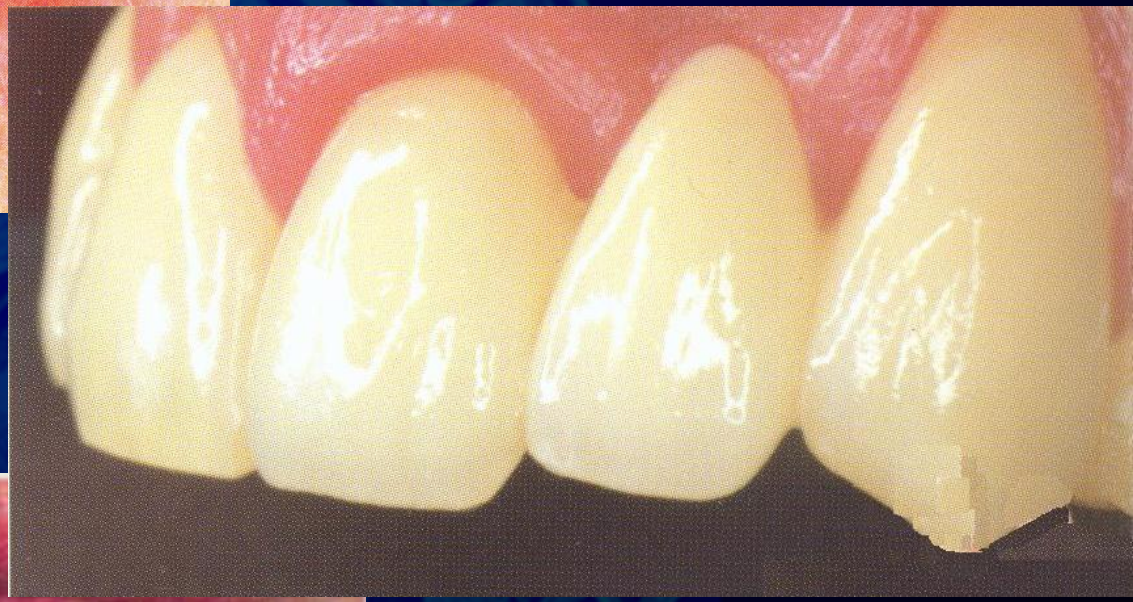
3. Consideration of possible technical solutions – i.e. a treatment strategy

Five-step treatment planning



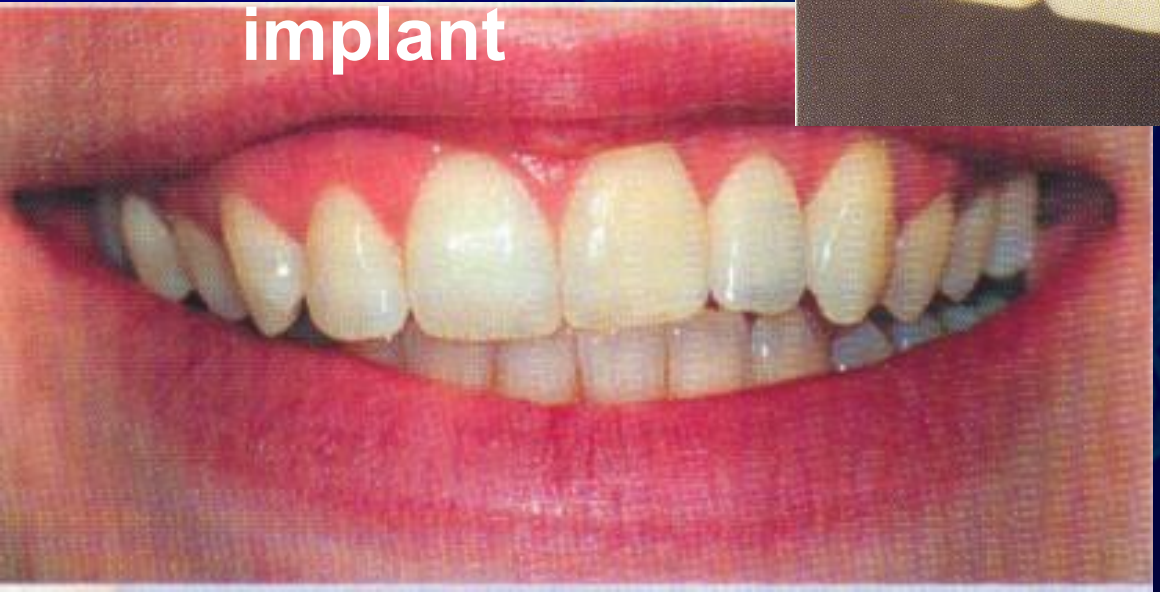
1. Patient views, choice of values and aim of treatment
2. Patient communication
3. Consider possible technical solutions
4. Present realistic outcomes with different technical solutions

Some dentists tend to offer :



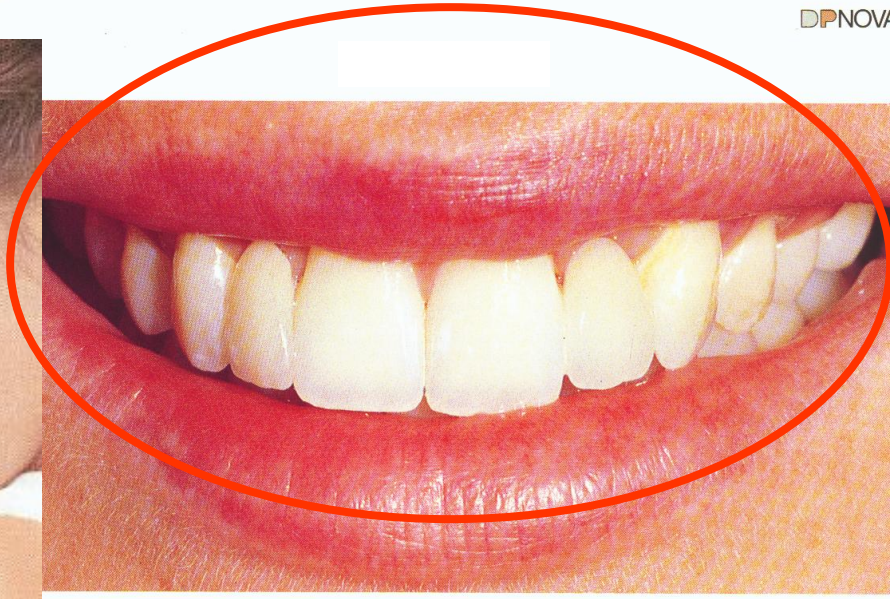
e.g.Etch-bridge

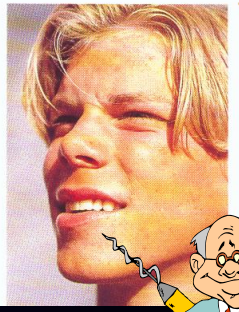
e.g.Single tooth implant



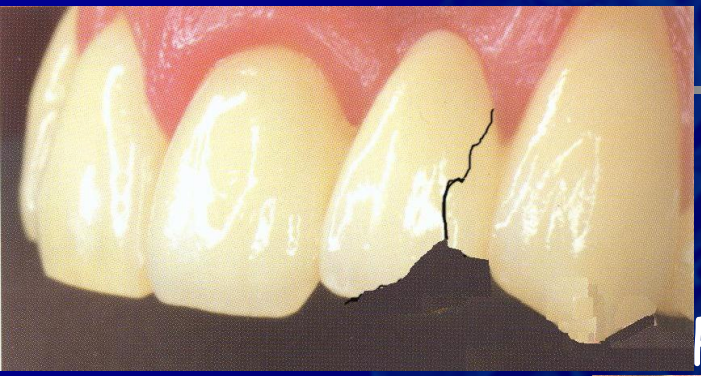
e.g. conventional bridge

....glossy pictures!

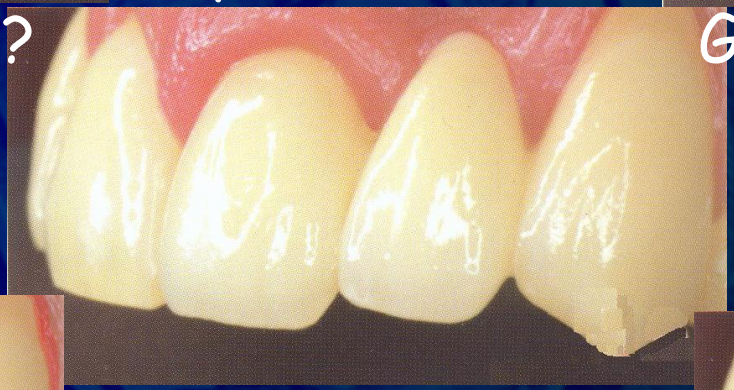




Reality can occasionally be



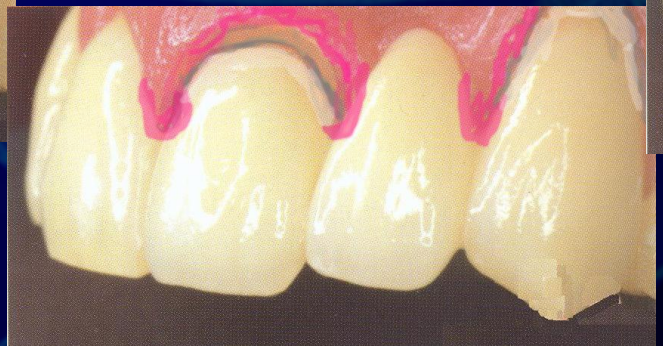
Ceramic fracture%?



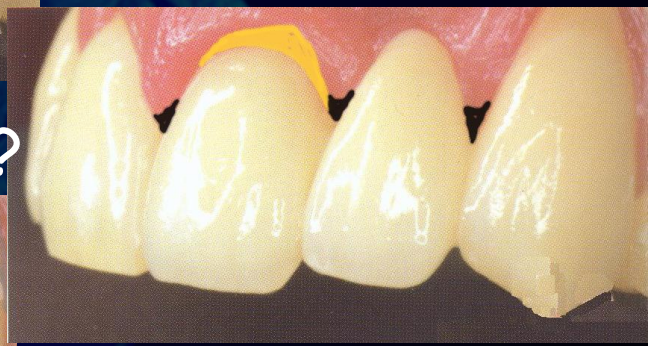
Perfect result %?

Gingival grey-tone%?

Gingivitis %?



Cervical retraction %?



Secondary caries %?

Reality can occasionally be

Perfect result %?

Opacity due to misalignment %?

Gingival-retraction %?

Exposed fixture %?

Adjacent necrosis %?

Reality can occasionally be

Grey tone %?

Perfect %

Gingivitis %?

Opacity %?

Caries/loosening %?

..and sooner or later

Loosening with or without secondary caries ?

The prosthesis as a …

	Conv.	Implant -prosth.
Risk factor for new disease		
Caries	(+)	-
Periodontitis	(+)	-
Mucosal damage, allergy, stomatitis, hyperplasia	(+)	-
Temporomandibular dysfunction	-	-
Prognostic factor for:		
Occlusal stability (“tooth malpositions”)	+	+
Bone remodeling (“Alveolar bone loss”)	--	++
“Oral discomfort” (esthetics, mastication, speech, etc.)	+	++
Nutritional aspects	?	+
Quality of life	?	+

Five-step treatment planning

1. Patient views and choice of values
   Individually aimed cost-benefit evaluations
2. Communicate
3. Consider possible technical solutions
4. Present realistic outcomes in respect to treatment aim with different technical solutions

Restore function?

Change appearance?

Prevent future problems?

+ Level of, or risk for, iatrogenic damage

Addressing the patients' preferences

- Total rehabilitation or minimal solution?
- Demand for longevity, 1 y. - 30 yrs.?
- Risk attitude to iatrogenic damage, i.e. future prognosis of tooth?
- Demand for fixed (or removable) prosthetic solution?
- Expectance of treatment?
- Patient economy (?)

Harm-benefit-cost evaluations must be individualized

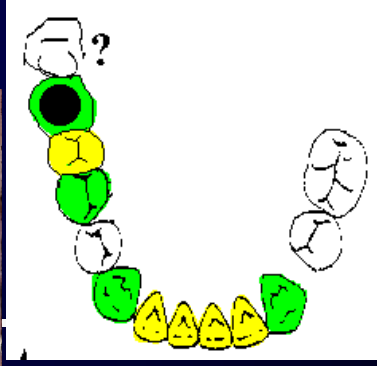
Five-step treatment planning

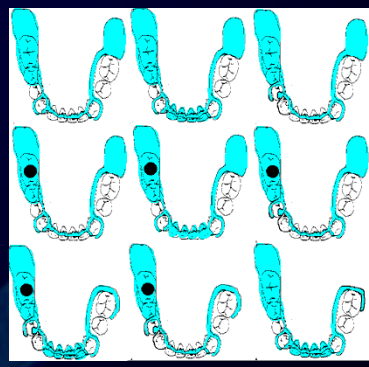
1. Patient views and choice of values
2. Patient communication
3. Consider possible technical solutions
4. Present realistic outcomes relative to aims with different technical solutions

5. Obtain informed consent among the alternative technical solutions

Integration of:

- expected esthetics and function
- costs
- probabilities of survival
- maintenance need
- ”worst-case-scenarios”





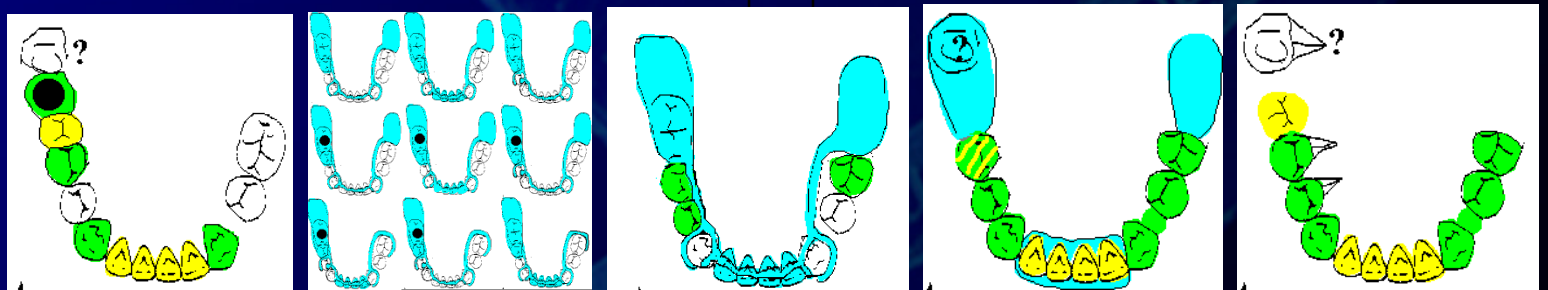
Fees CAD

1 Acrylic partial denture	1 - 2.000
2 Cast partial denture	2- 4.000
2b “ “ “ + crowns	3- 6.000
3 Conus bridge	7- 8.000
4 Fixed partial denture	7- 9.000
5 Implant based	7- 10.000

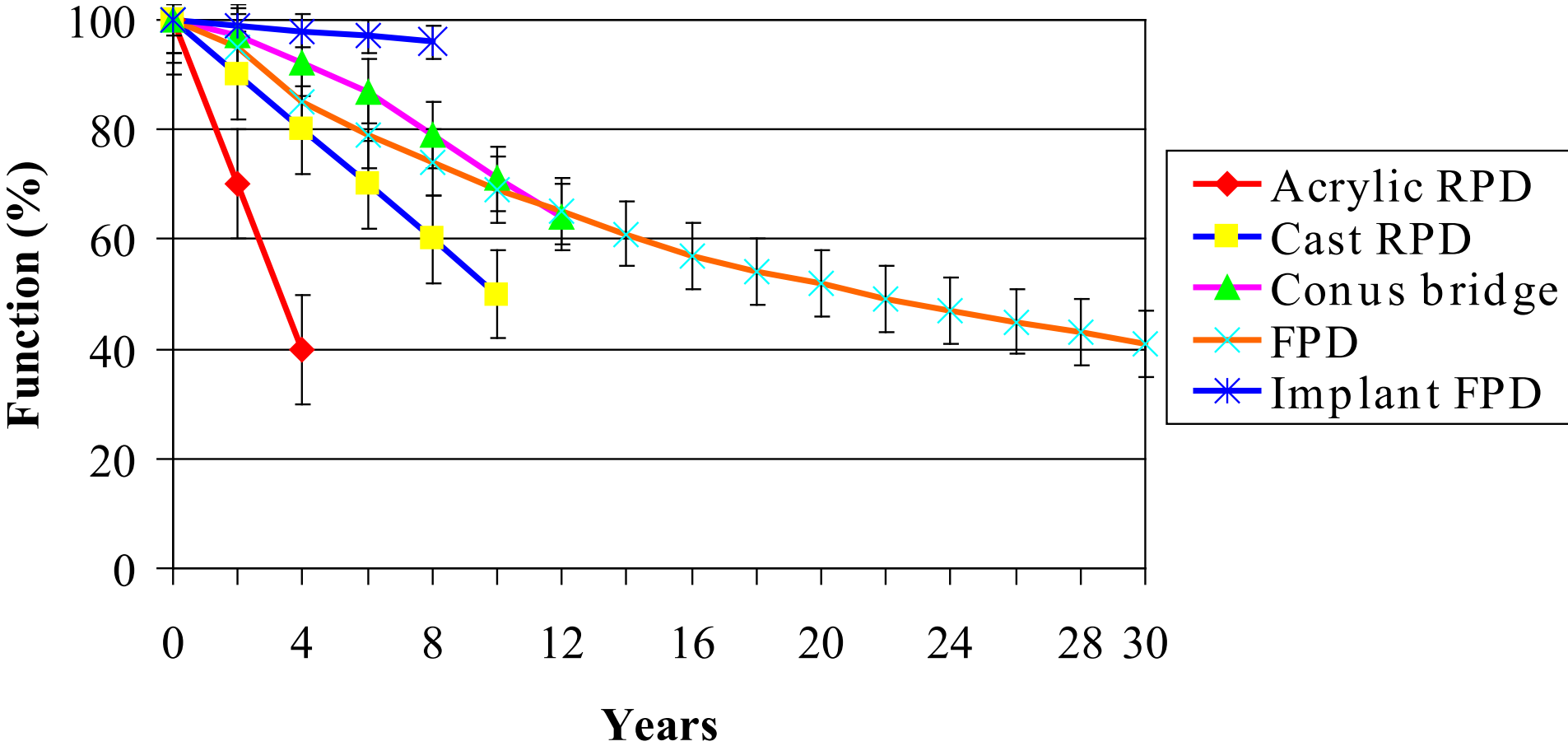
Economic cost over time

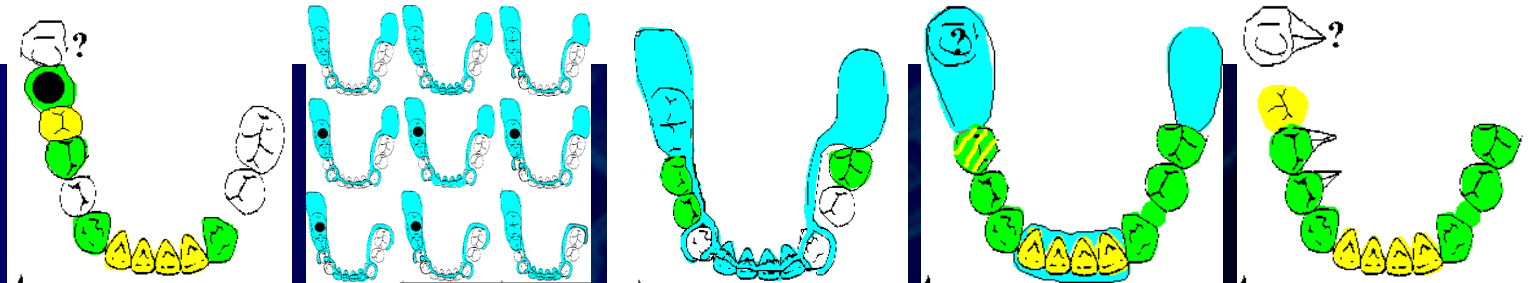
- Initial fee
- Prognosis
  a. Average survival
  b. Yearly maintenance in time = costs

axb = economic cost over time



Survival, published data



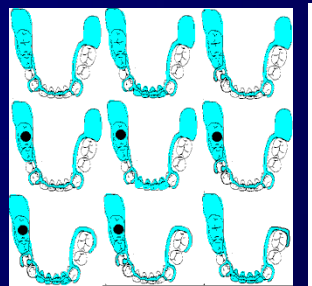
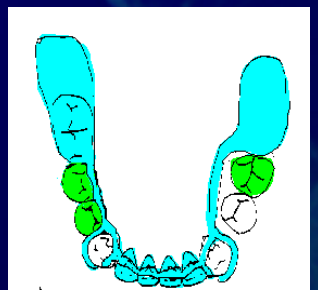
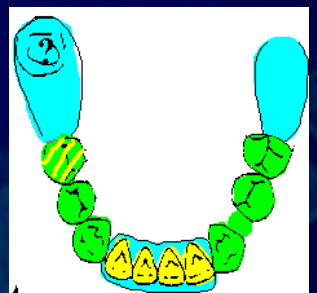


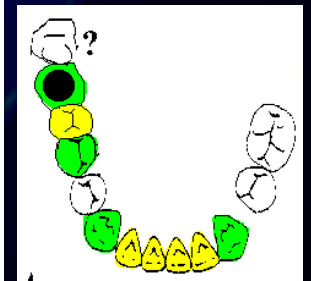
Maintenance (minutes/year)

Type:	Control	Adjustments	Repair	Sum
Acrylic RPD	10	clasp 2.year-10 occlusion 6.year-60	rebase 3.year-60 tech.prob 10%/2y	50
Cast RPD	10	clasp 2.year-10 occlusion 6.year- 60	rebase 6.year-60 tech.prob 8%/2y	40
Conus bridge	10	retention 2.year-10 occlusion 6.year- 60	rebase 6.year-60 endodontic 20%/10y tech.prob 100%/5y	50
FPD	10		endodontic 8%/10y tech.prob. 20%/5y	20
Implant-based	10		tech.prob. 40%/5y	40-70

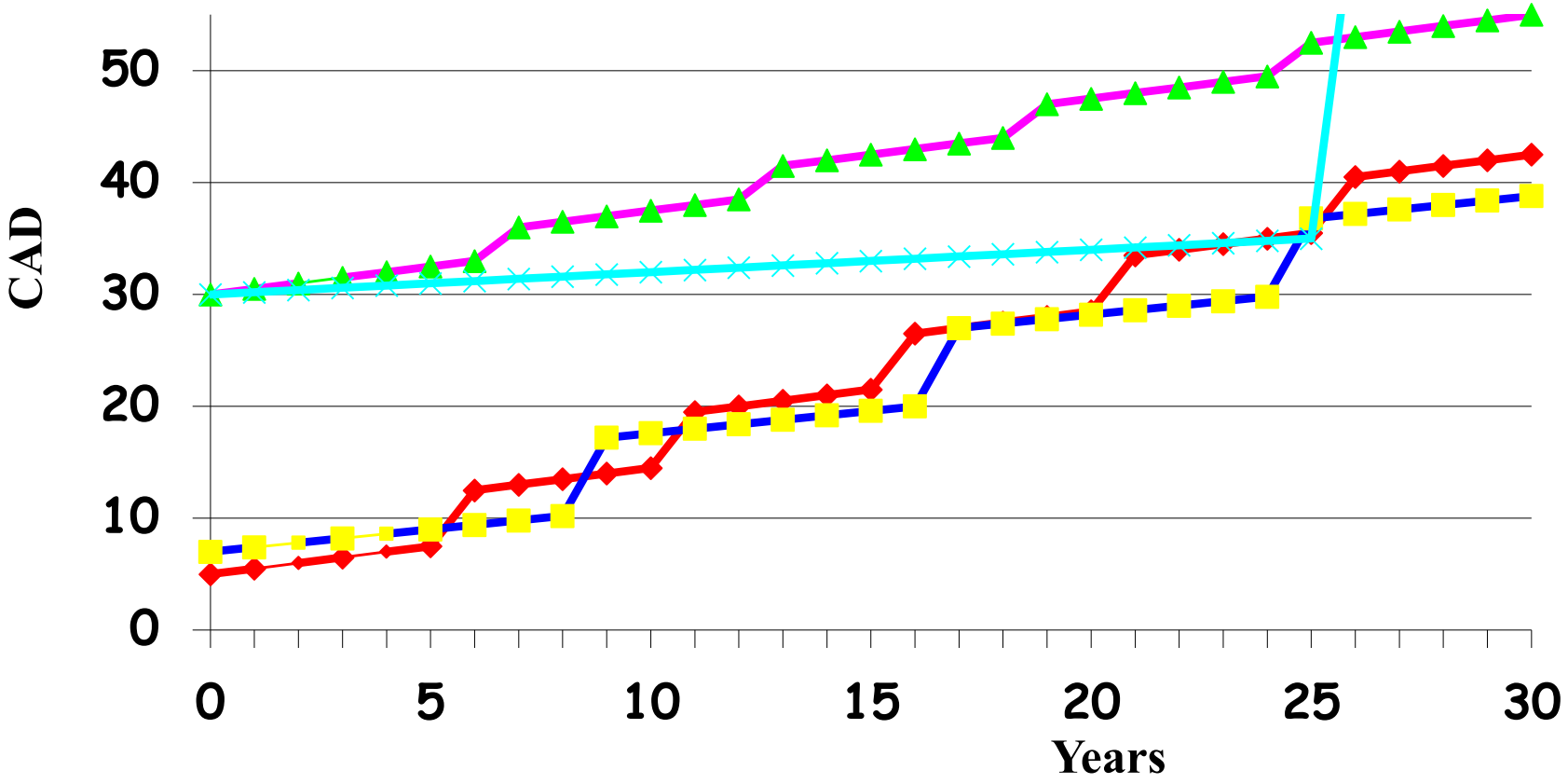
Summary, fee + maintenance

1	clasp part.dent.	CAD 1 - 2.000	50 min
2	cast part.dent.	CAD 2 - 4.000	40 min
2b	" " " + crowns	CAD 3 - 6.000	45 min
3	conus bridge	CAD 7 - 8.000	50 min
4	bridge	CAD 7 - 9.000	20 min
5	Implant based	CAD 7 - 10.000	40-70 min + 18 min



Accumulated Costs



Inadequacies of model:

Costs are not adjusted for inflation

Replacement not always possible

Based on average data - not on individual practitioners'

Other potential costs

1. What can happen if and when the prosthesis fail?

2 . How probable is it that the prosthesis which **I have made** will fail?

Potential costs

economic - biologic - psychosocial

“Worst case” situation

i.e. = failure of prosthesis within 1. year in spite of:

- *Correct indications and clinical procedures*
- *Esthetically acceptable and technically free of discrepancies at the time of delivery*

- **Probability***: percentage of cases?*
- **Consequence:** usually *alternative / new prosthesis*

Economic costs*: remake free of charge common, to keep good patient relationship*

+

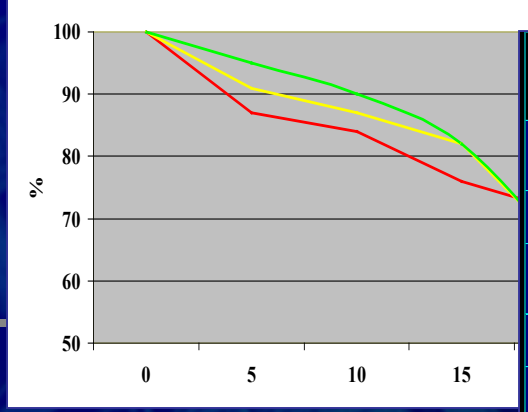
biologic & psychosocial costs

Summary - “worst case”

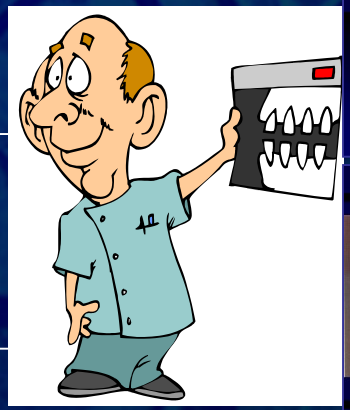
Type:	Problem:	%	Additional cost
Acrylic RPD	maladaptation	<25	1.000 *Alt.prosthesis*
Cast RPD	maladaptation	<=8	1.500 *Alt.prosthesis*
Conus bridge	tight retention	0.5	1 hour *correction*
FPD	abutment fracture	0.5	3-7.000 *implant*
Implant FPD	“sleeping fixt”	<4	*1-6.000 new fixture? New FPD?*

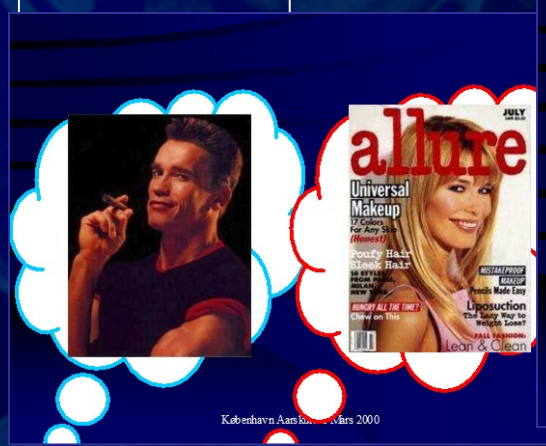
Correct treatment decision

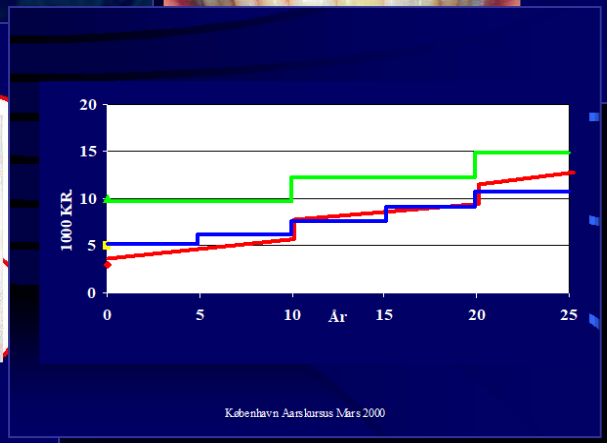
Dentist:patient relationship
Two-way communication



Independent variables	Bi-variate odds ratios	Bivariate significance	95% Confidence intervals bivariate odds ratios	Multi-variate odds ratios	Multivariate significance	95% Confidence intervals for multivariate odds ratios
Age group						
20-30	-	-	-	-	-	-
30-40	2.32	**	1.15 - 3.13	2.52	**	1.35 - 3.33
+40	2.63	***	1.43 - 3.08	2.63	***	1.83 - 3.8
Gender						
Male	-	-	-	-	-	-
Female	2.42	**	1.61 - 2.79	2.12	**	1.91 - 2.9
Material						
Amalgam	-	-				
Composites	1.12	N				
Glass ionom.	3.12	**				
Dentists						
#1	-	-				
#2	1.34	N				
Location						
Mandible	-	-				
Maxilla	1.55	*				







Treatment planning - take-home messages

1. Do not offer patients glossy pictures

Treatment planning - take-home messages

1. Do not offer patients glossy pictures
2. Two-way communication is critical in the treatment planning phase.

   Be cognizant of your:

   - Interpersonal manners
   - Perceived technical competence
   - Communication skills

Treatment planning - take-home messages

1. Do not offer patients glossy pictures
2. Two-way communication is critical in the treatment planning phase. Be cognizant of your: Interpersonal manners, Perceived technical competence & Communication skills
3. Dentists and patients diverge about
   - evaluation of therapy success
   - appraisal of, and attitude towards risk

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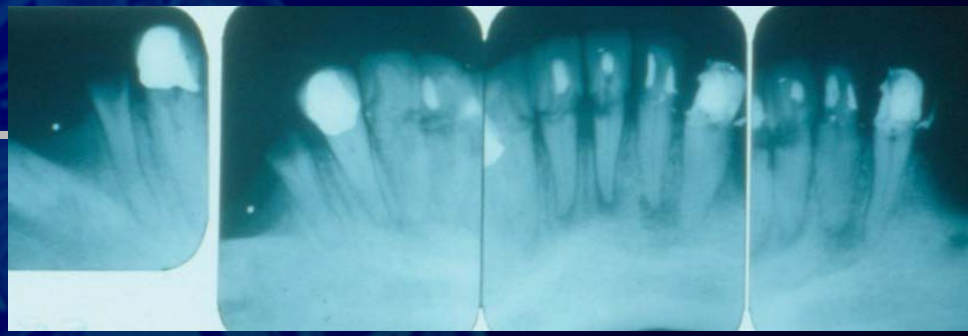
All treatment recommendations must therefore be individualized and based on the patient's wishes and values

2 years



1.5 years

1 year

< 1 year

Steele et al. Changing patterns and the need for quality. Br Dent J. 2002; 192:144-8.

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Educating the patient how to avoid future oral disease (and treatment) is a component in all patient care.