

PROSTHODONTICS

4th year - Fall 2010

The concept of risk factors and consideration of prognostic factors in treatment planning, choice of interventions and impact on prognosis

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University of Toronto

Choice of technical solution

?



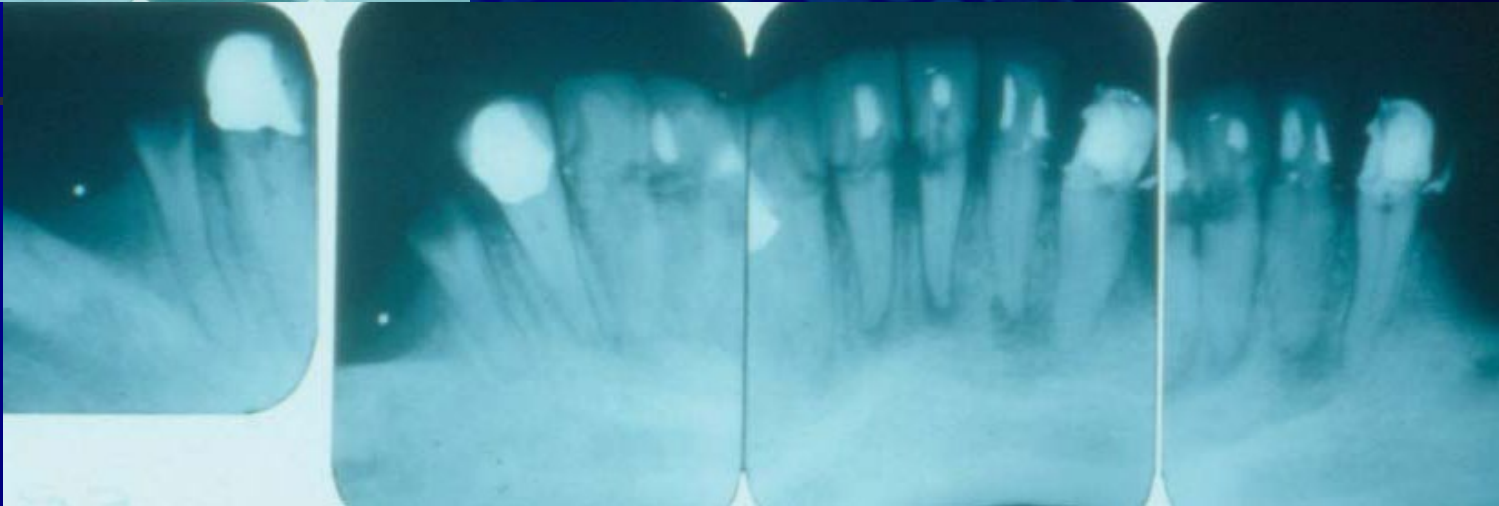
76 yrs
Dry mouth
Caries

?

- A. Restorative only, no prostho
- B. Cast partial dental pros. +/- crowns
- C. Fixed bridge
- D. Implant retained prosthesis

E. Other

Choice of technical solution ?



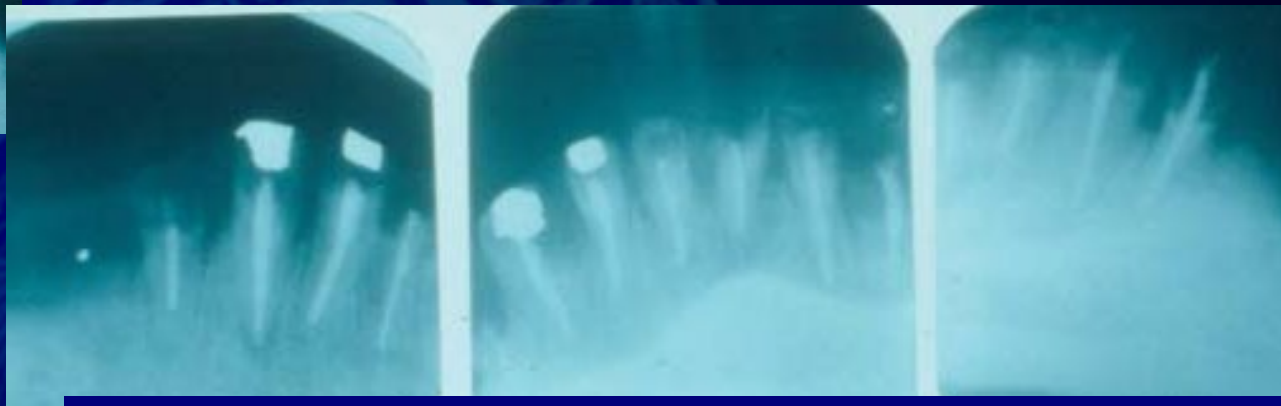
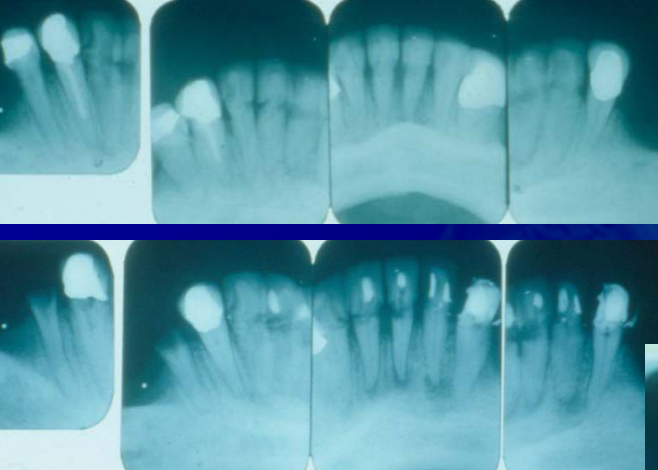
?

76 yrs + 2
Dry mouth
Caries

- A. Restorative only, no prostho
- B. Cast partial dental pros. +/- crowns
- C. Fixed bridge
- D. Implant retained prosthesis

E. Other

Choice of technical solution ?

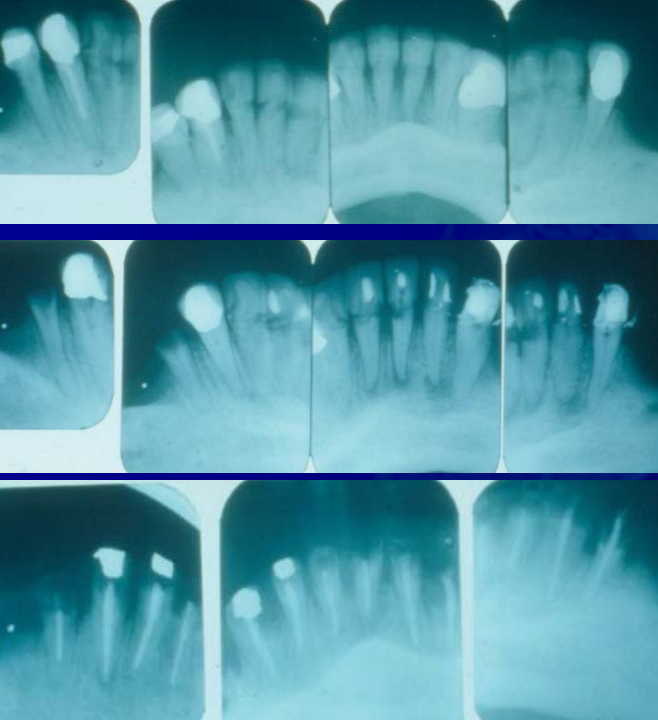


?

76 yrs + 2 + 1.5
Dry mouth
Caries

- A. Restorative only, no prostho
- B. Cast partial dental pros. +/- crowns
- C. Fixed bridge
- D. Implant retained prosthesis

Choice of technical solution ?



?

76 yrs + 2 + 1.5 + 1
Dry mouth
Caries

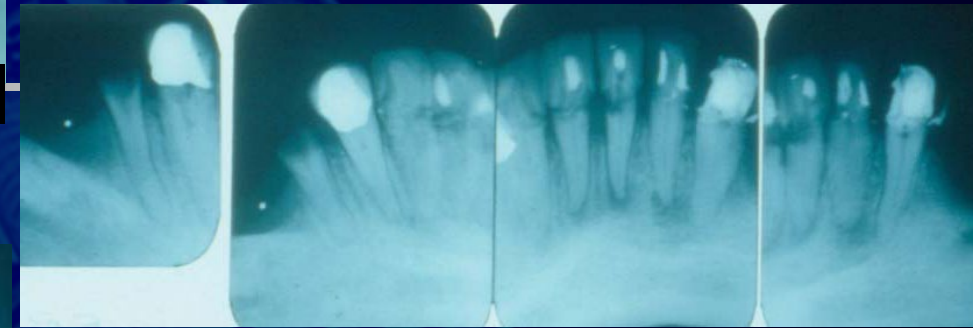
- A. Restorative only, no prostho
- B. Cast partial dental pros. +/- crowns
- C. Fixed bridge
- D. Implant retained prosthesis

E. Other

Choice of technical solution is not = Patient management!



+2 years



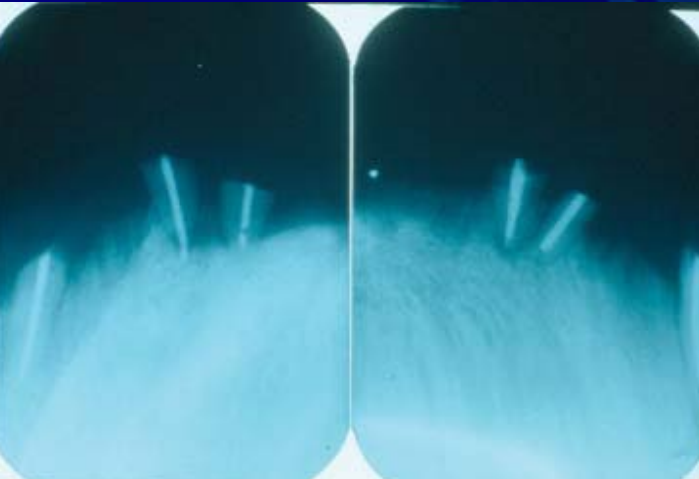
+1.5 years



+1 year



+ <1 year

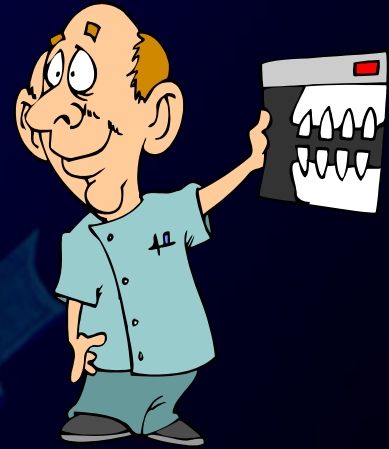


Doing the intervention right vs. Doing the right intervention

Risk factor: Demographic, disease-specific, or co-morbid characteristics associated with an increased probability of disease or a medical condition (e.g., heart disease: Hp, Cholesterol, smoking)

Prognostic factor: Demographic, disease-specific, or co-morbid characteristics of a patient associated strongly enough with a disease/condition's outcomes to predict accurately the eventual development of those outcomes; to estimate the chance of recovery from a disease/condition, or the chance of a disease/condition recurring

How should we
proceed when
considering the
optimal treatment
for our patients?

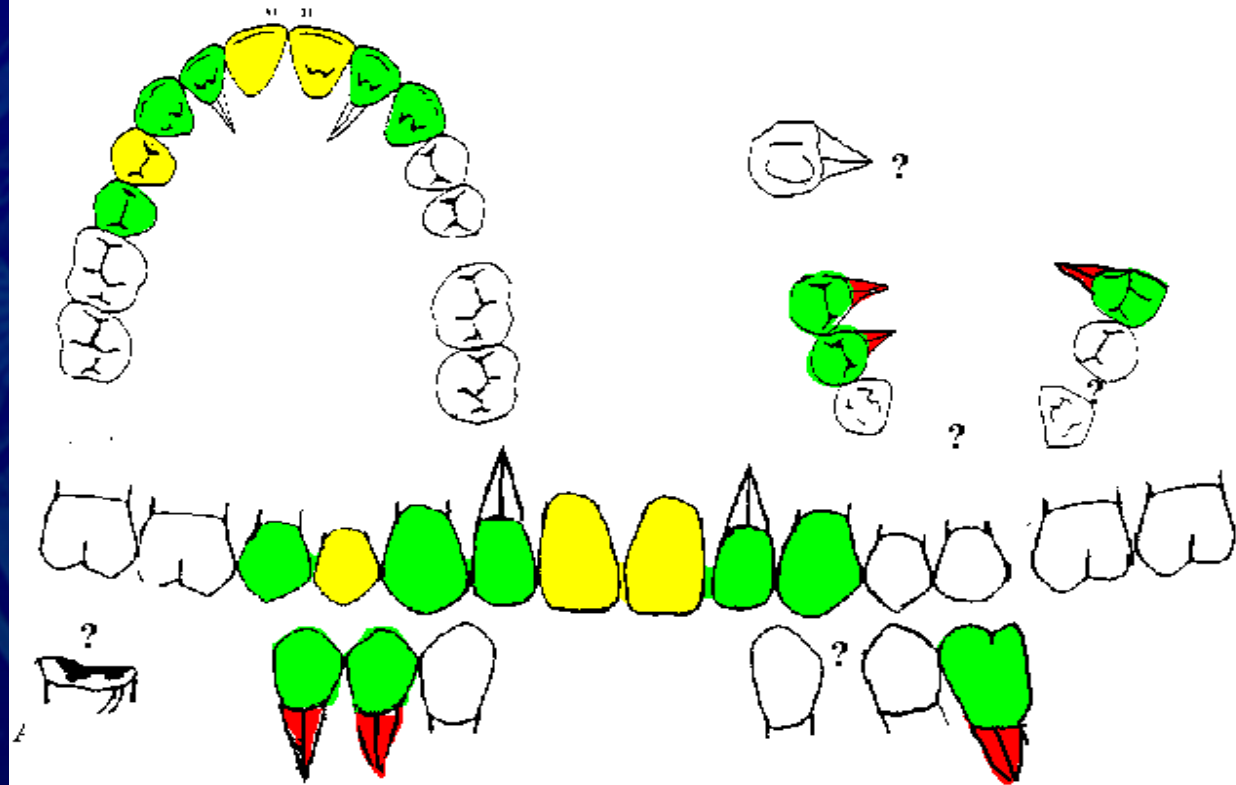


Choice of technical solution?

?



Remove pathology:



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

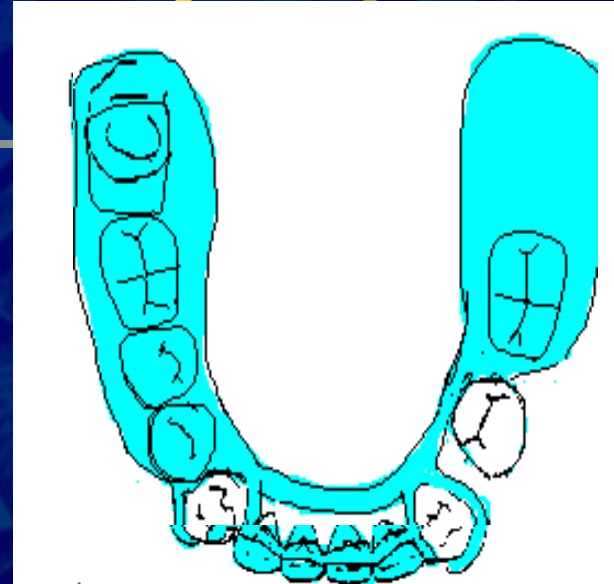


Choice of technical solution ?



- A. Restorative only, no prostho
- B. Cast partial dental pros.
- C. Crowns and partial dental pros.
- D. Fixed bridge
- E. implant retained prosthesis

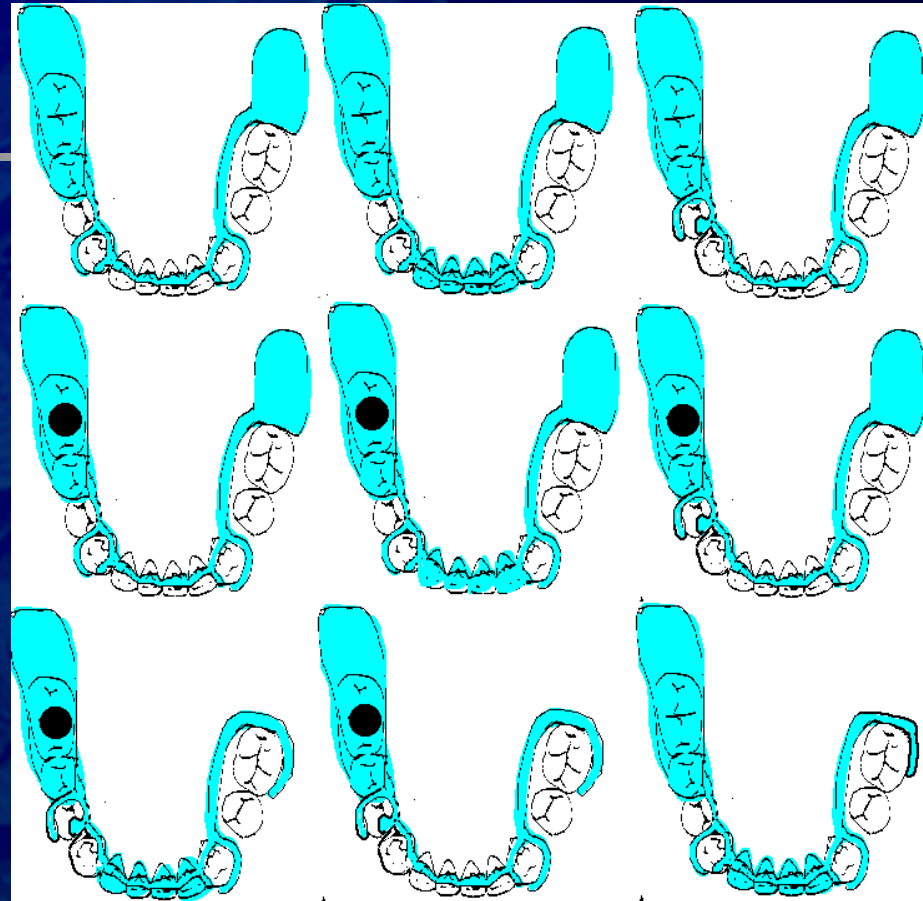
Acrylic partial dental pros.



Clinical knowledge

- ❑ Prosthesis design
- ❑ Prognosis

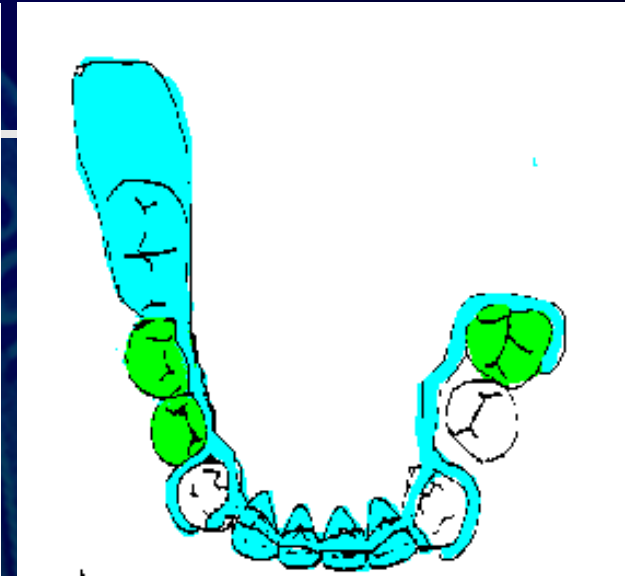
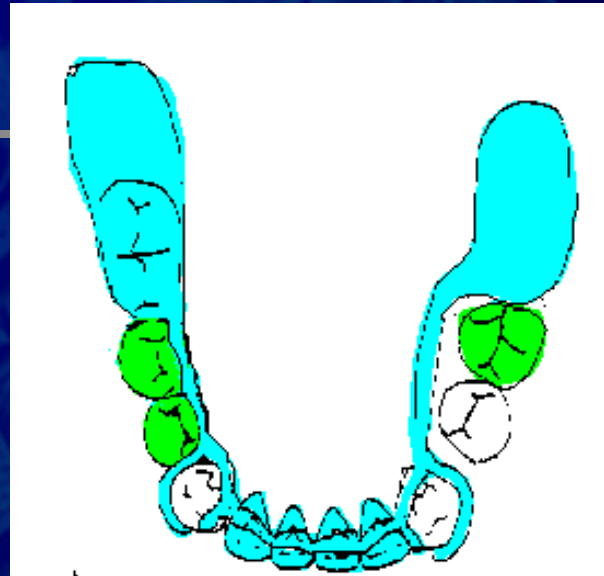
Cast partial dental pros.



Clinical knowledge

- Prosthesis design
- Prognosis
- Retention

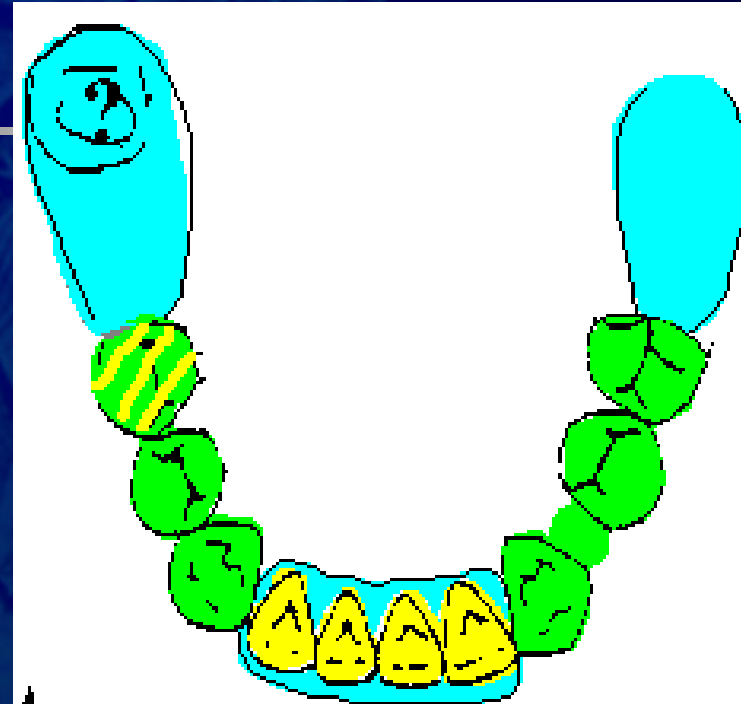
Crowns + cast partial dent pros.



Additional clinical knowledge

- ❑ 36 extraction or crown?
- ❑ Soldered 44 + 45?
- ❑ Milled crowns?
- ❑ Intra- or extracoronal attachments?

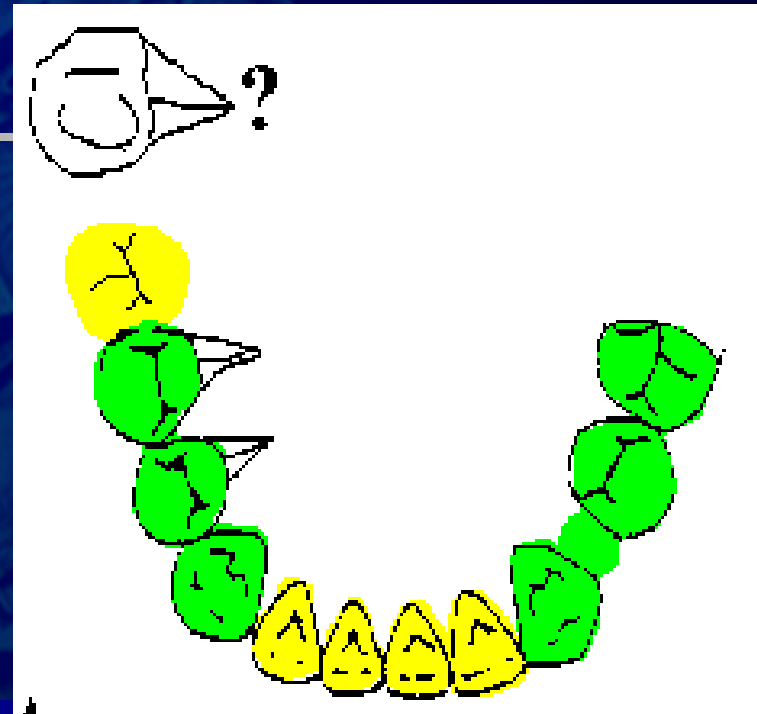
Conus bridge



Clinical knowledge:

- 47, 36, 45: extraction ... gold coping ... attachment?
- 43/44/45: separation?

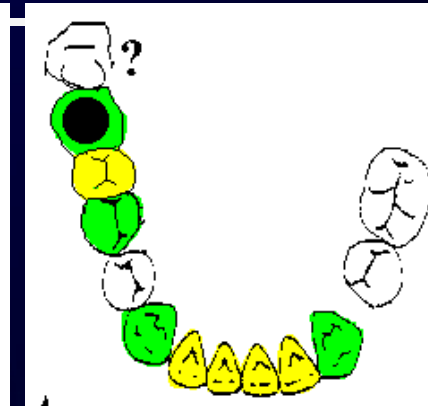
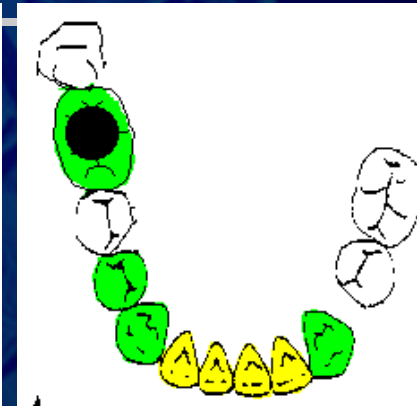
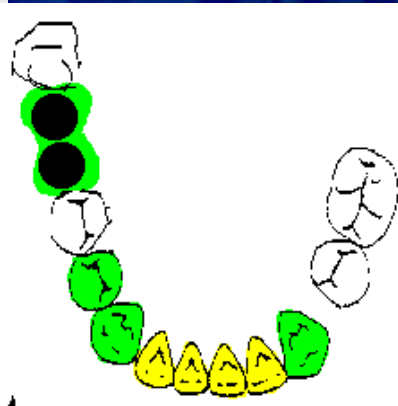
Fixed bridge



Clinical knowledge

- ❑ Conventional alloy, titanium-ceramic or gold acrylic?
- ❑ Zn-phosphate, GIC or resin cement?
- ❑ Bridge extension 46? 46+47 ?

Implant retained prosthesis



Clinical knowledge

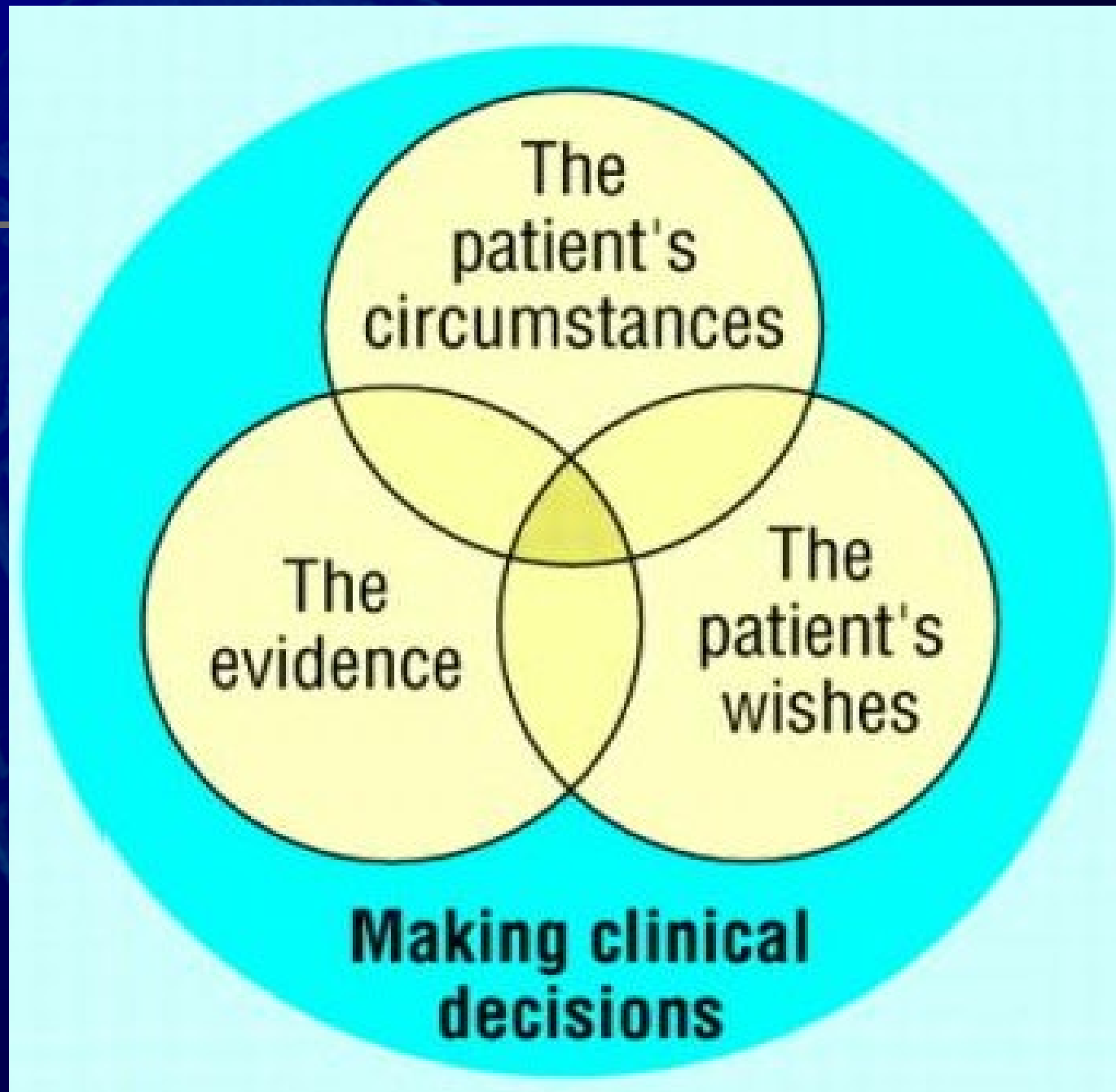
- ❑ One / two implants?
- ❑ Wide collar - standard diameter?
- ❑ Splinted - non-splinted FPD?
- ❑ Cement / screw-retained ?
- ❑ Nobelbiocare, AstraTech, 3i, Endopore, Straumann, Friadent...?

Treatment planning

In Prosthodontic treatment planning it is an overwhelming task to consider options without first communicating with the patient!

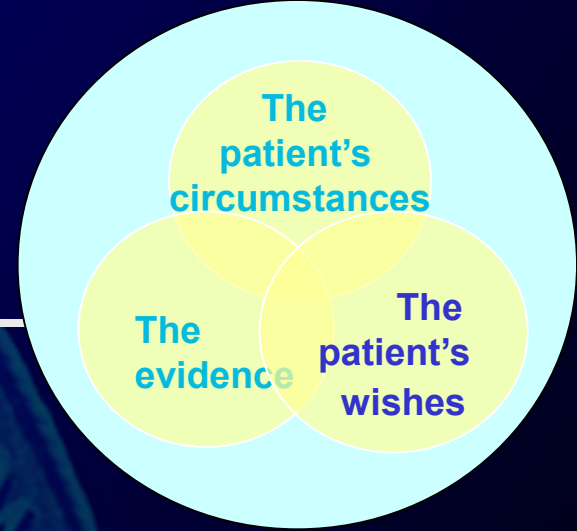


**Advent of
Evidence
-based
dentistry**



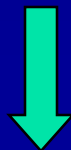
Five-step treatment planning

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



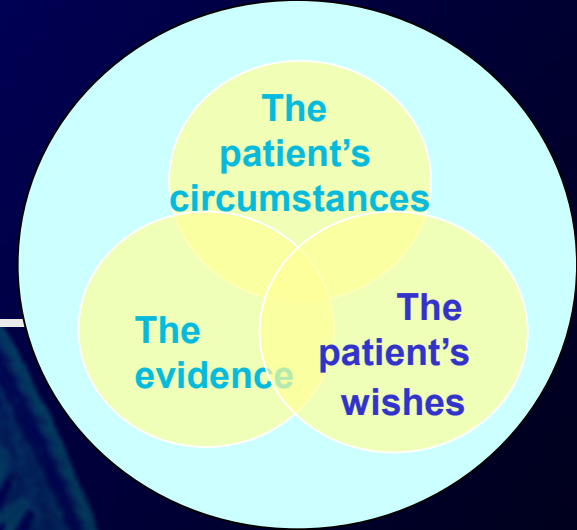
Addressing the patients' preferences

- √ 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 your patient's views, choice of values and objectives for seeking treatment
→ Individualized treatment



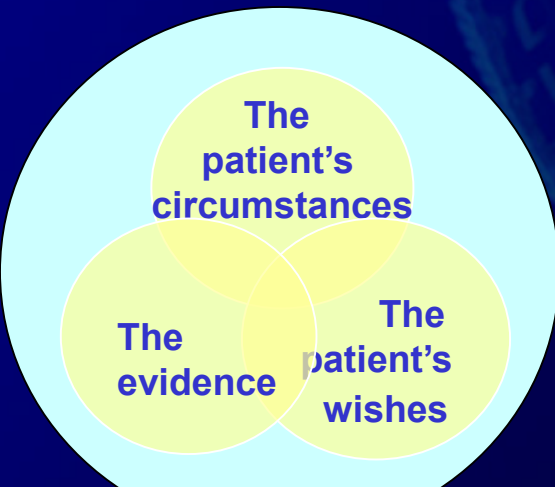
Five-step treatment planning

1. Identify your 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



Tough Questions, Great Answers

Responding to Patient Concerns
about Today's Dentistry

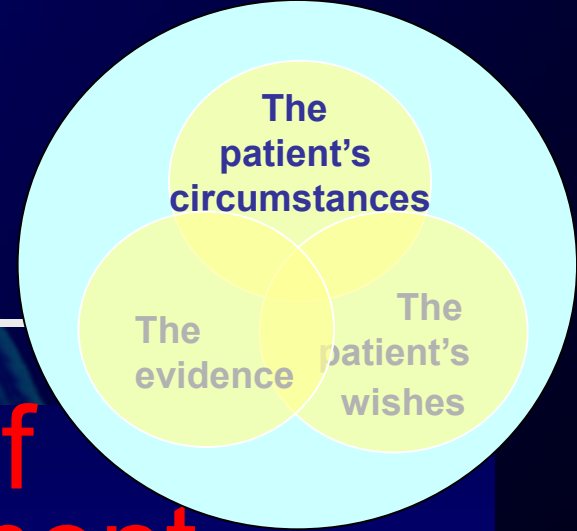
Robin Wright, MA

*Building trust
Explaining quality dentistry
Increasing treatment acceptance
Reassuring patients of safety
Discussing fees
Protecting patient relationships*

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qb
quintessence
books

Five-step treatment planning

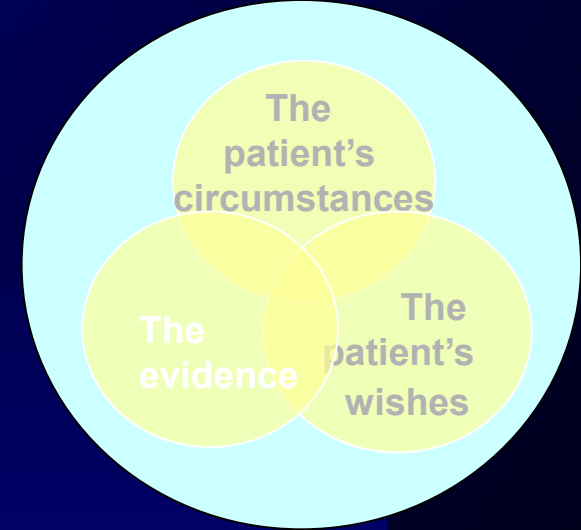


1. Patient views, choice of values and aim of treatment
2. Patient communication
3. Consideration of possible technical solutions – i.e. a treatment strategy



Five-step treatment planning

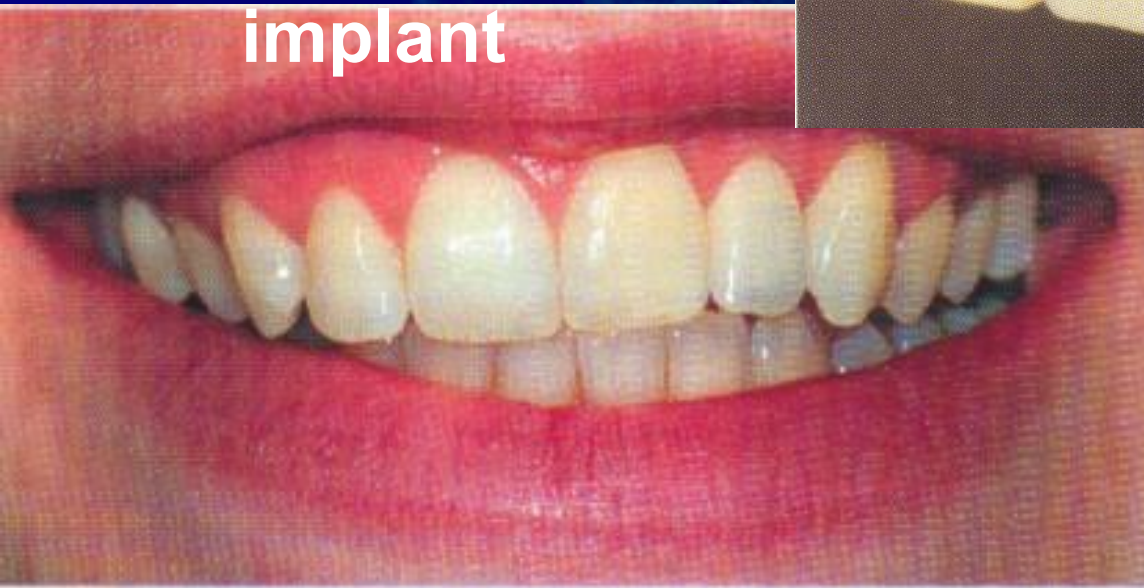
1. Patient views, choice of values and aim of treatment
2. Patient communication
3. Consider possible technical solutions
4. Present realistic outcomes with different technical solutions



**Some dentists
tend to offer :**



**e.g. Etch-
bridge
e.g. Single tooth
implant**



**e.g. conventional
bridge**



....glossy pictures!

DPNOVA



Empress 2 fronttannsbros



...Protocol

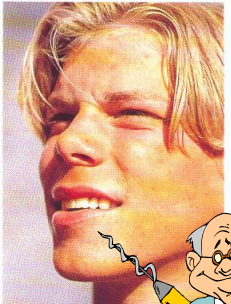
CASE REPORT
One Stage Procedure

CLINICAL DATA
Scientific update on
Fixture ST

CASE REPORT
Soft Tissue Sculpturing

CALENDAR OF EVENTS

plasier 12, 22.
ra Maryland-



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?

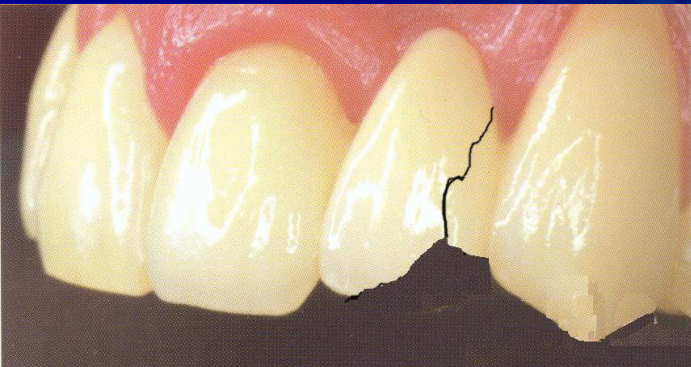
Change appearance?

Prevent future problems?

+ Level of, or risk for, iatrogenic damage



Reality can occasionally be

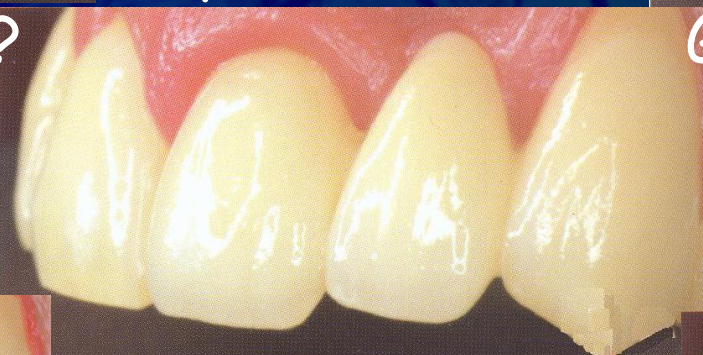


Perfect result %?

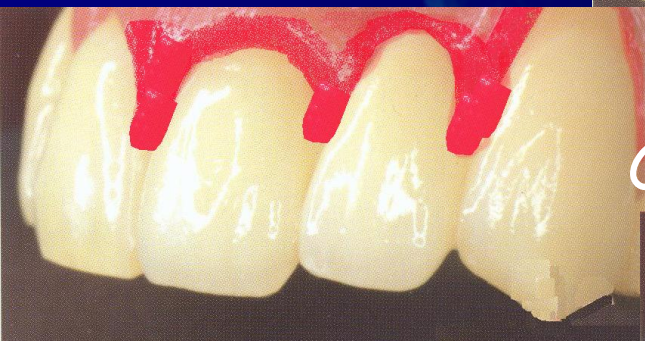


Gingival grey-tone %?

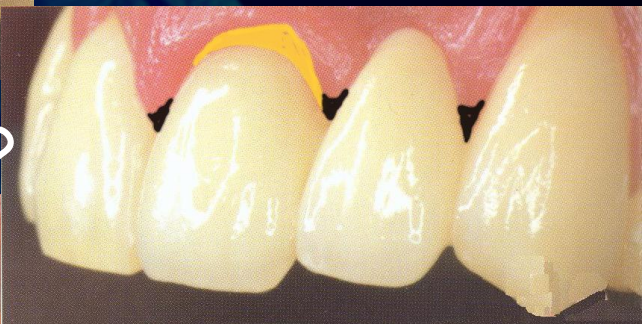
Ceramic fracture %?



Cervical retraction %?



Gingivitis %?



Secondary caries %?



The prosthesis as a ...

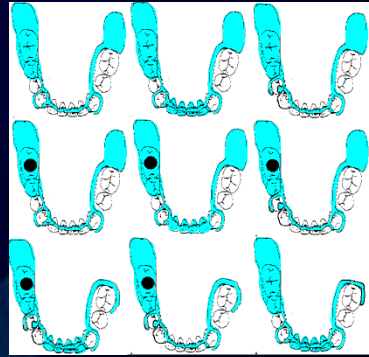
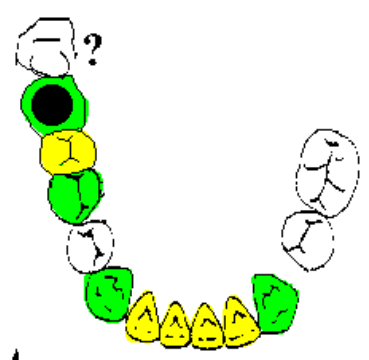
Conv. Implant
-prosth.

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	?	+



Fees CAD

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

Economic cost over time

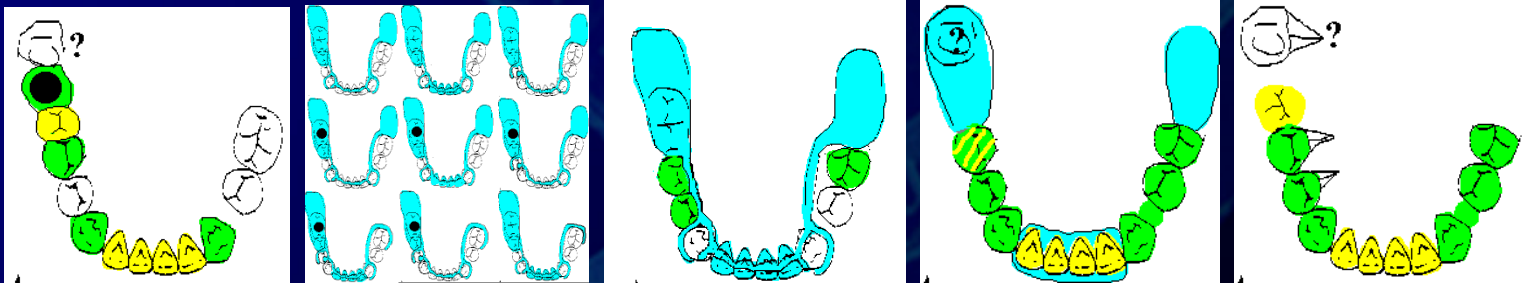
n Initial fee

n Prognosis

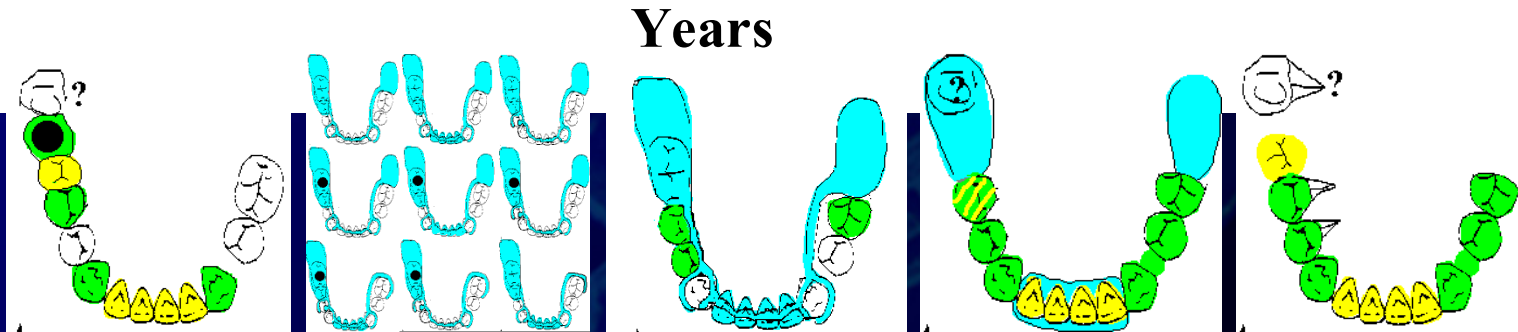
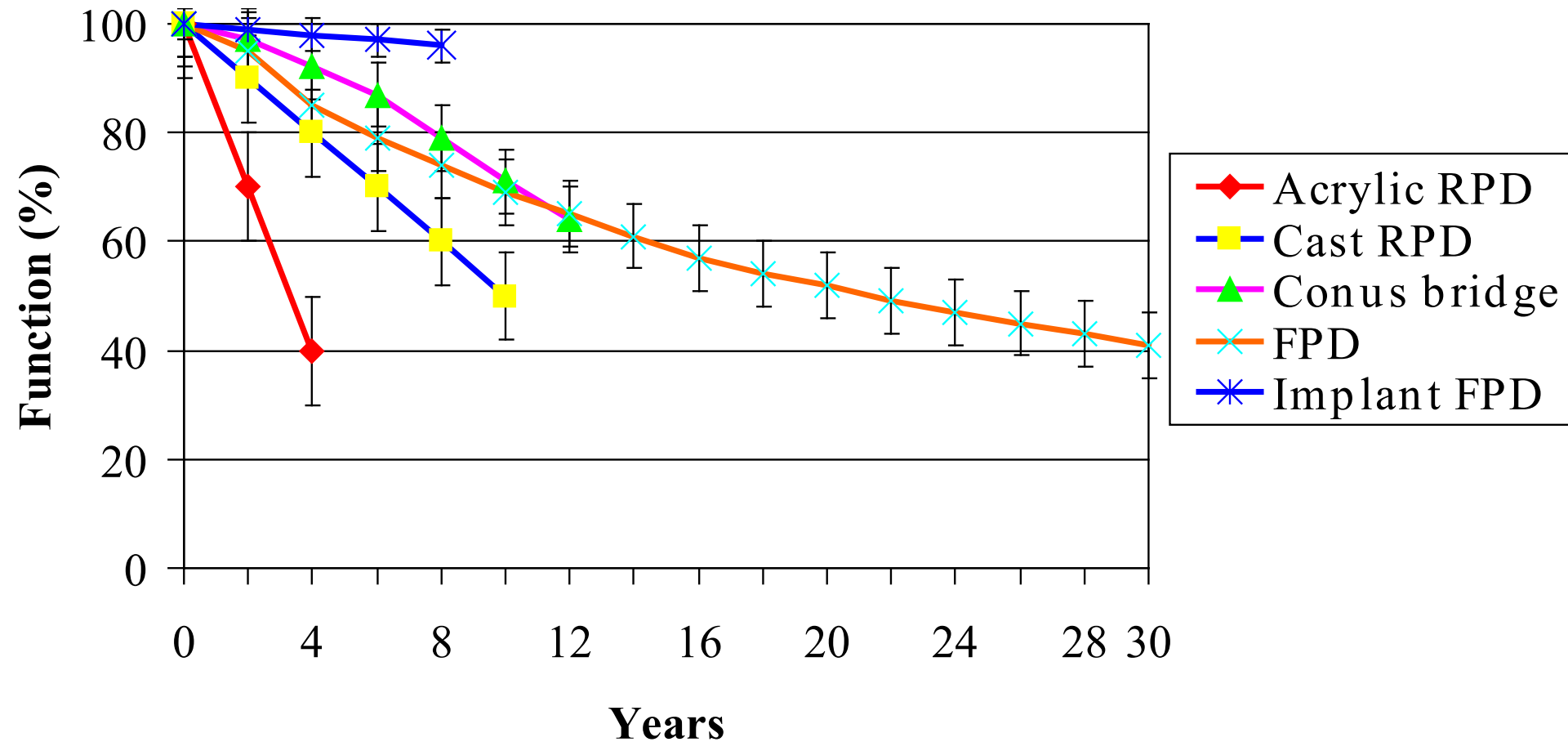
a. Average survival

b. Yearly maintenance in time = costs

$a \times b = \text{economic cost over time}$



Survival, published data

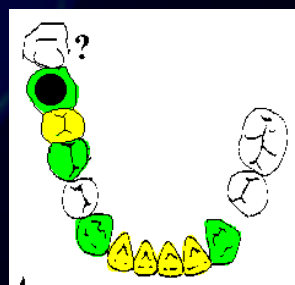
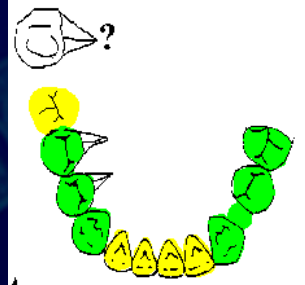
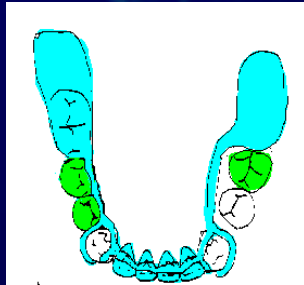
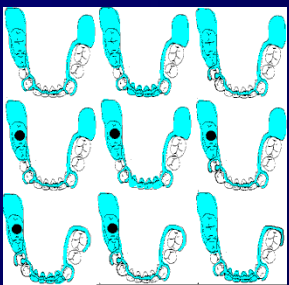


Estimated maintenance (minutes/year)

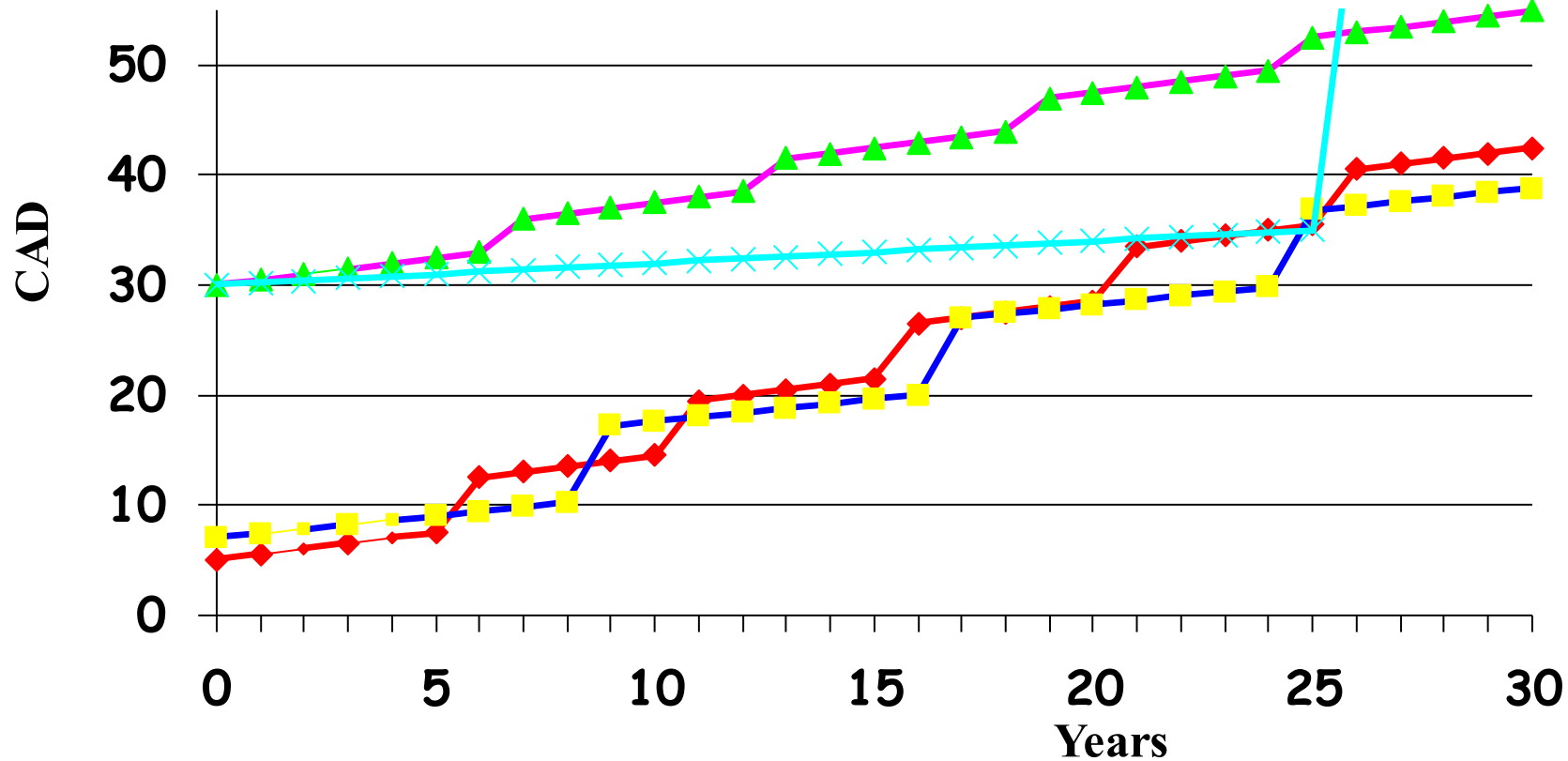
<u>Type:</u>	<u>Control</u>	<u>Adjustments</u>	<u>Repairs</u>	<u>Sum</u>
Acrylic RDP	10	clasp 2.year-10 occlusion 6.year-60	rebase 3.year-60 tech.probl. 10%/2y	50
Cast RDP	10	clasp 2.year-10 occlusion 6.year- 60	rebase 6.year-60 tech.probl.8%/2y	40
Conus bridge	10	retention 2.year-10 occlusion 6.year- 60	rebase 6.year-60 endodontic 20%/10y tech.probl.100%/5y	50
FDP	10		endodontic 8%/10y tech.probl. 20%/5y	20
Implant-based	10		tech.probl. 40%/5y	40-70

Summary, costs

	CAD	Minutes maintenance per year in average.
1 Acrylic RDP	1 - 2.000	50
2 Cast RDP	2 - 4.000	40
2b " " " + crowns	3 - 6.000	45
3 Conus bridge	7 - 8.000	50
4 FDP	7 - 9.000	20
5 Implant based	7 - 10.000	40-70 + 18



Accumulated Costs



Inadequacies of model:

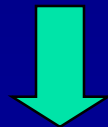
Costs are not adjusted for inflation

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:

- n* *Correct indications and clinical procedures*
- n* *Esthetically acceptable and technically free of discrepancies at the time of delivery*
- n* **Probability**: *percentage of cases?*
- n* **Consequence**: *usually alternative / new prosthesis*



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

+

biologic & psychosocial costs

Reality can occasionally be



Perfect %



Gingivitis %?

Grey tone %?



Opacity %?



Caries/loosening %?

Reality can occasionally be



Perfect result
%?



Exposed
fixture %?

Opacity due to
misalignment %?
Gingival-
retraction %?



Adjacent necrosis
%?



Summary - “worst case”

<u>Type:</u>	<u>Problem:</u>	<u>%</u>	<u>Additional cost</u>
Acrylic RDP	maladaptation	<25	1.000 <i>New prosthesis?</i>
Cast RDP	maladaptation	<8	1.500 <i>New prosthesis?</i>
Conus bridge	tight retention	0.5	1 hour <i>Correction</i>
FPD	abutment fracture	0.5	3-7.000 <i>Implant? FDP?</i>
Implant Pros.	“sleeping fixture” Osseointegration	<4	1-6.000 <i>Implant? FDP?</i>

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

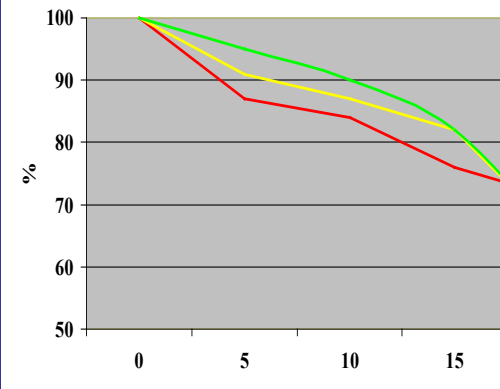
5. Obtain informed consent among the alternative technical solutions

Integration of:

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



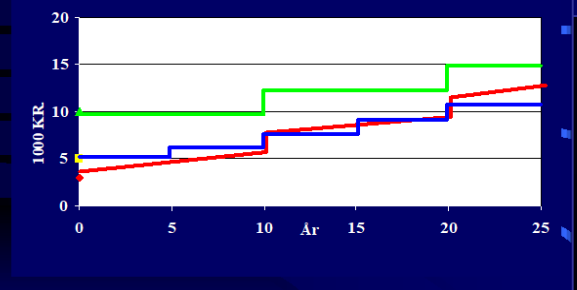
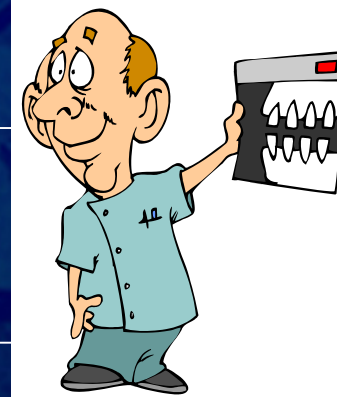
Correct treatment decision



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	*				



Dentist:patient relationship
Two-way communication



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:
 - n Interpersonal manners
 - n Perceived technical competence
 - n 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
 - n evaluation of therapy success
 - n appraisal of, and attitude towards risk



Treatment planning - take-home messages

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



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.

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

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

