Patient Management and Treatment planning

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Head, Prosthodontics
How should we proceed when considering the optimal treatment for our patients?
Choice of technical solution is not = Patient management!

Doing the intervention right vs. Doing the right intervention

Choice of technical solution?
Choice of technical solution?

A. Restorative only, no prosthesis
B. Cast partial dental prosthesis
C. Crowns and partial dental prost.
D. Fixed DP
E. Implant retained prosthesis
Remove pathology & restorative only

Treatment planning

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

Clinical knowledge
- Prosthesis design
- Prognosis
Cast RDP

Clinical knowledge
- Prosthesis design
- Prognosis
- Retention
Crowns + cast RDP

Additional clinical knowledge
- 36 extraction or crown?
- Soldered 44 + 45?
- Milled crowns?
- Intra- or extracoronal attachments?
Fixed DP

Clinical knowledge

- Conventional alloy, titanium-ceramic or gold acrylic?
- Zn-phosphate, GIC or resin cement?
- DP extension 46? 46+47?
Telescopi c FDP

Clinical knowledge:
• 47, 36, 45: extraction … gold coping … attachment?
• 43/44/45: separation?
Clinical knowledge

- One / two implants?
- Wide collar - standard diameter?
- Splintet - non-splintet FPD?
- Cement / screw-retained?
- Nobelbiocare, AstraTech, 3i, Endopore, Straumann, Friadent...?
Advent of Evidence-based dentistry

Diagram:
- The patient's circumstances
- The evidence
- The patient's wishes

Making clinical decisions
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, reasons for seeking treatment and treatment objectives
   → Individualized treatment plan
Five-step treatment planning

1. Identify your patient’s views, choice of values, reasons for seeking treatment & treatment objectives → Individualized treatment plan

2. Perfect your communication skills

Be cognizant of your:

- Interpersonal manners
- Perceived technical competence
- Communication skills
Five-step treatment planning

1. Patient’s views, choice of values, reasons for seeking treatment & treatment objectives

2. Perfect your communication skills

3. Consider possible technical solutions = create a treatment strategy
Five-step treatment planning

1. Patient’s views, choice of reasons for seeking treatment & treatment objectives
2. Perfect your communication skills
3. Consider possible technical solutions = create a treatment strategy
4. Present all possible outcomes linked to alternative technical solutions
Some dentists tend to offer:

- Etch-DP
- Single tooth implant
- Conventional DP
....glossy pictures!
Five-step treatment planning

1. Patient’s views, choice of values, reasons for seeking treatment & treatment objectives
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Restore function? -- Change appearance? -- Prevent future problems? -- Attitude towards risk of iatrogenic damage?
Reality can occasionally be

(FDP)

Perfect result %?
Ceramic fracture %?

Gingival grey-tone %?

Cervical retraction %?
Gingivitis %?

Secondary caries %?
Reality can occasionally be

(Etch-bridge)

Perfect %

Grey tone %?

Gingivitis %?

Opacity %?

Caries/loosening %?
Reality can occasionally be

(Single implant)

Perfect result %?

Opacity due to misalignment %?

Gingival-retraction %?

Exposed fixture %?

Adjacent necrosis %?
## The prosthesis as a ...

### Risk factor for new disease

<table>
<thead>
<tr>
<th></th>
<th>Conv.</th>
<th>Implant-prosth.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries</td>
<td>(+)</td>
<td>-</td>
</tr>
<tr>
<td>Periodontitis</td>
<td>(+)</td>
<td>-</td>
</tr>
<tr>
<td>Mucosal damage, allergy, stomatitis, hyperplasia</td>
<td>(+)</td>
<td>-</td>
</tr>
<tr>
<td>Temporomandibular dysfunction</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Prognostic factor for:

<table>
<thead>
<tr>
<th></th>
<th>Conv.</th>
<th>Implant-prosth.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occlusal stability (“tooth malpositions”)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Bone remodeling (“Alveolar bone loss”)</td>
<td>--</td>
<td>++</td>
</tr>
<tr>
<td>“Oral discomfort” (esthetics, mastication, speech, etc.)</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Nutritional aspects</td>
<td>?</td>
<td>+</td>
</tr>
<tr>
<td>Quality of life</td>
<td>?</td>
<td>+</td>
</tr>
</tbody>
</table>
Five-step treatment planning

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## Economic cost - Initial fees

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Acrylic RDP</td>
<td>1 - 2.000</td>
</tr>
<tr>
<td>2 Cast RDP</td>
<td>2 - 4.000</td>
</tr>
<tr>
<td>2b &quot; &quot; &quot; &quot; + crowns</td>
<td>3 - 6.000</td>
</tr>
<tr>
<td>3 Telescopic FDP</td>
<td>7 - 8.000</td>
</tr>
<tr>
<td>4 FDP</td>
<td>7 - 9.000</td>
</tr>
<tr>
<td>5 Implant retained</td>
<td>7 - 10.000</td>
</tr>
</tbody>
</table>
Economic cost - over time

- Initial fees
- Prognosis
  a Average survival
  b Yearly maintenance in time

\[ axb = \text{economic cost over time} \]
## Estimated maintenance (minutes/year)

<table>
<thead>
<tr>
<th>Type:</th>
<th>Control</th>
<th>Adjustments</th>
<th>Repairs</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylic RDP</td>
<td>10</td>
<td>clasp 2.year-10</td>
<td>rebase 3.year-60 min. techn. probl. 10%/2y</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>occlusion 6.year-60</td>
<td>techn. probl. 10% 2y</td>
<td></td>
</tr>
<tr>
<td>Cast RDP</td>
<td>10</td>
<td>clasp 2.year-10</td>
<td>rebase 6.year-60 min. techn. probl. 8%/2y</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>occlusion 6.year-60</td>
<td>techn. probl. 8% 2y</td>
<td></td>
</tr>
<tr>
<td>Telescopic FDP</td>
<td>10</td>
<td>retention 2.year-10</td>
<td>rebase 6.year-60 min. endodontic 20%/10 y</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>occlusion 6.year-60</td>
<td>endodontic 20% 10 y</td>
<td></td>
</tr>
<tr>
<td>FDP</td>
<td>10</td>
<td></td>
<td>endodontic 8%/10 y techn. probl. 20%/5 y</td>
<td>20</td>
</tr>
<tr>
<td>Implant-retained</td>
<td>10</td>
<td></td>
<td>techn. probl. 40%/5 y</td>
<td>40-70</td>
</tr>
</tbody>
</table>
## Economic cost - over time

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Initial fees</th>
<th>Minutes maintenance per year in average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acrylic RDP</td>
<td>1 - 2.000</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>Cast RDP</td>
<td>2 - 4.000</td>
<td>40</td>
</tr>
<tr>
<td>2b</td>
<td>&quot; &quot; &quot; &quot; + crowns</td>
<td>3 - 6.000</td>
<td>45</td>
</tr>
<tr>
<td>3</td>
<td>Telescopic FDP</td>
<td>7 - 8.000</td>
<td>50</td>
</tr>
<tr>
<td>4</td>
<td>FDP</td>
<td>7 - 9.000</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>Implant retained</td>
<td>7 - 10.000</td>
<td>40-70</td>
</tr>
</tbody>
</table>

The table above outlines the costs and average maintenance times for various dental procedures. Each procedure is accompanied by an image illustrating the dental structure involved.
Modelling accumulated costs over time ($)

Inadequacies of model:
- Costs are not adjusted for inflation
- Replacement not always possible
- Based on average data - not on individual practitioners'
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

e.g., ailure 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
Potential worst case scenarios

(Single implant)

Exposed implant + Opacity due to misalignment + adjacent tooth necrosis

(Etch-bridge)

(FDP)

Retraction + Ceramic fracture + Recurrent caries

Recurrent caries + loosening
### Summary - “worst case”

<table>
<thead>
<tr>
<th>Type</th>
<th>Problem</th>
<th>%</th>
<th>Additional cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylic RDP</td>
<td>Mal-adaptation, recurrent caries</td>
<td>&lt;25</td>
<td>$1.000</td>
</tr>
<tr>
<td>Cast RDP</td>
<td>Mal-adaptation, recurrent caries</td>
<td>&lt;8</td>
<td>$1.500</td>
</tr>
<tr>
<td>Telescopiec FPD</td>
<td>tight retention, recurrent caries</td>
<td>0.5</td>
<td>1 hour</td>
</tr>
<tr>
<td>FPD</td>
<td>abutment fracture, recurrent caries</td>
<td>0.5</td>
<td>$3-7.000</td>
</tr>
<tr>
<td>Implant Pros.</td>
<td>angulation, adj. tooth necrosis, sleeping fixture, no integration</td>
<td>&lt;4</td>
<td>$3-9.000</td>
</tr>
</tbody>
</table>
Five-step treatment planning

1. Patient’s views, choice of values, reasons for seeking treatment & treatment objectives
2. Perfect your communication skills
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5. Obtain informed consent among the alternative technical solutions

Integration of:
- expected esthetics and function
- risks
- probabilities of survival
- costs & maintenance need
- ”worst-case-scenarios”
Correct treatment decisions

Dentist:patient relationship
Two-way communication

The patient's circumstances
The evidence
The patient's wishes
Making clinical decisions

The evidence

Independent variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Bivariate odds ratio</th>
<th>Bivariate significance</th>
<th>95% Confidence intervals</th>
<th>Multivariate odds ratio</th>
<th>Multivariate significance</th>
<th>95% Confidence intervals for multivariate odds ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
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</tr>
<tr>
<td>20-30</td>
<td>2.32 **</td>
<td>1.15 - 3.13</td>
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<tr>
<td>30-40</td>
<td>2.63 ***</td>
<td>1.45 - 3.36</td>
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<tr>
<td>40-50</td>
<td></td>
<td></td>
<td></td>
<td>2.63 **</td>
<td></td>
<td>1.83 - 3.8</td>
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<td>Gender</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2.42 **</td>
<td>1.61 - 3.79</td>
<td></td>
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</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td>2.12 **</td>
<td></td>
<td>1.91 - 2.9</td>
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<tr>
<td>Material</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Amalgam</td>
<td>1.12 NS</td>
<td></td>
<td></td>
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<tr>
<td>Composites</td>
<td>2.12 ***</td>
<td>2.52 - 4.34</td>
<td></td>
<td></td>
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<tr>
<td>Glass ionomer</td>
<td>1.42 NS</td>
<td>4.65 **</td>
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<td>Dentists</td>
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<tr>
<td>#1</td>
<td>1.34 NS</td>
<td>0.35 - 1.61</td>
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<tr>
<td>#2</td>
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<td></td>
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<td>1.04 NS</td>
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<td>1.35 - 3.2</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mandible</td>
<td>1.55 *</td>
<td>1.17 - 2.04</td>
<td></td>
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<td></td>
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<tr>
<td>Maxilla</td>
<td></td>
<td></td>
<td></td>
<td>1.85 *</td>
<td></td>
<td>1.57 - 2.14</td>
</tr>
</tbody>
</table>

Københavns Aftenposten, October 2000

Allure
Universal Makeup

1000 Kø.

Københavns Aftenposten, May 2000
1. Do not offer patients glossy pictures!
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
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.
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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Educating the patient how to avoid future oral disease (and treatment) is a component in all patient care.