The FDI World Dental Federation and Unilever Oral Care launched Phase II of their unique global partnership at the FDI Annual World Dental Congress in Salvador da Bahia, Brazil.

The new partnership follows a successful five-year Phase I collaboration that saw 40 different health promotion programmes implemented in partnership between national dental associations (NDAs) and Unilever Oral Care brands in 37 countries.

Phase II of the partnership will again involve NDAs working in partnership with Unilever Oral Care locally, with a new goal to work together to measurably improve oral health through encouraging twice daily brushing with fluoride toothpaste.

With one goal aligning the partnership globally, it aims to have a greater and more measurable impact on oral health around the world.

Projects will work through key influencers such as dentists, other health professionals and teachers, aiming to reach specific target beneficiaries of families, school children and infants, to educate them regarding the benefits of twice daily brushing with fluoride toothpaste and support them in taking up this fundamentally important oral-health behaviour.

To mark the launch of Phase II, the partners held a Global Launch Workshop at the FDI Annual Dental Congress, attended by NDA representatives from participating countries and from the global partnership team at FDI and Unilever.

Two members of the FDI World Dental Development and Health Promotion Committee, Professors Prathip Phantumvanit and Juan Carlos Llodra, also gave presentations on the efficacy of twice daily brushing with fluoride and programme evaluation indicators.

The FDI World Dental Federation and Unilever Oral Care have committed to continue to work together to improve oral health globally and are pleased to be taking their partnership forward.

With its focused goal, aligned to the FDI Policy Statement 2008, “Promoting Dental Health Through Fluoride Toothpaste,” Phase II of the FDI/Unilever Oral Care partnership contributes significantly to the FDI’s ongoing vision to lead the world to optimal oral health.

The launch of VOX marks the completion of Phase I development and testing, and now FDI members are invited to use the platform themselves to make it a success. Meanwhile, ongoing development of the tool will continue to provide FDI and its members more advantageous functions, such as personalized web pages for each member and an online international directory.
Systemic and dental factors affecting the prognosis of teeth

By Belinda Brown-Joseph, DMD, MS; Samia Hardan, DDS, MS; David L. Hoexter, DMD, FACD; Sebastien Dujardin, DDS, MS; and Jon B. Suzuki, DDS, PhD, MBA

The greatest challenge in treatment planning is to assign a predictable accurate prognosis. In the era of evidence-based dentistry, outcome studies have forced us to re-examine our treatment approaches. Periodontal prognosis refers to the expected longevity of teeth. Determination of periodontal prognosis is an integral part of periodontal practice and it influences treatment planning directly whether to treat, retain or remove periodontally involved teeth.1,2

The prognosis of whole dentitions or individual teeth is “dynamic” and may require alteration of projections as health status or dental initiatives (e.g., oral hygiene) change. While many considerations from the periodontal literature apply, new information and techniques should be considered to retain teeth or not.2 This article focuses on the primary areas for consideration of development of prognosis with the underlining goal of patient and clinical satisfaction and economic stability.

Periodontal prognostication systems

Historically, the prognosis of a tooth was defined based on tooth loss.3,4 Several authors have formulated and investigated their own prognostication systems with variable results, but showed that systems based on tooth loss were unpredictable over the long term.5

The accepted, and generally used, classification of prognosis was suggested by McGuire and Nunn.5 This system contains a detailed stratification for individual teeth as seen in Table 1.

Another system was introduced by Kwok and Caton, which determines prognosis on future periodontal stability.6 Prognosis is considered “favorable” for teeth when the local or systemic factors can be controlled and the periodontal status of the tooth can be stabilized with comprehensive periodontal treatment and maintenance.

When the local or systemic factors may or may not be controlled, teeth are determined to have a “questionable” prognosis, although the periodontium can be stabilized with comprehensive periodontal treatment and periodontal maintenance if these factors are controlled.

For teeth with an “unfavorable” prognosis, the local or systemic factors cannot be controlled, and periodontal breakdown is likely to occur even with comprehensive treatment planning.7

Table 1: McGuire and Nunn Prognostication System

<table>
<thead>
<tr>
<th>Prognosis</th>
<th>Control of the etiologic factors and adequate periodontal support maintainable with good compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good prognosis</td>
<td>Control of the etiologic factors and adequate periodontal support maintainable with good compliance</td>
</tr>
<tr>
<td>Fair prognosis</td>
<td>25 percent attachment loss, Class I furcations maintainable with good compliance</td>
</tr>
<tr>
<td>Poor prognosis</td>
<td>50 percent attachment loss, Class II furcations, Class I furcations</td>
</tr>
<tr>
<td>Questionable prognosis</td>
<td>&gt;50 percent attachment loss, poor root form, Class II furcations, 2+ mobility, significant root proximity</td>
</tr>
<tr>
<td>Hopeless prognosis</td>
<td>Inadequate attachment, extraction</td>
</tr>
</tbody>
</table>

The system contains a detailed stratification for individual teeth as seen in Table 1.
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periodontal treatment and maintenance. Finally, when the prognosis is “hopeless,” extraction is indicated. Overall versus individual tooth prognosis

When projecting prognosis, many factors are to be evaluated. These factors are then synthesized into a scheme for determining a periodontal prognosis. Although longitudinal studies have indicated that non-surgical and surgical treatments generally were maintainable, long-term stability is still subject to many variables.1,5–11

As shown in Table 2, factors influencing the overall periodontal prognosis include age, genetics, oral hygiene, systemic conditions, smoking, patient compliance and economic consideration. Tooth-specific influences include the amount of attachment loss, crown-root ratio, position in the arch, presence or absence of furcation invasions and other anatomic and restorative factors.2,8 These parameters are recorded and weighted according to past clinical experience and prognosis is assigned.12

### Overview prognosis

Factors that need to be considered when deciding on an overall periodontal prognosis include the following:

- **Age.** Studies consistently show more periodontal disease and generally greater severity of disease in older as opposed to younger people.1,2 Generally, an older patient probably has a better prognosis for a given level of attachment loss than a younger patient does.
- **Plaque control.** Bacterial plaque is the primary etiologic factor associated with periodontal disease. The patient’s ability to perform adequate plaque control is important in determining whether or not the disease can be arrested.1,2,6
- **Smoking.** Individuals who smoke more than 10 cigarettes per day have an increased risk of more severe periodontal disease, a less predictable response to initial therapy and a more complicated therapeutic response. With all other factors being equal, a patient who continues to smoke will have a worse prognosis than one who either does not smoke or quits smoking.14–17
- **Diabetes.** Diabetic patients have a higher prevalence of periodontal disease and greater attachment and bone loss.18,19 Patients with diabetes, especially poorly controlled diabetics, will generally have a worse overall prognosis than patients who are not diabetic (Fig. 1).
- **Genetics.** Genetic factors may play an important role in determining the nature of the host response. It was suggested that genetic polymorphisms in certain genes involved in the immune response (e.g., interleukins IL-1 and IL-10), may be associated with susceptibility to severe periodontitis in some populations.6,12
- **Stress.** Physical and emotional stress as well as substance abuse may alter the patient’s ability to respond to the periodontal treatment performed.6 A recent meta analysis of the literature suggests that psychological stress can lead to increased periodontal disease.2,20
- **Patient compliance.** One should consider the patient’s ability and consistency in performing plaque control when determining the overall prognosis.1,2,6
- **Economic consideration.** Persons with severe periodontal disease are likely to be less conscious of their health, resulting in a worse prognosis. The complex treatment of patients with advanced periodontal breakdown is very expensive.24

### Prognosis for individual teeth

The prognosis for individual teeth is determined after the overall prognosis. The patients’ ability to perform adequate plaque control is important in determining overall whether or not the disease can be arrested.1,2,6

- **Age.** Studies consistently show more periodontal disease and generally greater severity of disease in older as opposed to younger people.1,2,6 Generally, an older patient probably has a better prognosis for a given level of attachment loss than a younger patient does.
- **Plaque control.** Bacterial plaque is the primary etiologic factor associated with periodontal disease. The patient’s ability to perform adequate plaque control is important in determining whether or not the disease can be arrested.1,2,6
- **Smoking.** Individuals who smoke more than 10 cigarettes per day have an increased risk of more severe periodontal disease, a less predictable response to initial therapy and a more complicated therapeutic response. With all other factors being equal, a patient who continues to smoke will have a worse prognosis than one who either does not smoke or quits smoking.14–17
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### Table 2: Factors that may affect a prognosis.

<table>
<thead>
<tr>
<th>General Factors (overall prognosis)</th>
<th>Local Factors (individual tooth prognosis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Plaque/calculus</td>
</tr>
<tr>
<td>Plaque control</td>
<td>Deep probing depth and attachment loss</td>
</tr>
<tr>
<td>Smoking</td>
<td>Tooth mobility</td>
</tr>
<tr>
<td>Systemic disease</td>
<td>Trauma from occlusion and para-function habits</td>
</tr>
<tr>
<td>Genetics</td>
<td>Plaque retentive factors</td>
</tr>
<tr>
<td>Stress</td>
<td>Prosthetic/restorative factors</td>
</tr>
<tr>
<td>Patient compliance</td>
<td></td>
</tr>
<tr>
<td>Economic considerations</td>
<td></td>
</tr>
</tbody>
</table>

*Fig. 1.* Greater New York Dental Meeting. The Largest Dental Convention/Exhibition/Congress in the United States.

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sis and is affected by it. Many local and prosthetic/restorative factors have a direct effect on the prognosis for individual teeth in addition to any overall systemic or environmental factors that may be present. It was found that attachment loss, probing depth, furcation involvement, crown-to-root ratio, fixed abutment status and percent bone loss are the most important factors in determining tooth loss.\textsuperscript{1,2,5,6}

- Deep probing depth and attachment loss. Deep probing depths and attachment loss are associated with future periodontal breakdown due to limited access for maintenance and opportunistic changes in the environment to favor periodontal pathogens.\textsuperscript{1,26,27} Probing depths greater than 5 mm were difficult to maintain as healthy and had more residual plaque and calculus.\textsuperscript{28}

- Crown-root ratio. Crown-root ratio is also a measure of attachment loss, especially when dealing with short roots. The example on this page demonstrates poor crown-root ratio related to a developmental anomaly in a patient with short roots (Fig. 2).

- Furcation invasions. The greater the amount of attachment loss in the furcation, the worse the long-term prognosis for that tooth. Teeth with minimal (Class I) or no furcation invasions generally have a good prognosis. Teeth with complete loss of bone in the coronal aspect of the furcation (Class III) generally have a poor prognosis, and regeneration of this type of defect is not predictable for most clinical situations. Therefore, teeth with Class III furcation have an unfavorable treatment outcome.\textsuperscript{2,8}

- Anatomic factors. Teeth such as the maxillary premolars, which have pronounced root concavities, are also more difficult to instrument and maintain, and likewise have a worse prognosis than teeth with relatively straight roots.\textsuperscript{8}

- Tooth mobility. While some authors have found that increased mobility is a factor that negatively influences the survival of a periodontally affected tooth\textsuperscript{5}, others describe no association between tooth mobility and treatment outcome. Severe mobility of a tooth is generally an indicator of a poor long-term prognosis.\textsuperscript{1,2}

- Restorative and prosthetic factors. Overhanging restorations and ill-fitting crown margins represent an area for plaque retention and increased prevalence of periodontal lesions.\textsuperscript{29} Depending on the supragingival or subgingival location of such factors, their influence on the risk for disease progression and periodontal prognosis has to be considered.

Fixed abutment status is a measure of occlusal load and also of the patient’s ability to perform plaque