

The Importance of Recall in Prevention

Inclusion in a lifelong recall program can maintain an adequate level of oral hygiene and thus ensure the success of dental prophylaxis in the long term. In addition to a structured approach, good planning as well as organization are essential prerequisites for efficient implementation in everyday practice routines. Guided Biofilm Therapy (GBT) is a state-of-the-art prophylaxis concept based on the latest scientific findings and technical advances. In the following, the standardized procedural protocol is explained in detail on the basis of the individual steps of GBT.

In dentistry, decisions often need to be made about follow-up examinations and the timing of recall appointments. The recall concept is based on the observation that patient compliance decreases continuously as soon as the active treatment phase has been completed or the dentist no longer has any direct influence on the patient [1–3]. The recall procedure (recall protocol) and adherence to recall intervals have formed an integral part of preventive oral medicine in dentistry since the work of Axelsson and Lindhe [4–6] (**Fig. 1**).

The issue

25% of patients do not attend the appointments they requested themselves and 50% do not attend given appointments [7]. Studies on periodontal follow-up have shown that compliance with the agreed recall appointments over a period of 4 or more years is down to only 20 to 40% [8,9]. Periodontitis, as well as caries, are chronic diseases and require lifelong preventive care. Declining compliance and the associated risk to oral health can be prevented by regular recalls. In summary, this implies that there is a risk of the disease recurring after completion of active therapy [10]. This is particularly true for periodontal diseases.

The literature reveals that pretreatment and maintenance therapy (supportive periodontal therapy/SPT) in particular are more important for the health of the periodontium than the periodontal therapy itself.

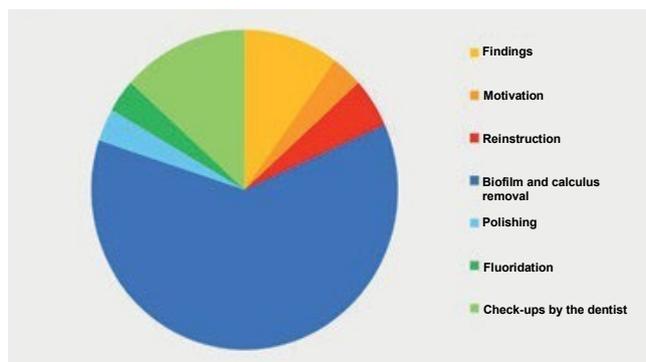


Fig. 1: Recall hour according to Axelsson and Lindhe.

This insight was taken into account last year in Germany - after long discussions. Periodontal care was then updated to the "current state of scientific knowledge" [11]. In 2018, the new classification of periodontal diseases was jointly adopted by the American Academy of Periodontology (AAP) and the European Federation of Periodontology (EFP) [12]. This was followed in 2020 by the publication of the EFP Guidelines for the therapy of periodontitis Stages I-III [13].

On the basis of these "Guidelines", the S3 Guideline was implemented by the German Society of Periodontology (DG PARO) at the beginning of 2021 with only minor modifications [14]. Upon recommendation of the German Federal Joint Committee (G-BA) - and based on the above-mentioned guidelines - the reimbursement for periodontal therapies in the SHI system was revised for the individual substeps (treatment sections) in the Federal Standardized Evaluation Scale (BEMA) [11]. SPT has become a benefit of the German Statutory Health Insurance (SHI) system since mid-2021.

Recall protocol

All recall protocols in use today are based on the work of Axelsson and Lindhe [4–6] (**Fig. 1**). All involve the "rule of 3": these are the clinical examinations (assessment of findings), the active interventions/treatments (professional mechanical plaque removal/PMPR) and counseling. These measures are intended for primary prevention (preventing oral diseases) and secondary prevention (limiting the progression and effects of oral diseases). The prime function of the clinical examination is to detect early signs and symptoms of oral diseases, especially caries, erosions, gingivitis, periodontal diseases, diseases related to implants, benign and malignant oral lesions and functional disorders. Active interventions include biofilm and calculus management. Professional counseling is aimed at prevention and avoiding the progression of oral diseases. Such counseling includes, for example, guidance on homecare, nutritional counseling, additional chemical prevention aids, smoking cessation, and alcohol reduction.

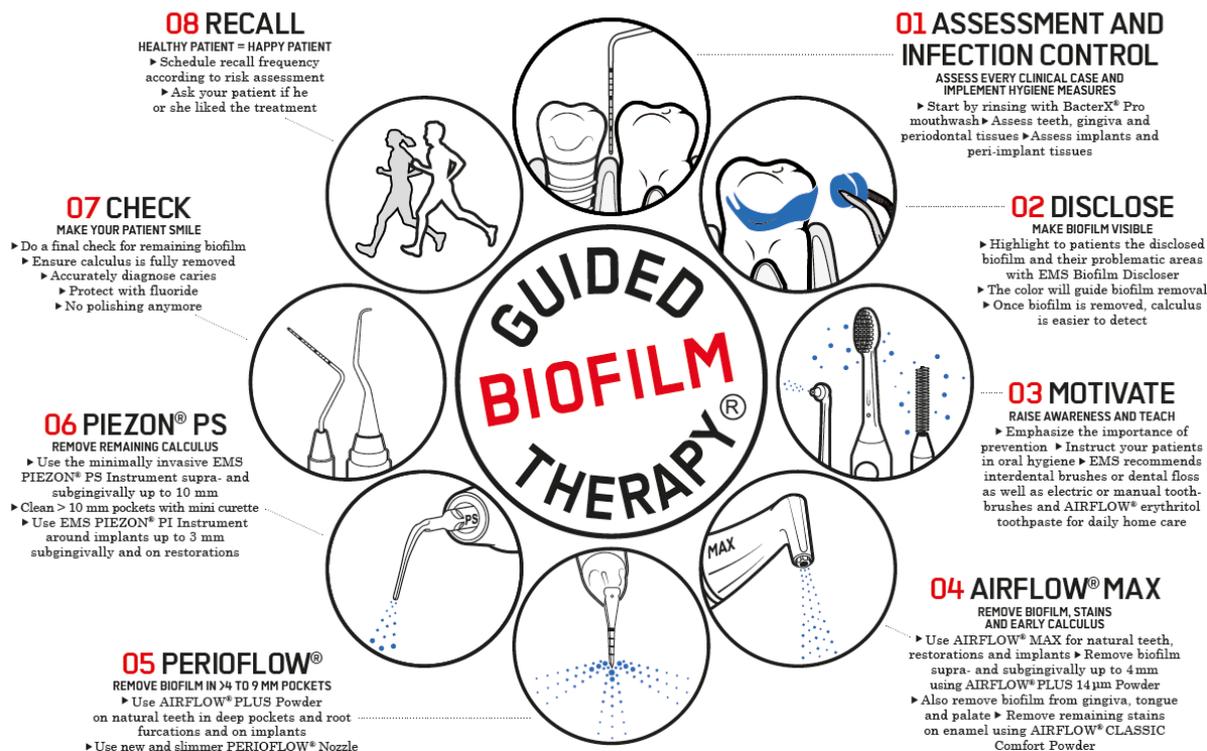


Fig. 2: Recall GBT (EMS).

The protocol of Axelsson and Lindhe is more than 50 years old (Fig. 1). State-of-the-art preventive protocols must take into account scientific progress and technological advances. Guided Biofilm Therapy (GBT) is a proven state-of-the-art prevention protocol developed by practitioners, universities and EMS [15] (Fig. 2). GBT is an evidence-based, individual, risk-oriented, systematic, modular, universally applicable (even for complex "cases") prevention and treatment protocol. As GBT is a modular system consisting of 8 steps, the workflow protocol can be adapted perfectly to the needs of patients in all age groups.

Infection control, medical history, documentation and diagnosis

Any dental treatment must begin with protecting employees against infection. The collection of the relevant Periodontal Screening Data and caries findings, etc., including the age-specific medical history to determine the individual risks, is a basic prerequisite for any preventive therapy. Only when biofilm is made visible by disclosure (Prof. Hellwege's comment: "Making visible makes insightful.") can an accurate plaque index be established and the patient specifically instructed and motivated to improve homecare. Only when the biofilm has been made visible by disclosure can the clinician remove biofilm in a targeted (guided) professional manner (Fig. 3).



Fig. 3: Disclosure.

Oral hygiene counseling and biofilm management

The cornerstones of successful prevention (homecare and professional oral hygiene measures) according to Axelsson and Lindhe still apply today. Homecare dental cleaning with individual, adequate oral hygiene is particularly important for maintaining oral health. In chemically supported homecare therapy, regular domestic fluoride application plays a crucial role. Additional aids such as cetylpyridinium chloride (CPC) and chlorhexidine (CHX) preparations may also prove helpful. These days, nutritional guidance should no longer focus solely on fermentable carbohydrates and caries. Links between a healthy diet and periodontitis are being identified with increasing frequency. Smoking, alcohol abuse, and the links between oral diseases and general diseases should also be addressed.

Scientific progress and technical advancement are particularly evident in the PMPR of biofilm. The aids for the actual professional mechanical plaque removal (PMPR) - Axelsson and Lindhe spoke of “active interventions” - included hand instruments (scalars and curettes) and rotary handpieces, rubber polishers, brushes and polishing pastes. The removal of calculus was the focus of active interventions. Today, the focus is on biofilm as the main cause of the most important oral diseases and thus on biofilm management. The comparative literature on targeted biofilm removal between classic polishing (Rubber Cup Polishing/RCP), hand instruments and modern Airflow clearly demonstrates that perfect, substance-preserving biofilm removal with optimal patient and clinician comfort is not possible with RCP [16–18]. Due to laminar flow, the new AIR-FLOW® MAX handpiece offers more comfort for the patient and the practitioner, uses less PLUS powder and reduces aerosols substantially (Fig. 4) [37].

Calculus removal

Calculus is the mineralized form of biofilm. Calculus is not a primary cause of oral diseases. Calculus only has a secondary influence on the pathogenesis of oral diseases. Calculus facilitates the retention of biofilm and complicates oral homecare. In the GBT protocol, biofilm is removed first as the main cause of the most important oral diseases. This is followed by targeted supragingival and subgingival scaling with piezo-electric ultrasound (PIEZON®NO PAIN PS) (Fig. 5). This system focuses on high efficiency and substance preservation [19–22].

Quality Control (QM)

QM is performed over several steps. First, the employee checks his/her own performance in the context of strict self-control. This may require control disclosure. This is followed by the final examination and diagnosis by the dentist (supervisory duty). The final step is made up of chemical support measures (e.g., professional fluoridation), which prove particularly successful if preceded by perfect biofilm management.



Fig. 4: AIRFLOW® MAX with the patented Laminar AIRFLOW® Technology (laminar flow) for more comfort and significant aerosol reduction.

Recall interval

The benefits of stringent, lifelong recall treatment for the long-term maintenance of adequate oral hygiene levels are beyond question. The discussion about the optimal length of the recall intervals, particularly with regard to caries, is controversial [4–6,12,23,24–26]. Wang et al. already noted as early as 2021 that recall intervals in children need to be individualized depending on the level of dental health and dental health behaviors [27]. Löken et al. reached a similar conclusion in 2019, concluding that routine intervals for children need to be individualized according to treatment needs to reduce health inequalities [28]. In 2017, Amaechi summarized that, in addition to fluorides and behavioral changes (oral hygiene and nutrition), the introduction of risk-based recall intervals is necessary to remineralize caries [29]. A Cochrane study from 2020 caused considerable controversy about recall intervals [30]. It was found that there were little to no differences between risk-based and 6-month intervals in caries, gingival bleeding, and mouth-related quality of life over a 4-year period. However, it should be kept in mind that only 2 papers from one practice were included in the systematic review. The results of the work by Haukka et al. also from 2020 [31] come to a completely different conclusion: they clearly show a correlation between the length of recall intervals and oral health indices. Overall, large heterogeneity was found in the published literature regarding the proposed recall frequency for supportive periodontal therapy (SPT) following completion of the active treatment phase. The available data clearly indicate that routine SPT is beneficial for maintaining periodontally healthy dentition and for preventing tooth loss. In patients with moderate and advanced periodontitis, a periodontal recall protocol with a recall interval of 2 to 4 months appears to be reasonable [32]. New findings for the choice of the SPT interval have prompted the working group led by Ramseier in 2019 [33] to develop an algorithm which allows the determination of individual recall intervals employing the conventional parameters of periodontal “risk assessment”.



Fig. 5: The PIEZON NO PAIN® PS instrument is very gentle, almost silent and painless when applied correctly; piezoceramic discs provide perfect linear movement.

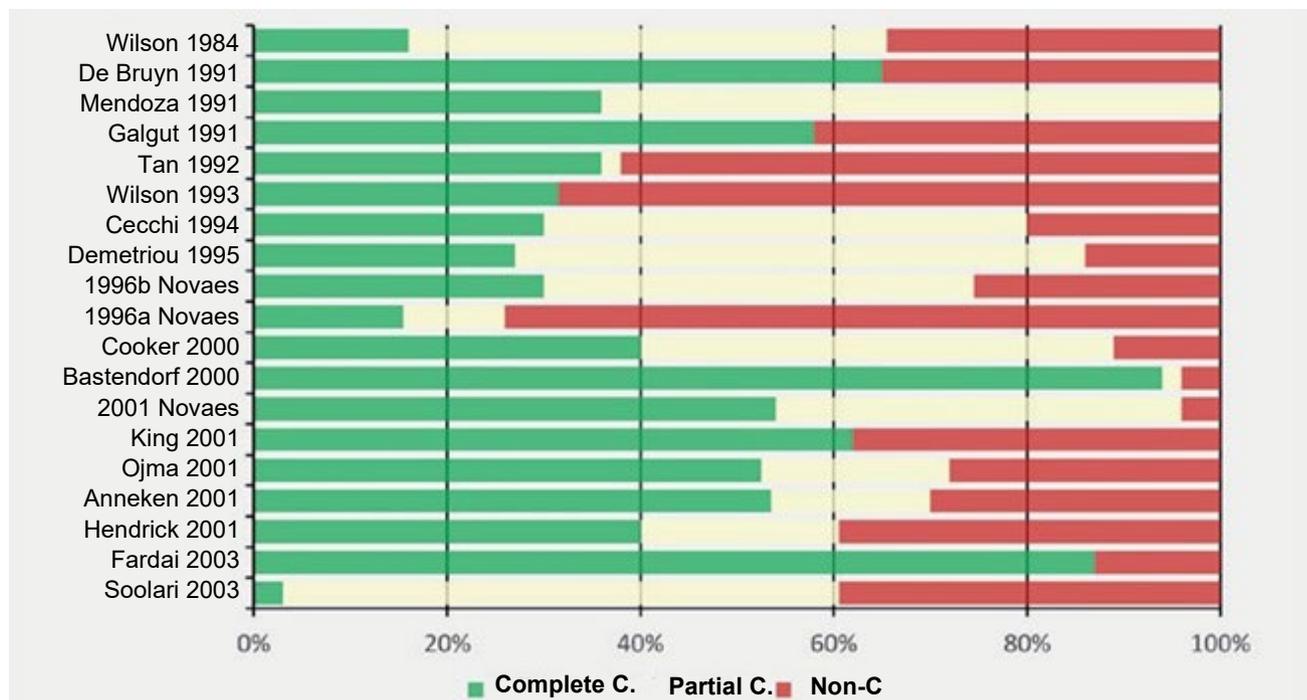


Fig. 6: Drop-out-rate in recall

The algorithm not only applies the degree of periodontal inflammation, but also records the presence of sites with elevated probing values from 4 mm. As long as the inflammation index is above the corresponding threshold, the interval is kept shorter. Only when it falls below this threshold, can the interval be extended again to the proposed (algorithm-based) value.

To summarize, and from the perspective of a benefit-cost assessment, it is necessary to make a specific selection according to the risk of the individual patient and oral diseases and to adjust the recall interval based on the determined individual risk. In principle, the higher the individual risk and the lower the ability and motivation to take responsibility for oral health, the more closely monitoring and care need to be performed.

Conclusion

On the one hand, prevention requires the active cooperation of the patient (oral self-care) and, on the other hand, the active intervention (professional care) of the practice. The recall protocol and the recall interval or adherence to recall appointments, are of paramount importance for successful preventive therapy. Only the combination of counseling (especially repeated and individualized oral hygiene instructions), professional mechanical plaque removal (PMPR) and adherence to recall intervals as important components of prevention programs ensures long-term periodontal health [34]. This is also confirmed by the work of Figuero et al. from 2017 [35]: the interaction of counseling, PMPR and adherence to recall intervals is effective in the reduction of biofilm and gingivitis. The additional use of fluorides significantly reduces the incidence of caries.

One problem is that the responsibility for keeping recall appointments is left up to the patients. Prevention can only be successful if patients come regularly and punctually to the recall appointments which have been scheduled according to the risk. Saxer consequently calls for the dental practice "to adopt a more proactive approach to recall as a matter of principle" [7]. A study conducted in our practice on the success of the "practice-managed recall" demonstrated that a compliance rate of approx. 94% can be achieved with this system in terms of adherence to the agreed recall appointments (Fig. 6) [36]. The high patient acceptance - 98% would recommend the treatment to others and 100% find the new concept better than the treatment - should not be ignored. □

Images: Dr. N. Strafela-Bastendorf, Dr. K.-D. Bastendorf, EMS

Literature references at www.zmk-aktuell.de/literaturlisten

Conflict of interest:

Dr. Klaus-Dieter Bastendorf is a Member of the Scientific Board at E.M.S. Electro Medical Systems S.A., 1260 Nyon (CH).



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