

# Appropriate Recall Interval for Periodontal Maintenance: A Systematic Review

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## Abstract

**Objectives:** A systematic review of the literature was undertaken to assess the evidence to support a specific time interval between periodontal maintenance (PM) visits.

**Methods:** Relevant articles were identified through searches in MEDLINE, EMBASE and PubMed using specific search terms, until April, 2014, resulting in 1095 abstracts and/or titles with possible relevance. Critical Appraisal Skills Programme (CASP) guidelines were used to evaluate the strength of studies and synthesize findings. If mean recall interval was not reported for study groups, authors were contacted to attempt to retrieve this information.

**Results:** Eight cohort studies met the inclusion criteria. No randomized control trials were found. All included studies assessed the effect of PM recall intervals in terms of compliance with a recommended regimen (3–6 months) as a primary outcome. Shorter PM intervals (3–6 months) favored more teeth retention but also statistically insignificant differences between RC and IC/EC, or converse findings are also found. In the 2 studies reporting mean recall interval in groups, significant tooth loss differences were noted as the interval neared the 12 month limit.

**Conclusions:** Evidence for a specific recall interval (e.g. every 3 months) for all patients following periodontal therapy is weak. Further studies, such as RCTs or large electronic database evaluations would be appropriate. The merits of risk-based recommendations over fixed recall interval regimens should be explored.

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**Keywords:** Periodontal diseases, Periodontal maintenance, Supportive periodontal therapy, Dental prophylaxis, Tooth loss, Systematic review, Patient compliance.

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## INTRODUCTION

Periodontal Maintenance (PM) is defined by the American Academy of Periodontology Glossary of Periodontal Terms, 2001<sup>1</sup> (4th edition) as “Procedures performed at selected intervals to assist the periodontal patient in

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maintaining oral health.” It includes an update of the medical and dental histories, radiographic review, extraoral and intraoral soft and hard tissue examination, periodontal evaluation, removal of the bacterial flora from crevicular and pocket areas, scaling and root planing where indicated, polishing of the teeth, and a review of the patient’s plaque control efficacy. It is further explained that as part of periodontal therapy,<sup>1</sup> “an interval is established for periodic ongoing care.”

Many studies have highlighted the importance of PM. Among the most well-known are Hirschfield and Wasserman,<sup>2</sup> McFall,<sup>3</sup> Lindhe and Nyman,<sup>4</sup> Wilson et al.,<sup>5</sup> and Goldman et al.<sup>6</sup> These studies evaluated effects of PM procedures on tooth loss/retention, and were among the first to contribute to the body of evidence on this subject.

Recent studies strengthen the case for PM. Fardal et al.<sup>7</sup> evaluated 100 consecutive patients who had received comprehensive periodontal therapy and then followed them for 9–11 years of PM. The study showed that regular maintenance after periodontal treatment is associated with low levels of tooth loss. With regards to the interval between periodontal maintenance visits, there is a wide range of recommended periods in the published literature, including 2 weeks,<sup>8,9</sup> 2–3 months,<sup>10</sup> 3 months,<sup>11–15</sup> 3–4 months,<sup>16,17</sup> 3–6 months,<sup>18</sup> and even as long as 18 months.<sup>19</sup>

Establishing appropriate PM intervals helps assure timely follow-up, decreased disease recurrence and improved resource utilization. This systematic review of the literature was undertaken to evaluate the evidence regarding the most appropriate time interval for PM, for patients previously treated for chronic periodontal disease.

## METHODS

We utilized the PICO (population, intervention, comparison, and outcome) approach to formulate the parameters for article inclusion in this review:

### Population

Adults with a verified periodontal disease diagnosis, i.e., diagnosis of the disease should be consistent with the definition according to the 1999<sup>20</sup> International workshop for Classification of Periodontal Disease and Conditions.

### Intervention Exposures

Periodontal maintenance. Studies should have defined PM procedures, and should be consistent with the broad understanding of supportive periodontal therapy undertaken after successful active periodontal therapy.

### Comparison

Varying intervention frequencies.

## Outcomes

- 1) Maintenance of Periodontal Attachment. Clinical Attachment Level.
- 2) Tooth retention.
- 3) Patient-based assessments of periodontal health.

(At least one of the above must be part of the measured outcomes in a study.)

Using the PICO question, a literature search was conducted in MEDLINE (MJ and CW) and EMBASE (MJ) under the guidance of library scientists (March 2011), with updates of this search set to run every 2 weeks in MEDLINE (up to April 2014). The details of these search strategies are presented in the [Appendix 1](#). An additional search was performed (OF) in PubMed, (March 2011 and April 2014) using the terms “supportive periodontal therapy” and “periodontal maintenance.” These searches resulted in a total of 1095 articles ([Figure 1](#)).

Thirty articles were selected for Phase I review, with eight of these articles meeting the criteria of the PICO question for inclusion in the final review. All eight studies were retrospective cohort studies.

**Review Process.** In the Phase I assessment, the studies were screened to assure each met the following criteria:

- Study population solely or primarily adults.
- Definition of the level of periodontal disease within the study population. Inclusion of description of time intervals between periodontal maintenance visits.
- Inclusion of at least one of the three outcomes described in the PICO parameters.

(Phase I Assessment Form: [Appendix 2](#)).

The Phase II assessment utilized the Critical Appraisal Skills Programme (CASP) protocol<sup>21</sup> for the eight identified articles from Phase I. The CASP (2004) worksheet contained 12 questions that included assessment of the study’s specific and clearly defined objectives; design and statistical methods; and the validity, relevance and applicability of the results to our PICO question (see Phase II form, [Appendix 3](#)). A newer (2013) version of the form<sup>21</sup> is now available online. Each of the five reviewers (OF, CW, GG, MJ, JJ) independently evaluated each of the eight studies. Following a group discussion, a single consensus rating was agreed upon for each study, resulting in a rating of Excellent, Good, Fair or Poor. In the final phase, a data extraction form was used (shown as [Table 1](#)) to synthesize important findings of all studies that met the inclusion criteria. [Table 1](#) includes the assigned consensus ratings by reviewers, characteristics of study population, study location, prescribed frequency of periodontal maintenance (when available), cohort description, study design, outcomes and covariates. Mean annual tooth loss over the course of Periodontal Maintenance is included, if reported in the study; otherwise, average tooth loss per patient over the course of the study is documented. All

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