

A System of Periodontal Care in General Dental Practice

1. Preamble

- 1.1 As the concepts of periodontal care have changed with increasing knowledge of the natural history of periodontal disease, the British Society of Periodontology has considered it advisable to **revise the** document setting out what it believes to be the best current advice on the practice of periodontology within General Dental Practice. Special emphasis is placed upon careful periodontal evaluation as an essential pre-requisite in the planning and execution of all dental care.
- 1.2. It is intended that this policy document will be kept under continuous review and will be updated when necessary.

Introduction

2 The Nature of Periodontal Diseases

- 2.1. The traditional concept of destructive periodontal disease (now regarded as being several diseases but collectively referred to by convention in the singular) was that the periodontium was uniformly affected by microbial dental plaque. This resulted in gingivitis in the early stages and thereafter the periodontium was destroyed more or less evenly causing severe loss of bone, and eventually necessitating the loss of teeth. It was considered that the majority of individuals were susceptible to periodontal disease and that in the presence of plaque there was a continuous, gradual progression of bone loss.
- 2.2 Careful examination of epidemiological data show that, even in the early stages, periodontal disease can be much more active when associated with some teeth than with others (1, 2, 3). Furthermore, the activity of the disease at a site is not directly proportional to the local presence of plaque. In addition to those deviations from the simple concept of the disease, it has also been shown that in many instances periodontal disease is episodic and that even the destructive phases of the disease may show apparent reversals and remissions (4,5).
- 2.3 It is this pattern of diversity in which the time component is so important, that demands a special technique of care for the disease, even in its earliest stages. In the case of the dentist or dental hygienist, charting the distribution and progression of the disease is needed to enable them to treat the disease and counsel the patient. Certain aspects of the same data have to be presented to the patient in a form which can be easily assimilated by the lay public to enable them to direct preventive home-care techniques to the areas of periodontium and teeth where they are required (6, 7).

3. Prevention and Treatment

- 3.1 Several studies have demonstrated that under optimal conditions the careful and regular removal of dental plaque can prevent the occurrence and progression of early periodontal disease (8, 9, 10, 11, 12, 13). Furthermore, it has been found that plaque control techniques can prevent occurrence of the disease after successful treatment and it has also been demonstrated that plaque control is an important part of periodontal treatment itself (14, 15, 16, 17, 18, 19).
- 3.2 Originally, these results were interpreted as implying that a brief mention of plaque control and its significance in periodontal disease to patients at the time of a short dental examination would constitute an adequate preventive technique for the majority of regular dental attenders who did not have the disease in a severe form.
- 3.3 The studies mentioned above, and others, suggest that such a view represents a considerable over-simplification of the actual position. The reality is that time-consuming techniques have to be employed by dentists or dental auxiliaries and that frequent repetition is needed if they are to be successful (20, 21, 22).
- 3.4 The conflict between the postulated simplified approach and the observed reality arises from two assumptions about the nature of the disease process and its prevention. Firstly, it was assumed that a quick examination is all that is required to enable the dentist or auxiliary to assess the extent of the disease and the distribution of dental plaque in patients with superficial levels of disease. Secondly, and in a related manner, it was assumed that a brief explanation of the periodontal condition is sufficient to enable the patient to practice successful plaque control.

4. Recording and Diagnosis

- 4.1 It has long been recognised by periodontologists that the key to successful treatment of established periodontal disease lies in the careful assessment and diagnosis of the various features of periodontal disease. Data related to the amount and distribution of dental plaque and gingival inflammation are collected together with measurements of pocket depths and loss of attachment. Tooth mobilities and special problems such as root proximity, root concavities **and grooves**, and furcation involvements are noted. Radiographs are usually necessary to assist in diagnosis and treatment planning.
- 4.2 Records of the same data must also be made after the treatment has been completed. These serve to determine the degree of improvement achieved. Over a longer period they determine whether the improvement is maintained.
- 4.3 Only a percentage (approximately **7 - 15%**) of the population seeking dental care are regarded as being susceptible to severe disease. However, no reliable prognostic indicators for use prior to disease onset exist at present. Consequently, examination of all patients is needed from time to time to detect disease at an early stage of the process. The numbers of patients involved and the frequency with which the examinations will be required suggest that this can only be accomplished within General Dental Practice. **For this reason the Basic Periodontal Examination (BPE) was developed by the British Society of Periodontology in 1986 and subsequently modified to screen all patients and to determine the level of examination needed by patients with differing disease levels.**
- 4.4 Collection of full clinical and radiographic data as required for patients with complex periodontal disease would not be appropriate for many of the patients seen in General Dental Practice. A simple and rapid method of screening is required so that time and other resources are not **misused**.

The screening system would indicate which clinical and radiographic data appropriate to the level of disease were required.

- 4.5 The method of examination known as **BPE** provides a basis for simple and rapid screening. Although it was developed to assess the treatment needs, it has the advantage of summarising the periodontal condition in a form which is useful for communicating with the lay public, including patients themselves.
- 4.6 It must be stressed that the index may have to be accompanied by additional information, for example in the case of uneven distribution of the disease, where there is severe recession of soft tissue or where there are other factors in the mouth which influence periodontal treatment. Furthermore, in the majority of cases in dental practice the index will indicate that further clinical and radiographic recording is required.

5. The Basic Periodontal Examination (BPE)

- 5.1 The **BPE divides** the full dentition into sextants. The six sextants consist of the four groups of teeth each containing the molars (**excluding third molars**) and premolars of one side of one jaw and the two groups of teeth each containing canines and incisors of one jaw.
- 5.2 For a sextant to qualify for recording, it must contain at least two functioning teeth. The observations made from only one remaining tooth are included in the recording for the adjoining sextant.
- 5.3 All teeth in the sextant are examined.
- 5.4 The **WHO 621 probe is used. This** has a "ball point", 0.5 mm in diameter, at its tip. A colour coded area extends from 3.5 to 5.5 mm. The force used at probing should not exceed that corresponding to 20-25 gm.
- 5.5 **Code *** is given to a sextant if there is total attachment loss at any site is 7 mm or more, or if a furcation can be probed. The asterisk denotes that a full periodontal examination of the sextant is required regardless of the BPE score.

- 5.6 Code 4 is given to the sextant if at one or more teeth the colour coded area of the WHO probe disappears into the inflamed pocket indicating pocket depth of 6 mm or more.
- 5.7 Code 3 is given to the sextant if the colour coded area of the probe remains partially visible when inserted into the deepest pocket.
- 5.8 Code 2 is assigned to the sextant if there are no pockets exceeding 3 mm in depth (coloured area remains totally visible) but dental calculus or other plaque retention factors are seen at, or recognised underneath, the gingival margin.
- 5.9 Code 1 is given to a sextant when there are no pockets exceeding 3 mm in depth and no calculus or overhangs of fillings but bleeding occurs after gentle probing.
- 5.10 Code 0 is given to a sextant when there are no pockets exceeding 3 mm in depth, no calculus or overhangs of fillings and no bleeding after gentle probing.**
- 5.11 As soon as Code 4 **or *** is recorded **at a tooth** in a sextant the examiner passes to the next sextant. If Code 4 is not detected then it is necessary to examine all teeth to be certain that **the** highest code is recorded before passing on to the next sextant.
- 5.12 Collection and recording of the **BPE** codes should be performed at each examination. The method is, together with radiographs, practical for preliminary assessment of the need for further periodontal investigation during screening of the oral health status of a patient. Figure 1 shows a grid for recording **BPE** Scores.

6. Notes on the Use of the BPE

- 6.1 When used as a preliminary screening system the **BPE** may have to be modified. Problems are encountered with false pocketing in young individuals, with recession, and furcation involvement in older patients. It is recommended that the following variants are applied

- 6.2 In young individuals the gingival margin may be situated coronal to the cement enamel junction by a number of millimetres. Account of this should be taken when proposing treatment for sextants assigned scores 3 and 4.

7. A Proposed System of Periodontal Care in General Dental Practice.

- 7.1 The benefits of any system that encourages a more careful examination of the periodontium in General Dental Practice are such that an initial screening system involving the **BPE** would be beneficial.
- 7.2 Dentists carrying out periodontal care should be required to equip themselves with WHO pattern periodontal probes, which are available from several suppliers in this country and compare favourably in price with other periodontal instruments. Dentists should familiarise themselves with the collection and recording system.
- 7.3 All new patients attending dentists for the first time should have the **BPE undertaken**. Codes for each sextant are recorded. A brief explanation of the significance of the findings in terms acceptable to the layman should be given. These and subsequent recommended procedures require a significant and measurable period of time from skilled personnel and this should be recognised in any system of recompense.
- 7.4 The management of sextants with Codes 0, 1 and 2 is as follows:-
- (a) sextants of the mouth for which Code 0 are recorded do not require treatment;
 - (b) sextants scoring Code 1 can be treated by oral hygiene instruction and prophylaxis;
 - (c) sextants scoring Code 2 can be treated as for sextants scoring Code 1 with the addition of supra-and subgingival scaling at selected sites.

Patients whose **BPE** scores for all sextants are Codes 0, 1 or 2 should be screened again after an interval of 1 year.

- 7.5 When patients have sextants scoring Code 3 further data will have to be collected. Plaque distribution and gingival inflammation are recorded and, in addition, probing depths are taken in the sextants scoring Code 3. Treatment of sextants scoring Code 3 will be the same as those scoring Code 2 but a longer time will be required for completion. Patients with **BPE** score 3 for one or more sextants should have pocket depth measurements taken in those sextants at not more than yearly intervals in addition to the **BPE** screening of the other sextants.
- 7.6 Patients with sextants scoring Code 4 **or *** will require extensive periodontal assessment both at the outset and duration of treatment. Following initial treatment, which will be as for sextants scoring Code 2, some resolution can be expected. Full probing depth charts will then be required, together with evaluation of furcation involvements, root concavities **and grooves**, and other relevant details using radiographs when appropriate. Subsequent treatment may include root planing and periodontal surgery, whilst emphasis on plaque control is sustained.
- 7.7 Many practitioners may choose to refer patients with sextants scoring Code 4 **or *** for specialist care. They may, however, be responsible for long-term maintenance upon the patients being referred back to the General **Dental** Practitioner. That care should consist initially of appointments at three month intervals for reinforcement of oral hygiene, supragingival prophylaxis and subgingival plaque removal at sites with persistent pockets. Collection of plaque and bleeding scores and pocket depths should be **undertaken, and these** compared to the post treatment readings. Sites showing deterioration should thus be identified and re-treated as necessary.
- 7.8 It is suggested that, in addition to routine screening, assessment for all items of advanced restorative or orthodontic treatment should include **BPE** screening data. The rationale for this suggestion is the recognition that failure of such forms of treatment is commonly due to the presence of chronic periodontal disease and its related factors. As

in the case of patients who have experienced advanced periodontal procedures, **patients** having other advanced forms of care must be offered a recall programme as described in paragraph 7.7.

- 7.9 Possible methods for collecting and recording the periodontal data described above, and additional to the **BPE**, are described in Appendices 1, 2 and 3.

8. Notes on the Use of Radiographs in the Proposed System

- 8.1 Appropriate intra-oral radiographs will be taken at the time of a **BPE** examination for sextants scoring Code 3.
- 8.2 Additionally, in sextants scoring 4 **or** * individual intra-oral radiographs will be taken to provide views of teeth with sites where loss of attachment exceeds 7 mm or furcation involvement is detected.

9. Conclusion

- 9.1 Modern concepts of destructive periodontal disease require that all patients, need regular assessment of the condition. The magnitude of this indicates that most of this work will have to be carried out by dentists working under the regulations of the General Dental Service.
- 9.2 The method of patient examination used when assessing **BPE** for an individual patient, together with appropriate radiographs, forms the basis of a suitable periodontal screening examination for use in General Dental Practice.
- 9.3 The proposed screening system is not a substitute for the full periodontal examination required for the proper diagnosis and planning of treatment for susceptible patients.

9.4 A series of studies could easily be undertaken to provide the necessary validation and finalise detail of a comprehensive periodontal diagnostic system for use in General Dental Practice.

10. Recognition of Risk Patients

10.1 Practitioners should be aware that a combination of observations makes certain patients susceptible to a higher risk of severe periodontal disease and may wish to refer the patients. These may include:

- (a) BPE scores of 3, 4 or * in patients under 35 years of age.**
- (b) Smoking 10+ cigarettes a day.**
- (c) A concurrent medical factor that is directly affecting the periodontal tissues such as diabetes, periods of major stress and use of certain medications.**
- (d) Root morphology that adversely affects prognosis**
- (e) Rapid periodontal breakdown > 2mm attachment loss in any one year**
- (f) A high % of bleeding on probing in relation of a low plaque index.**
- (g) A previous history of treatment for periodontal disease.**
- (h) A family history of early tooth loss due to periodontal disease**

Variability of Behaviour of Sites

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Appendix 1

The Plaque Distribution Chart

1. The chart showing the distribution of dental plaque adjacent to the gingival margin is a time-honoured method used in treatment planning and periodontal monitoring. It is also of value in the process of patient motivation.
2. It employs the dichotomous scoring principle, presence or absence of plaque on the four surfaces of each tooth being recorded in full on a grid (Fig. 2). The system can be employed with the deciduous and mixed dentitions and special modifications are not required when teeth are missing.
3. The patient **must** be disclosed so that all plaque-involved tooth areas can be detected. Because the disclosing is for recording purposes, the intensity of staining can generally be less than that used for patient education.
4. Excess stain is flushed away, conveniently with a 3-in-1 syringe. The presence of a continuous band of dental plaque adjacent to the gingival margin is recorded as positive. A positive score for either of the buccal or lingual aspects of a proximal surface is recorded as positive.
5. The plaque score is calculated by expressing as a percentage the number of surfaces harbouring plaque related to the total number of tooth surfaces.

Appendix 2

The Bleeding Point Chart

1. It is now generally recognised that gingival inflammation should be estimated by gingival bleeding, as changes in colour and swelling are difficult to reconcile with the dichotomous scoring principle.
2. Accordingly, the presence or absence of bleeding on probing of the gingiva associated with each tooth surface is recorded in full on a grid of the type used to measure plaque distribution (Fig. 2). The system can be employed with deciduous and mixed dentitions and special modifications are not required when teeth are missing.
3. A periodontal probe, graduated or WHO pattern is inserted to the base of the pocket. A force not exceeding 20-25 gm is recommended. Bleeding occurring within 30 seconds is recorded as positive.
4. Where teeth are in a contact point relationship, bleeding on either side of the proximal surface causes the gingiva associated with that surface to be recorded as positive.
5. The bleeding score is calculated by expressing as a percentage the number of gingival units which bleed related to the total number of units.
6. It is possible to combine the collection of a bleeding point chart with pocket depth recording. Pockets are measured on a group of three or four teeth and the bleeding recorded subsequently, before passing on to the assessment of the next group of pockets.

Appendix 3

The Probing Depths Chart

1. Probing depth is defined as the depth to which a periodontal probe can be inserted between the tooth and gingival tissues, using a force not exceeding 20-25 gm in a direction parallel to the long axis of the tooth.
2. The measurement is usually taken at six points on the tooth surface so that a chart which includes a stylised representation of the periodontal condition (Fig. 3) can be completed. The representation is of value in patient orientation and motivation.
3. To achieve operator agreement, standardisation of various aspects of the collection procedure is required. That includes attention to probe graduation, probe diameter and force and angulation during the application of the probe.
4. With regard to probe graduation, irregular markings are easier to detect than regular ones. It is found, however, that any irregular pattern tends to influence the frequency of scoring of certain depths. The Williams graduated probe is in common usage (graduations at 1, 2, 3, 5, 7, 8, 9 and 10 mm).
5. In consistency with the probe used for CPITN, a probe diameter 0.5 mm is recommended. This is about 50 per cent greater than previously suggested.
6. The interpretation of probing depths requires some care, especially because it is now recognised that some values in the later stages of treatment may be due to long epithelial attachments occurring because of resolution of gingival inflammation. During the early stages of treatment, however, probing depths are of considerable value as indicators of the extent of the lesion which is inaccessible to the patient.

Acknowledgements

The preparation of this document was co-ordinated by Mr. R.F. Mosedale, Mr. P.D. Floyd and Dr. F.C. Smales. The many valuable contributions made by members of the British Society of Periodontology are gratefully acknowledged.

The Society is very grateful to Dr. R.M. Palmer for his revision of the document in 1994, and to Dr R.F. Mosedale and Dr W.S. McLaughlin for their revision of the document in 2000.