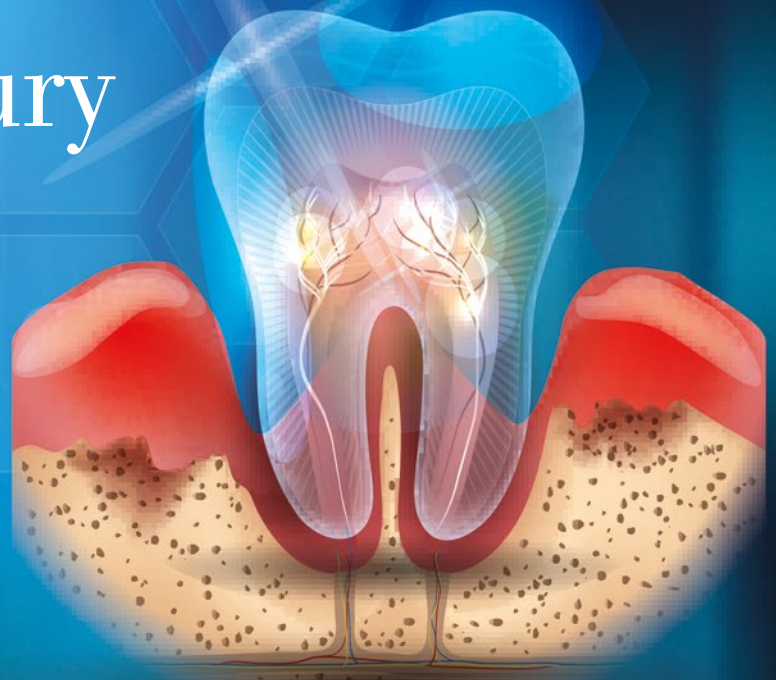


# Rethinking *perio* classification for the 21<sup>st</sup> century



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A precis by **Caroline Holland** of the British Society of Periodontology's implementation plan for the 2017 perio classification in which a diagnosis of periodontitis is followed by 'stage and grade.'

**T**he 2017 World Workshop Classification of Periodontal Diseases and Conditions – newly released – provides a contemporary system for classifying the periodontal status of undiagnosed patients. Major novelties include the introduction of staging and grading for periodontitis patients and the loss of the term 'aggressive periodontitis'.

The staging/grading system is designed primarily to capture and distinguish:

- (i) a patient's history of periodontal tissue destruction, as defined by the severity of bone and clinical attachment loss; and
- (ii) a patient's disease susceptibility and risk of future disease progression, as measured,

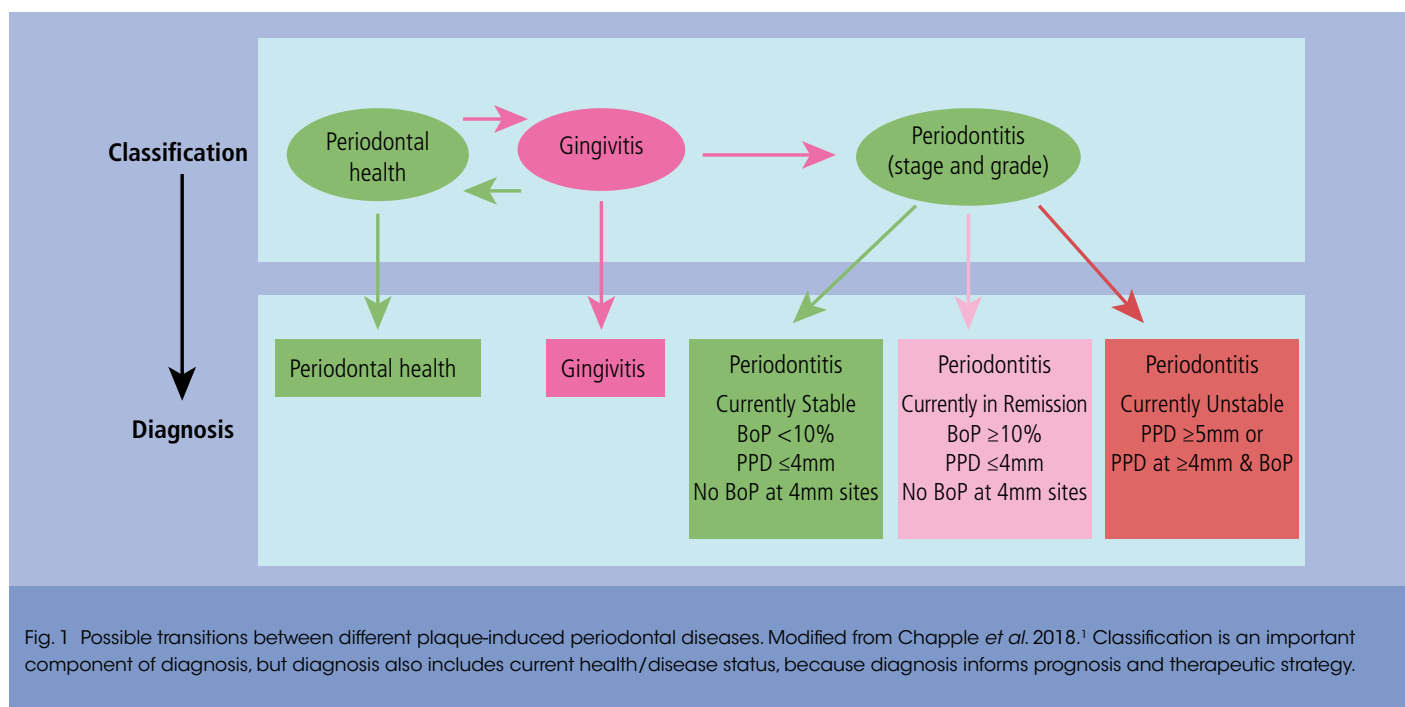
for example, by the severity of bone and clinical attachment loss relative to the patient's age.

The British Society of Periodontology (BSP) implementation plan aims to integrate established diagnostic tools with the new 2017 classification system. The diagnostic work-up of periodontal patients will always include a detailed medical and dental history, oral examination and further investigations (including, where appropriate special tests, radiographs and a radiological report) which will allow the differentiation between the different types of periodontal disease, for example:

- necrotising periodontal disease
- periodontitis associated with systemic disease
- non-plaque-induced gingivitis.

But importantly, it will allow for the recognition of alveolar bone loss or attachment loss due to causes other than periodontitis, for example, surgical crown lengthening, orthodontic treatment, perio-endo lesions, impacted third molar and restoration margins, referred to in the new 2017 classification as a 'reduced periodontium in a non-periodontitis patient'.

Advances in knowledge, and there have been many, since the 1999 International Classification of Periodontal Diseases are



reflected in the 2017 World Workshop Classification system for periodontal and peri-implant diseases and conditions. Determined by the joint European Federation of Periodontology (EFP) and American Academy of Periodontology (AAP) management committee, the aim of the newly released system is to create an approach that:

- could be implemented in general dental practice, the environment where over 95% of periodontal disease is diagnosed and managed
- captures and distinguishes the severity and extent of periodontitis on one hand, as well as a patient's susceptibility for periodontitis on the other
- accommodates the current periodontal status of a patient (probing pocket depth [PPD], and percentage of bleeding on probing [BoP]).

In order for a clinician or student to understand periodontal assessment and diagnosis in the context of the 2017 classification system, it is critical that the first step is to determine the type of periodontal disease.

For the first time, the 2017 classification system gives clear definitions of periodontal health and gingivitis for:

- Patients with an intact periodontium
- Patients with a reduced periodontium due to causes other than periodontitis
- Patients with a reduced periodontium due to periodontitis.

For a detailed discussion of the evidence and rationale behind these definitions, the reader is referred to the consensus paper of

workgroup one of the 2017 World Workshop.<sup>1</sup>

The distinction between chronic and aggressive periodontitis has been removed on the basis that there was little evidence from biological studies that chronic and aggressive periodontitis were separate entities, rather than variations along a spectrum of the same disease process. The exception was classical localised juvenile (aggressive) periodontitis,

about past disease experience, for instance, how much tissue has already been lost (staging) and what does that tell us about the patient's risk of future tissue loss (grading). Furthermore, patients can be periodontally stable following periodontal treatment, which is assessed via PPD and BoP, even though tissue loss is generally irreversible. So the diagnostic statement captures the type of

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where a clearly defined clinical phenotype exists. However, there was unease about including this as a distinct and separate entity within the classification system. The only other distinct types of periodontitis that the 2017 classification system recognises are necrotising periodontitis and periodontitis as a manifestation of systemic disease.<sup>2</sup>

Once a patient has been diagnosed with periodontitis, staging and grading should be performed. Staging and grading is largely

disease (periodontitis), its stage and grade, and its current status.

Importantly, a successfully treated periodontitis patient remains a periodontitis patient for life because the disease may progress at any time if periodontal maintenance is sub-optimal and risk factors are not controlled. Thus, attachment loss needs to be reflected in their current diagnosis, even if they have been successfully treated and are currently a case of health.(Fig. 1.)

Stability requires careful maintenance and continued risk factor control. Because the staging and grading module within the classification system does not account for current health/disease status, the BSP implementation plan incorporates current status into the diagnosis by accounting for presence of true pockets and bleeding on probing (inflammatory status), because these two elements drive treatment planning.

In addition to a simplified staging and grading system, the implementation plan provides a diagnostic decision-making algorithm (Fig. 2), with BPE screening as a starting point in most patients, to guide the clinical management process.

**BPE in the context of the new classification system**

The BPE is a clinical application of the epidemiological community periodontal index of treatment needs (CPITN) (or community periodontal index [CPI]) tool, developed by the British Society of Periodontology<sup>3</sup> in order to rapidly screen for periodontal disease in patients with no overt signs of periodontal disease based on visual inspection alone. Hence, the BPE is a screening tool employed to rapidly guide clinicians to arrive at a provisional diagnosis of periodontal health, gingivitis or periodontitis, irrespective of historical attachment loss and bone loss (that is, irrespective of staging and grading). As such, the BPE guides the need for further diagnostic measures before establishing a definitive periodontal diagnosis and appropriate treatment planning.

Performing a BPE entails ‘walking’ the probe around each tooth, and recording only the worst score (code 0–4) in each sextant for efficiency. The markings of the BPE/WHO probe at 3.5 mm and 5.5 mm are designed to allow the clinician to easily establish the presence or absence of PPD of at least 4 mm and 6 mm, respectively. Specifically, as soon as the black band of the probe is partially obscured, the PPD is at least 4 mm (BPE code 3), and as soon as the black band of the probe is completely obscured, the PPD is at least 6 mm (BPE code 4).

The BPE and its equivalent systems have been well established in the clinical community across Europe due to its relative simplicity and efficiency. The pathway described here is entirely consistent with current BSP guidance<sup>4</sup> on the use of the BPE, that is, its prosecution and interpretation has not changed. However, it is important to recognise that the BPE is of limited value in patients who have already been

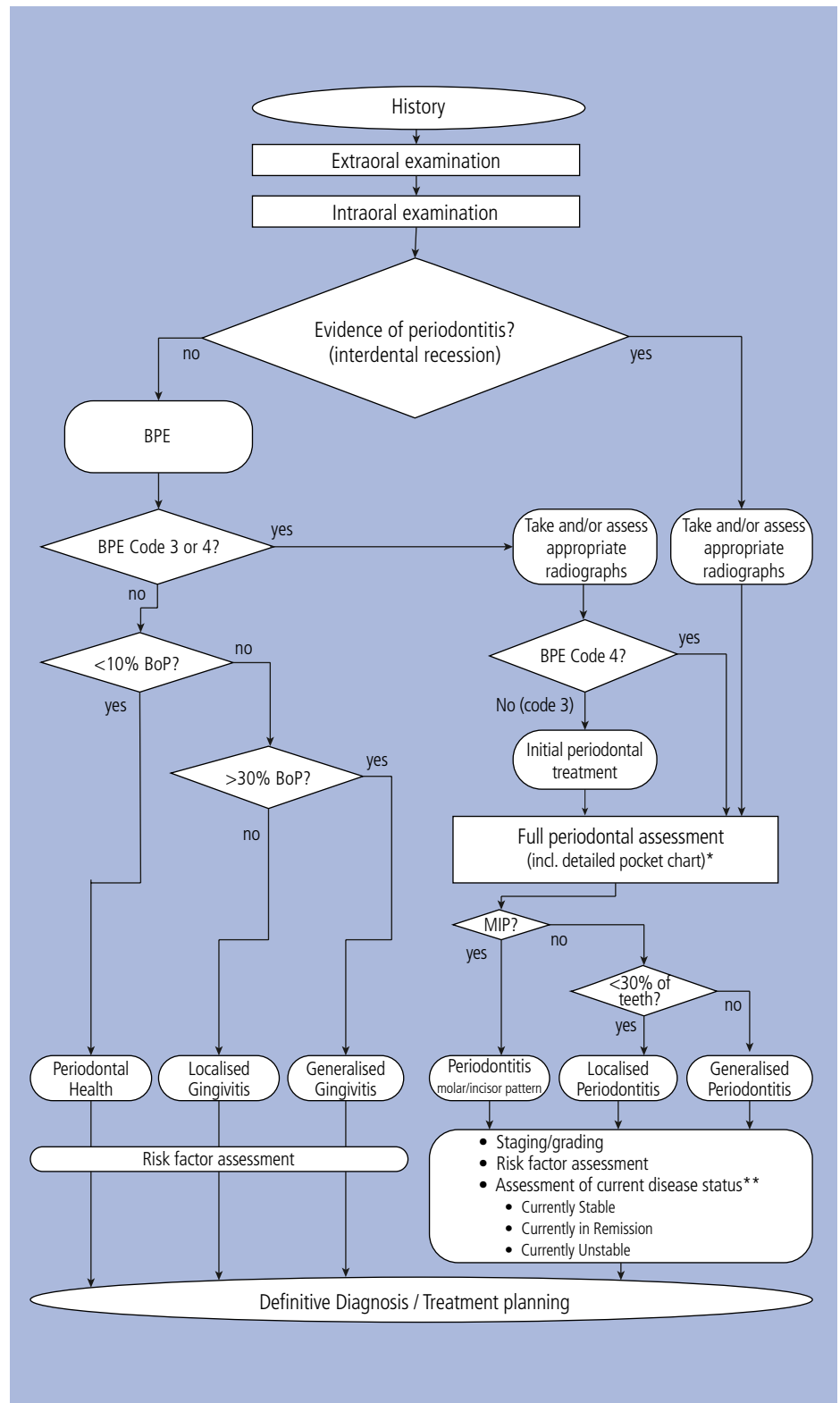


Fig. 2 Algorithm for clinical periodontal assessment of plaque-induced periodontal disease. BPE – basic periodontal examination, BoP – bleeding on probing, MIP – molar incisor pattern. \* A diagnosis of periodontitis requires CAL/radiographic bone loss at two non-adjacent teeth that cannot be attributed to causes other than periodontitis. \*\* Assessment of current disease status as: currently stable: BoP<10%, PPD≤ 4 mm, no BoP at 4 mm sites; currently in remission: BoP≥10%, PPD≤ 4 mm, no BoP at 4 mm sites; currently unstable: PPD ≥5 mm or BoP at 4 mm sites.

diagnosed with periodontitis. This is particularly relevant in the context of the new 2017 classification system, as staging of periodontitis is based on radiographic bone

loss and/or CAL, which is not captured by the BPE. For example, the BPE is unable to identify patients with historical periodontitis, as it is based upon BoP and PPD, rather

than recording attachment and bone loss. Therefore, clear and obvious evidence at initial presentation of historical periodontitis ascertained through history, examination (interproximal recession/attachment loss) or radiographs should trigger a full periodontal assessment immediately, as the BPE is effectively redundant in such patients (Fig. 2). For example, using the BPE on a patient with a history of periodontitis and no BPE scores over 2 would wrongly result in a provisional classification of periodontal health (<10% sites with BoP), localised gingivitis (10–30% sites with BoP) or generalised gingivitis (>30% sites with BoP), rather than capture the fact that the patient is a periodontitis patient with a current status of health or gingival inflammation.

diagnostic statement, eg:

**Diagnosis = generalised periodontitis; stage IV, grade b; currently unstable.**

**Risk factors:**

Current smoker >10 cigarettes per day  
Sub-optimally controlled diabetes.

### Establishing a Periodontal Diagnosis as part of a Comprehensive Periodontal Examination

Figure 2 provides a clinical decision-making algorithm to guide the practitioner to the definitive diagnosis, which includes several components, that is, type and extent of disease, periodontitis stage and grade, current periodontal status and risk factor profile. A periodontal assessment should begin with a comprehensive history. If the patient has

periodontitis, current disease status is then determined. Finally, a risk factor assessment is essential for treatment planning and patient management.

It may be helpful for a clinician to recognise that, in order to facilitate interpretation, the various components of the classification system (that is, stage/grade/extent) provide categorisations of phenomena that occur along a continuum. It is therefore inevitable that the categorisation may be difficult in borderline cases. Furthermore, causes other than periodontitis have to be considered for any attachment loss and/or alveolar bone loss, in particular if localised to one or two sites. It should therefore be self-evident that clinical judgement will remain the cornerstone of formulating an appropriate diagnosis and treatment plan.

**'A PERIODONTAL ASSESSMENT SHOULD**

**BEGIN WITH A COMPREHENSIVE HISTORY.**

**IF THE PATIENT HAS NO EVIDENCE OF A**

**HISTORY OF PERIODONTITIS, THEN A BPE**

**SCREENING SHOULD BE PERFORMED.'**

As per current BSP guidance a maximum BPE code of 3 would trigger a panoramic radiograph and/or selective periapical radiographs, which will allow determination of percentage bone loss relative to the root length. A maximum BPE code of 4 would trigger periapical radiographs (or a panoramic radiograph) and a detailed pocket chart (Fig. 2). Following a radiological analysis and report and, where appropriate, additional diagnostic tests, a final diagnosis of the type of periodontal disease is made.

The diagnostic pathway includes the following stages:

1. Determination of the type and extent of periodontal disease and, in the case of periodontitis, its staging and grading
2. Identification of current health/disease status (via PPD and BoP).

The final diagnosis would embed all of these components in a 'diagnostic statement', for example:

**Diagnosis = generalised periodontitis; stage IV, grade B; currently unstable.**

Finally, relevant risk factors should be documented immediately below the

no evidence of a history of periodontitis, then a BPE screening should be performed. No radiographs would be indicated for codes 0, 1 and 2 and a diagnosis of health or gingivitis can be made. If codes 3 and 4 are apparent then radiographs are required, which will allow determination of bone loss to facilitate staging and grading. This should be followed by a detailed full mouth pocket depth chart for code 4 patients, and for code 3 patients a detailed pocket chart is performed in affected sextants following initial periodontal therapy as an outcome assessment as per current BSP guidelines. If a patient has clear and obvious evidence for a history of periodontitis, either from the history or because of blatant interproximal attachment loss, a full periodontal assessment is carried out, where some assessment of bone loss is necessary, and, if radiographs are not available or justifiable, the staging and grading is performed on the basis of measuring attachment loss in mm from the CEJ.

Disease extent (localised, generalised or, for periodontitis only, molar/incisor pattern) is assessed next. In patients with

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