BSP Audit

Award Submission 2023

Examining the number of periodontal diagnoses made at new patient examinations and implementation of the 2018 Classification system in General Dental Practice across Birmingham and Worcestershire

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Project Lead & Data Collection

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Introduction

In general practice, many new patient examinations occur on a daily basis. As part of this, a BPE is carried out, which should lead to a periodontal diagnosis. With a diagnosis in hand, the treating dentist can create a treatment plan, specific to their patient's individual needs.

Preliminary surveys were conducted in September 2022 amongst general dental practitioners, asking when they make a periodontal diagnosis. Detailed discussions highlighted several key points:

1. Uncertainty in knowing when a periodontal diagnosis should be made, particularly when there is no evidence of active periodontal disease ('currently stable' periodontitis presenting with Code 0/1/2's)
2. All dentists were clear that a new periodontal disease classification system had been implemented – but not all knew how to use this system.
3. Almost all dentists were unaware the classification of gingivitis had changed.
4. No dentists were aware of the term 'Clinical Gingival Health'.

Following these findings, it was agreed with the practice principles of three practices that a clinical audit should be carried to:

- Identify if a periodontal diagnosis is being made at each new patient examination
- Where a periodontal diagnosis has been made, has the 2018 classification or a historic system been used

Audit Protocol

This project, due to the constricted time frame of Foundation Training, was intended to have two cycles with data collection completed by April 1st 2023. Plans for a re-audit have been designed. The project has not been submitted for, or received any financial support from any sources.

Aims

- To improve the number of periodontal diagnoses made at each new patient examination.
- To increase the percentage of periodontal diagnoses being made with the 2018 classification system.

Objectives

- To ensure periodontal diagnoses are made at each new patient examination.
- To increase use of the 2018 classification system, including use of gingivitis and clinical gingival health classifications.
- Provision of in surgery ‘how to’ quick guide posters demonstrating use of the 2018 classification system.
- Report the findings of this audit to improve the diagnosis of gingival and periodontal diseases in practice

Guidelines

- Utilisation of the British Society of Periodontology's "Implementing the 2018 Classification of Periodontal Diseases to Reach a Diagnosis in Clinical Practice" document.

Criteria

- Is a Periodontal diagnosis being made at each new patient exam: *Yes* or *no*
- Is the periodontal diagnosis utilising either: *2018 Classification* or *Historic Classification*

Standards

- 100% of all new patient examinations to have a periodontal diagnosis
- 75% of all periodontal diagnoses to be made using the 2018 classification system

Inclusion/Exclusion Criteria

Inclusions:

- All adult new examination patients

Exclusions:

- Edentate patients
- Emergency appointments
- Recall examinations
- Under 18 years of age

Data Collection

Data was collected and analysed by the audit lead (BST) through the examination of patient records on each practice's electronic software. A Microsoft Excel spreadsheet was created to record data, which was stored securely. **(Appendix 1)**

Method

Pilot: Preliminary Surveying

Sample Size: 5 dentists

Data analysis: 4 key areas identified, as highlighted in introduction

Cycle 1: Retrospective Analysis

Sample size: 13 dentists, 511 new patient examinations

Time frame: September 1st to October 31st 2022

Data collection: Data was collected and entered into the data capture spreadsheet **(appendix 1)**

Data analysis: Assessing the current standards prior to implementation of change

Intervention

January 31st 2022

- 1 hour, enhanced CPD accredited talk from a specialist periodontist explaining the 2018 classification system and need for periodontal diagnosis at each exam **(appendix 2)**
- Provision of in surgery 'how-to' guides physically circulated to all participants **(appendix 3)**, **i**nforming clinicians of the requirement for a periodontal diagnosis at each examination

Cycle 2: Retrospective Analysis

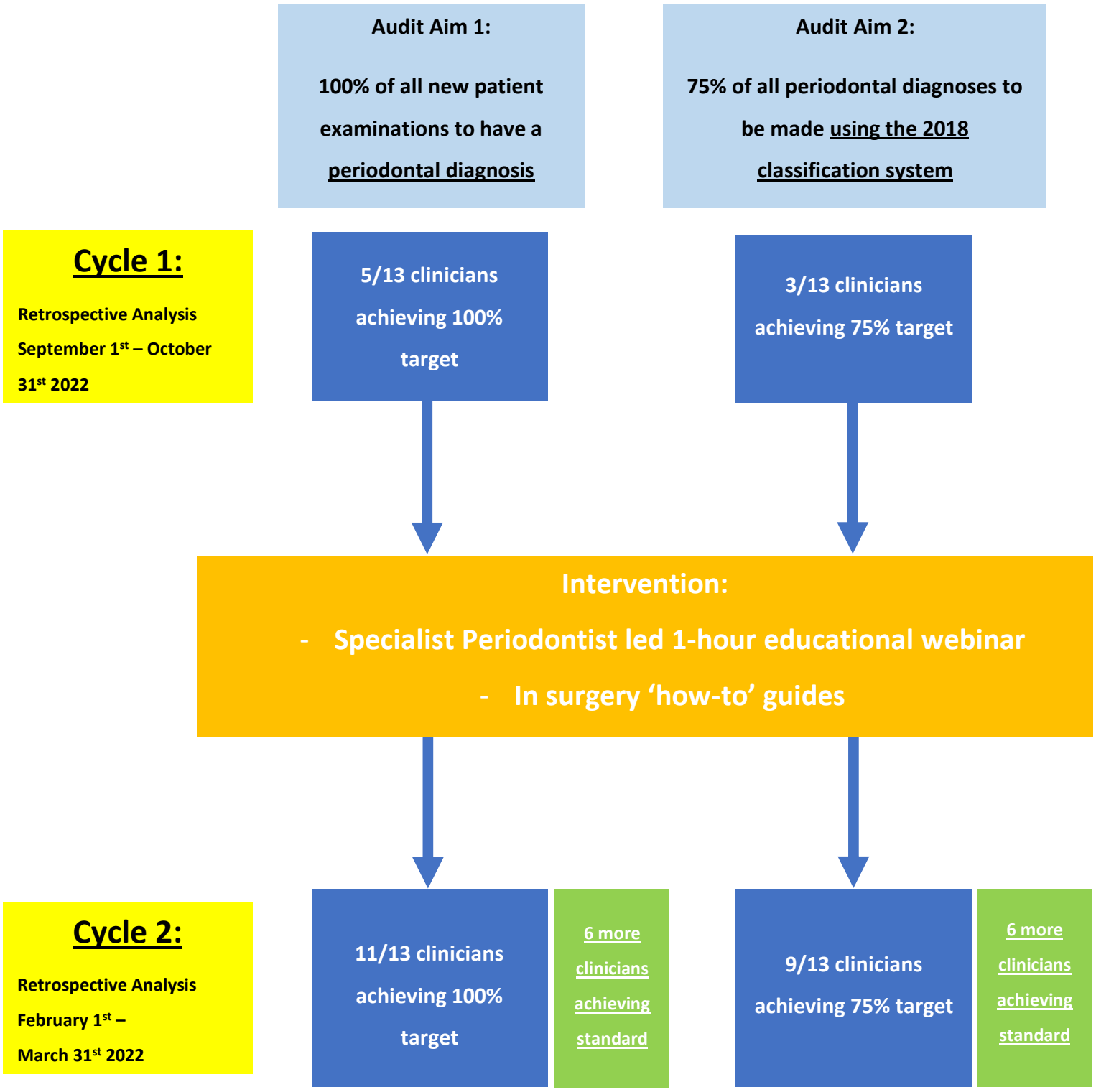
Sample size: 13 dentists, 240 new patient examinations

Time frame: February 1st to March 31st 2023

Data collection: Data was collected and entered into the data capture spreadsheet **(appendix 1)**

Data analysis: See results

Results


Audit Aim 1:
100% of all new patient examinations to have a periodontal diagnosis
Audit Aim 2:
75% of all periodontal diagnoses to be made using the 2018 classification system
Cycle 1:
Retrospective Analysis
September 1st – October 31st 2022
5/13 clinicians achieving 100% target
3/13 clinicians achieving 75% target
Intervention:
- Specialist Periodontist led 1-hour educational webinar
- In surgery 'how-to' guides
Cycle 2:
Retrospective Analysis
February 1st – March 31st 2022
11/13 clinicians achieving 100% target
6 more clinicians achieving standard
9/13 clinicians achieving 75% target
6 more clinicians achieving standard

Cycle 1: September 1st 2022 to October 31st 2022

***x*% = Achieving standard** ***x*% = Not achieving standard**

Practice 1

Clinician	Number of New Patient Examinations	Periodontal Diagnosis Present	Periodontal Diagnosis Absent	**Percentage of Periodontal Diagnoses made**	Use of 2018 Classification	Use of former classification	**Percentage of diagnoses made with 2018 Classification**
1a	39	39	0	**100%**	20	19	**51%**
1b	27	27	0	**100%**	2	25	**7%**
1c	12	9	3	**75%**	2	7	**22%**
1d	71	69	2	**97%**	69	0	**100%**
Practice Average	-	-	-	***93%***	-	-	***45%***

- **93%** of examinations having a periodontal diagnosis made
- **45%** of diagnoses being made with the 2018 classification system

Practice 2

Clinician	Number of New Patient Examinations	Periodontal Diagnosis Present	Periodontal Diagnosis Absent	**Percentage of Periodontal Diagnoses made**	Use of 2018 Classification	Use of former classification	**Percentage of diagnoses made with 2018 Classification**
2a	9	8	1	**89%**	0	8	**0%**
2b	12	12	0	**100%**	0	12	**0%**
2c	82	41	41	**50%**	37	4	**90%**
2d	143	109	34	**76%**	30	79	**28%**
Practice Average	-	-	-	***78.25%***	-	-	***29.5%***

- **93%** of examinations having a periodontal diagnosis made
- **29.5%** of diagnoses being made with the 2018 classification system

Practice 3

Clinician	Number of New Patient Examinations	Periodontal Diagnosis Present	Periodontal Diagnosis Absent	**Percentage of Periodontal Diagnoses made**	Use of 2018 Classification	Use of former classification	**Percentage of diagnoses made with 2018 Classification**
3a	7	6	1	**86%**	0	6	**0%**
3b	60	60	0	**100%**	16	44	**27%**
3c	2	0	2	**0%**	0	0	**0%**
3d	10	5	5	**50%**	0	5	**0%**
3e	37	37	0	**100%**	37	0	**100%**
Practice Average	-	-	-	***67.2%***	-	-	***25.4%***

- **67.2%** of examinations having a periodontal diagnosis made
- **25.4%** of diagnoses being made with the 2018 classification system

Cycle 2: February 1st 2023 to March 31st 2023

***x*% = Achieving standard** ***x*% = Not achieving standard**

Practice 1

Clinician	Number of New Patient Examinations	Periodontal Diagnosis Present	Periodontal Diagnosis Absent	**Percentage of Periodontal Diagnoses made**	Use of 2018 Classification	Use of former classification	**Percentage of diagnoses made with 2018 Classification**
1a	7	7	0	**100% (+0%)**	6	1	**86% (+35%)**
1b	13	13	0	**100% (+0%)**	2	11	**15% (+8%)**
1c	21	21	0	**100% (+25%)**	18	3	**86% (+64%)**
1d	39	39	0	**100% (+3%)**	39	0	**100% (+0%)**
Practice Average	-	-	-	***100%* (+7%)**	-	-	***71.75%* (+26.75%)**

- **100%** of examinations having a periodontal diagnosis made **(7% improvement)**
- **71.75%** of diagnoses being made with the 2018 classification system **(26.75% improvement)**

Practice 2

Clinician	Number of New Patient Examinations	Periodontal Diagnosis Present	Periodontal Diagnosis Absent	**Percentage of Periodontal Diagnoses made**	Use of 2018 Classification	Use of former classification	**Percentage of diagnoses made with 2018 Classification**
2a	6	6	0	**100% (+11%)**	2	4	**33% (+33%)**
2b	16	16	0	**100% (+0%)**	12	4	**75% (+75%)**
2c	53	53	0	**100% (+50%)**	53	0	**100% (+10%)**
2d	20	20	0	**100% (+24%)**	19	1	**95% (+67%)**
Practice Average	-	-	-	***100%* (+21.75%)**	-	-	***75.75%* (+46.25%)**

- **100%** of examinations having a periodontal diagnosis made **(21.75% improvement)**
- **75.75%** of diagnoses being made with the 2018 classification system **(46.25% improvement)**

Practice 3

Clinician	Number of New Patient Examinations	Periodontal Diagnosis Present	Periodontal Diagnosis Absent	**Percentage of Periodontal Diagnoses made**	Use of 2018 Classification	Use of former classification	**Percentage of diagnoses made with 2018 Classification**
3a	10	10	0	**100% (+14%)**	10	0	**100% (+100%)**
3b	20	20	0	**100% (+0%)**	20	0	**100% (+73%)**
3c	2	1	1	**50% (+50%)**	1	0	**50% (+50%)**
3d	28	1	27	**3% (-47%)**	0	1	**0% (+0%)**
3e	5	5	0	**100% (+0%)**	37	0	**100% (+0%)**
Practice Average	-	-	-	***70.6%* (+3.4%)**	-	-	***70%* (+44.6%)**

- **70.6%** of examinations having a periodontal diagnosis made **(3.4% improvement)**
- **70%** of diagnoses being made with the 2018 classification system **(44.6% improvement)**

Distribution of Results

Results from the audit were distributed via email to all practices, highlighting improvements made to all clinicians who participated in the audit.

This audit is also aimed to be entered for the BSP's Audit Prize, as part of which it would be hoped to distribute the results of this audit via the following methods:

- Local: Presentation of audit findings to participating clinicians via electronic distribution (completed)
- Regional: Submission of audit findings to Training Program Director of Birmingham and Black Country Scheme to be distributed to foundation dentists and educational supervisors
- National: BSP Annual Conference Autumn 2023, Birmingham
- Publication: BSP Periodical magazine annual summary

Discussion

- Following the intervention, 12/13 clinicians were diagnosing periodontal disease utilising the 2018 classification system, staging and grading periodontal disease. Clinicians were still using historic classification systems for the diagnosis of gingivitis (e.g. Marginal gingivitis), lowering the average usage of the 2018 classification system.
  - It could be postulated clinicians recognise the value of a staging and grading system to classify periodontal disease; however, clinicians are unable to recognise the value of the new system to classify gingivitis. Further investigation and research would be required to justify this hypothesis.

- Despite the majority of clinicians transitioning to use of the 2018 classification system, it was noted that only 2 clinicians used the term 'clinical gingival health' following the second audit cycle.
  - Whilst conclusions cannot be drawn about the cohort's ability to correctly diagnose the presence or absence of gingivitis/periodontitis, further research exploring reasons for underutilisation of 'clinical gingival health' could be conducted as part of a follow up to this audit.

Conclusions and Recommendations

- Educational webinars and the use of in surgery 'how-to' guides significantly improves both the percentage of periodontal diagnoses made and utilisation of the 2018 classification system.
    - It is recommended that practices utilise in surgery 'how-to' guides to improve the use of the 2018 classification system
- Following the intervention, clinicians were confident in utilising the 2018 classification system to stage and grade periodontal disease. However, clinicians remain uncertain in diagnosing gingival diseases and clinical gingival health with the new system.
    - It is recommended that specific education on the management of gingivitis in order to prevent the development of periodontal disease would help increase the diagnosis of gingivitis with the 2018 classification system.
    - Utilisation and distribution of the BSP's Clinical FAQ's website to answer uncertainties regarding use of the 2018 classification system would be able to assist in answering clinician questions.

Improvement Plan

To improve and achieve the desired standards, the following re-audit is proposed:

Re-Audit: Prospective Analysis

The audit has been designed so that the next foundation dentist can continue the re-audit cycle and continue to improve standards of care.

Secondary intervention: Repeated circulation of 'how to' guides and BSP Clinical FAQ's website (https://www.bsperio.org.uk/professionals/clinical-faqs) and commencement of audit cycle until the desired standards have been met

Data collection: Data to be collected and entered into the data capture spreadsheet

Reflection

- There has been a significant overall improvement in the number of periodontal diagnoses and utilisation of the 2018 classification system. However, despite the improvements, 2 clinicians are failing to provide a periodontal diagnosis at 100% of new patient exams and 4 clinicians are failing to achieve 75% of periodontal diagnoses using the 2018 classification system. Exploration for reasons why these clinicians haven't met the set standards may reveal specific trends and common concerns which could be addressed as part of re-audit to improve standards. However, I felt that this was outside of the scope of this audit, but could be considered an avenue to explore as part of further research.
- Copious time was spent in data collection, including recording the range of BPE codes each clinician used. This took a long time to process and ultimately was beyond the scope of this project/original aims. Therefore, this data was omitted from the results of the audit.
- This audit examined the use of the 2018 classification system, however it did not observe the accuracy of any diagnoses made. I feel this could be a focus of a future project.
- The audit has been of benefit to both clinicians and patients, as disease is being classified and diagnosed more accurately to provide individualised periodontal treatment plans. Subsequently, implementation of this audit has greatly assisted our hygienist colleagues in practice, enabling them to tailor specific treatment plans for their patients based on individualised periodontal disease diagnostic statements.

Acknowledgements/References

- Mr. Damian Kavanagh and Mrs. Nicola Kavanagh for authorising the audit
- Dr. Devan Singh Raindi for providing the 1-hour CPD webinar to educate clinicians
- British Society of Periodontology for the following resources:
    - "Implementing the 2017 Classification of Periodontal Diseases to Reach a Diagnosis in Clinical Practice": Available at: https://www.bsperio.org.uk/assets/downloads/111_153050_bsp-flowchart-implementing-the-2017-classification.pdf
    - "Clinical FAQ's": Available at: https://www.bsperio.org.uk/professionals/clinical-faqs

Appendices

Appendix 1 – Data capture collection sheet

Cycle 1

Practitioner:	Number of NPE's	Code 0	Code 1	Code 2	Code 3	Code 4	Code X	Diagnosis Present	Diagnosis Absent	2017 Classification?	Former Classification?	% Diagnosis made	% New Classification	% Old Classification
1a	39	0	16	31	5	2	1	39	0	20	19	100%	51%	49%
1b	27	2	28	27	13	13	1	27	0	2	25	100%	7%	93%
1c	12	10	5	8	2	1	0	9	3	2	7	75%	22%	78%
1d	71	22	11	63	17	8	3	69	2	69	0	97%	100%	0%
Practitioner:	Number of NPE's	Code 0	Code 1	Code 2	Code 3	Code 4	Code X	Diagnosis Present	Diagnosis Absent	2017 Classification?	Former Classification?	% Diagnosis made	% New Classification	% Old Classification
2a	9	2	4	7	1	0	0	8	1	0	8	89%	0%	100%
2b	12	0	6	11	9	3	0	12	0	0	12	100%	0%	100%
2c	82	15	32	49	56	12	9	41	41	37	4	50%	90%	5%
2d	143	6	99	103	59	9	11	109	34	30	79	76%	28%	55%
Practitioner:	Number of NPE's	Code 0	Code 1	Code 2	Code 3	Code 4	Code X	Diagnosis Present	Diagnosis Absent	2017 Classification?	Former Classification?	% Diagnosis made	% New Classification	% Old Classification
3a	7	2	5	5	1	1	1	6	1	0	6	86%	0%	100%
3b	60	14	28	55	25	14	6	60	0	16	44	100%	27%	73%
3c	2	1	1	2	0	0	0	0	2	0	0	0%	#DIV/0!	#DIV/0!
3d	10	2	8	7	2	2	0	5	5	0	5	50%	0%	100%
3e	37	20	29	30	11	2	2	37	0	37	0	100%	100%	0%
	511	**96**	**272**	**398**	**201**	**67**	**34**	**422**	**89**	**213**	**209**			
Regular recalls, edentulous, emergencies & paediatric examinations excluded														

Appendices (Continued)

Appendix 2 – Specialist Periodontist 1 hour CPD webinar, feedback form:

(Images courtesy and copyright of Dr. Devan Singh Raindi, Specialist Periodontist)

ThePerioCoach®

Diagnosis and Classification of Periodontal Disease in General Dental Practice
Feedback Form

Thank you for completing this questionnaire designed to collect participants' feedback on the CPD activity. The data obtained will be used collectively for evaluation purposes of the CPD Programmes.

Date & Time of the programme : 30-01-23 (1300-1400)

Venue of the programme : Online

(A) Please give your ratings at the following spaces provided.

	Excellent	Very Good	Satisfactory	Unsatisfactory	Poor
1. **Educational objectives being achieved**					
2. **Knowledge imparted**					
3. **Practicability and of good reference**					
4. **Content coverage**					
5. **Pace** (Too fast/Too slow)					
6. **Training approach and method**					
7. **Teaching and presentation skill**					
8. **Suitability of venue**					
9. **Duration of programme** (Too long/Too short)					
10. **Overall rating**					

(B) Do you have any other comments on the CPD activity ?

(C) Are there any CPD programmes you would like to attend ?

Signature : _____
(Optional)

Name : _____
(Optional)

Thank you.

Appendix 3 – In Surgery 'How to' guide, including photographs of implementation

To make a diagnosis with the 2017 Classification System for a new patient:

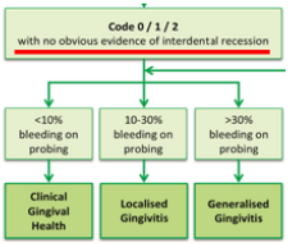
1) Complete a BPE for all sextants. Complete a bleeding score (estimated scores can be used.) Take or review existing radiographs (bone levels must be visible to calculate bone loss for diagnosis.)
   - For a periodontitis patient (Code 4 identified), full mouth PA's are the gold standard. OPG's can be used.

2) Ask yourself the following questions, *in this order*:

1. Are bone levels below the CEJ?

   Whilst looking at the patient's radiographs:

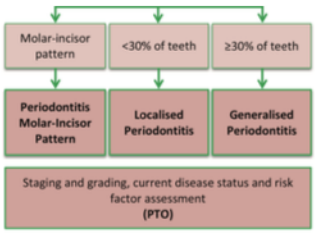
   - If yes, this *is a periodontitis patient* – regardless of BPE score, as there is evidence of interdental recession (bone loss.)* Move to next question.
   - If no, this is *either* a clinical gingival health or gingivitis patient. Follow flowchart on right, with your bleeding score, for diagnosis.



2. As there are bone levels below the CEJ, this is a Periodontitis patient. Is it localised, generalised or molar-incisor Periodontitis?

   Whilst looking at the patient's radiographs:

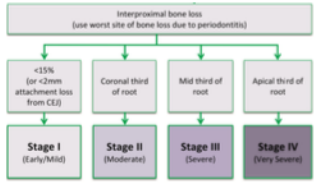
   - If <30% of teeth with bone levels below CEJ → Localised Periodontitis
   - If >30% of teeth with bone levels below CEJ → Generalised Periodontitis
   - If molars and incisors only with bone levels below CEJ → Periodontitis Molar-Incisor pattern



3. How do I stage my patient? (This tells me how far the Periodontitis has progressed)

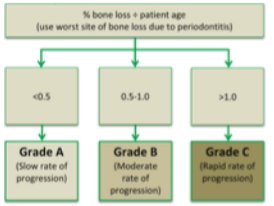
   *Whilst looking at the patient's radiographs at the **worst site of bone loss in the entire mouth**:*

   - If bone levels <2mm from CEJ or <15% loss → Stage I
   - If bone levels at coronal third of root → Stage II
   - If bone levels in mid third of root → Stage III
   - If bone levels apical third of root → Stage IV



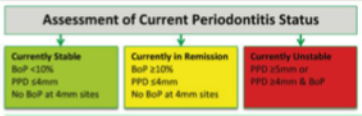
4. How do I grade my patient? (This tells me the rate of bone loss)

   - Percentage bone loss (calculated in stage 3) divided by patient age
   - Bone loss is less than half of the patient's age: Grade A
     - E.g. 30% bone loss in an 80 year old patient
   - Bone loss is half or more, but less than the patient's age: Grade B
     - E.g. 30% bone loss in a 50 year old patient
   - Bone loss is greater than the patient's age: Grade C
     - E.g. 30% bone loss in a 20 year old patient



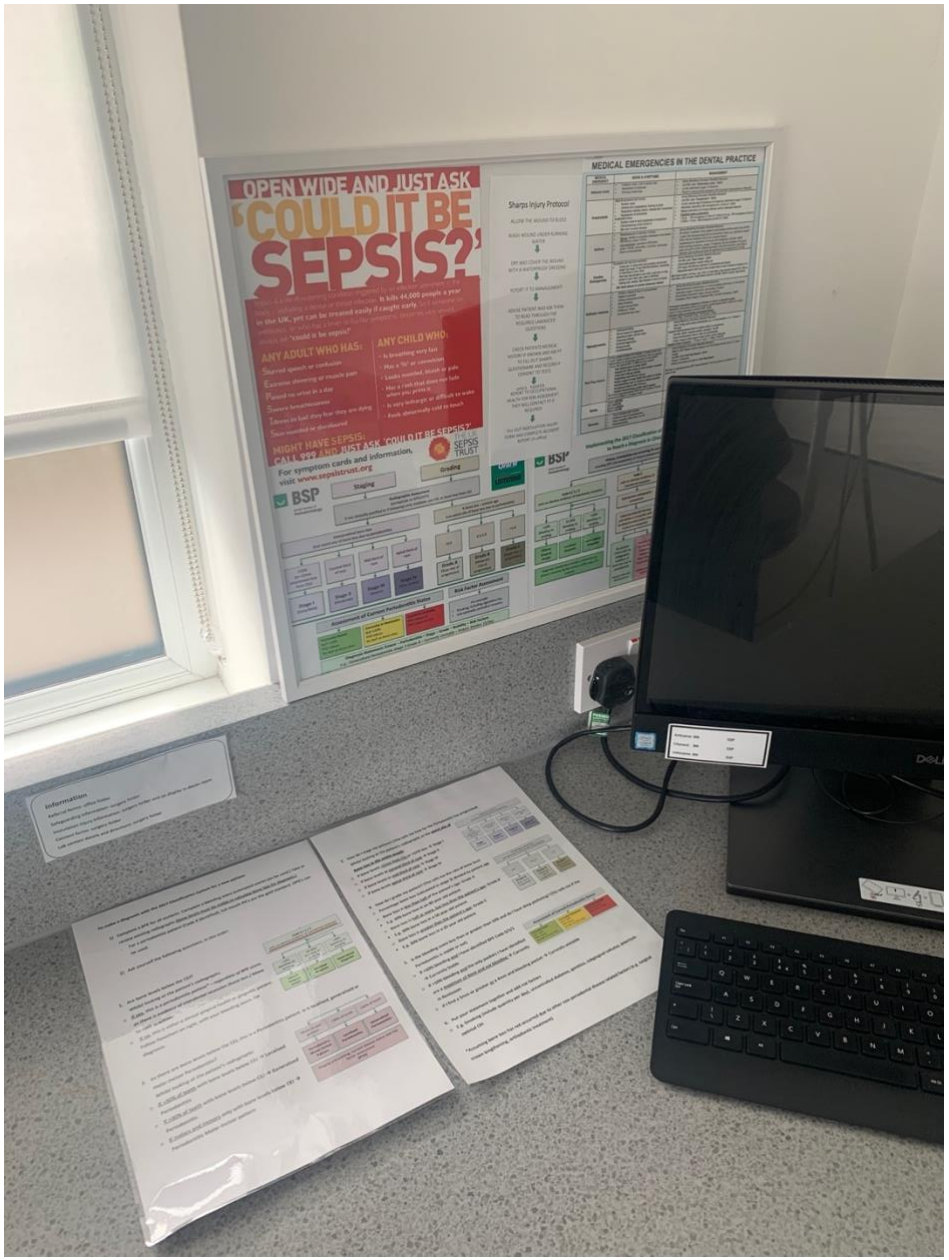
5. Is the bleeding score less than or greater than 10% and do I have deep pocketing? (This tells me if the Periodontitis is stable or not)

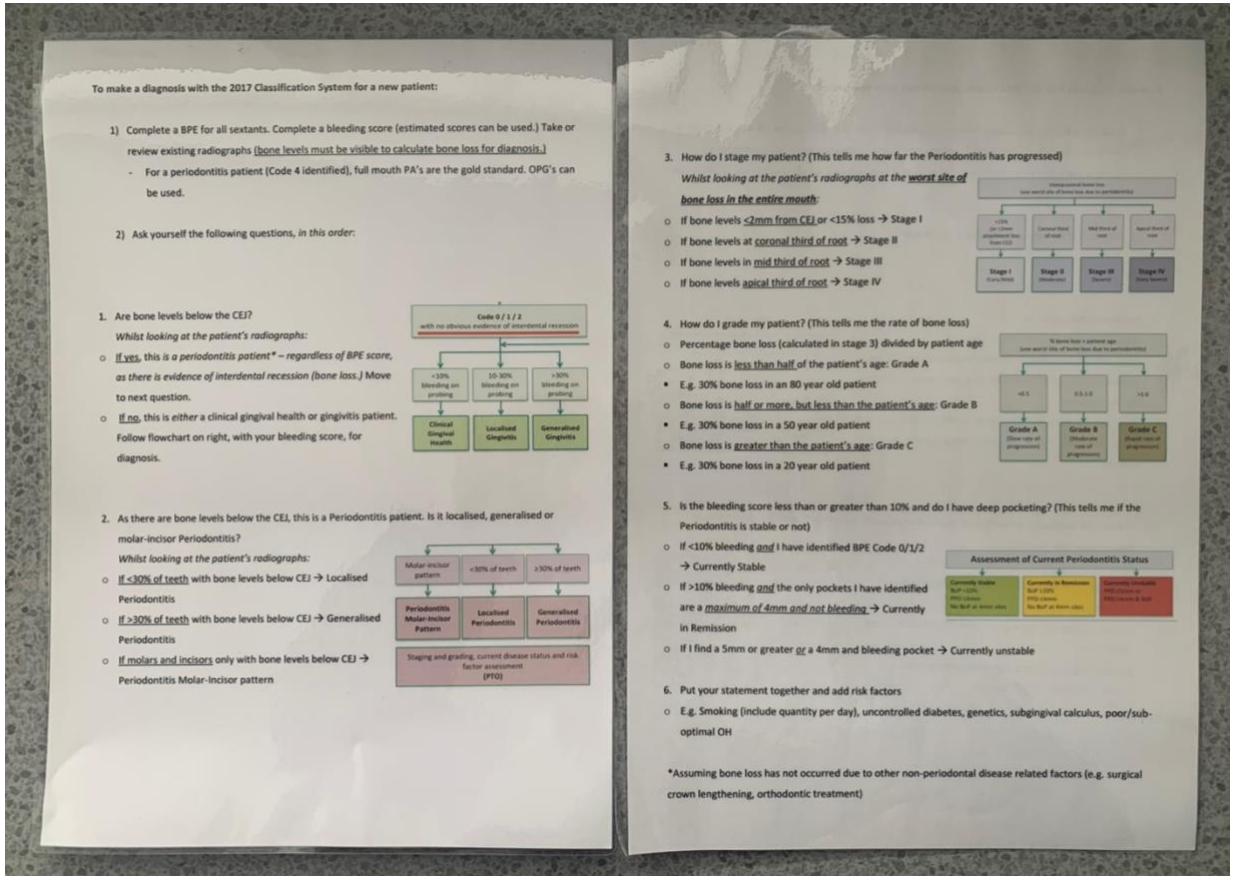
   - If <10% bleeding *and* I have identified BPE Code 0/1/2 → Currently Stable
   - If >10% bleeding *and* the only pockets I have identified are a *maximum of 4mm and not bleeding* → Currently in Remission
   - If I find a 5mm or greater *or* a 4mm and bleeding pocket → Currently unstable



6. Put your statement together and add risk factors
   - E.g. Smoking (include quantity per day), uncontrolled diabetes, genetics, subgingival calculus, poor/sub-optimal OH

*Assuming bone loss has not occurred due to other non-periodontal disease related factors (e.g. surgical crown lengthening, orthodontic treatment)





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