



# Young Practitioners Guide to Periodontology



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**The Young Practitioners Guide to Periodontology was conceived as a digest of what we felt was the most clinically relevant information that would be needed by a newly qualified graduate to manage patients with periodontal diseases in general dental practice.**

The aim was to present this information in a concise, easily referenced format and to encourage newly qualified practitioners in a general practice setting, to maintain and further develop skills in diagnosis, treatment planning and treatment of periodontal conditions.

We hope that you will enjoy using this guide and that you will find it pertinent and usable.

This was very much a collaborative effort and we would like to thank all our contributors: Paul Baker, Len D'Cruz, Koray Feran, Philip Greene, Mark Ide, Sarah Manton, Mike Millward, Phil Ower, Kevin Seymour and Jeanie Suvan.

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Prof Ian Needleman, Editor in Chief  
Elaine Giedrys-Leeper, Editor



## CLASSIFICATION OF PERIODONTAL DISEASES

### CLASSIFICATION OF PERIODONTAL DISEASES

(based on the American Academy of Periodontology Classification, 1999)

#### NECROTISING ULCERATIVE GINGIVITIS (NUG) AND PERIODONTITIS (NUP)

Necrotising ulcerative gingivitis is a painful ulceration of the tips of the interdental papillae with grey necrotic tissue visible on the surface of the ulcers. This may cause loss of papillae. There is a characteristic halitosis and submandibular lymph nodes may be tender and palpable. NUG is common among smokers and patients with poor oral hygiene. NUP is diagnosed in the presence of attachment loss.



Extensive loss of papillae secondary to NUG in a patient who smokes 20 cigarettes / day

#### GINGIVITIS

Gingivitis is plaque-induced inflammation of the gingivae, recognised by erythema and oedema, bleeding on brushing or probing, and perhaps detachment of the gingivae from the teeth. Gingivitis may be exacerbated by various factors. The hormonal changes associated with pregnancy produce an increase in inflammatory signs, resulting in increased bleeding that may bring it to the attention of the patient. Sometimes an individual papilla may swell sufficiently to become a pregnancy epulis. The severity of pregnancy gingivitis reduces after parturition and reverts to the previous low level of inflammation.



Untreated periodontal disease with extensive supra and subgingival deposits.

#### GINGIVAL HYPERPLASIA

Hyperplasia is thickening of the gingivae due to proliferation of cells within the tissue. It can be induced by irritation by plaque and calculus, repeated friction or trauma, and by some medications, notably calcium channel blockers used in the treatment of hypertension, ciclosporin (used as an anti-rejection agent for organ transplant patients) and phenytoin, used to control epilepsy. Mouth breathing can also lead to gingivitis and gingival overgrowth.



Pre existing gingivitis aggravated by mouth breathing, tissue now hyperplastic

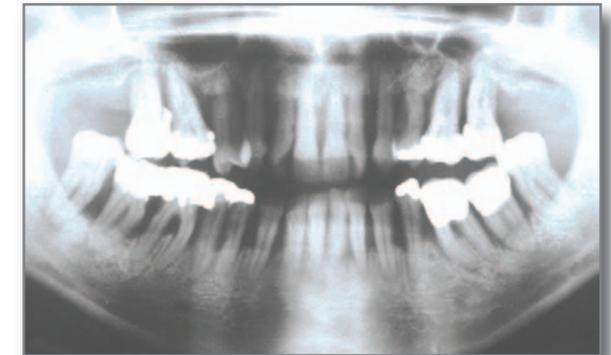
## CLASSIFICATION OF PERIODONTAL DISEASES

#### CHRONIC PERIODONTITIS

For most patients, gingivitis does not progress beyond the gingival margins. However 10-15% of people are susceptible to a more destructive process. Susceptibility is thought to be partly genetically determined, which explains why periodontitis can affect members of the same family. In chronic periodontitis, plaque left near the gingival margins causes gingivitis, which becomes periodontitis as it destroys the junctional epithelium and forms a periodontal pocket, harbouring plaque inaccessible to the toothbrush and floss. This process usually progresses slowly and is related to the amount of dental plaque and calculus deposits

#### AGGRESSIVE PERIODONTITIS

Approximately 1/1000 of susceptible patients suffer more rapid attachment loss, a small percentage losing more than half of the bone support by the age of 35. This is known as aggressive periodontitis, which may be localised to some of the teeth, or generalised, involving all the teeth. Aggressive periodontitis is diagnosed from its rapid rate of progress or severe disease in individuals usually under 35 years. It is characterised by vertical bone defects on radiographs. There may be very little plaque or calculus present in some of these patients.



Generalised aggressive periodontitis in a 30 year old non smoker

#### PERIODONTAL ABSCESS

An acute infection in a periodontal pocket is a common occurrence. It is important to distinguish between a periapical and periodontal abscess and this may be difficult if both conditions are present at the same time. Abscesses can be acute or chronic and asymptomatic if freely draining. If there is no endodontic component, the tooth will be vital.



#### PERIODONTITIS ASSOCIATED WITH ENDODONTIC LESIONS

These lesions may be independent or coalescing, and may originate either from the gingiva or the apex.



## RISK FACTORS

### Smoking

The most important known risk factor for periodontitis is cigarette smoking. This is thought to be due to a reduction in gingival blood flow, impaired white cell function, impaired wound healing and an increased production of inflammatory substances (cytokines) enhancing tissue breakdown. Many studies have shown that persistent smoking leads to greater tooth loss and reduced response to periodontal therapy.

### Diabetes

Poorly controlled diabetes increases the risk of periodontal diseases. Wound healing is adversely affected by diabetes, especially if poorly controlled and this can make treatment of diabetic patients more difficult. Assessment of diabetes control is important and communication with the patient's doctor can be very useful. Periodontal treatment might improve diabetic control.

Other known systemic risk factors include hormonal changes, age, stress, and leukaemias.



Pregnancy gingivitis with pregnancy epulis buccal to 12 & 13

### LOCAL RISK FACTORS

Local risk factors include calculus, enamel pearls, root grooves and concavities, malpositioned teeth, overhanging and poorly contoured restorations, removable partial dentures, weak contact areas between the teeth resulting in chronic food packing and deep overbite with direct gingival trauma.

## ESSENTIALS OF PERIODONTAL DIAGNOSIS

### LISTEN

Listen to the patient. Most of the time they will tell you what's wrong with them. Ask open ended questions, the ones that begin with what, when, where, why, how and who. Then just to be sure, ask the seven questions that reveal all:

1. Do your gums bleed on brushing or overnight?
2. Are any of your teeth loose?
3. Can you chew everything you want to?
4. Do you have a bad taste or smell from your mouth?
5. Do you suffer from pain, swelling, gumboils or blisters?
6. Do you smoke?
7. Is there anything else you would like to tell me?

Use your listening skills, such as observing non-verbal cues, together with attention signals and verbal indications of understanding, such as affirmatory noises, nodding, back-tracking and clarifying, and restating to gain rapport with the patient.

### PROBE

**Probing is essential for periodontal diagnosis and monitoring.**

The probing depth at any site dictates the patient's ability to maintain soft tissue health by optimal plaque control. Probing depths in excess of 3mm are considered to be too deep to be controlled by plaque control with toothbrush and floss alone. These sites should be considered for active periodontal therapy.

The periodontal probe answers two questions:

**Where is the base of the gingival crevice?** i.e. how far below the gingival margin and how far from the amelocemental junction? This is a measure of periodontal attachment loss, but remember that the recession is added to the probing depth to give the clinical attachment level. This is a better parameter to measure for long-term monitoring.

**Does the tissue bleed when touched?** This is a measure of inflammation, not necessarily active tissue destruction. No bleeding on probing means health (except in smokers, where it is hidden). An absence of bleeding on probing from the bottom of the pocket/crevice predicts periodontal stability.

There are different types of probe.

The **BPE probe** is used to screen **every** new and recall patient for periodontal diseases and enables you quickly to identify patients with periodontal diseases.

A **standard periodontal probe** is necessary for the detailed data collection you need to enable you to monitor the progress of specific sites. Popular types include the 10mm Williams probe and the 15mm UNC probe. If the situation is not improving retreatment, different treatment, or referral to a specialist should be considered and the decision recorded in the patient's notes.



BPE probe, 10mm Williams and UNC 15 probe

## RECORD

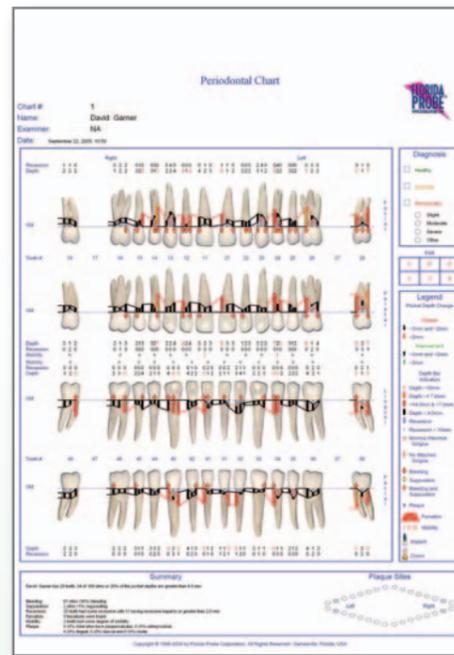
Record your findings on any pre-printed chart, computer, official GDS perio chart, or modified dental record card. Include as a minimum: probing depths, recession, bleeding on probing, plaque and mobility. You need this written record to guide your therapy to the affected sites, monitor treatment, show the patient how well they've done, and to resist a complaint that you didn't diagnose and treat properly. Also note the fact that you explained the problem to the patient and offered appropriate treatment or referral.

## EXPLAIN

Every time a patient willingly consults you there is a window of opportunity for you to tell them something that will improve their dental health. If you can find out what is important to them about their teeth you may be able to engage their cooperation and change their behaviour. Try to translate your dental knowledge into words that the patient can understand. For example, rather than speaking about pocket depths, or bone-loss try offering no blood on the pillow, no bad taste, sweeter breath, a stronger bite, keeping their teeth and not having to wear dentures.

How much information you record will be guided by your BPE score:

- BPE 0 - 2 The BPE plus some measure of plaque will be sufficient.
- BPE 3 Probing depths of the affected sextants before and after treatment should be recorded to assess response.
- BPE 4 and \* Probing depths of all the teeth should be recorded before treatment to guide therapy and to assess post-treatment response.



## RADIOGRAPHS

Appropriate radiographs form an essential part of your clinical records. They will help you to make an initial diagnosis and to monitor the stability of periodontal health.

## WHEN TO TAKE RADIOGRAPHS

This guide does not aim to dictate the choice of radiographs as each patient will have their own unique clinical presentation.

### Initial presentation:

Appropriate radiographs (alongside a pocket chart) should follow an initial examination such as the Basic Periodontal Examination (BPE) and be selected according to the clinical presentation. As a general guide, radiographs for periodontal assessment will be needed with BPE codes 3, 4 or \*.

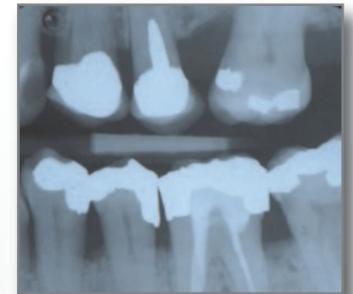
### Recall maintenance:

Radiographs can also be useful to track changes in bone levels over time, for example in areas of furcation involvement or in patients where you are uncertain as to the aggressiveness of the disease process. Clinical need should determine the frequency of repeat radiographs. Bone loss is slow to become apparent on radiographs and this factor needs to be balanced with the need for adequate monitoring of sites that may not be stable or if you are considering more complex periodontal or other types of treatment.

## WHICH RADIOGRAPHS?

### Horizontal Bitewings

These radiographs are likely to be taken routinely for assessing caries. They may also give early warning of localised bone loss and the presence of subgingival calculus. The normal positioning of the film should automatically ensure a non-distorted view of bone levels in relation to the CEJ's.



### Vertical Bitewings

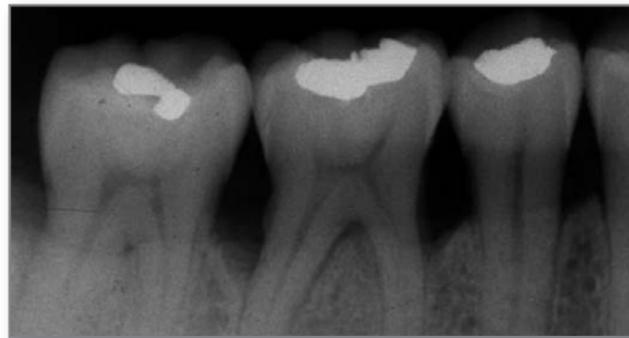
Correctly positioned, this type of radiograph should also give a non-distorted view of bone levels in relation to CEJs, in opposing arches. However they can only be positioned accurately in patients with quite tall palatal vaults. Selected paralleled periapicals may be more appropriate in cases with more difficult access and where the teeth are restored, in order to assess apical status.



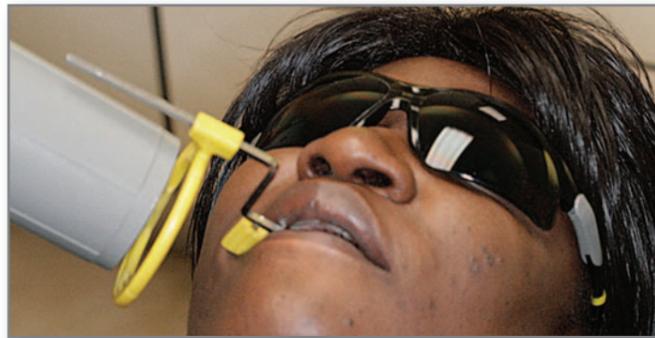
### Paralleled periapicals

The "gold standard" radiograph for periodontal cases. Correctly positioned this radiograph will give an accurate, non-distorted two dimensional picture of bone levels in relation to both CEJs and total root length. This technique involves the use of a paralleling device, of which there are several on the market. These devices take the guess work out of radiography and you will achieve better and more consistent results. Visualising root anatomy in its entirety can be very useful in assessing bone level in relation to total root length in:

- Assessing prognosis
- Helping to assess furcation involvements
- Identifying possible endodontic complications



Paralleled periapical



Film holder for paralleling periapical films

**Panoramic radiographs**

A panoramic radiograph may be indicated if there are symptomatic third molars, however bear in mind that:

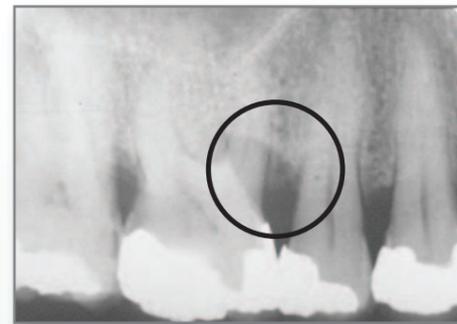
- The dosage from a panoramic xray, with most machines is greater than the dosage produced by a full mouth set of paralleled periapical radiographs and panoramic radiographs are not as accurate as periapicals in showing bone defects and periapical pathology.
- There is no case for routine screening with panoramic films. The yield of information is low for screening given the radiation dosage.

**RADIOGRAPHIC PERIODONTAL ASSESSMENT**

Medico-legally it is important that you record in the clinical notes what you have seen on the radiographs. You should make some general comments about the image quality.

Periodontally, radiographs should be assessed for:

- **Degree of bone loss:** If the apex is visible then bone loss should be measured as %.
- **Type of bone loss:** e.g. angular defects vs. horizontal loss; furcation involvements.
- **Other features:** e.g. perio/endo lesions; noticeable calculus deposits; widened periodontal ligament spaces; abnormal root length or root morphology; overhanging restorations.



A 'furcation triangle' this may signify furcation involvement

The radiographic information should be combined with the clinical data and patient interview for treatment planning. The radiographs will be particularly helpful for assessing expectations of treatment for you, your hygienist and for your patient. For example:

- if there are multiple angular defects > 3mm deep than you should not expect dramatic pocket reductions with simple non-surgical therapy.
- furcation involvements will limit the effectiveness of non-surgical therapy alone and you and your hygienist should consider primarily ultrasonic instrumentation in these areas, to be sure of gaining reasonable access.
- multiple angular defects and furcation involvement suggest a complex treatment need and consideration for referral.

For detailed guidance on which radiographs to take see: Faculty of General Dental Practice (UK) Selection Criteria for Dental Radiography, 2nd edn, London: Faculty of General Dental Practitioners (UK) 2004.

**PATIENT BEHAVIOUR CHANGE:  
GETTING THE PERIODONTAL HEALTH MESSAGE ACROSS**

Successful treatment of periodontal diseases involves establishing a close working partnership with the patient. This partnership denotes that the patient is actively involved in the therapy rather than just being a passive receiver of treatment.

Lifestyle behaviours such as tobacco use, diet, and self-performed plaque control can have a significant impact on both healing responses to initial subgingival debridement and any subsequent treatment. Negotiating a change in such behaviours might therefore be required. In addition, periodontal treatment plans can involve a number of appointments or procedures over a period of months or years, so patient compliance becomes an important part of your patient management.

Behavioural sciences research has demonstrated that lifestyle behaviour change occurs from within the patient, not the practitioner. Motivation is not something that can be given or taught. The key is patient activation, using communication techniques that stimulate or engage the patient to realise the required information or skills required to reach the desired goal. For instance:

**A) The use of open questions to place the patient in control of the interaction e.g.**

**Closed Question:** How often have you managed to use the interdental brushes?

**Open Question:** Tell me about how you managed with the interdental brush?

(**Note:** this is complimentary and positive as you give the benefit of the doubt that they have used it, it is non-judgemental as you have asked for any information about how they are doing, giving them the freedom to share their perception. Usually, they will give the information you are looking for, that is, how often they used it.)

**B) Listening, then delivering information or instruction in small doses according to patient requests or interest**

**C) The use of reflective listening to assist a patient in realizing any discrepancy between their current behaviour and that necessary to reach a goal they agree on e.g.**

The patient may have expressed their chief concern as the whiteness of their teeth. They may mention that they are too tired at the end of the day to go through the entire recommended routine. Reflective listening recognises their concerns and presents back to them the discrepancy in their values:

"I can see that you have a busy schedule and are very tired at the end of the day. However, I also see that you really care about your teeth, especially the appearance and the whiteness. Would you agree?" The patient may respond by saying "Yes, I really wish my teeth looked whiter". The clinician then has the opportunity to remind the patient that with a small increase in effort they could significantly influence the appearance of their teeth.

**D) A guiding approach rather than directing, that is, coaching rather than lecturing**

A patient has admitted to irregular interdental cleaning and this has been confirmed by your clinical examination.

**A directing statement:**

"In order to decrease the bleeding and stop the gum disease, it will be necessary to use the dental floss or interdental brush regularly".

**A guiding statement:**

“With the use of dental floss or interdental brushes you would have the possibility to decrease the inflammation in your gums significantly. Are you familiar with both of these devices? Can you imagine which one you might find easiest to give a try in your daily routine?” OR “What has been your experience in the past with these aids? Did you find one more convenient or easier than the other?”

There are many words or statements that can be used. The importance is that a directing approach is one sided with no allowance for choice from the patient. The guiding approach allows the patient to express a preference.

**E) Maintain an adult to adult conversation, avoiding adult to child interaction styles**

**F) Position patient upright during discussions at or just above your eye level**

A few key points to remember about behaviour change are:

1. Learning a skill can take minutes or hours, however, changing a habit takes weeks or months
2. Instruction is meaningless and easily forgotten without understanding the context in which it fits
3. A few appropriately selected and delivered words are more effective than a full lecture delivered with the hope the patient will grasp the relevant details
4. Repeating instructions multiple times will not increase motivation, in fact, it may offend and decrease motivation
5. Offering assistance, and seeking permission to give knowledge or teach skills facilitates patient ownership of the task (Hint: the natural response to force is resistance)
6. Motivation is not static but can vary as an individual is affected by other life related factors and stresses

Above all, remember that delivering a plaque control message, or any message directed at lifestyle behaviour, is not a procedure but an ongoing conversation between you and your patient throughout the time they are with you in your practice.

**NON-SURGICAL THERAPY**

**Modern concepts of non-surgical therapy suggest:**

Effective patient performed oral hygiene is critical to success (see: Patient behaviour change: Getting the plaque control message across).

- The effects of oral hygiene advice are short-term and regular advice and encouragement is needed to achieve long-term change.
- Attached plaque biofilms and non-attached microflora in the gingival sulcus and periodontal pockets should be regularly removed.
- Plaque retentive factors such as calculus and restoration overhangs should be eliminated.

Through this, we are able to:

- Control the bacterial challenge characteristic of gingivitis or periodontitis.
- Address local risk factors.
- Minimise the effect of systemic risk factors.

This is achieved by:

- An alteration or elimination of putative periodontal pathogens.
- Resolution of inflammation.
- The creation of periodontal health.

This will ultimately decrease the likelihood of disease progression.



Gingival appearance before subgingival debridement



Gingival appearance 4 weeks after subgingival debridement

Non-surgical therapy, is highly effective for most patients with early to moderate disease, Many studies have shown that disease progression is arrested so that probing depths may decrease through resolution of inflammation, often accompanied by recession. Obviously, these results are only achieved along with the patients co-operation, particularly with their home care and if applicable, smoking cessation.

Non-surgical debridement appears to be easy but is a difficult skill. No differences in effectiveness have been demonstrated between hand instruments or powered scalers (ultrasonic and sonic). To achieve great results the key elements (other than oral hygiene) are:

### Good scaling skills

Next time you take out a periodontally involved tooth with plenty of subgingival calculus on the root surface, try to scale it clean and smooth and see how well you do, both in terms of how much you remove and how long it takes. It's far harder to do this in the mouth, blind! You could make up some models like these for you and your team to practice debridement.



Tip of mini Gracey curette neatly engaging distal root groove and calculus

### Good, well maintained instruments

Universal and Gracey curettes are excellent but to use them you will need to be skilled in sharpening them and have a knowledge of which instrument works best in which area.

Most instrument manufacturers can help you with this. A wide variety of sonic and ultrasonic tips are now available for access to deep pockets and furcations and you will need to keep the device tuned for optimum efficiency.



Site specific mini Gracey and universal curettes with Arkansas stone



Variety of ultrasonic tips for furcations and different sized pockets

### TIME

It is impossible to give rigid guidance but for moderate to deep pockets, skilled clinicians can expect to achieve good results spending about 3-5 minutes per tooth on debridement. Furcation involvements, root grooves and infrabony pockets will make debridement more difficult. Whether using ultrasonic or hand instruments carrying out all the necessary debridement in one or two long appointments can be as effective as spreading the treatment over 4 appointments, although operator and patient fatigue need to be considered.

### SIDE-EFFECTS

The patient should also be made aware of any potential downsides of the treatment e.g increasing gingival recession, increased sensitivity and food packing and the expected cost of the treatment should be included in the overall treatment plan.

### CHEMOTHERAPEUTICS

Chlorhexidine mouthrinses are useful to manage acute periods when cleaning is difficult but are not needed as a routine. Subgingival irrigation with chlorhexidine does not appear to have any clinical benefit.

Some patients value the 'cosmetic' effect of mouthrinses and there is little harm in using them for such a purpose. Effective subgingival debridement is the mainstay of active periodontal therapy and as you will see in figures 15 & 16 can produce reliably good results in patients who practice good plaque control.

### SMOKING AND PERIODONTAL HEALTH

Tobacco use is directly related to a number of medical problems including cancer, low birth weight babies, pulmonary and cardiovascular problems. As health care professionals, therefore, we should be prepared to grasp any opportunity to encourage patients in our care to quit smoking. The provision of periodontal care can provide a perfect opportunity for delivery of this sort of health care message as you and your hygienist will be interacting with your patients over several appointments and over an extended period of time.

Smoking is one of the most significant risk factors in the development and progression of periodontal diseases. Smokers are up to six times more likely to show periodontal destruction than non-smokers.

There is a dose related effect.

Smoking cigars shows a similar risk. Smoking cannabis regularly carries a similar risk to that of cigarettes.

A number of studies have shown that smokers do not show as good a response to periodontal treatment even in the presence of good oral hygiene as non-smokers and that smokers who have regular professional periodontal maintenance are twice as likely to lose teeth over a five year period. If patients stop smoking there is some evidence to show that the periodontium will be back to normal in terms of its response to treatment after three years.

### PERIODONTAL MANAGEMENT

#### Setting patient expectations

You should make your patients fully aware of the effects that smoking will have on their periodontal care and most importantly long-term tooth mortality.

#### Quit smoking encouragement

How you and your hygienist approach this will depend on whether your patient is a contented smoker, is contemplating quitting or whether they have tried and failed to quit in the past. Many PCT's have quit smoking services who would be happy to provide practical guidance in quitting or you can direct patients to the NHS smoking helplines.

Stopping smoking is a process not a single event and many require several serious attempts before success. Every failed attempt, therefore should not be viewed as a failure but simply another mile post on what may be a lengthy journey.

You should note down your patient's current self-reported smoking status at every regular recall appointment.

### Periodontal treatment

The mainstay remains regular, high quality supra- and subgingival debridement with adjunctive local anaesthesia as required and ongoing encouragement with maintaining good plaque control. Remember, smokers with gingival recession are at increased risk of developing root caries, so careful monitoring of diet and the caries status together with the provision of appropriate fluoride adjuncts may also be important for this group of patients.

Given the reduced healing capacity of the periodontal tissues in smokers, periodontal management of these patients tends to avoid any surgical intervention and in particular any form of hard or soft tissue grafting. You should consider referral for non-responding patients.

Apart from your local PCT, other organisations that offer help, advice and resources are:

- <http://smokefree.nhs.uk> Free NHS quit smoking specialist services
- <http://www.dh.gov.uk> "Smokefree and smiling: helping dental patients to quit tobacco" May 2007
- <http://www.nice.org.uk> Summary of smoking cessation guidance March 2006
- <http://www.gasp.org.uk/>
- <http://www.quit.org.uk/>

### THE ROLE OF HYGIENISTS IN THE MANAGEMENT OF PERIODONTAL HEALTH

Periodontal treatment can be very successful and your dental hygienist is the most important resource that you have to help make this happen. But remember that he/she can only work to the treatment plan and prescription that you have formulated for the patient. Highlighting areas that your hygienist will need to concentrate upon will be very useful when it comes to their organising how they are going to spend their time at any one appointment, and how many appointments may be needed to achieve the treatment objectives. A simple proforma that you can fill in for the hygienist will help to save time. An example of a treatment prescription could be as follows:

<b>Diagnosis</b>	Localised advanced periodontitis
<b>General prognosis</b>	Questionable, more bone loss than expected for age
<b>Risk factors</b>	Smoking 15 / day. 10 pack years
<b>Oral hygiene instruction</b>	Single tuft interspace tb, subgingivally to all 5mm + pd. Electric toothbrush. Appropriate sized interproximal tb and /or brushsticks
<b>Preventive advice</b>	Fluoride m /w nightly for sensitivity and caries reduction. Advice on fizzy drink intake
<b>Smoking cessation encouragement</b>	Y
<b>Debridement</b>	Full mouth subg debride all pd 5mm or greater with LA. Ultrasonics to furcations. Root grooves mesial 14, 24. 2 long appointments not more than 3 weeks apart.
<b>Reassess</b>	2 months after debride complete.

If you and your hygienist are both measuring pocket depths then be aware that any change < 2mm could be due to measurement error. However, the consequence of a 2mm loss of attachment could affect the management of a patient if a furcation is involved, or if attachment loss is already advanced.

For clinical results that work, good lines of communication need to be established between the dentist and the hygienist, otherwise the objectives and benefits of any therapy may not be realised. It is important that the hygienist understands the expectations of the dentist for the patient and, conversely, that the hygienist lets the dentist know how the patient has responded to treatment as well as the level of compliance. Good record keeping on both sides is vital. An entry just saying 'scale and polish' does not tell the dentist anything about the level of oral hygiene, or the health of the gingival/periodontal tissues.

The patient should understand why he/she has been referred to the hygienist and the benefits that might reasonably be expected from the treatment e.g. less bleeding on brushing; reduction in halitosis; reduction in tooth mobility; appreciation of why good oral hygiene is important to maintain subgingival health.

### SUPPORTIVE MAINTENANCE

In general practice you should expect that most of your non-susceptible patients (BPE 0 – 2) will remain periodontally stable and healthy with a visit to the hygienist once every 1 – 2 years. For those patients whom you have diagnosed with periodontitis, maintenance after the initial periodontal therapy can be crucially important in maintaining periodontal stability.

Evidence shows that even with good home care, a potentially pathogenic bacterial flora can re-establish itself at the base of a 5mm + pocket three months after a thorough subgingival debridement. This is one rationale for the three monthly recall interval in at-risk periodontal patients. Another motive is the need for oral hygiene coaching because of the short-term effects for most people.

Remember that certain sites will be more difficult to manage than others:

- furcations
- pockets associated with infrabony defects
- pockets associated with root grooves, enamel projections, chronic food impaction

Over time, in patients with good compliance and with demonstrably stable supra- and subgingival environments, maintenance intervals may be extended. This implies that you, with your hygienist, are monitoring both the patient (have they stopped smoking?/ what have the general plaque levels been like over a series of appointments?), and specific sites of concern (has there been repeated bleeding on probing at a specific site?/ has the probing depth increased by 2mm at a specific site?).

Team working in the practice will help you gain maximum benefits from your staff for your patients.

The British Society of Dental Hygiene and Therapy at [www.bsdht.org.uk](http://www.bsdht.org.uk) is the parent organisation for dental hygienists and if you need to, you can remind yourself of the tasks that hygienists can undertake for you by viewing this website.



Long shanked Gracey curette in action subgingivally



Single tuft interspace toothbrush used with a subgingival toothbrushing action



Electric brush in action

### ANTIMICROBIALS IN PERIODONTAL THERAPY

Antimicrobials have very little place in periodontal therapy. It is important to be aware that bacterial antibiotic resistance has been increasing in the population over the last few decades. As prescribing clinicians it is essential that we limit the use of antibiotics to situations where a clear evidence base exists that patients with specific conditions will benefit.

Wherever possible the old principals of 'drainage of infection' and 'removal of cause' are still pertinent, and if this can be achieved then the use of antibiotics can be avoided in the management of patients that are systemically well.

In terms of periodontal disease there are actually few indications for using systemic or local delivery antibiotics. However there are certain limited circumstances where their use is appropriate and will assist in periodontal disease management.

#### SYSTEMIC ANTIBIOTICS

There is no indication for using systemic antibiotics to manage chronic periodontitis.

**Aggressive periodontitis:** Systemic antibiotics may be used alongside conventional subgingival debridement. However, treatment without antibiotics can be successful and should be tried first. If non-surgical treatment without antibiotics has been unsuccessful you should consider referral for specialist care. A number of antibiotic regimes have been proposed but recent data suggests amoxicillin 250mg TDS with metronidazole 200mg TDS for 7-10 days is the combination of choice starting on the day of the first debridement and covering the patient for any other debridement appointments.

**Necrotising periodontal diseases:** These conditions are relatively rare, but when diagnosed part of the management regime should include the use of metronidazole 200mg TDS for 3 days as well as removal of risk factors associated with the disease (e.g. smoking, poor oral hygiene, poor diet). Metronidazole is used for its spectrum of action against the fuso-spirochaetal anaerobes associated with this disease.

**Periodontal abscess:** It should be stressed that single periodontal abscess should be managed by drainage of the abscess (either with subgingival debridement or incision) and not by use of antibiotics. However if there is systemic involvement (fever, malaise) and facial swelling antibiotics may be helpful in initial management but only when combined with debridement.

#### Local delivery antibiotics

There are a range of local delivery antibiotic systems available. However their clinical benefits are unclear. Use of these systems should only be considered after a course of non-surgical treatment, and certainly not as first line periodontal treatment. Local delivery antimicrobials are an adjunct to conventional subgingival debridement and not a substitute for it.

Their use can be considered in a case where isolated periodontal pockets have failed to respond to conventional non-surgical treatment on a number of occasions, there is no detectable calculus at the site, and where the patient is maintaining good levels of plaque control. However, the benefit resulting from their use appears modest. If a site is not responding despite good plaque control, referral should also be considered.



PERIODONTAL SURGERY

PERIODONTAL SURGERY IN THE TREATMENT OF CHRONIC PERIODONTITIS

Periodontal flap surgery

The principles of management of chronic periodontitis revolve around the control of bacterial plaque. The two key aspects of this are supragingival plaque control undertaken by the patient and subgingival plaque control performed by the dental professional. Periodontal surgery is another tool in the armamentarium of the clinician in achieving such aims.

Periodontal flap surgery is almost invariably performed after a course of thorough non-surgical treatment. It can only be considered in the presence of optimal plaque control by the patient, and an associated healthy superficial gingiva. Following a course of non-surgical treatment in cases of moderate to advanced disease, these two prerequisites may be present where there are still residual increased probing depths and signs of inflammation within the depths of the pocket, specifically bleeding on probing. Most patients requiring periodontal surgery should be referred for specialist care unless you have the relevant expertise and experience.

The principle aims of periodontal flap surgery are:

Access for debridement

Removal of subgingival root surface deposits may be difficult where the pockets are deep or where the access is poor, in particular molar teeth with complex root anatomy or furcation involvement. With a periodontal flap raised, the root surface can be visualised and cleaned until free of deposits. Secondly, there is scope for pocket reduction or elimination by means of reshaping the bone and soft tissues during surgery. The aim is to leave the patient with a mouth that is easier to maintain, both by them and by the professional during maintenance.



Inaccessible mesial furcation 26



Grade 2 mesial furcation on 26 fully visualised via an appropriate flap



Appropriate bone recontouring to eliminate the bone crater



Mesial aspect of 26 and furcation now accessible to the hygienist and the patient

Regenerative surgery

Regenerative surgical procedures aim to promote the regeneration of the periodontal tissues that have been lost through periodontal disease. Conventional periodontal flap surgery heals primarily by the formation of a long junctional epithelium. The aim of regenerative surgery is to promote the re-growth of cementum, periodontal ligament and alveolar bone. Several regenerative approaches are currently in use. Products are available which involve the use of various filler materials to 'graft' the defect or enamel matrix proteins to stimulate the formation of new attachment.



Infrabony defect distal to 36 after thorough open debridement



Filler covered with membrane



Before and after radiographs of a regeneration surgery

**Crown Lengthening**

Crown lengthening surgery involves the removal of the periodontal tissues to expose more clinical crown. This may be limited to the soft tissues where the thickness of the tissues is excessive. In such cases this can be performed by scalpel, electrosurgery or soft tissue lasers.

Where there is a normal dento-gingival anatomy, the position of the soft tissue is, to a large degree, dictated by the position of the underlying bone. Soft tissue removal alone will result in healing by secondary intention and tissue rebound, losing the amount of crown that was surgically exposed. In such cases a lasting response can only be achieved by shifting the entire dento-gingival complex apically. This requires bone removal, and to access the bone a periodontal flap must be raised.

Crown lengthening can be performed to facilitate restorative dentistry. Subgingival margins may result from oblique vertical fracture of a cusp or from the removal of extensive caries. Such situations provide a challenge to achieve high quality restorative dentistry. Isolation for bonding adhesive dental restorative materials or impression taking may be hampered by bleeding from the sulcus, or adequate coronal tissue for mechanical retention of extracoronary restorations may not be present. This may also occur following significant amounts of tooth wear.

Aesthetic crown lengthening uses the same techniques but applied to a different situation.



16 with inadequate resistance and retention form mesially



Increased crown height achieved by internally thinning the flap and appropriate bone recontouring/removal



Final restoration with adequate height for abutment/pontic joint + space for an interproximal brush

In patient's who have a high smile line and where the anatomical crown is still partially hidden by an excess of soft tissues (as in cases with delayed passive eruption) a simple gingivectomy may be enough to achieve the desired result.

In patient's where there is an excess of both soft and hard tissue (as in cases of tooth wear with compensatory over eruption) careful planning with diagnostic wax ups and a periodontal flap procedure with appropriate bone removal may be required to achieve correct tooth and gingival dimensions. If crowns or veneers are required as part of this treatment you will need to wait four to six months for the new gingival contour to stabilise.



Excess soft tissues 33-43. Alveolar bone at adult level



Apically repositioned flap with internal thinning of the flap to preserve a good zone of attached keratinised tissue

**Management of recession. Mucogingival surgery.**

There are a number of reliable periodontal surgical techniques available to manage mucogingival problems such as gingival recession. The surgery is technically demanding but can improve aesthetics and long-term stability.



Buccal recession with minimal attached keratinised gingivae



Precision cut buccal flap + connective tissue graft harvested from palate



Buccal flap repositioned to cover underlying graft



1 year healing

## TEETH VERSUS IMPLANTS IN PERIODONTAL PATIENTS

Periodontal treatment in adults that suffer from chronic periodontal disease should be aimed at maintaining a healthy, functional and aesthetic dentition as far as possible. It is desirable both physiologically and psychologically to maintain the patient's own natural teeth to function throughout their life. Good quality non-surgical and surgical treatment should be attempted first where possible.

However, where teeth are not treatable, dental implants may be one replacement option. The decision as to when to make the transition from periodontal treatment and maintenance to implant treatment is a complex one.

### Patient selection.

Motivating patients to maintain the required degrees of oral hygiene is still one of the great challenges in modern dentistry. Patients unable or unwilling to maintain their oral hygiene when they have natural teeth present are unlikely to consistently improve their oral hygiene habits in the presence of implants. Implants are as susceptible to peri-implant inflammation and tissue breakdown as teeth. The transition to implants in these patients is unlikely to meet with great long-term success if plaque-induced inflammation cannot be controlled. Implant integration failures and long-term bone loss are higher in patients with uncontrolled periodontal disease around remaining teeth.

In patients with good oral hygiene and regular attendance the following should be considered as reasons to replace teeth:

### Individual teeth where periodontal treatment and regeneration techniques are impossible

These might include deeper pockets with complex anatomy e.g furcations; deep infrabony defects which are showing progressive attachment loss and symptoms. Clinically this may be seen as increasing bone loss on radiographs, increasing mobility or fremitus in function, or progression to a perio/endo lesion.

Be aware that in cases where there has already been periodontal bone loss grafting techniques may be required to allow implant placement later.

### Posterior bite collapse with loss of posterior teeth or loss of anterior guidance through migration of incisors and canines

In such cases implants can provide a solid occlusal platform and guidance mechanism.

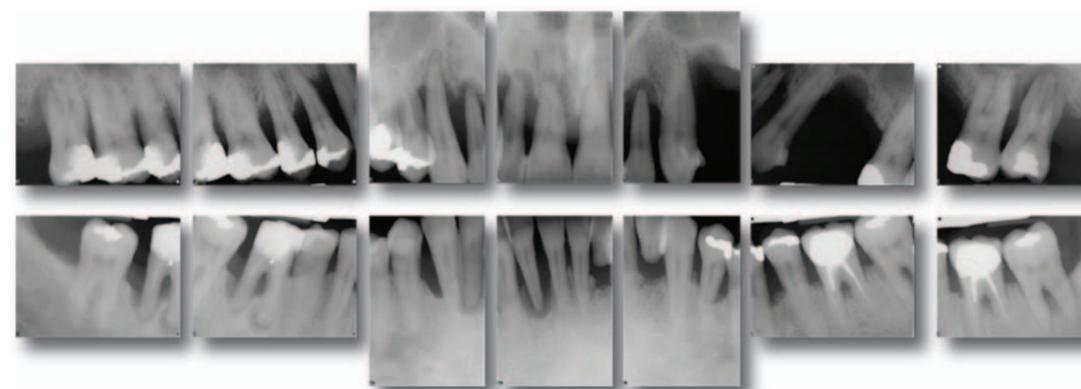
Timing in these cases is important but difficult. Periodontal splinting after therapy is usually a first line of treatment in such cases but medium to long-term instability might call for replacement of the posterior teeth to maintain a stable occlusal scheme.

### Extensive bone loss throughout the whole dentition requiring a clearance

This may be seen in cases of advanced or aggressive periodontitis or long-term neglect. In young adult patients showing extensive bone loss early, specialist-level comprehensive periodontal treatment should be attempted first. Refractory cases pose a difficult decision where clearance and hence elimination of the pocket flora coupled with maintenance of remaining bone for future implants may be the correct early treatment in extreme cases. However it should also be remembered that all implants and especially their superstructures do not last for ever.

### Rules of thumb:

- You should consider referral for a specialist opinion on options for periodontal therapy unless you are very clear that it will not be effective. The patient should also understand the implications of this and you should document these discussions and agreements.
- An implant is not a substitute for a tooth. It is a substitute for NO tooth.
- Prefer teeth over implants unless time and cost of maintenance is prohibitive and function, stability and aesthetics deteriorate despite good treatment.



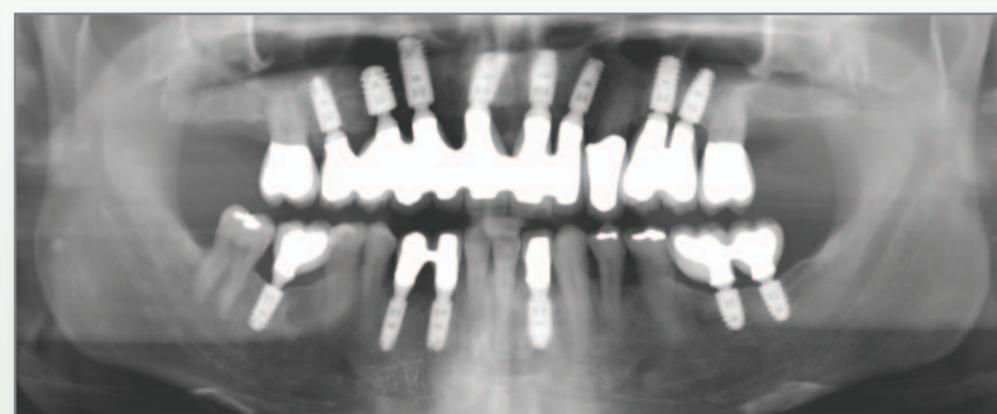
Patient with generalised aggressive periodontitis and multiple perio/endo lesions



Clinical presentation with composite temporary splinting



Completed case with selective extractions and implant supported metal ceramic superstructures



DPT on completion of treatment

## DENTO-LEGAL ASPECTS OF MANAGING PATIENTS WITH PERIODONTAL DISEASES

Good documentation is essential for effective periodontal care and record keeping should be designed primarily to facilitate patient management. An additional benefit of such documentation will be compliance with medico-legal requirements.

Left untreated, periodontal disease is the source of one of the fastest-growing allegations in the dento-legal field. Currently there is a level of expectation that tooth loss is avoidable. There can be strong emotional implications to losing teeth.

### Inadvertent criticism

Legal problems are particularly likely to occur when a patient who has regularly attended the same dental practitioner over many years, for one reason or another, sees a second dentist.

Sometimes the second dentist may simply make an inadvertent comment:

- 'It must have been present for years'
- 'More teeth might well be lost in the foreseeable future'

An accurate presentation of your patient's periodontal condition is important. However, unless you are in possession of all the facts, framing the description of your patient's current condition in a more circumspect way might avoid problems. For example:

- 'It's very difficult to say how long you have had gum problems as they progress at different rates in different people. When gum disease first appears and how fast it progresses can depend on other medical conditions that you may have, certain medicines you may be taking and smoking can all affect your gums and sometimes it may just be a genetic risk factor. We can talk about your current oral and general health right now based on my thorough examination and diagnosis. Then we can talk about how we can bring your mouth back to a state of health.'
- 'Of course you want to be sure that you have had proper dental care in the past. However gum disease appears at different times in different people and progresses at different rates in people and at differing rates over a person's lifespan. It's impossible for me to say when your gum disease may have first become apparent. What I can tell you is what I can see today and what we can do about it to achieve the best dental health possible for you.'

Whilst it is important to relate the facts of a patient's presenting condition to them honestly and openly it is equally important not to be judgemental or comment about care and treatment you have yourself not directly provided.

In your own practice there are a number of ways in which you can reduce the risk of having to face an allegation of sub standard periodontal care in the future.

### Clinical records

It is vital to show from the patient's records and radiographs, that any periodontal disease present in their mouth has been identified, recorded and monitored appropriately. Alongside this, the records should show clearly that the patient has been informed of the nature and extent of their periodontal disease. If some teeth have a doubtful prognosis, then this too, should be explained carefully to the patient in terms appropriate to their level of understanding, and this fact recorded in the notes. Options for care should be discussed and documented together with their benefits and risks.

The extent and content of the records should reflect the severity of the case as discussed in the section on diagnosis. Documentation should be designed to allow adequate monitoring of periodontal health and oral hygiene needs and responses.

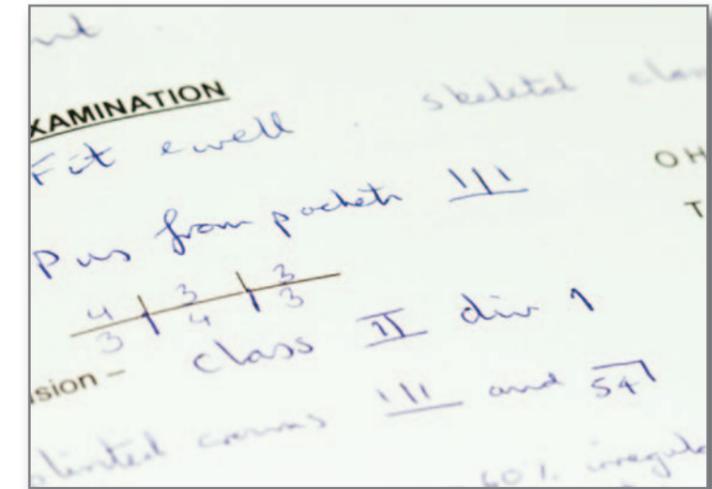
### Identifying and recording risk factors

There are a number of well known risk factors that can effect the progression of periodontal disease, notably smoking, diabetes and certain medications. It is important that these are recorded in a comprehensive medical history and monitored over time – remember that the interplay of these factors is dynamic .

When they are identified, the record also needs to show that they were discussed with the patient and acted upon.

### Referrals

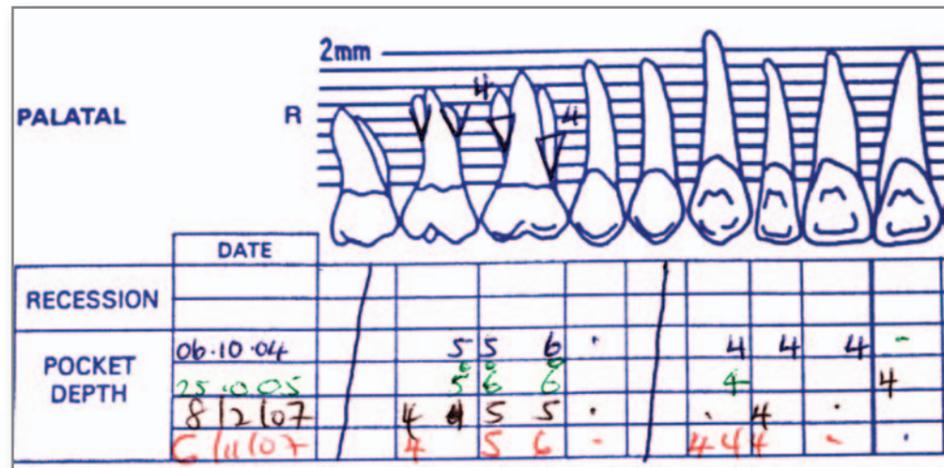
Specialist advice or treatment should be considered from the outset in severe cases or after an inadequate response to initial therapy or in cases involving more complex restorative planning (see "When to Refer"). Bear in mind that in cases of severe periodontal disease, it is much easier for patients to allege, after the event, that they would have preferred a referral for specialist care. Similarly, one should minimise any delay in a referral. Record carefully any discussions with the patient or referral practitioners including telephone conversations. Always keep copies of referral correspondence.



**Expectations and responsibilities**

Whilst periodontal treatment is usually highly successful in the long-term for early-moderate disease, some localised recurrence is not unusual. Furthermore, accurate determination of prognosis is unreliable at initial presentation. The limitations and uncertainties of periodontal therapy should be communicated to your patient to achieve appropriate expectations. In addition, where appropriate, your patient should be advised of the less welcome effects of achieving periodontal health including recession, sensitivity and food packing.

Some patients show poor compliance with treatment visits or their home care and it is important to note this fact in the patient's record card. In many cases, this helps to demonstrate that the periodontal disease has arisen or progressed because of failings on the part of the patient, rather than the dentist.



**Summary:**

**Record** information appropriate to your patient's presenting problems, periodontal condition, treatment options, risk factors and responsibilities.

**Summarise** discussion with patients and other involved team members.

Produced with the support of Dental Protection Ltd.



**WHO TO REFER TO, WHEN AND HOW**

**INTRODUCTION**

As a new graduate there will certainly be cases which you will feel uncomfortable managing on your own, either because of the extent or the complexity of the problems facing you. In terms of patient management, achieving predictable outcomes and for medicolegal reasons, you should consider referring such patients to a colleague for help and support.

It is the responsibility of the dentist to screen patients for periodontal diseases, to make a diagnosis and institute a treatment plan with defined therapeutic goals.

**WHEN TO REFER PATIENTS**

The British Society of Periodontology (BSP) has created guidelines for referral, which are available from the BSP website <http://www.bsperio.org.uk/> or regional representatives. These are summarized below.

**Remember** these are for guidance and should not be viewed as prescriptive.

**Complexity 1 cases may be treated in general practice**

These would basically be: BPE Score 1 - 3 in any sextant

**Complexity 2 cases either referred or treated by the GDP**

These would basically be: BPE Score of 4 in any sextant  
Surgery involving the periodontal tissues

**Complexity 3 cases mostly referred**

These would basically be: BPE score of 4 in any sextant and including one or more of the following factors:

- Patients under the age of 35
- Smoking 10+ cigarettes daily
- A concurrent medical/oral factor that is affecting the periodontal tissues
- Root morphology that adversely affects prognosis
- Rapid periodontal breakdown >2mm attachment loss in any one year
- Surgical procedures with implants
- Surgical procedures periodontal tissue augmentation and/or bone removal (e.g. Regeneration or Crown lengthening surgery)

**WHO TO REFER PATIENTS TO**

**Dentists with a special interest in Periodontology (DwSI)**

**Who are they?**

DwSI are general dentists who have a contract with local PCTs to provide periodontal services to NHS patients. They may have had some extra training in periodontology beyond BDS level and should have presented evidence of competency in basic periodontal treatments to the PCTs in question. They may have been trained in more complex periodontal management or surgical procedures.

**How can I contact them?**

Some PCTs have contracts with DwSIs. You should enquire with your local PCT .

## WHO TO REFER TO, WHEN AND HOW

### Specialists in Periodontology

#### Who are they?

These practitioners are dentists who have been recognised by the General Dental Council as specialists in Periodontology. They will have achieved this either by following a recognised formal training programme in the UK or in Europe or by virtue of their experience and previous training.

They generally work at secondary care level, taking referrals from other dentists.

#### How can I contact them?

- BSP or GDC websites
- PCTs some of whom have contracts with specialists or know who they are
- Recommendations from colleagues

### Consultants in Restorative Dentistry

#### Who are they?

These are dentists who have gone through a formal 5 year training programme within a teaching hospital, in restorative dentistry, including periodontology. Consultants work within the Health Service or in salaried services, often dealing with patients with complex needs. Most are based in hospitals or clinics and while some will have the resources to provide treatment others will only be able to provide advice and detailed treatment planning.

#### How can I contact them?

- PCT
- Local teaching hospital
- Community Dental Services

The BSP also contains a significant number of general practitioner members who have an interest in periodontology, and these people may be able and happy to help you if you cannot identify or access any of the other groups above.

### HOW TO REFER PATIENTS

Whilst an initial telephone call to a practice may be helpful, referrals should be made formally in writing. It is wise to keep a copy of the referral letter with the patient's notes, and to make a dated entry in the notes that the patient has been referred, and why. The referral letter should contain:

- Patient's name, date of birth and contact details
- Reason for referral and any emergency problems
- Relevant medical history including smoking history
- Details of any periodontal treatment already carried out
- Relevant radiographs (particularly old ones) and charts

Many NHS funded services have a high demand for services, and patients may have a greater chance of being accepted in some teaching hospitals if as much relevant information as possible is provided.

**(See referral proforma at back of this guide)**

### WHAT IF MY PATIENT DECLINES TO BE REFERRED?

Listen to the reason for declining referral and if there are any misunderstandings which have led to the decision, you should discuss these. Otherwise, ensure the details are documented in the clinical notes and ask the patient if they wish to discuss any referral, again, at their next recall examination.

## PERIODONTAL REFERRAL

DATE:

### PATIENT

Name  
Date of birth  
Address

Tel H  
W  
M

### REFERRING DENTIST

Name  
Address

Tel W  
M

### CHIEF CONCERN

### OTHER PERIODONTAL FINDINGS / TREATMENT

BPE



### RELEVANT MEDICAL HISTORY

SMOKER Y / N

PACK YEARS

### RADIOGRAPHS / CHARTS ENCLOSED

SIGNATURE



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