Step-by-step home bleaching

In the light of recent legal moves, Linda Greenwall reassesses the benefits of home bleaching and outlines how it is used

Linda Helene Greenwall BDS (Rand), MGDS, RCS, MSc, MRD RCS, FGDP (UK), runs a private practice in restorative dentistry in Hampstead, London

The recent lawsuit in favour of Opalescence bleaching agents has brought the subject of home bleaching to the forefront again. Prior to this judgement, we as dentists were advised by the regulatory bodies that it was illegal to use home bleaching agents.

Since the European directives, we, as dentists, have not been able to prescribe these bleaching agents for our patients. It now appears that, as Opalescence has a CE mark, the Department of Trade and Industry and the Department of Health can no longer stop us from using this product (Graham, 1998). Dentists in the UK are now free to use the bleaching agents on their patients without fear of legal action.

The UK bleaching controversy

When dental bleaching agents were first introduced to this country, there were numerous controversies surrounding their use. This was similar to what happened in the USA where, in 1991, the Food and Drug Administration (FDA) attempted to ban such products. After the FDA received safety studies from the companies supplying these materials, it imposed a ban on them which lasted six months. However, once these studies had been subjected to more in-depth scrutiny, the ban was lifted and the materials became freely available on the US markets.

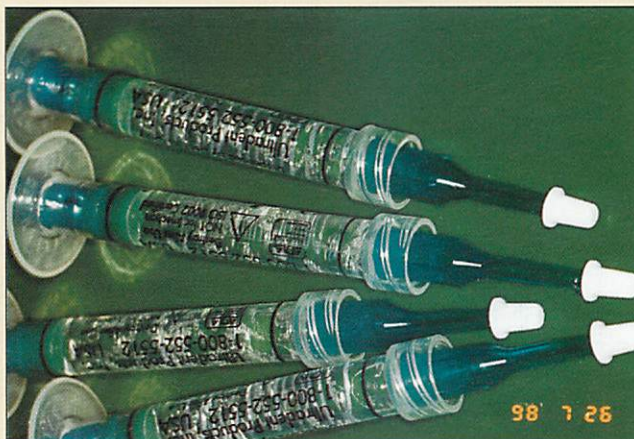


Figure 1: The syringes of the bleaching material used

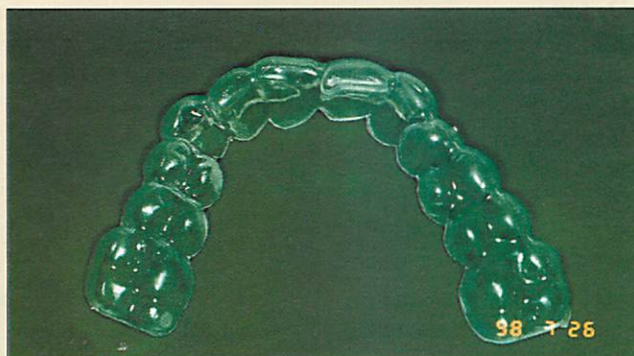


Figure 2: The scalloped design of the bleaching tray. It is made of a thinner plastic than that used for soft bite splints

Certain European directives governing the use of external bleaching products had been in place since 1984, and this made things slightly more complicated in the UK. When these products were first introduced to the UK, some companies, who had failed to apply for a CE mark, found themselves legally prohibited from supplying their bleaching agents to the UK. The Optident Company has held a CE mark since 1995 and this has been extended until 2001. The UK government classified these products as cosmetics rather than medical devices and, subsequently, advise dentists not to use Opalescence despite the fact that it had a CE mark fixed by a European notified body. There have been numerous attempts to have them reclassified as medical devices. There was an obvious irony about these products being classified as cosmetics - while people could buy dental bleaching agents from high street stores and through mail order outlets, dentists, who could advise patients and monitor treatment, were prohibited from supplying them. Also, many of the over-the-counter products included an acid pre-rinse and an abrasive toothpaste for use after the bleaching procedure. Because they were used without

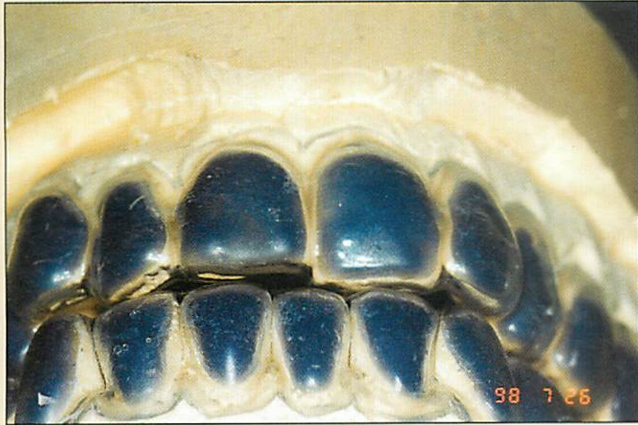


Figure 3: Light-cured block out material

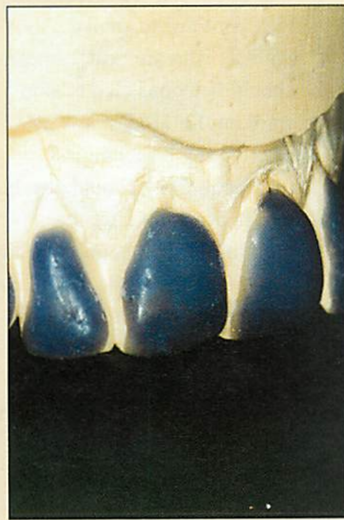


Figure 4: The amount of block out material can be enhanced for particular teeth. If, say, the central incisors are much darker than the others, extra block out material is added to the plaster model of these teeth. This means a reservoir of extra bleaching agent can be created for specific teeth, so that they can be whitened more quickly

supervision, their use could lead to numerous problems.

Another controversy centred on the amount of hydrogen peroxide contained in the bleaching agent. European directives stated that these agents should contain no more than 0.1% hydrogen peroxide. However, most of these bleaching agents contain 10% carbamide peroxide, which rapidly breaks down to 3% hydrogen peroxide and water.

At a recent hearing in July 1998, Mr Justice Laws found in favour of the Optident Company. He said, 'The possession of a CE mark applies to all member states and should give unhindered marketability throughout the whole of the EC.' He added: 'Opalesence is not a cosmetic product but a medical device.'

A statement issued by the Optident Company concludes that the Department of Trade and Industry and the Department of Health were wrong to assert that Opalesence was an illegal cosmetic product. Prior to this, it was suggested by the UK regulatory bodies that any dentist found using this kind of bleaching product could have been liable to receive either a six-month jail sentence or a £5,000 fine.

It is the purpose of this article to review the clinical bleaching technique and give the dental practitioner a step-by-step guide to introducing the home bleaching technique into the practice.

Why use home bleaching?

The reasons for using home bleaching include:

- It is simple to use and cost effective
- It does not involve extended clinical working time
- The laboratory fees for the bleaching tray are not expensive
- It is not a painful procedure
- The patients can see the results relatively quickly and are usually delighted.

The ideal candidates for home bleaching are those patients with yellow teeth, naturally darker teeth, or whose teeth are yellow from advancing age. Most patients, when asked, would like their teeth to be a lighter shade - having lighter coloured teeth is associated with youth and beauty.

There should be no large composite restorations in the front teeth, which should also be free, or relatively free, from dental disease. There should be no severe wearing of the teeth or any excessive cervical recession or sensitivity. The patients should be non-smokers who do not drink too much coffee - especially strong, black coffee - and they should have realistic expectations of the outcome of the treatment.

Alternatives

Alternatives to home bleaching include:

- In-office bleaching, laser bleaching
- Porcelain veneers
- Crowns - either all-porcelain crowns, such as Inceram and Procera, or porcelain-to-metal bonded crowns
- Further restorations
- Combinations of treatments
- Do nothing.

Most of the above options are more destructive and invasive than home bleaching. The preparation of crowns, particularly the new all-porcelain type, requires the removal of tooth tissue of at least 1-1.5mm.

Introducing home bleaching into the practice

There are several ways of

Figure 5: Taking the existing shade using the porcelain shade tabs

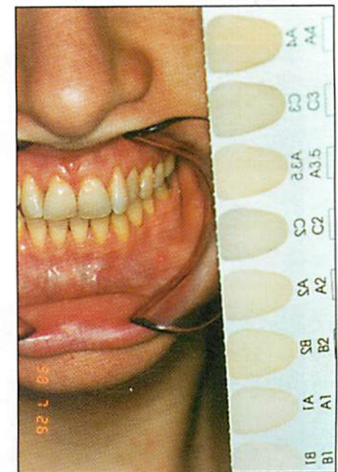


Figure 6: Taking the shade using the customised shade chart supplied with the bleaching agent. There is also a mirror view to help patients see the changes

Figure 7: Putting the bleach in the tray. Fill from the bottom upwards so there are no air bubbles

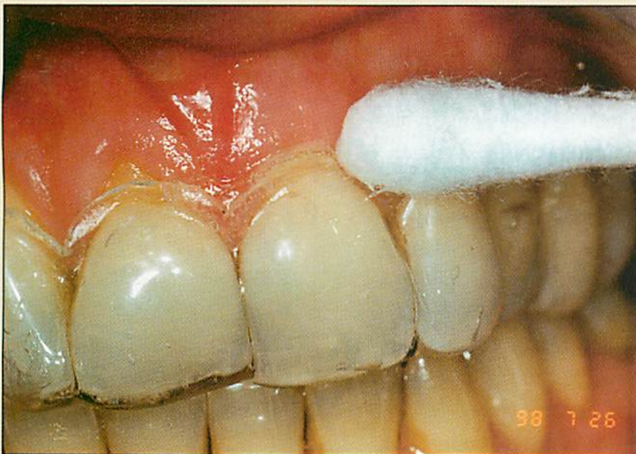


Figure 8: The tray and bleach are placed in the mouth. Any excess bleach should immediately be removed using a cotton bud, as bleach on the soft tissue can cause irritation and minor ulceration of the papillae

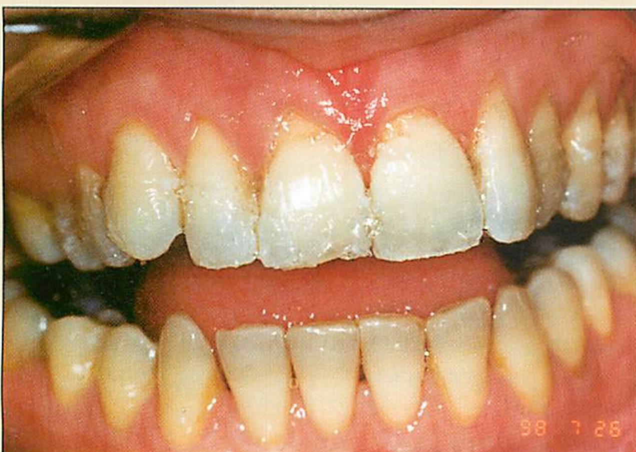


Figure 9: The Opalesence material is sticky and viscous when on the teeth. After a one-hour session of having the material on the teeth, the gross excess needs to be removed using a cotton wool roll or tissue and then the rest can be brushed off with toothpaste

reintroducing the home bleaching programme into a practice:

- A newsletter can be sent out to all patients, informing them of a new service in their practice
- At the initial evaluation, all new patients can be asked if they are happy with the colour of their teeth - this is something that could be incorporated into the questionnaire that every new patient is asked to complete
- Leaflets about the procedure could be displayed prominently around the surgery
- All patients coming into the practice for their regular visits could be advised that the legislation governing home bleaching has changed
- The hygienist could mention the change in the law to any patient coming into the practice for routine prophylaxis.

Once a patient has expressed an interest in having their teeth lightened, there are several aspects of the treatment that need to be discussed prior to the first visit for bleaching. Firstly, it is necessary to ascertain why they want the treatment done. As with any form of cosmetic dentistry, it is essential to find out the patient's motives for embarking on such treatment. For some patients, it is a specific incentive such as an imminent wedding or a recent promotion that prompts them to enquire about the procedure. However, whatever the motivation might be, it is important to assess each patient's expectations of what can be achieved.

It may be useful to do a staining questionnaire to ascertain whether there are any particular foods or drinks like black coffee, curry, red wine or berries that could be causing the discolouration of the teeth. The dentist should advise patients who smoke that they will not bleach their teeth while they continue to smoke. Patients who are heavy smokers should be counselled to stop smoking for at least a week prior to any bleaching treatment. They should also be told not to smoke for the duration of the treatment, which could take up to one month, and to continue not smoking for a minimum of a month after treatment is completed.

Similarly, patients who drink large quantities of coffee, particularly strong, black coffee, should be advised against this. Any other foods or drinks that have been identified as possibly being responsible for the staining problem should also be avoided. One patient experienced caffeine withdrawal symptoms due to the sudden and rapid lowering of caffeine intake and some patients should be warned that this might happen to them.

Step 1

During the initial consultation, patients should be alerted to the disadvantages and risks that the procedure can entail, as well as the advantages and benefits. Alternatives to bleaching and all other treatment options should also be broached.

A clinical examination of all teeth should be done to establish the integrity of any existing restorations. Recent X-rays should be checked to see if any dental disease is

> *It is normally advisable to bleach only one arch at a time so that a comparison can be made between the treated teeth and the untreated ones*

present. An assessment of cervical recession, periodontal health and any cracking of the anterior teeth should also be made at this stage.

There should be an evaluation of the pre-existing shade, followed by a discussion about what kind of shade lightening it might be possible to achieve. This is usually two shades lighter than the existing shade. Shade-taking can be done either by means of the normal method of using a porcelain shade guide or by using the shade guide supplied with the bleaching kit (Figures 6 and 7).

Often the patient forgets just how dark the teeth were prior to treatment. It is, therefore, normally advisable to bleach only one arch at a time so that a comparison can be made between the treated teeth and the untreated ones. This will usually spur the patient on to further treatment. It is also essential to alert the patient to the fact that any existing composite restorations might no longer match the shade of their teeth after they have been bleached, making it necessary to replace these composites with lighter ones.

Step 2

Impressions for the bleaching tray should be made, photographs taken (Figure 3), and shades assessed. Views of the inside of the mouth should also be taken, if an intraoral camera is available.

Step 3

It is customary to provide an oral prophylaxis prior to doing any bleaching treatment. This can be carried out either by the dentist or by the hygienist and should be followed by an introduction to bleaching and Quickbleach at the chair. The trays should then be fitted and checked for correct fit and retention.

Step 4

A bleaching log should be set up to record the treatment. The patient is given the home bleaching instructions and a copy of the consent form. The materials are supplied and the patient is instructed not to swallow any excess of the bleaching agent, but to remove it - first using a cotton wool roll (Figure 8). A few cotton wool rolls should also be given to the patient, along with some cotton buds and the toothpaste with the kit. The patient should brush their teeth normally (Figure 10). The patient should be advised to telephone the practice if any adverse reactions are experienced, especially if teeth become extra sensitive to heat or cold.

Figure 10: The Going Home Kit which is supplied along with the bleaching syringes and the home care instructions

Step 5

Progress should be reviewed after one week and the length of time the patient has been wearing the bleaching tray should be noted in the log. If necessary, the timing should be modified. The current shade should be taken, along with a photograph. If the patient reports any sensitivity, suggest that a fluoride toothpaste should be substituted for the bleaching toothpaste.

Step 6

Another review of the progress along the same lines as the first one should be done at the two-week stage and, if necessary, more bleaching agent should be supplied. Again, the shade should be taken and, if it is two shades lighter, the patient may decide this is enough and opt to discontinue the treatment. Alternatively, it might be advisable to start treating the lower arch at this point.

Step 7

If the treatment is continuing, a further assessment should be done about one month after it was started.

Step 8

After five weeks, the treatment should be complete and the patient should be asked to return the bleaching trays.

Step 9

Two weeks after the completion of the treatment, the replacement of any composites that no longer match the colour of the treated teeth should be

Figure 11: The preoperative portrait. This is not an ideal case as the patient has some gingival recession on the upper anterior teeth. Such patients should be warned that they might experience some gingival sensitivity. If this does happen, they should be advised to stop using the bleach for a few days and instead use a fluoride mouthwash twice a day. This patient's enamel was also very thin and translucent. She was shortly going to live abroad and wanted the treatment completed as soon as possible and, for this reason, both arches were treated simultaneously. Again, this is not ideal - it is preferable to do one at a time so that the before and after shades can be monitored

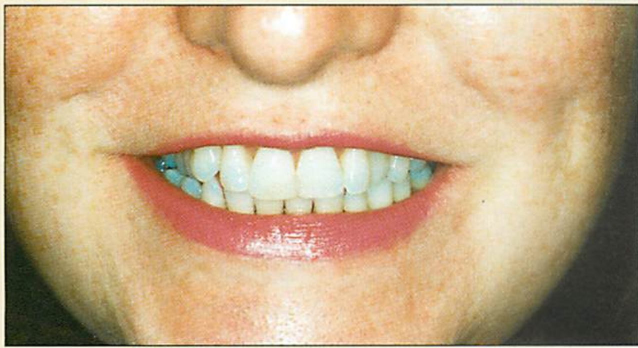


Figure 12: The result after three weeks of treatment. Already, there is a colour change of two shades but, as expected, the right central incisor has become sensitive. A Class iv restoration was placed to cover the exposed incisal edge and this eliminated the sensitivity. Because bleaching weakens the enamel bond strength, it is better not to place restorations during treatment. It is therefore preferable, if possible, to wait at least a week after completion of the bleaching procedure before placing new composite restorations

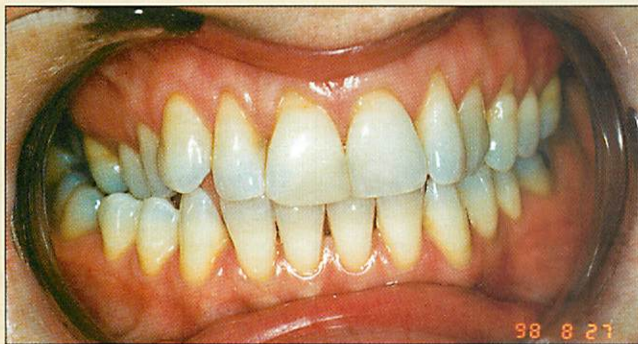


Figure 13: The result after four weeks

Figure 14: The postoperative portrait

considered, along with any necessary cosmetic recontouring. Bleaching will have weakened the bond between the composite and the enamel and it usually takes about a week after the treatment has ended for the bond strengths to return to normal.

Step 10

At least one month after the completion of the treatment, it should be decided whether the shades of any anterior crowns need to be changed. It is important to wait until this stage before considering doing this because the treated teeth will appear brighter and whiter for the first few weeks after treatment, making the selection of the appropriate crown shade difficult.

If replacement of composite fillings is necessary, it is essential to wait at least one week after bleaching as bleaching affects the strength of the bond from the enamel to the bonding material and hence the composite filling. Patients need to be warned prior to commencing bleaching that their existing composite fillings may not match the teeth once the bleaching treatment is completed. It may be essential to replace these restorations using a lighter shade composite to match the new shade of teeth.

Step 11

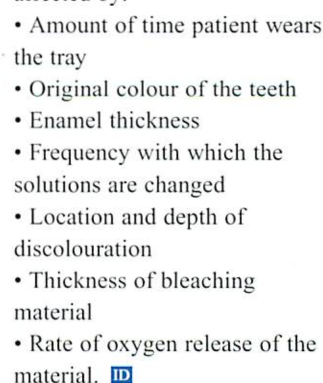
There should then be a general review of the treatment and the patient should be given an opportunity to offer relevant feedback. This should be done after any work involving the replacement of composites or crowns has been carried out.

Bleaching materials now available

The bleaching materials which have a CE mark are:

- Opalescence from Optident (01756 796606)
- Platinum from Colgate (01483 464587)
- Rembrandt Lighten by Den-Mat (0800 581303).

All the above also have the American Dental Association's approval. All three agents work in different ways and the dentist should familiarise themselves with each specific product before using them. Each patient requires a different amount of lightening and it is important for the dentist to monitor the colour change carefully. For some patients this change may occur within two weeks, others may take longer.



Colour change rate is affected by:

- Amount of time patient wears the tray
- Original colour of the teeth
- Enamel thickness
- Frequency with which the solutions are changed
- Location and depth of discolouration
- Thickness of bleaching material
- Rate of oxygen release of the material.

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Linda Greenwall is the author of *Bleaching Techniques in Restorative Dentistry: An Illustrated Guide to Bleaching Teeth*, in press, to be published by Martin Dunitz, London. Copies of the consent form can be obtained by contacting Linda at 5 Elm Terrace, Constantine Road, London NW3 2LL