Interceptive orthodontics for the baby boomers

Andrew Wakefield presents a case study of adult anterior interceptive orthodontics, demonstrating the difference it can make to a particular demographic group

When I first began to offer interceptive aesthetic orthodontics using clear aligners and Inman Aligners I was expecting to be treating mostly beautiful young people who wanted to be even more shiny and happy. There have been a few of these of course I work in south-west Essex so it is only to be expected after all. But the biggest surprise to me has been the large uptake of this treatment modality in my practice by those in the 50 – 70 year age bracket; the so called 'baby boomers'.

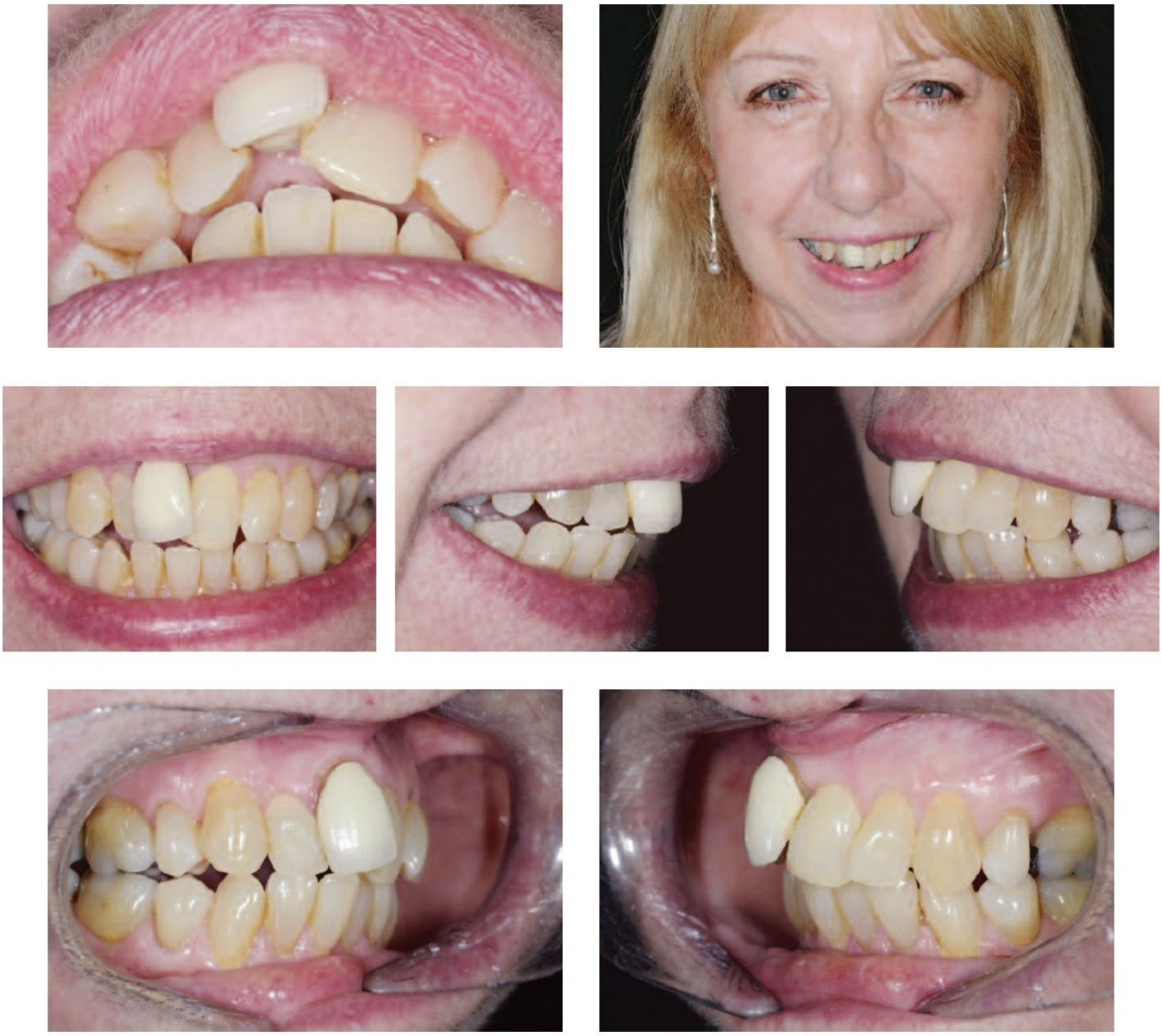
This post-WW2 generation who grew up in the late fifties and early sixties and had kids in the seventies and eighties, are healthier, expect to live longer, want to make a contribution, are less dependent upon others and are more mentally agile than their predecessors. As it turns out, they also happen to aspire to having a decent smile in order to maintain their youthful appearance for as long as they can – 70 really has become the new 50!

So, what exactly is it that makes interceptive aesthetic orthodontics in general practice so attractive to this demographic group? Well, for them, the treatment ticks all the boxes. Many of these patients are aware of the fact that their mouths seem to be collapsing inwards, making them look old. They don't know, but we know it is because of the progressive reduction of the inter-canine width with age, resulting in increased crowding of the anteriors (Little 1990). Patients want us to recognise this destructive phenomenon and either prevent it from happening or treat it when it is becoming evident to them. The fact that an interceptive treatment now exists which doesn't involve extractions or the wearing of fixed braces for a year or more is very appealing to them. As a group they have already had plenty of exposure to the dental drill, and the fact that the technique will not mutilate their teeth further and is truly minimally invasive is a radical and welcome departure from what they perceive is the only solution to their problem, namely crowns and veneers. But perhaps the most appealing aspect from the patient's perspective is that their own dentist will be doing all the work. They want you to do it – you are familiar to them. They have been bringing themselves and their family to see you for years and they trust you. You are their dentist and they don't want to be sent from pillar to post to improve their smile. They are always astonished when you are able to tell them what is possible and that should they want the treatment, you will be controlling the whole process from beginning to end.

From a clinician's perspective this is also the ideal situation. Frequently in these cases anterior orthodontic tooth movements run in tandem with replacement prosthodontics and other dental disciplines which, if controlled by a single operator, leads to much more expedient and holistic treatment than the more fragmented approach performed by a sequence of multiple clinicians. Furthermore, being their regular dental practitioner you will have the further opportunity of following up their case every six months ad infinitum, perfect!

So, what sort of patients do baby boomers make? I certainly have no qualms about treating patients in this age group, as long as the cases are selected carefully and the treatment is appropriate for them. I find that they have a very good perception of their anterior aesthetic problems, and when the limitations of aligner treatment have been carefully explained, they present a high level of satisfaction with the outcome of the treatment.

They are also a tremendously satisfying group to treat. For many, like the patient in the case below, the results can be truly life changing.



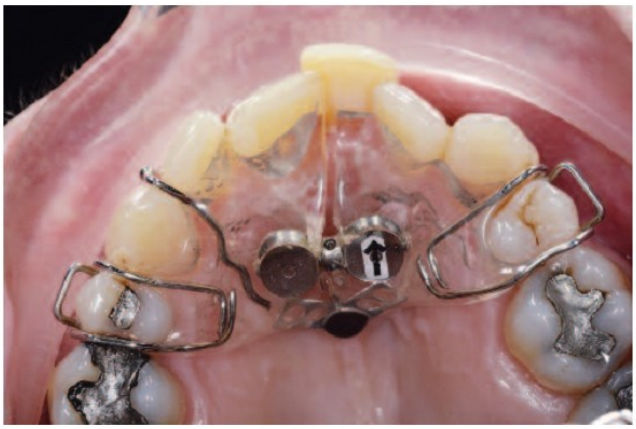
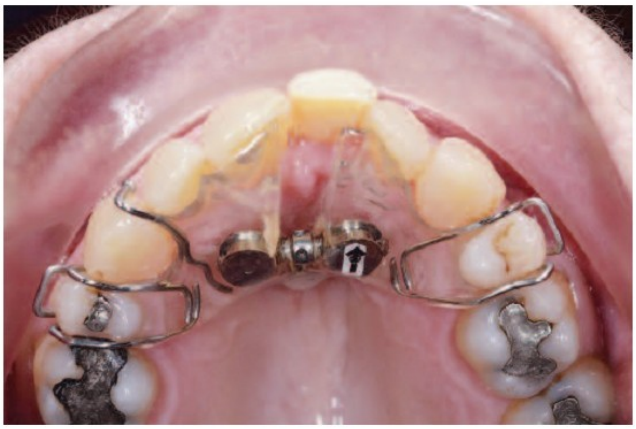
Figures 1-7: Pre-treatment views

Case study

Last May, I was called to have a look at and listen to Catherine (Figures 1-7), a 67-yearold lady who had a very sad story. She had had fixed orthodontics as a youngster, with upper and lower premolar extractions, and although her teeth were straight enough when she finished, relapse soon began to occur. A little later, in 1976, she had to have the UR1 crowned (it took a knock, unsurprisingly). She has had another crown since, and now needs it replacing again as it is cracked across and could go at any time. The tooth meanwhile, had continued to procline further and the gingiva was receding as labial bone was being lost.

What was noticeable was the sheer lack of anything resembling a positive attitude of the patient towards her teeth – and looking at them who could blame her? On top of that she had lost her husband to cancer seven years ago and was desperate to come out of her shell and start socialising again. However, she felt that the appearance of her teeth was holding her back, leaving her self-confidence at rock bottom. At this point in my history taking she began to cry. The situation was obviously affecting her very deeply.

The upper right central was crowned and vital, proclined and very labial, slightly mesially inclined. The upper left central and right lateral had collapsed in behind

Figures 8-9: Fanscrew appliance - in conjunction with PPR - reducing the overlap of the incisors

it, UL2 was tipped forwards too, having slipped the contact with the central. The UL3 was quite upright, UR3 is slightly buccally inclined. She was not concerned about the lowers.

A Spacewize arch crowding evaluation showed crowding of 4.1mm, which was 1.1mm outside the range permissible for standard aligner treatment, but just about acceptable if a little expansion was planned across the arch.

Treating such severe crowding with removable orthodontic appliances was deemed to be a compromised option and this was explained to the patient, but as she was guaranteed some aesthetic improvement as long as her compliance was good, she still preferred it to fixed appliance therapy. She was also informed that the gingival level of the UR1 would not be level with the UL1 after treatment and that with years of her upper lip being stretched by the proclined tooth a small soft tissue asymmetry in terms of lip volume may be evident on completion. Nevertheless, after careful consideration and the viewing by the patient of a 3D model of the predicted result, consent was given to an initial removable fanscrew appliance to unlock the incisor overlap and expand the canines a little, followed by an Inman Aligner with an expansion screw. 1mm of temporary expansion of each canine was planned, plus PPR and IPR on the incisors and canines.

Stage 1: Fanscrew

First the plan involved removal of the old crown and the fabrication of a temporary crown which was thinned labially to reduce the overjet as much as possible. A removable fan-screw appliance was made, the purpose of which was to perform the majority of the 'unlocking' of the incisors. Careful selective grinding of the acrylic palatal to the canines encouraged most of the expansion force from the screw to be directed at the incisors rather than the canines, which were only expanded 1/2mm each using this appliance (Figure 8).

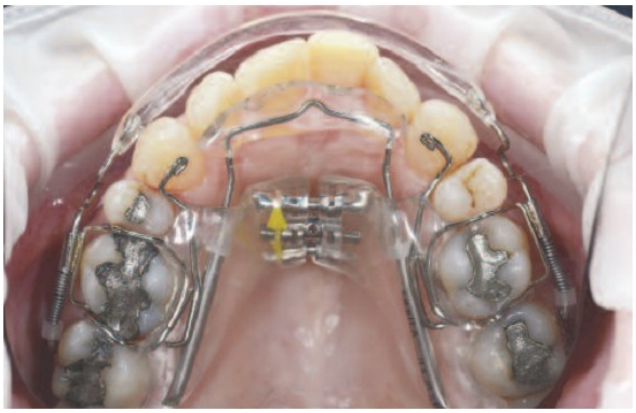
The fan-screw was worn for seven weeks, and its screw turned 14 times by the patient. She tolerated this little appliance remarkably well and as it was becoming clear that she would be a fully compliant patient I was able to begin some PPR during this phase as the overlap of the incisors gradually reduced (Figure 9).

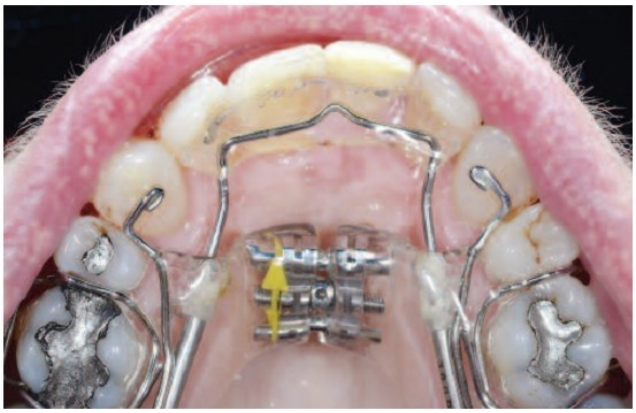
Stage 2: Inman Aligner

As soon as the anterior crowding had been reduced in severity, an Inman Aligner with an in built expansion screw was fitted (Figure 10).

With PPR being gradually supplanted by IPR, the labial bar of the aligner continued to retract the UR1. The screw was expanded once a week for the first four weeks and then as sufficient expansion had been achieved to unlock the incisors, further expansion was stopped (Figure 11). The ultimate success of the treatment now depended upon the ability of the labial bar to retract the UR1 whilst exerting lateral forces on the adjacent incisors in order to upright them (Figure 12). The real beauty of using an Inman Aligner in this situation is that this so-called 'domino effect' can be maximised, and with very careful control of the timing, the amount and the targeting of IPR the retraction of the UR1 was also successful in uprighting the adjacent incisors and to a smaller extent the canines too.

The Inman Aligner was worn for 14 weeks and achieved excellent alignment, with no finishing clear aligner necessary.





Figures 10-11: Inman Aligner appliance continuing to retract UR1

Stage 3: Deliberate over-eruption

Another trick up the Inman Aligner sleeve is the ability to perform small over-eruptions of the order of 1-2mm, again using the labial bar (and the palatal bar too if necessary). I wanted to try this to bring the high gingival level of the retracted UR1 down as much as possible.

A hole was drilled in the labial aspect of the temporary crown to retain a small composite anchor button, and the deflected labial bar used to bring the tooth vertically downwards. This was done over a two-week period with 1mm of over-eruption achieved per week (Figures 13-14). This was the optimal amount; any more would run the risk of creating an unsightly black triangle and/or an over-contoured crown.

Stage 4: A replacement crown

Edge bonding using B1 enamel shade Venus Pearl composite was done to even up the differential wear on the incisal edges, and class III composites were also bonded over the abrasion cavities in the incisors and canines. A wax-up of a new temporary crown was done in surgery, and a new temporary crown made to an optimal shape and everything retained by a removable Essix retainer. A course of home whitening was performed using 16% carbamide peroxide, then a new E-Max crown, made with a palatal undercut groove which accommodated the fixed bonded retainer, fitted two weeks later. A month was allowed to pass between fitting the bonded retainer, and fitting an Essix retainer over that, in order to give the canines a chance to return to their original positions. Satisfactory canine guidance was achieved and the patient remained comfortable occlusally, and delighted with the aesthetics. The excess of labial soft tissue on the right was noticeable but the patient was unconcerned. She was offered injectable cosmetic filler to regain symmetrical appearance but she declined.

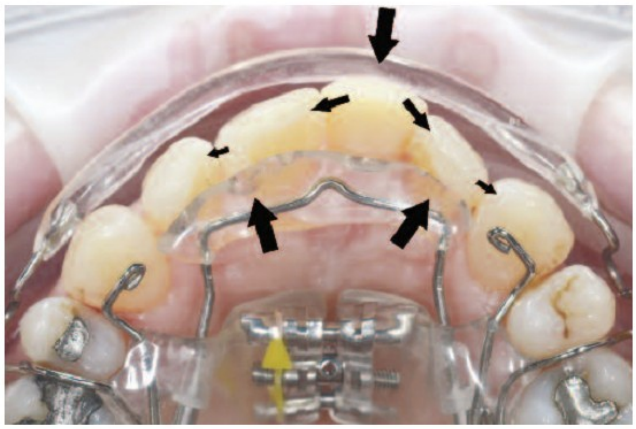
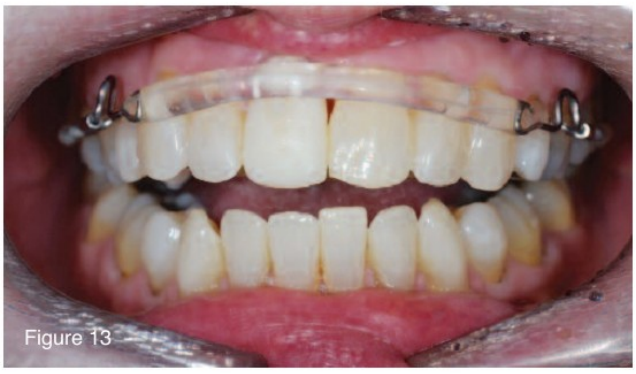
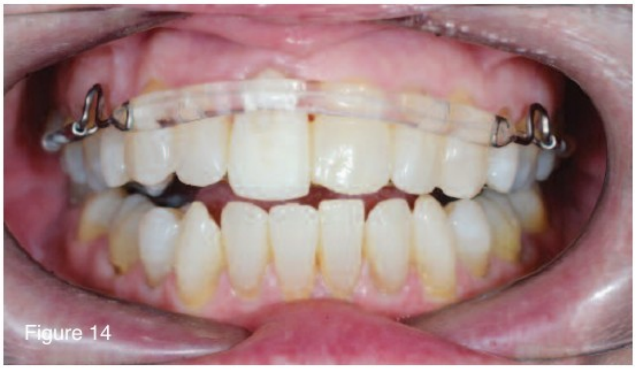
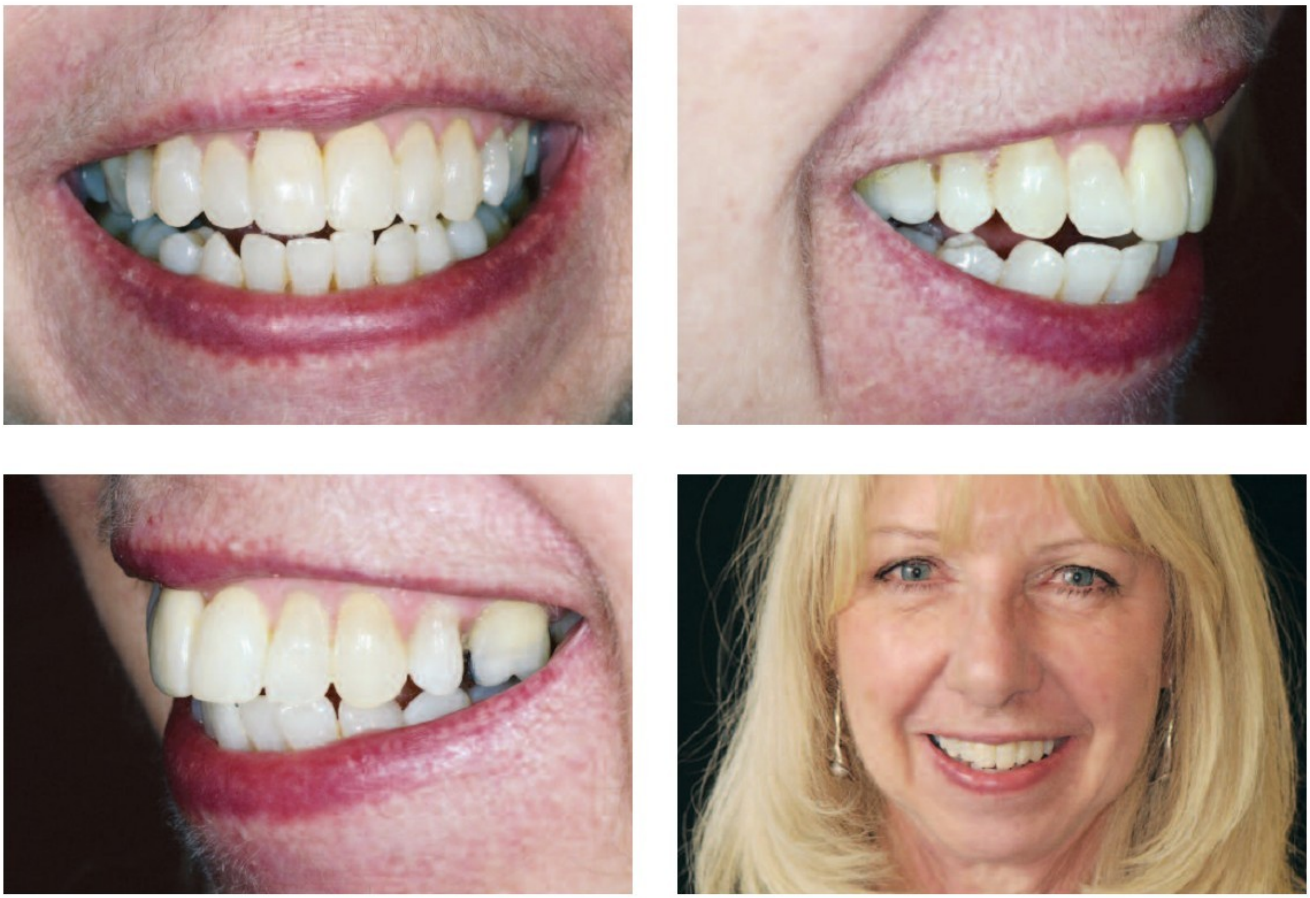


Figure 12: Illustrating the 'domino effect' of the Inman Aligner retracting the UR1 while also aligning the neighbouring incisors





Figures 13-14: Using the labial bar to bring the UR1 downwards, reducing the high gingival level



Figures 15-18: Post-treatment images

Conclusion

So what was the bottom line here? Catherine spent £3,000 on her new smile, and that included the cost of her replacement crown, a course of tooth whitening, and her retention.

A modest amount when compared with the restorative option with the likelihood of crown and veneer replacement in 10-15 years time (not to mention the 'cost' in sacrificed tooth tissue and stress for all) and very competitive compared with traditional fixed appliances which would have taken longer. In the end, and to everyone's delight, the treatment actually turned out not to be compromised at all, and as far as Catherine is concerned, the result is priceless (Figures 15-18).

In running a busy, large dental practice with hundreds of patients like Catherine coming through the doors, it has become clear to me that there is as yet a largely unmet demand for those that want and need this treatment, and who satisfy the criteria for it. Once the word finally gets out in this age group that there is a treatment to align crowded anterior teeth that respects the teeth, will stop the worsening crowding process dead in its tracks and won't cost the earth, then the floodgates will open and there will be a clamour for interceptive anterior orthodontics. I can only recommend that you join the revolution, undergo the proper training and gain as much experience in the technique as you can. You will find yourself benefitting from stratospheric job satisfaction, a more relaxed stress-free working day and happier patients who will go round recommending you to their friends. Plus, you will also generate a new income stream for the practice, and there's nothing wrong with that! So

References

Little, R.M., 1990. Stability and relapse of dental arch alignment. Br. J. Othod. 3:235-41.

About the author

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