The Concept of Progressive Smile Design

Dr. Tif Qureshi, Past President of the BACD and Director of IAS Academy, shows how a step-by-step approach to smile design can make things simpler and safer and is something many dentists can do.

By Dr. Tif Qureshi, UK

While I have been publishing articles on Progressive Smile Design for the past six years (1,2), this is a concept I actually discovered in 2006. However, while attending many conferences and witnessing fierce debates on Facebook, it has become clear to me that its potential significance has not quite yet sunk in amongst many practitioners of aesthetic and cosmetic dentistry.

It is also true that the subject of smile design commonly polarises readers. Some will think they know it all already, whilst others will think it is not relevant to their practice.

I’m hoping to prove both groups wrong by provoking some debate, focusing on three suggestions that I truly believe:

1. Every single dentist could carry out simple forms of aesthetic dentistry that can have dramatic effects with minimal risk.
2. Simple Design planning, as it has always been known, is taught back to front (I’ll explain this later) and only serves as a niche market, which is disconnect ed from most dentists.
3. The tools are now available for any dentist to create beautiful smiles without picking up a drill.

I would argue that cosmetic dentistry has traditionally focused on large, high-end cases and that this has traditionally focused on large, high-end cases. However, it has been shown that the only option they were presented with was a procedure that they did not want - or perhaps cannot afford. This is what I refer to as irreversible treatment.

With Progressive Smile Design, a much wider range of patients can potentially be treated by a much larger number of dentists at much lower risk.

Traditional smile design focuses on an endpoint - now processed in a digital manner via computer software. This is translated to a wax-up and the patient is shown what could be achieved. This can even be tried in the mouth with a stent made from the wax-up.

Often, ideal smile design parameters are built into this set-up so that what is shown is what the patient will commonly be shown their appearance with 8-10 different units in their mouth via simulation or a trial smile. These parameters will include golden proportion, connector harmony, wider buccal corridors, perfect incisal outlines and correct gingival zeniths.

But, if a patient is shown this at the start point, they will naturally assume that this is what they want. Irreversible treatment is then commonly carried out to achieve this, using porcelain, composite veneers or even no prep veneers.

Currently, many patients are having the concept of no-prep, minimal prep or composite veneers promoted to them as the way to achieve a perfect smile.

The big question is: Do these people really need these techniques at all?

Digital smile design, as clever as it is, does not allow patients to see small, in situ changes and, more often than not, means a patient will opt for a far more dramatic treatment plan than may actually be required to make them happy. Based on the huge number of cases I have been involved in, patients who initially thought they wanted ideal smile design changed their minds after seeing their teeth aligned/blanched and after receiving edge additions.

The cynical will commonly say, “Improving smiles in any way at all is completely unnecessary,” but that does not only show ignorance of the desires of many patients, but also of the fact that restoring a smile can often have significant functional benefits.

In practical terms, we, as dentists, also commonly ignore factors beyond the purely clinical. Dentists are trained to make clinical judgments. Psychological and long-term judgments are not always discussed and/or have not, historically, been well-researched in dentistry.

Long-term case follow-ups with good photography are, sadly, extremely rare. Yes, consent is commonly – and rightly - talked about, but it only seems to go as far as a legal consent form and some note taking.

What the case outlined below will show is how a patient achieved a dramatic improvement in her smile aesthetics and function, with hardly any tooth removal at all. Most importantly, the patient’s overall perception changed, once these small changes began. Significantly, this kind of dentistry is achievable by any dentist and not just by high-end cosmetic gurus.

Equally, and just as importantly, many patients like this one - might not want - or perhaps cannot afford complex treatments and so are simply left with no real solution.

In my experience, many patients who think they want ideal smile design change their minds almost without fail, once they start to align/bleach and bond their teeth. They are commonly happy to accept compromises which they would not have appreciated if they had gone straight ahead to a final 8-10 unit result. Given the short amount of time required for Anterior Ortho cases, it is essential that patients fully understand these options, in order to make an informed choice. The argument of, “Patient did not want ortho,” simply does not wash. If it is later discovered that the only option they were given was a comprehensive one that might take a year or more.

Case

At one point, this patient had considered ceramic veneers to improve her smile, but was concerned about the amount of preparation needed. As a result, she was happy to try aligning and whitening her teeth beforehand.

Assessment

- Pt 25
- Skeletal 2
- Decreased FPMA
- Canine Class
- RIS 1/2 cl1 LHS 1/2 cl2
- Molar class 3/4 unit class 2 RIS molar class 3/4 unit class LHS
- Incisor class 2 d1r 2 75% OB and 4mm OF
- Upper laterals crowded centre lines in coincidence
- Soft tissues NAD, symmetrical, lips competent High lip line
- Lower face height reduced
- No TMJD
- Canine guidance positive
- No Posterior interference on the anterior slide

On examination, her upper teeth were slightly retroclined and the edges were chipped. Slightly worn, irregular lower edges on the lower teeth were causing chipping on the upper teeth because of some para-function.

All possible options were discussed with the patient, including a ceramic solution or orthodontics. All avail-
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*Programme outline:* Endodontic retreatment, surgical endodontics.

*Hands-on:* Re-treatment of common endodontic obturation materials. Apical Micro-surgery on cadavers (animal or human).

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able orthodontics solutions were offered to the patient, including a referral to a specialist. A choice between a comprehensive plan and a compromise was offered, with the compromise plan including fixed, clear aligners and Inman Aligners. She decided that she did not want comprehensive treatment and chose only the simple plan. Anterior alignment was needed, so the patient opted to have her teeth aligned using removable appliances—a new Super Slim Inman Aligner. Her plan was to do this to avoid any tooth preparations, but to still have veneers any-

way. The Super Slim Aligner uses a new clear bow that is far thinner than previous designs, this makes the lip seal far easier to achieve and speech far easier as a result.

In surgery digital arch planning was used to set up to flare the upper canines forward while also retracting the laterals. The digital planning ensured there would be space for a wire retainer and composite bonded to the back of the anteriors to regain the occlusal stop. The digital software (Spacewize™) allows a dentist to trace a curve that the laboratory needs to follow. This allows the practitioner to be in control of the occlusion and eliminate the risk of flaring out and causing potential occlusal issues.

The upper teeth had exactly 1 mm of crowding, so IFR was carried out progressively over 3 appointments with strips, using the Super Slim Inman Aligner 16 hours a day. The lower teeth were aligned with a single Inman Aligner, also in 10 weeks.

At week 8, simultaneous bleaching was started with 6% Daywhite by Philips using super-sealed trays and technique to ensure the teeth were dry before the trays were placed. This consisted of 3 weeks of day time whitening, 2 x 30 minute sessions a day while the LA was out.

At week 10, alignment was virtually complete and, post-alignment and whitening, the patient very quickly decided against ceramics because she could see her teeth in a completely different way. Without this opportunity, she would have had ceramics placed.

After two more weeks, direct bonding was placed on the upper lateral incisal edges to restore the original shape and a little on the palatal of the upper cusps for better rise.

The composite used was Venus Diamond ( Heraeus Kulzer). Two shades were used: Opaque light and B1 enamel. The composite is laid in a reverse triangle technique, which blocks out the light transmission on the join so no preparation is needed. Each restoration was polished with Flexibuff discs and Enamelize paste by Cosmedent.

The patient returned for secondary polishing after two weeks and had an indirect retainer fitted.

The patient then continued with an Essix retainer worn at night and made to fit over the retainer wire and new bonding.

Discussion
The patient was delighted with the results as the treatment had effectively made her own teeth look better without removing any real tooth structure. The treatment also cost her far less financially and biologically, but still achieved a result she was more than happy with.

Conclusion
What could have been a complex ceramic case, only affordable for a tiny percentage of patients and only carried out by a minority of dentists, instead turned into a simple alignment, bleaching and edge bonding case that would be far more affordable for many more patients and would be achievable for many more dentists.

This is because the tools are now widely available: various forms of tooth alignment tools, suitable for a range of cases, effective whitening preparations and ideal, easy to use bonding materials.

Given the current debate on tooth preparations, one must always consider what the patients are aware of. Orthodontics is not a binary solution; there are millions of potential outcomes that vary with time, teeth to be moved, and distance to be moved. Patients who chose veneers because they assume ortho will take a year or so must be aware that anterior tooth alignment can actually be achieved far more quickly with many forms of orthodontics appliance than they might think. In this patient’s case, if she had expected the orthodontics to take a year, she would have chosen veneer preparations. By having a limited goal, we were able to completely eliminate any tooth preparations altogether.

Acknowledgments
Inman Aligner supplied by IAS Ortho Lab Super Slim

References
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2) Who needs Veneers? Re-thinking the Order of Smile Design planning Journal of Cosmetic Dentistry USA - Spring 2011, Vol 27, Number 1, pg 86-94 Tif Qureshi

Editorial note: the full list of references are available on request.

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