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 2001. 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, while 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. Smile Design planning, as it has been known, is taught back to front (I’ll explain this later) and only serves 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 actually been a very shortsighted approach. It effectively became a very well-publicised niche market that very few patients could afford. This also means that very few dentists have the option to offer this treatment, since many patients simply do not have the budget or, indeed, do not want to take the risk.

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 stencil made from the wax-up.

Often, ideal smile design parameters are built into this set-up so a 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/whitened and after receiving edge additions.

The cynical will commonly say, “Improving smiles in any way at all is completely unnecessary,” but that not only shows ignorance of the wishes 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
- Molar class 1/4 unit class 2
- Upper laterals crowded centre lines coincident
- Soft tissues NAD, symmetrical, lips competent High lip line
- Lower face height slightly reduced
- No TMJD
- Canine guidance positive
- No Posterior interference on the anterior slide

On examination, her upper teeth were slightly retruded 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-

Pic 1. Before side retracted view

Pic 2. Right side retracted view after alignment and whitening (20 weeks)

Pic 3. Before upper model

Pic 4. After 3D Print

Pic 5. Before Upper Occlusal View

Pic 6. After upper Occlusal View and Bleaching (20 weeks)

Pic 7. After wire retention

Pic 8. Right side view before

Pic 9. Wearing 6k Superners

Pic 10. Right side retracted view after alignment and whitening (20 weeks)

Pic 11. Right Side after edge bonding

Pic 12. Front view

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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. The patient 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 the previous design; 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 centrals 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 IPR 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 2 weeks of day time whitening, 2 x 30 minute sessions a day while the IA was out.

At week 10, alignment was virtually complete and, post-alignment and whitening, the patient very quickly decided against ceramics 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.

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.

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1) Minimally Invasive Cosmetic Dentistry Dental Update 2011; 38: 586–592. Tif Qureshi

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Inman Aligner supplied by IAS Ortho Lab Super Slim

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.

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