

Aligner sustainability: No clear fit

Sir, at the second UKI *Invisalign* Summit in May, I took the opportunity to call upon Align Technology to forge ahead with environmental responsibility. Whilst a panel of speakers were gathering their thoughts about where they wanted Align Technology to develop in the next year, I stood up from the audience to share my ideas about the direction I want the clear aligner industry to travel. Having read the excellent article by Victoria Martin,¹ I can wholeheartedly say I – and, anecdotally, many of my peers – am similarly frustrated by the apparent slow progress of the aligner industry in addressing environmental issues. Align Technology state on their website that they are piloting a scheme to recycle aligners with *TerraCycle* in the USA and Brazil, and we need to hear about their progress as a matter of urgency.

Invisalign is a brilliant product that has revolutionised how we deliver orthodontic treatment to an exponentially increasing number of patients, 15 million to date, according to the *Invisalign* website.² However, it comes with the big environmental problem that it generates huge amounts of plastic waste. As the market leader in clear aligner technology, where Align Technology leads, their competitors follow. If they can focus on a mechanism by which we can return aligners for recycling, recycle digital printed models and reduce packaging, their actions could potentially encourage the wider dental industry to take responsibility for waste.

Invisalign used to be presented with two aligner cases in a simple cardboard box. As other industries looked to reduce their packaging, *Invisalign* went in the opposite direction and supplied a single aligner case housed in a plush display box, inside a plasticised bag, packaged in a further box. I don't want luxury packaging; I want simple packaging that I can recycle. By the time *Invisalign* arrives, the patient has already committed to the product, so the packaging as a means of enabling choice between products is pointless. It should be an easy, cost-effective win for Align Technology, and similar dental suppliers to reduce their impact on the world by using minimal packaging. In fact, it's evident from other industries – *Veuve Cliquot* champagne

for example – that it's possible to create packaging that's both stylish and recyclable. We can't talk about providing the best orthodontic care for teenagers and children and at the same time increase the amount of trash in their world without redress.

In the days post Summit, orthodontic friends of mine have shared their collective knowledge and found options for recycling with *TerraCycle*.³ However, recycling opportunities shouldn't be left to be found by individuals collaborating by chance. We don't know the material composition of printed models and aligners to be certain that our choices are correct and remain uncertain if unused aligners are regarded as hazardous waste that cannot be recycled. We want all aligner manufacturers to take a lead to direct us how to dispose of our waste responsibly and reassure us they are doing the same, of which I am not confident this can be said at the present time.

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There is significant interest amongst colleagues on the issue. Here follows the views of three colleagues who also attended the Summit.

Alastair Smith, owner of Pallant Orthodontics: 'There is no doubt that our patients are becoming increasingly aware of the environmental impact of aligner treatment. We not only have a responsibility to listen to our patients but, as part of a wider community, we should be trying to practice in a more sustainable way. This could be partly addressed by reducing aligner packaging as well as improving ways of recycling used aligners. I am hopeful that a forward-thinking company such as Align will recognise this as part of their corporate social responsibility.'

Sheila Chauhan: 'As a certified provider of *Invisalign* clear aligners for 20 years, I have been an early adopter and believer in the

technological and digital advances, which have benefited both my clinical practice and care for my patients. It has been of continuing concern that we have yet to understand how the plastics aligners can be disposed of safely and sympathetically to the environment. One of the key questions patients ask is 'Can the plastics be recycled?' It is with embarrassment that I am ill-equipped to answer with any confidence. There currently is not provision for the all the plastic packing, used and unused aligners. I have an ethical and environmental responsibility in serving my patient's best interest. My clinical practice is conducted with 90% *Invisalign* clear aligners and this trend is similarly exponential worldwide. We must find a recycling solution immediately if this trend is to sustain.'

Consultant Orthodontist, Catherine Brierley, co-author of a recent paper⁴ discussing the need to consider the triple bottom line (social, environmental and economic) alongside the 4Rs (reduce, reuse, recycle, rethink): 'Climate change is the greatest anthropogenic threat to human health recorded in history. Orthodontics is a specialty that often leads the way, and undoubtedly, *Invisalign* is a market leader in the aligner industry. This puts us in the privileged position of being able to work collaboratively, to lead the way in making a concerted impact on improving our environmental sustainability. I hope that this can start a real conversation about the role that we all have to play in improving our environmental sustainability.'

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References

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