

## Is the next level of aligner orthodontics on its way?



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In the last 20 years, the orthodontic community has observed the progressive evolution of aligner therapy, which started out with just one industry player and a few clinicians and universities as early adopters, and which now boasts dozens of manufacturers and a much wider user base.

After years of struggling, as normally happens when you are starting from nothing and having to gain the knowledge and experience required to create rules, we have now arrived at a point where we are likely to make the leap towards a new level of aligner orthodontics, from a clinical, scientific and educational point of view.

From a clinical perspective, the spectrum of malocclusions that can be treated with aligners is becoming broader due to the increasing number of features available, especially with the most established aligner system, but also due to the use of auxiliaries and hybrid approaches that should overcome the limitations we still face with aligner therapy. It is hoped that the number of limitations will decrease in the coming years to increase the use of aligners in our profession even further.

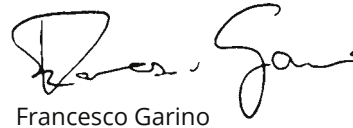
Direct aligner printing is becoming a new trend in aligner orthodontics; this is a positive development from an environmental perspective, but we are yet to see the clinical impact of it and evidence to show in which scenarios this new alternative can be applied successfully. Two scenarios are possible within direct printing: one with in-house aligners made using a 3D printer and dedicated software, and the other with aligners printed directly by manufacturers, bypassing the creation of models on which aligners are vacuum formed.

It will be interesting to see the extent to which direct printing and in-house aligners allow clinicians to treat malocclusions; clinical and scientific evidence are still required, but I am sure that we will read more and more about this topic in our journal. The advancements in materials and software are two key factors that should enable direct aligner printing systems to handle certain clinical scenarios with greater precision and predictability.

Another trend is represented by the existence of virtual planning software that offers 3D controls and live update tools. This is creating a paradigm shift whereby planning is no longer deferred to a third party, but rather remains under the control of the orthodontist at almost every stage prior to approval. This was a dream 20 years ago when the first pioneers began using aligner treatment, when all aspects were in their very early stages. The situation has now become far more attractive for orthodontists who previously believed that aligner treatment was not something they could offer in their practice. Within virtual planning, the orthodontist plays a key role in defining, finishing and detailing in a way that only a trained specialist can.

The introduction of CBCT and its integration with virtual planning, to be used in scenarios in which a 3D examination can provide additional information to avoid mistakes, is something that will become increasingly important in our profession to avoid legal disputes. We are also anticipating further studies on materials that still have some as-yet unexplored uses to be discovered.

All these considerations place the orthodontist at the heart of the matter; aligners simply represent a tool, but accurate planning carried out by the orthodontist will elevate the quality of the treatment outcomes.



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