In the 10 years since the commercial launch of the Invisalign® system, Align Technology has continuously worked to improve Invisalign products to deliver the outcomes patients desire and clinicians expect. Today, with more than 1 million patients treated, the Invisalign system enjoys broad acceptance as an effective, in-demand treatment option.

Yet despite the demonstrated efficacy of Invisalign and numerous advances in treatment over the years, the Invisalign system has remained in many ways a first-generation product.

Until now. This fall, Align introduced innovative new and improved features in all Invisalign products, representing a significant leap forward in Invisalign treatment. The product improvements are based in part on extensive Align customer research that was focused on why dentists do not use Invisalign or why they limit their use of Invisalign to certain types of cases.

The new features, along with improvements in Invisalign software and clinical protocols, are designed to overcome barriers to treatment by both addressing clinical issues that dentists have traditionally perceived as challenging in Invisalign treatment, such as extrusions, rotations and certain types of root movements, and by implementing improvements and best practices identified and frequently requested by Invisalign practitioners.

Invisalign’s Optimized Extrusion Attachments, part of the next generation of Invisalign attachments, are designed to optimize aligner forces for upper and lower extrusion of anterior teeth. Using Align’s patented 3-D modeling technology, each attachment is custom designed based on the width, long axis and contour of each individual patient’s teeth.

The extrusion attachment features an active surface area that helps control the extrusive aligner force delivered and enables the aligner to engage the attachment the same way each time for more predictable performance.

The new Optimized Rotation Attachments are designed to optimize aligner forces for rotations of the upper and lower canines. The shape and placement of each attachment is automatically designed to deliver more optimal aligner forces and moments for canine rotations.

As with the Optimized Extrusion Attachments, advanced 3-D technology is used to determine the patient’s unique tooth anatomy to determine the attachment’s shape. As the aligner engages the attachment’s active surface area, the aligner simultaneously engages the lingual aspect of the tooth. This results in a rotational moment about the long axis of the tooth.

Power Ridges™ are designed to optimize aligner forces on upper incisors to deliver lingual root torque without having to bond attachments. Power Ridges can be used when uprighting retroclined incisors, such as in Class II Division 2 cases.

This feature is designed to produce optimal moment-to-force ratios to accomplish lingual root torque. Previously available only with Invisalign Teen, Power Ridges are now available for all products, making Invisalign applicable for more cases.

Invisalign’s Velocity Optimization provides more control over movements of the entire tooth, including the root. Improved ClinCheck setup protocols are designed to limit the speed of crown and root movements, including rotations, to optimal ranges.

Using digital dental reference points, ClinCheck setups are now designed to factor in a combination of root movement, crown movement and rotational speed at every aligner stage.

Previously, dentists had to identify movements that might require velocity adjustments and request those changes as part of the treatment planning process. While clinicians can still request velocity adjustments if they wish, the velocity optimization improvements in ClinCheck protocols will now be the default in case setups.

Interproximal Reduction (IPR) Protocol Improvements address a frequent clinician request regarding timing of IPR during treatment. Invisalign’s improved ClinCheck protocols are designed for IPR to be performed when the teeth are more aligned.

In crowding cases, your prescribed IPR is now set up in later stages of treatment so that tooth contacts requiring IPR may be easier to access.

A new Invisalign Attachment Kit and attachment material deliver greater bond strength, wear resistance, accuracy and ease of use.* Previously, attachment material was left to the clinician’s personal preference, and Align research determined that only 15 percent of dentists were using top performing materials for their attachments.

Clinicians can still use materials of their own choosing, but Align now offers these top performing materials as part of a convenient kit.

“We believe that all of these product improvements, as well as our commitment to constant innovation, will give doctors greater confidence in what they can achieve with Invisalign,” and help deliver the outcomes they expect in more clinical situations,” said Sheila Tan, Align’s vice president and chief marketing officer.

Thus far, customer feedback supports Align’s belief.

“Learning about the improvements in anterior extrusion expanded the applicability of the Invisalign appliance for me,” said Douglas D. Boucher, DDS, a general dentist practicing in Menlo Park, Calif. “I feel a lot more confident in clinical outcomes moving forward.”

The new features are available in Invisalign, Invisalign Teen, Invisalign Assist and Invisalign Express.

For more information on Invisalign products and the new and improved features, please visit www.aligntechnology.com/Improvements. *

Data on file at Align Technology