

**DECODING THE
ALIGNER BLUEPRINT:
TOP TEN KEY DIFFERENCES
YOU NEED TO KNOW**



Dive into the world of clear aligner setups vs. Treatment plans: your guide to achieving more predictable & stable results for your patients

DECODING THE ALIGNER BLUEPRINT: TOP TEN KEY DIFFERENCES

INTRODUCTION:

The clear aligner landscape has witnessed monumental advancements in recent years, with companies like Align Technology, the genius behind Invisalign®, pioneering the charge.

These firms act as pivotal dental appliance laboratories, meticulously crafting aligners based on dentist-provided prescriptions. What materializes is an intricate virtual representation of the dental structure, showcased on platforms such as ClinCheck®.

However, a persistent misconception exists in equating this virtual setup with an actual Treatment Plan. This paper aims to dispel this myth and delineate the marked differences between the two.

DELVING INTO THE WORLD OF CLEAR ALIGNER SETUPS

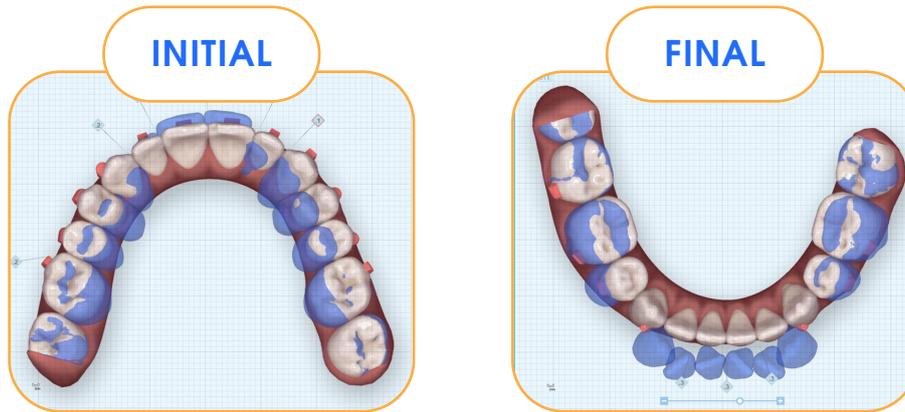
1. Algorithm-based alignment:

A Setup, at its core, hinges on arch alignment. This process is largely dependent on technician expertise and predefined software algorithms which may not cater to individual patient needs.

2. The generic blueprint:

The inherent algorithms embedded within a Setup frequently adopt a blanket, universal approach. They strive for maximal arch development and ideal occlusion (see Fig. 1), but often overlook the intricate and individual biology of patients.

Fig. 1: Example of initial and final occlusion planned by the ClinCheck software to achieve ideal occlusion that are both challenging and outside the biological limits of the patients' tissues.



3. Reality vs. software

The Setup's algorithm tends to impose a generic Walla Ridge onto the arches. This software-defined architecture, however, often strays from the patient's actual dental structure (Fig. 2).

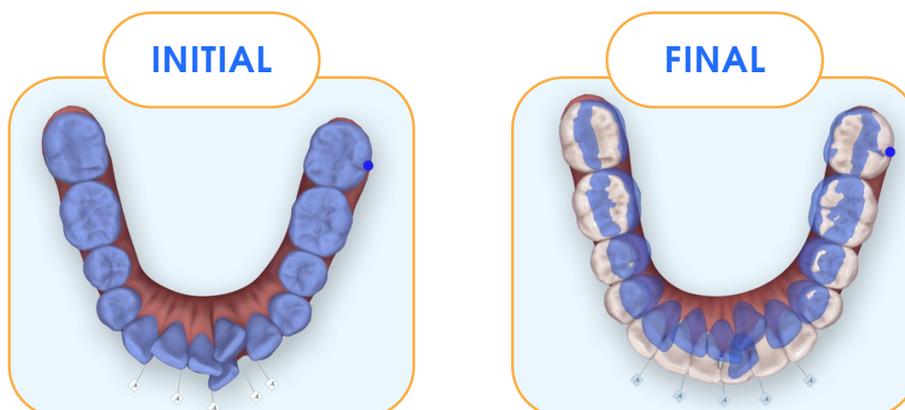
4. The pursuit of perfection

A setup, in its ambition, propels all teeth towards what is perceived as an "ideal" occlusion. This can inadvertently result in the needless movement of teeth, particularly stable posterior ones, leading to unnecessary complications.

5. The pitfalls of generalization

Setups, despite their best intentions, can sometimes endorse tooth movements that veer towards the unrealistic, given the constraints of hard and soft tissue biology and the nuances of aligner design.

Fig. 2: Example of initial and final staging of ClinCheck® with maximal arch development regardless if there is sufficient cortical bone to support such movements in the first place.



TREATMENT PLANS: A COMPREHENSIVE AND TAILORED APPROACH

6. Holistic diagnosis:

A Treatment Plan isn't merely about adjusting teeth. It's an investigative journey, beginning with a thorough clinical diagnosis of malocclusion. This involves an exhaustive review of intra-oral scans, detailed photographs and advanced radiographic imaging (Fig. 3 - next page).

7. Beyond the surface:

Treatment Plans dive deeper than mere physical adjustments. They consider the ever-evolving growth patterns, even in adults, and evaluate the influence of facial muscles, soft tissues, and their undeniable impact on aesthetic outcomes and overall patient satisfaction.

8. Purpose-driven planning:

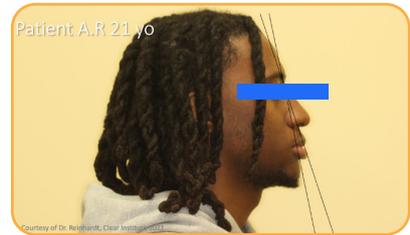
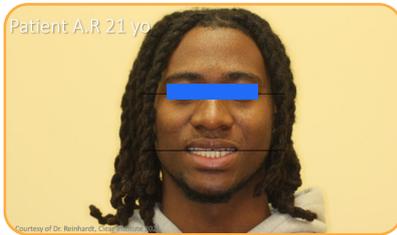
Once the diagnosis phase concludes, the Treatment Plan pivots towards charting out clearly-defined Treatment Objectives, ensuring that the patient's needs and concerns are at the forefront of the treatment strategy.

Fig. 3: Fig. 3: Example of clinical diagnosis of the malocclusion based on all submitted records (Xrays not shown).

Initial Findings:

- 21-year-old male
- Mesocephalic & Bi-protrusive
- Thin periodontal biotype
- Proportional facial thirds
- Mandible deviation towards the right side
- Midline discrepancy
- Dental Class I on the right side and dental Class III on the left side
- Generalized spacing due tooth size discrepancy
- Anterior edge-to-edge occlusion

Clinical Diagnosis: 21-year-old, Afro-American male with Class III malocclusion due deficient maxilla, mandible deviation and generalized spacing due tooth size discrepancy.



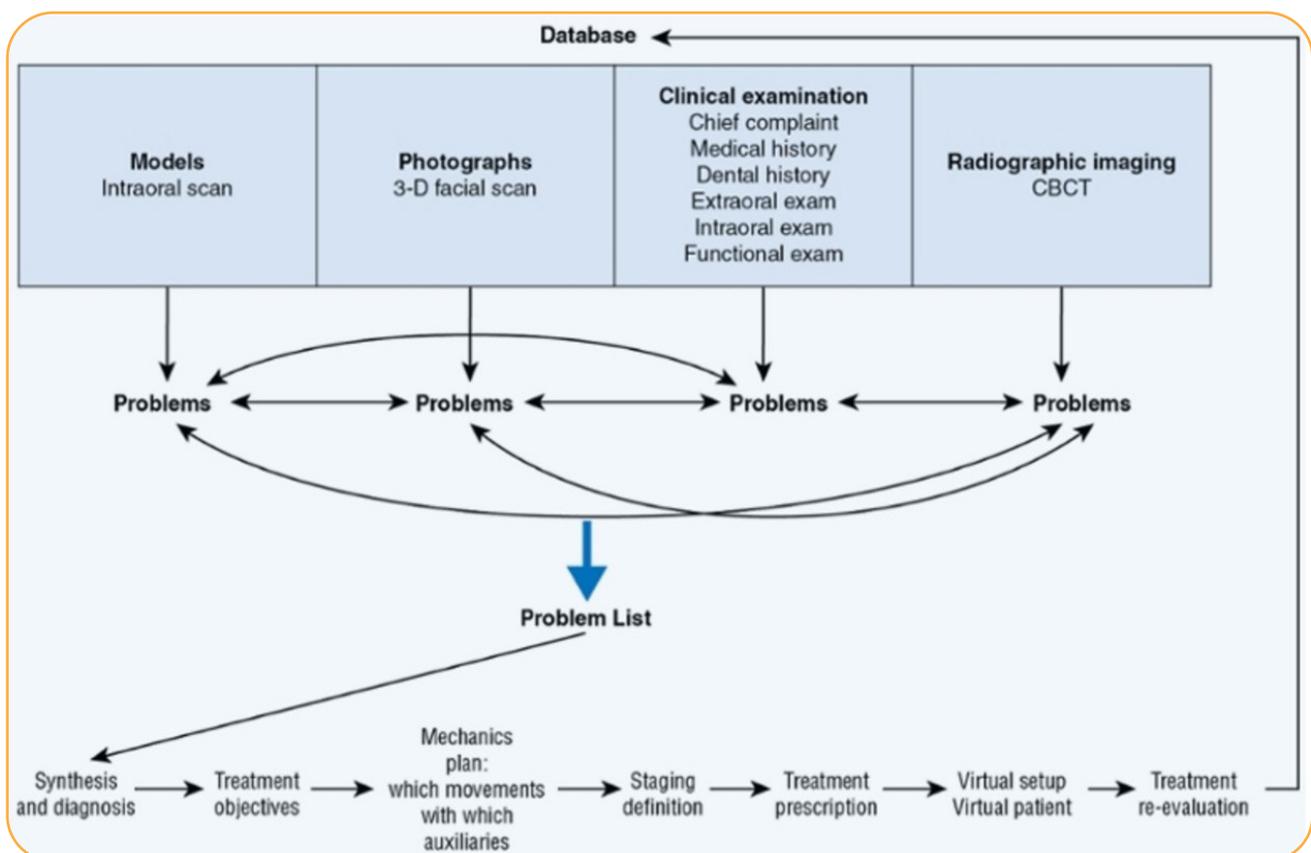
9. Precision in execution:

The Mechanics Plan within a Treatment Plan is no arbitrary process. It meticulously defines the necessary tooth movements and sequences, always with a keen eye on the inherent limits of both patient biology and clear aligner technology. (Fig. 4).

10. Endgame excellence:

A Treatment Plan isn't about the journey alone; the destination is paramount. Unlike a basic Setup, a Treatment Plan often refines the treatment stages, aiming for outcomes that are not just faster but also more predictable, stable, and aligned with both the patient's primary concerns and the doctor's overarching Treatment Objectives.

Fig. 4: The treatment plan process.



(Modified from Uribe FA, Chandhoke TK, Nanda R. Individualized orthodontic diagnosis. In: Nanda R, ed. Esthetics and Biomechanics in Orthodontics. 2nd ed. St Louis, MO: Elsevier Saunders; 2015:1-32.)

CONCLUSION

While a Setup, with its one-size-fits-all methodology, may seem adequate on the surface, its inherent generalizations can lead to treatments that sidestep the unique complexities and needs of individual patients. Conversely, a Treatment Plan stands as the gold standard, offering a holistic, patient-centric, and methodical approach in clear aligner orthodontics, thus ensuring outcomes that encapsulate stability, predictability, and aesthetic brilliance.

Fig. 5: Most Common Mistakes in Clear Aligner Setups

Transverse:

- Expansion outside biological limitations.
- Expansion of clinical crowns only.
- Ignore periodontal biotype and/or recessions.
- Disregard Archform.
- Overlooked skeletal mandible deviations.
- Overlooked facial asymmetries.

Vertical:

- Persecution movements.
- Overlooked smile line.
- Misdiagnosed hyper-divergent or hypo-divergent patients.
- Unnecessary posterior intrusion.
- Incorrect occlusal plane angulation.

Sagittal:

- Misdiagnosed malocclusion.
- Overlooking soft tissue landmarks.
- Poor understanding on TMJ anatomy and function.
- Insufficient anchorage.
- Excess of buccal expansion/ proclination.
- Excess of anterior IPR.



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