

Improving operational efficiency in a multi-disciplinary practice by using the iTero® scanner and ADAPT services.

**Dr. Todd Moore (Vancouver, BC, Canada)**

Dr. Todd Moore is a practicing orthodontist who completed a Master of Science degree in dental science studying protein biochemistry at the University of British Columbia before attending dental school at the University of Western Ontario. He completed his orthodontic residency at Eastman Dental Center in Rochester NY. He currently teaches part-time at UBC while working full-time at the Pediatric Dental Group (PDG). PDG is a group practice comprised of six clinics in four locations and two operatories at a separate surgery center in Vancouver BC and the surrounding areas (www.pdg dental.com). As a child, Dr. Moore was a patient of PDG and Dr. David Kennedy (founder of PDG with Dr Richard Kramer over 50 years ago), who inspired him to pursue a career in orthodontics. Dr. Moore was a member of the pilot cohort of the Align Digital and Practice Transformation (ADAPT) service to optimize operational workflows and processes to enhance the patient's experience and improve customer and staff satisfaction.

Executive summary:

1. Align Technology's ADAPT consulting service helped us identify areas for improvement in our practice and implement meaningful changes resulting in an increase in net production and net collections, revenue growth, and an increase in total exams and case starts.
2. We started more Invisalign® cases when we took an iTero® scan on every patient at the time of their in-person exam by the pediatric dentist. The scan is used to screen for potential bite problems, dental problems, and gingival problems. The patient is then referred to see an orthodontist and the scans can be used by the orthodontist if there is a need for early interceptive treatment. This approach allowed the team at the orthodontist office to visually communicate findings with the parent and the patient, implement virtual consults, and ultimately reduce the doctor's chair time per patient.
3. Our new patient intake process leveraging the iTero scanner has been scalable for the staff, thereby freeing up the doctor's capacity to see more patients.
4. The Invisalign Outcome Simulator on the iTero scanner is a helpful interactive tool that allows the team to visually communicate a patient's functional problems along with the treatment plan in real time.
5. Parents are more accepting of a 2-phase treatment approach when they learn that the Phase 1 treatment philosophy in our office primarily addresses functional concerns and not just esthetics, which allows for an easier, more esthetics-focused Phase 2 treatment later.

Practice background

Our pediatric-orthodontic group (PDG) consists of six clinics in four office locations, and two operatories at a shared surgical center. The group has seven pediatric dental specialists and three orthodontists. The group's co-founder, Dr. David Kennedy, was one of the first orthodontists to partner with Ms. Karen Moawad at Hummingbird Associates. Together, they pioneered an approach to doctor-time scheduling to optimize the rate-limiting resource of the doctor's time in an orthodontic practice. This was done by measuring the number of minutes needed for each orthodontic procedure performed and identifying whose time is needed during each appointment.

Since then, we have continued to improve our processes, and we enrolled in Align Digital and Practice Transformation (ADAPT) consulting service to help our practice create personalized strategies to achieve our goals. This engagement focused on leveraging digital orthodontics to achieve greater efficiency, profitability, and patient and staff satisfaction. During our 12-month engagement period with ADAPT, a highly-personalized fee-based consulting service, the practice's operations were assessed from various perspectives including production, marketing, finance, and customer experience.

The ADAPT program overview

The ADAPT (Align Digital And Practice Transformation) service is a highly-personalized fee-based consulting service. The service is a 12-month process which consists of weekly or bi-weekly team meetings at convenient times to minimize office disruption. The ADAPT service leverages the practice's data to develop an analysis of key performance indicators (KPIs) to help drive awareness into areas of opportunity. With the data from your practice, ADAPT develops a strategy with recommendations to optimize and grow your practice. If additional data is needed, the ADAPT team can help provide the tools needed to collect the information. Once alignment on the strategy is achieved, an implementation plan is created which focuses on the key areas identified.

The process begins with doctor and team member interviews, in-office observations, and surveys to understand the daily workflows of the practice as they are today. Once the data has been collected, an office assessment is created. Presented in the office assessment are performance metrics that the action plan will aim to improve. When areas for improvement are identified, tangible next steps are introduced.

In the first phase of the ADAPT service, the customer acquisition journey is reviewed, including how prospective patients find the office, schedule an initial consultation, and experience your practice for the first time. In the second phase, the operational efficiency of the practice is evaluated, to help streamline and optimize processes towards making scheduling and treatment workflows as efficient as possible. The third phase of the ADAPT service focuses on demand generation. We begin by leveraging your existing customer database to develop nurturing campaigns and targeted marketing to get new leads and referrals from existing patients. We then transition to a fourth phase which focuses on external marketing to drive new patients to your practice. This can include social media and external agency marketing options. All the proposals presented are tied to specific goals that use performance metrics to gauge their impact. For additional program details, please visit: www.adaptbyalign.com.

Practice bottlenecks prior to enrolling in the ADAPT program

The initial assessment revealed the following opportunities for improvement:

1. Revenue generation from new case starts

Most of our starts were coming from pending cases already in the pipeline, but the pipeline was not being replenished. This situation would eventually keep the practice from generating enough revenue to sustain healthy operations.

2. Operational efficiency in appointment scheduling

The clinic was booking too much orthodontist time for the initial screening visits, and that we needed a way to identify potential treatments earlier in the process. If the patient's clinical needs could be identified earlier, the type of appointment and the amount of orthodontist time needed could be booked much more efficiently.

3. Process efficiency in patient records

Before we engaged ADAPT, not every patient would get scanned at the initial doctor consultation with a pediatric dentist, and the staff had to wait for the doctor to determine what to do next because scans at that time were primarily used as digital impressions for orthodontic appliances and diagnostic records once there was an agreement to start orthodontic treatment. This created ambiguity and a bottleneck in our patient records process, which increased our patient wait times.

Therefore, an action plan to generate demand from our new patient consults was created, but to be successful, we would need to make the consultation workflow more efficient, identify prospective patients earlier in the process, and improve our utilization of doctor time to handle the streamlined workflow.

Process changes guided by the ADAPT program

1.0 The impact of implementing the iTero® scanner into the front-end of our consultation workflow

Our pediatric patients are first seen by the pediatric dentists where iTero intraoral scans are taken at the time of the patient exam. The scan is used to screen for potential bite problems, dental problems, and gingival problems. Once iTero scans are examined by the pediatric dentist, the patients might be referred for an evaluation with an orthodontist when the iTero scans are shared with an orthodontist.

Having an iTero scan taken at the pediatric dentist before seeing the orthodontist provides consistency in image quality, allows for doctors to communicate clinical findings with the patients and parents visually, and allows orthodontists to triage patients improving appointment efficiency and driving new patient case starts.

1.1. Appointment triaging of new patient consults

Eliminating a decision bottleneck when determining a patient's need for orthodontic treatment streamlined our consultation workflow and increased our scheduling efficiency, because the type of appointment needed for the initial consultation could be triaged, and patients who did not need orthodontic treatment could be filtered out early.

Previously, patients who were 12 years of age and older (assumed to be in the permanent dentition or close to full eruption) used to be always scanned with an iTero intraoral scanner prior to their consultation with the doctor. However, patients who were younger than 12 (assumed to be in the primary or mixed dentition) were never scanned with iTero and only had their photos and a panoramic radiograph taken. This created an operational efficiency bottleneck at patient scheduling and required a change in our upstream patient intake process.

The change was to implement the iTero scanner into the front-end of our consultation workflow with the pediatric dentist where every patient gets scanned with an iTero scanner irrespective of age, once they had an in-person exam by their pediatric dentist. If there is a need for orthodontic treatment, our pediatric dentists refer the patients to visit our orthodontists and the iTero scans are provided to an orthodontist. This makes the process more scalable by allowing the clinic to see more patients and triaging patients who do not need orthodontic treatment earlier in the process. (Refer to the Bonus section for details.)

1.2 iTero® scanning provides consistent images

Taking an intraoral scan at the time of the patient exam by the pediatric dentists as part of the new patient intake process instead of after a problem is identified generates a consistent process that provides high-quality and standardized images across the practice resulting in more information for the patient consultation. Furthermore, the orthodontist's review of the scan also determines the amount of time needed for the initial consultation, which prevents staff from scheduling appointments longer than necessary.

1.3 iTero scanning allows for visual communication of clinical findings

With the Invisalign® Outcome Simulator on the iTero scanner, our doctors are able to efficiently communicate their clinical findings visually, and how the patient's teeth could look post-treatment, which helps families make well-informed decisions before starting treatment.¹ The success we experienced was also attributed to our entire team getting trained and being willing to adopt a digital workflow to enhance the customer's experience.

2.0 Changes to scheduling process to increase practice efficiency

Another finding from the ADAPT assessment was that our chair time and labor allocations could be optimized even more. Since the number of new patients available for orthodontic consultation was not a constraint for us, changing how the new patient exam is scheduled and staffed was our greatest opportunity to impact productivity and practice growth.

2.1 Historical patient exam scheduling

Historically, one hour of chair time (with 10 minutes of doctor time) was allocated for each new orthodontic consultation. An 8-hour work schedule was therefore limited to 8 new patient exams a day per chair unless the exams were overlapped (which created other problems with our office workflow).

2.2 Improved patient exam scheduling

Many of our patients are initially seen for crowding and spacing concerns prior to having their restorative work completed by the pediatric dentist, so a full one-hour orthodontic consultation is not needed until after their pediatric dental treatment has been completed.

To improve our scheduling efficiency, a full one-hour consultation is now only scheduled if the patient needs orthodontic treatment and is ready to start. All other types of consultations can be scheduled for 15 minutes of chair time (with 3-5 minutes of doctor time). Provided that the patient has had an in-person exam from their pediatric dentist and the scans are shared with an orthodontist, the orthodontist can review scans remotely; and in order to minimize disruptions with work and school, orthodontic consultation discussions of pre-screened patients can also be virtual.

2.3. Operational impact of improved scheduling process

The impact of modifying our scheduling process has been significant. The number of consults that can now be completed in a typical workday has quadrupled, but the doctor-time has only increased by 1.2 to 2-fold (e.g., 3-5 minutes of total doctor time for each pre-screened consultation vs. 10-15 minutes of total doctor time per the traditional consultation).

The "scan up-front" adjustment to our operational process at the consultation appointment with the pediatric dentist also has the potential to add tremendous value to the practice's future revenues by increasing the recall patient pool (i.e., those not yet ready or able to start orthodontic treatment). Our pediatric clinic patients can also be scanned during their pediatric dental appointments, and their scans can be reviewed by an orthodontist without needing to visit the clinic a second time.

Additionally, once the patient has had an in-person exam from their pediatric dentist and had their scans taken, the practice workflow can continue uninterrupted even if the clinicians are away from the office. The orthodontist can review scans remotely, communicate the treatment plan to the treatment coordinator, and have additional appointments set up for later.

This workflow is extremely convenient for the parents, who appreciate not having to take their kids out of school, drive across town, find parking, and then sit in the waiting room for a separate appointment with the orthodontist.

Practice impact as measured by key performance indicators

1. Increase in production and collections

The ADAPT process uses measurable outcomes as way to gauge progress, and the impact of this new workflow to our practice metrics has been significant. During the Covid-19 pandemic, even with a city mandate that reduced the maximum number of individuals allowed in the office at any given time, our adoption of this new workflow increased production in 2021 by 6 percent, and our collections increased by 10 percent compared to 2019, when we were operating at full capacity (Chart 1).

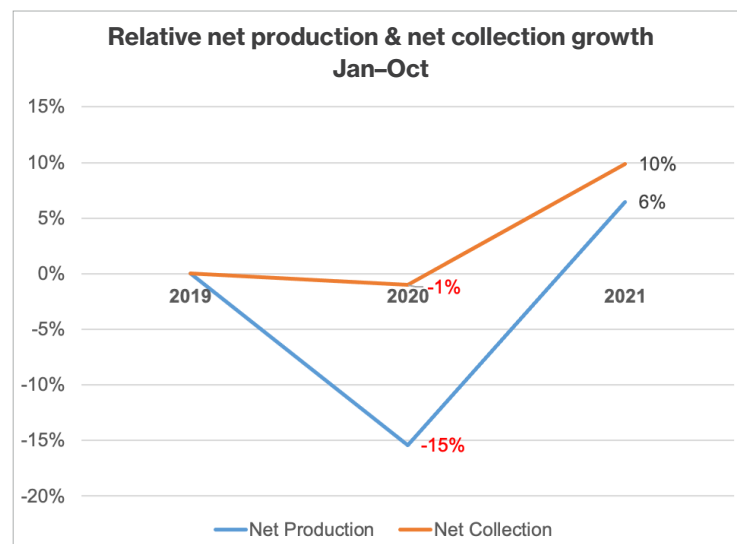


Chart 1: Net production and net collections 2019-2021.

¹ The Invisalign treatment outcome simulator software currently does not support primary or mixed dentition.

2. Growth in production per hour

By October 2021, the practice had increased the number of its new patients such that our production in dollars per doctor per hour grew to 33 percent above 2019 (pre-Covid-19 pandemic) levels (Chart 2). The improvement was 58 percent above 2020 levels and reflects the impact of expanding our capacity and cutting down on unnecessarily long consults.

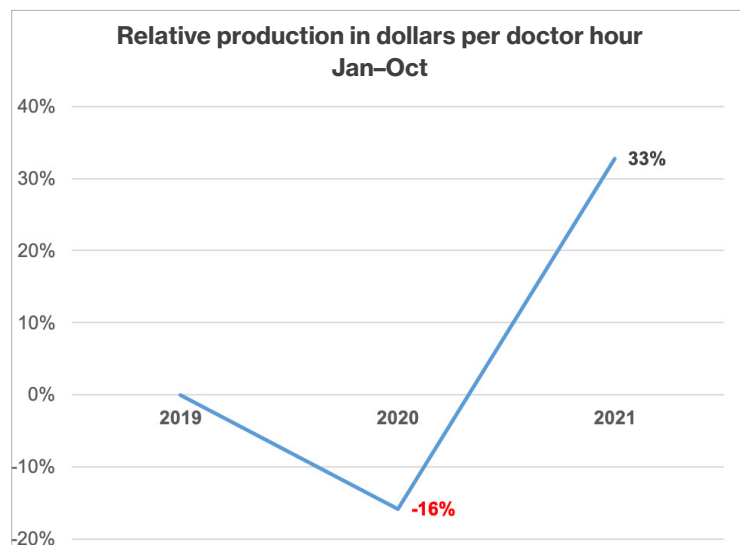


Chart 2: Production in 2019-2021, measured in dollars per doctor hour.

3. Increase in total exams and patient case starts

Ultimately, we were able to see more exams and start more patients in fewer hours. We also overcame a 30 percent and 43 percent decline experienced in 2020, in starts and exams, respectively, and ended up with a 4 percent and 3 percent increase in 2021 compared to 2019 levels (Chart 3).

Within a year, we also reversed the net-production-to-net-collection ratio from -3.8 percent to a healthy 6 percent, which meant that the practice was growing again after experiencing a significant contraction in 2020.

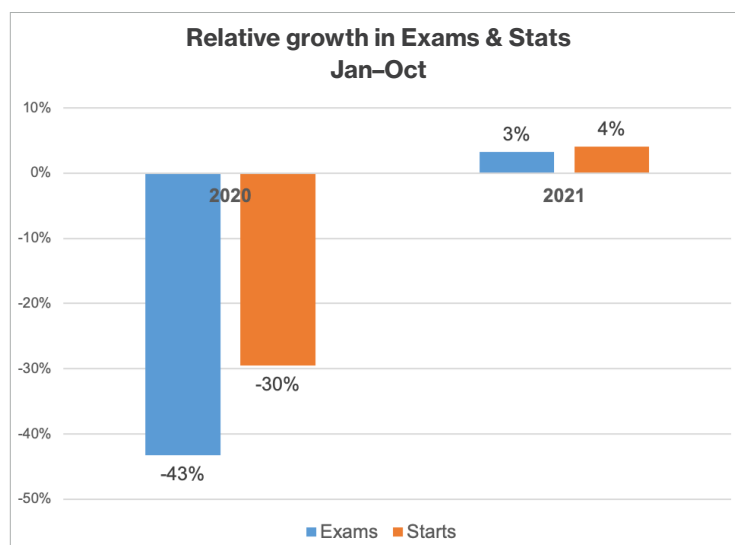


Chart 3: Relative growth in Exams and Starts using 2019 as the baseline.

Conclusion

In summary, the impact of the iTero® scanner workflow that we implemented as part of our ADAPT plan of action is that our appointment scheduling has become much more flexible and convenient for the patient. The scans can be taken by our staff at any time after an initial in-person exam by the pediatric dentist, and once the 3-D color image data has been collected and shared with an orthodontist, the orthodontist can follow up to discuss the findings with the patient at a convenient time by leveraging in-person and virtual consults. This protocol has reduced wait times especially on our busier clinic days, and it has helped patients flow through the office faster and much more smoothly than before, but without reducing the quality of the consult.

When city-wide mandates during the COVID-19 pandemic limited the number of people allowed in the clinic, we were able to shift away from the traditional in-person consultation model and provide hybrid consultations by leveraging a patient scan taken during an in-person visit to the doctor with follow-up calls. As a result, our case starts increased during this time period. Our customer satisfaction has also improved due to the increased appointment flexibility and convenience, and greater productivity in the clinic has opened up more personal time for the clinicians to teach or spend time with family.

Clinical Example of an iTero® scanner empowered orthodontic-pedodontic treatment: iTero scans and Phase 1 orthodontic treatment with Invisalign® First aligners in our practice

Patient:

Age of the patient:

7 years, 11 months old

Gender: Male

Chief concern: The front tooth was “backwards”.

- Previous pediatric dental history of a retained upper left primary central incisor (due to lingual eruption of the permanent incisor) and significant caries (restored with stainless steel crowns)

Diagnosis:

Dental

- Class I molar relationship with mild crowding in the early mixed dentition
- Anterior crossbite of the permanent upper left central incisor

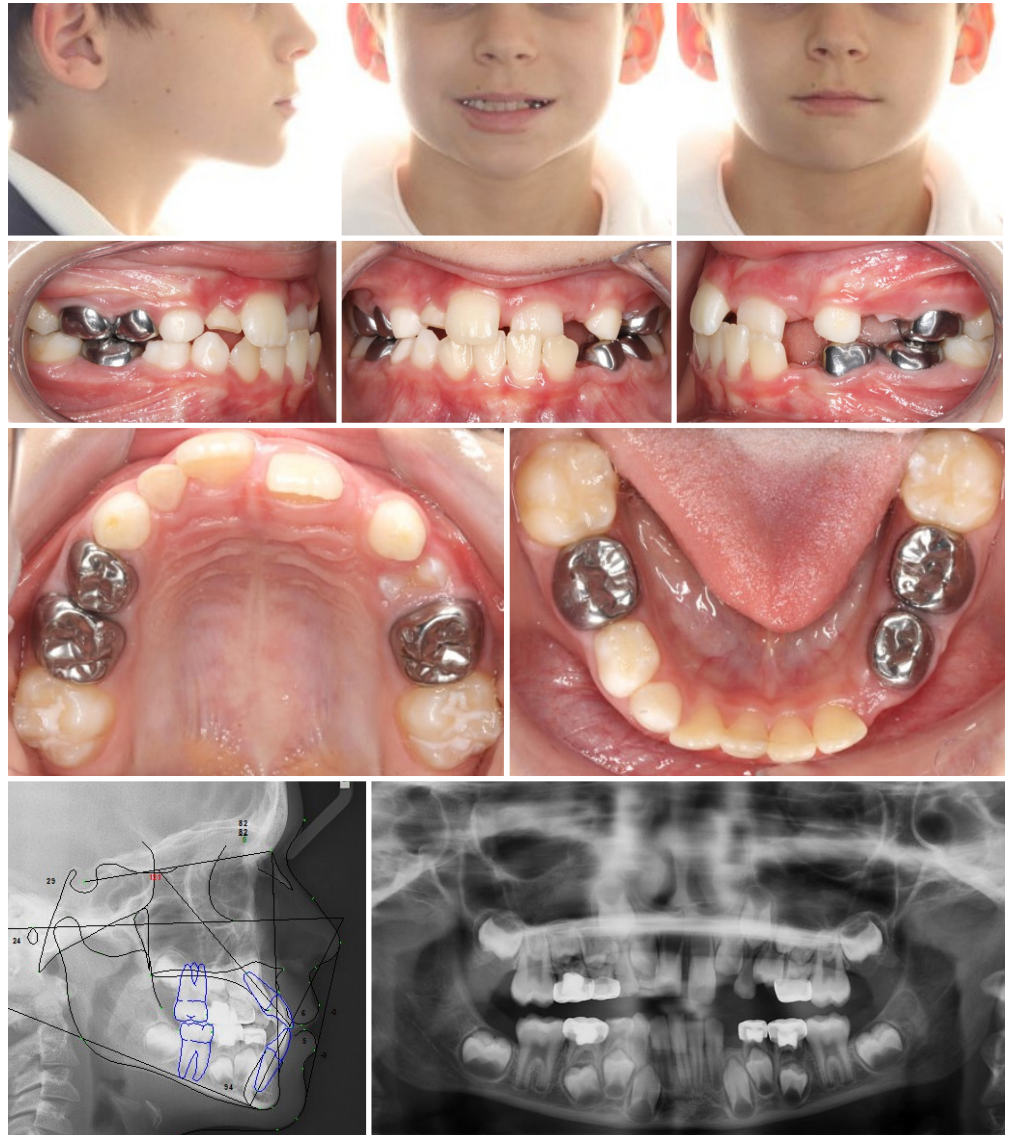
Skeletal

- Mandibular prognathic
- Reduced facial convexity (straight profile)
- Upper incisor proclination

Pediatric dental considerations

- Given the patient's significant caries experience (previously treated under general anesthesia), the ability to brush and floss normally during orthodontic treatment was critical. A fixed appliance treatment option would have required banding due to the numerous stainless steel crowns present, which would have made oral hygiene even more challenging. The Invisalign First Phase 1 treatment option was much more suitable for the patient's dental situation.

Clinical photos and radiographs:



Initial iTero scans:



Invisalign® features used:

- Conventional 4mm attachments on the permanent first molars for maximum aligner retention (no attachments on the stainless-steel crowns)
- Lingual bite ramps in the upper aligners to temporarily open the bite
- Staging: Expand the permanent molars first

Invisalign treatment plan (ClinCheck® set-up):



End of Phase I treatment:

Age of patient: 8 years, 8 months
(9 years, 1 month at the time of final records)

Phase 1 treatment time: 15 months

Number of aligners used:

- Upper: 32 + 22
- Lower: 23 + 16

Aligner change interval (days per aligner):

Initially 7 days and reduced to 5 days after 8 weeks (the aligners would become loose after a week of wear, so the frequency of aligner changes was increased)

Auxiliaries used: None.

Appointment scheduling: Average of 10 aligners per visit every 8 weeks

Total number of visits from aligner delivery to retainer delivery: 7 visits

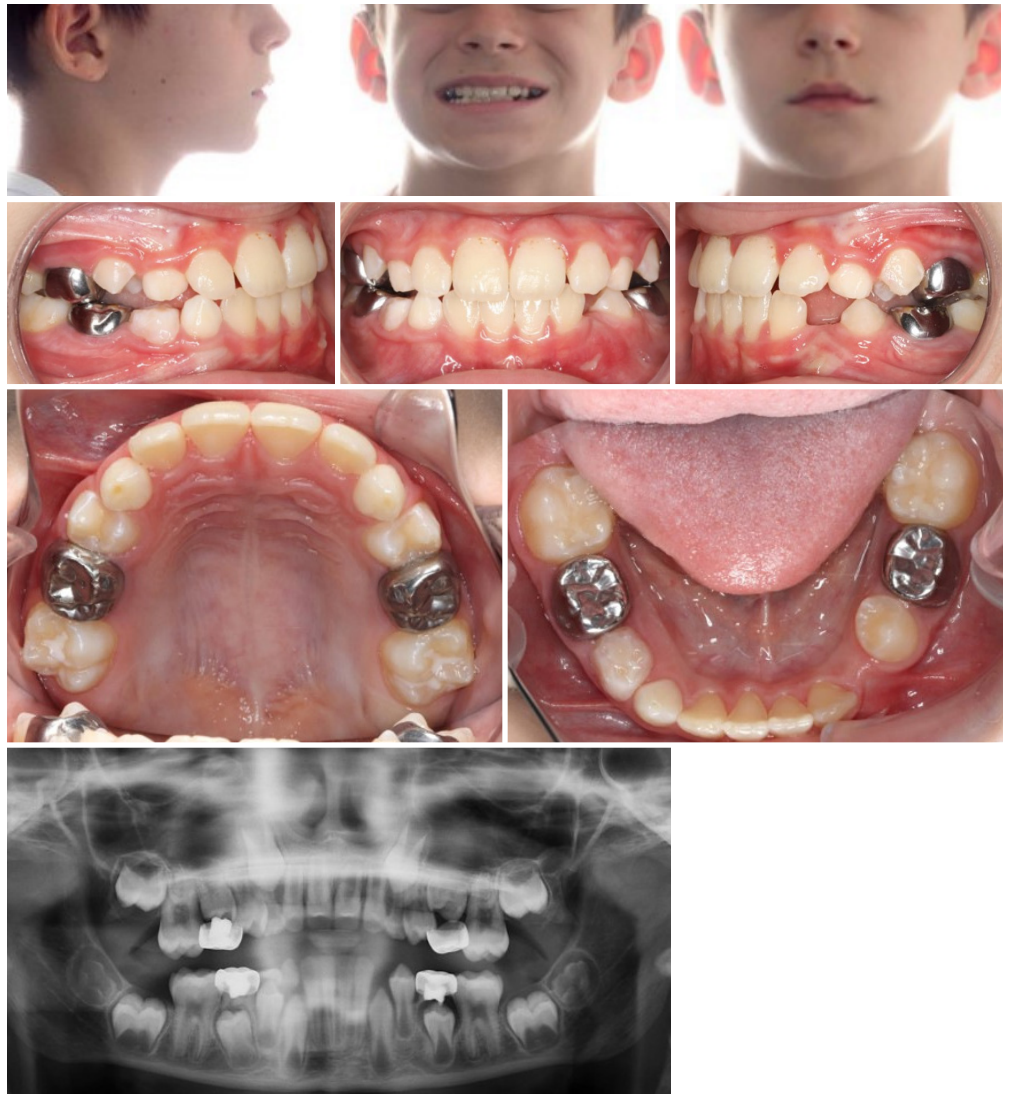
Number of emergency visits: None.

Pediatric dental care during/after orthodontic treatment: Routine check-up visits.

Retention

- Upper: Hawley with Adams clasps on the upper 6's.
- Lower: None (The pre-treatment crowding was minimal and the lower E's were present, so the risk of the L6s mesially tipping was non-existent. The dentition will likely transition naturally into the permanent dentition without incident.)
- Protocol: Full-time wear for 6 months and then night-time wear until the retainer no-longer fits due to the eruption of the permanent teeth.

Progress photos:



Clinical discussion

Phase 1 orthodontic treatments in our practice are primarily for functional improvements, with a limited window of time available to treat the patient before the teeth begin to transition from primary to permanent. Ideally, any crossbites and functional shifts will be corrected no later than a year before the late mixed dentition phase begins. When the parents learn that the corrections in the first phase of treatment are primarily functional and not just esthetic, they are more accepting of a 2-phase approach. This is where patient communications using the iTero® scans are very helpful, because we can show the parents areas that are not always obvious when the patient smiles. We will also tell them that if all the functional goals are achieved after Phase 1, then the goal of Phase 2 treatment is more for esthetics, and therefore becomes optional.

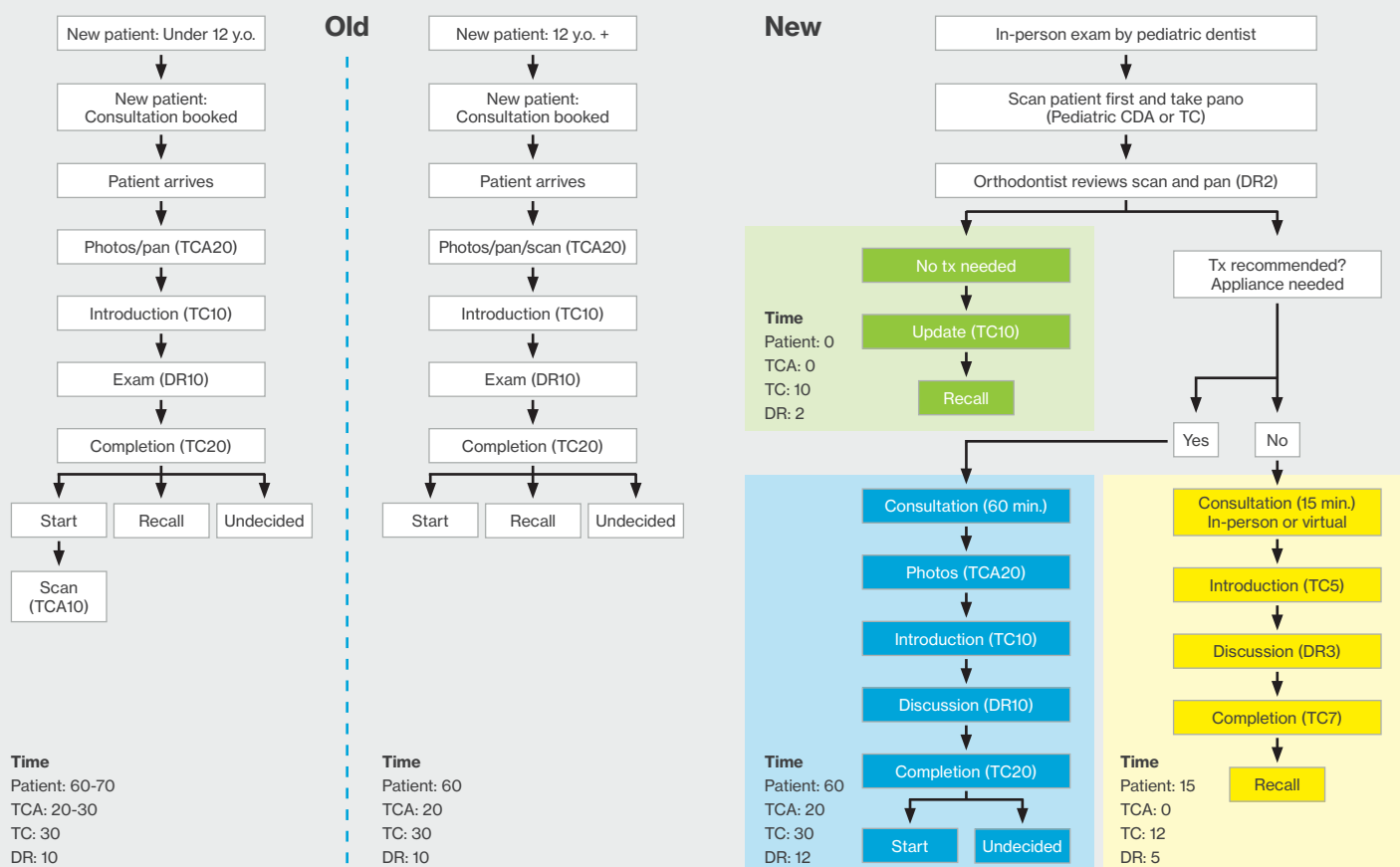
To avoid treatment fatigue during Phase 1, the primary treatment goal should be achieved as quickly as possible while the patients are engaged. During the consultation visit, the patient and parent should also be shown alternative treatment appliances to Invisalign® First aligners, so that they can better appreciate being able to eat, brush and floss normally during aligner treatment compared to traditional orthodontic appliances.

To help motivate younger patients to maintain good oral hygiene throughout their aligner treatment, we will also show them clinical photos of dental caries, so they understand the consequences of not brushing well. We will also describe poor brushing conditions as a “greenhouse” for bacteria, so that they develop a mental picture of the potential problem.

The bigger opportunity for our dental group is for every 7- to 8-year-old pediatric patient in our clinics to be scanned with the iTero scanner by our staff, and for the patients to receive a call from the doctor afterwards. Our hybrid consultation model with the iTero scan taken up front gives us a path forward without compromising the consistency of the data needed to provide quality care. Doing this would build an amazing recall program where every patient's orthodontic and dental condition is monitored on a regular basis, so that we can intercept any orthodontic problems identified and keep them from becoming bigger problems that are harder to treat later.

Bonus section: Workflow process for maximizing doctor efficiency in our orthodontic-pedodontic office with the iTero scanner

Scanning patients in the pediatric dental practice during their exam and using the scans to pre-diagnose and have orthodontic conversations with parents over the phone or via video chat has allowed us to see more patients and have more orthodontic starts than ever before, even when the city of Vancouver limited the number of people allowed on to the premises due to COVID-19 and the number of new patient exam slots in our office was reduced by 50%. We were still able to grow while providing the same or better quality of care.



TC = Treatment coordinator, **TCA** = Treatment coordinator assistant, **DR** = Doctor, **CDA** = Certified dental assistant, **(#)** = number of minutes allocated

In our new consultation model, patients that do not need treatment are triaged and very little doctor time is allocated (2 minutes each). Clinic time is also not utilized for these patients (except for the scan). For patients where treatment is recommended but the patient is not ready to start that day (hence no appliances are needed for that appointment), the amount of doctor time is only 5 minutes and the patient only requires 15 minutes of clinic time. Only patients who need orthodontic treatment and are ready to move forward with appliances that day will require the full 60-minute time slot in the clinic, and with slightly more doctor time (12 minutes instead of 10). The time savings from screening out patients who do not need treatment or who are not ready to start more than makes up for the trade-off of needing slightly more doctor time for those ready to move forward. The throughput is increased substantially with this process without creating additional bottlenecks in the workflow.