Leveraging AI-powered remote monitoring to enhance a patient-centric practice

An interview with Dr. Claire Nightingale

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Questions

1. What does it mean to be patient-centric in the field of orthodontics?

Being patient-centric goes beyond clinical expertise. It's about putting the patient first and is a multifaceted commitment. It involves providing the highest quality of care, demonstrating empathy, actively listening to patients' needs and concerns, staying updated on the latest trends, and delivering a treatment experience that aligns seamlessly with the preferences of today's discerning patient demographic.

The millennial and Generation Z cohorts, who make up a significant portion of today's orthodontic clientele, have distinct expectations, revolving around convenience and digital connectivity. Recognizing this shift is not just important; it's a strategic imperative for practitioners aiming to stay ahead. They are ready to embrace non-traditional services, like Telehealth, and look for a more interactive and technologically advanced approach to their treatment.

Throughout my practice, I've integrated DentalMonitoring (DM) into orthodontic treatments. This has been a game-changer for both my patients and the practice as it has significantly improved the overall patient experience by providing a more interactive and convenient approach to monitoring their progress.

2. Why did you decide to implement remote monitoring?

The first time I came across DM was in 2019 during a lecture hosted by Dr. Grant Duncan at the British Orthodontics Conference during which he said, "Orthodontists tell me they are reluctant to engage in remote monitoring because they like to see their patients", to which he countered "Don't think your patients want to drive across town after-school traffic to have social interaction with their orthodontist!". This was a eureka moment for me as I realized it was only my "social ego" that was holding me back from engaging in this new approach. I immediately sought out the DentalMonitoring representative and committed to the trial pack of 5 cases.

On the 20th of January 2020, we set up 5 comprehensive aligner cases with DentalMonitoring (DM) and only 6 weeks later we were surprised to find ourselves in lockdown due to the Covid-19 pandemic. The only patients who I knew were doing fine during that difficult period were those 5 on DM, so, on our return to work, I was determined to treat as many patients with aligners as possible and all of those would be placed on Dental Monitoring.

3. What are the clinical benefits of remotely monitoring your treatments?

From a clinical standpoint, it has enhanced my abilities to track developments and make informed decisions remotely whilst maintaining exceptional treatment outcomes and providing better patient convenience.

The integrated AI system meticulously reviews patient-captured images on their DM app, utilizing the DM Scanbox Pro to guarantee the transmission of only high-quality scans. It can analyze a wide range of clinical parameters and promptly alert the practice to any irregularities. Consequently, my patients are monitored on a weekly basis, deviating from the traditional bi-monthly interval, allowing for a continuous assessment of treatment progress and guidance throughout.

The AI is more adept than the human eye at the detection of common clinical incidents, such as aligner unseats (Figure 1) or missing attachments, prompting me to take swift action. Whether it's an automated reminder to enhance patient compliance (Figure 2) or a critical situation requiring clinical intervention (Figure 3), DM ensures that nothing goes unnoticed and as a result, I am consistently in control of the situation. AI flags up problems early, enabling a human being to make a prompt clinical decision. AI never gets bored of advising patients to clean their teeth better, either, which is something I struggle with after 35+ years of nagging.

Dr. Claire Nightingale

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Claire Nightingale is a highly experienced and multiple prize-winning specialist orthodontist, including "Best Practice, UK," in the Dentistry Awards, 2020; "Practice of the Year, UK", Highly Commended, 2020, 2021; "Best Referral Practice, London" Highly Commended, 2020, 2021; "Best Principal, London, 2022"; "Best Team, London, 2023" in the Private Dentistry Awards. Following her engagement with Dental Monitoring and increased treatment with Invisalign after the pandemic, she won "Most Transformed Practice", in the UK and Ireland Invisalign Summit Awards, 2022. In addition to being an NHS Consultant Orthodontist at Watford General Hospital, UK, and the Principal Orthodontist at Queen's Gate Orthodontics, London, UK, she is a key opinion leader for DentalMonitoring and is the UK specialist orthodontist on the Invisalign EMEA Advisory Panel, 2024.

Claire qualified as a dentist over 30 years ago, from Newcastle University (1989), and completed her specialist training as an orthodontist at Bristol University (1996). Exceeding 27 years of exclusive specialist orthodontist experience, she has treated thousands of children and adults, ages 8-81 with fixed braces, and Invisalign. Claire Nightingale was President of the London Dental Fellowship, 2019 – 2021, and has written multiple peer-reviewed publications. Her textbook, "Orthodontics: A Picture Test Atlas" won "Highly Commended" in the Medical Book Awards, 2001. It is a favourite amongst undergraduates and those training in orthodontics, including nurses and therapists. It was republished as "Illustrated Questions in Orthodontics", 2014, by Oxford University Press.
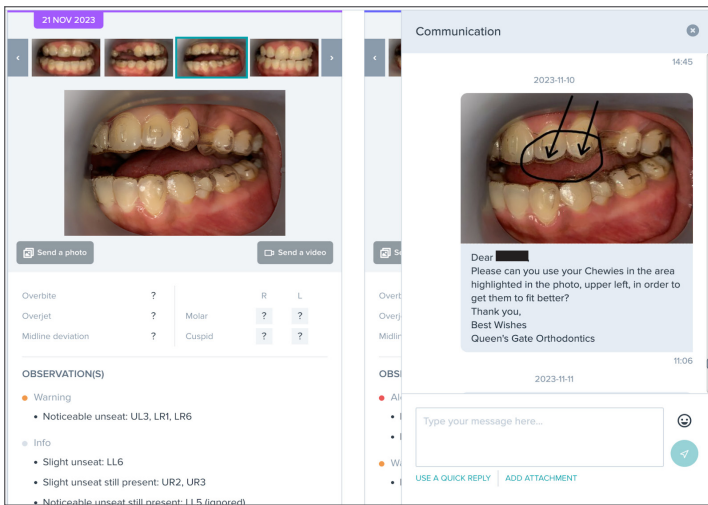
DentalMonitoring

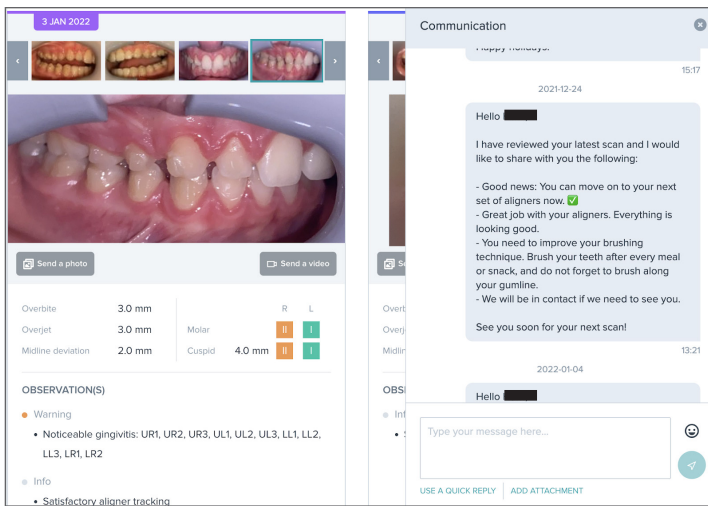**Fig. 1** - AI detection of aligner unseats and personalized communication

Fig. 2 - AI detection of gingivitis and automated communication

Fig. 2 - AI detection of a missing attachment

4. How do your patients perceive this new approach?

To gauge the patients' attitudes toward DM, I conducted a satisfaction survey among all individuals undergoing DM treatment. The results, depicted in Figure 4, were overwhelmingly positive. Most patients perceived DM as an added value to their treatment. They expressed a heightened sense of engagement, appreciated the communication facilitated through the app, and found it remarkably user-friendly, irrespective of age or background. Notably, a common sentiment was the convenience of reduced in-person visits, as they trusted my continuous monitoring of their treatment progress.
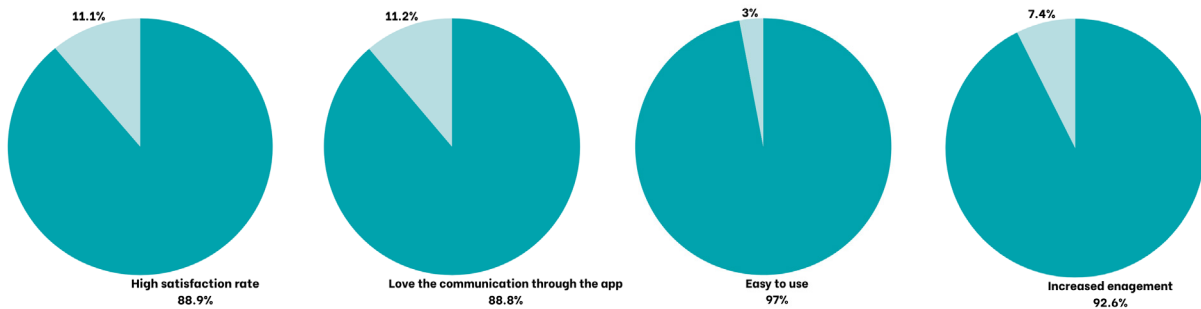

11.1%	11.2%	3%	7.4%
High satisfaction rate 88.9%	Love the communication through the app 88.8%	Easy to use 97%	Increased enagement 92.6%

Fig. 4 - The findings from the satisfaction survey

5. Finally, what was the overall impact on your practice efficiency?

Analyzing the evolution of practice activity from 2019 to 2023 reveals a compelling pattern. Despite a temporary dip in 2020 due to the lockdown, there was an increase in turnover and profitability in the years 2021-2023, yet a relative decrease in the number of patient visits, 1224 in 2019 compared to 1004 in 2023 (Figure 5). The question arises: How is this possible?
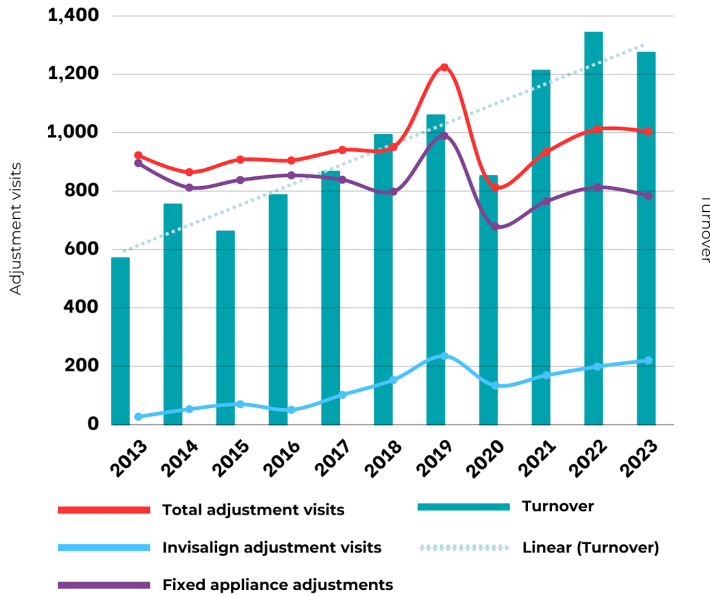
Fig. 5 - Impact of changing clinical practice, 2019-2023

The decline in the number of adjustment visits can be attributed to two key factors. Firstly, a shift in the ratio of fixed cases to aligners (Figure 6). In 2019, my practice comprised 60% fixed treatments and 40% aligners. By 2023, this balance shifted to 35% fixed versus 65% aligners. The transition towards an aligner-dominant practice resulted in fewer overall adjustment visits.
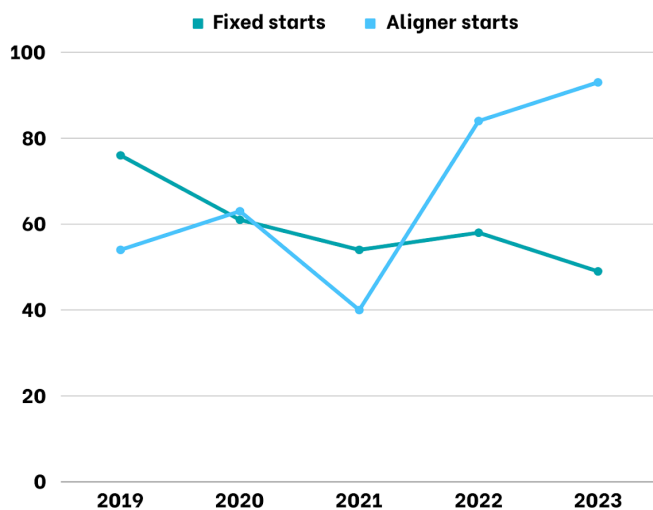
Fig. 6 - Number of Fixed and aligner case starts over financial years (April-March)
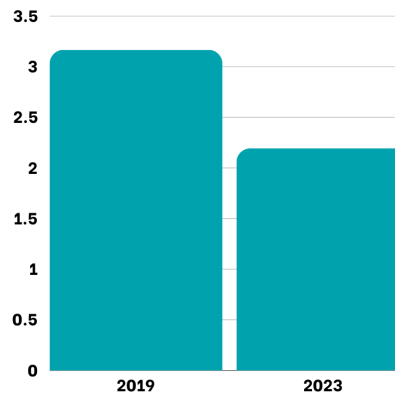
Fig. 7 - Number of adjustment visits per aligner case start, 2019 and 2023

Secondly, the integration of DM into my aligner treatments proved instrumental in reducing the number of unnecessary adjustment visits per case by 32% (Figure 7). This reduction translated to a remarkable 220 appointments saved in 2023, (which at 30 minutes per appointment on an 8-hour day translates as 14 working days), creating more white space in the diary to accommodate new patient consultations at short notice. Previously new patients would have to wait several weeks for a consultation due to the adjustment visits being booked 6-8 weeks ahead, especially at the most popular time, at the end of the day.

Changing our work practice, which created more time in the diary with less need for patient attendance, also had other consequences:

- The time saved from the streamlined appointments created room to accommodate new cases and resulted in a 9% increase in the commencement of treatments (Figure 8). This was also likely due to the post-COVID bounceback experienced across the dental sector in the UK, which has now started to decline.

- In 2019, we were at a maximum number of clinical staff due to the increased patient attendance. One orthodontic therapist returned to Australia as the COVID-19 pandemic hit and subsequently another left. These posts were not replaced, yet the practice continued to run successfully. The efficiency and delegation facilitated by DM were instrumental in maintaining operations with a reduced workforce, as orthodontic treatment delivered by clear aligners requires significantly less chairside time than fixed appliances.

- The increased volume of Invisalign cases resulted in increased laboratory fee discounts, which helped to reduce manufacturing costs to a more palatable level.

- Reducing the need for in-patient attendance has enabled us to cope more easily with the challenges of train strikes, staff absences due to sickness and jury service, equipment breakdown, etc., that are an uncontrollable, deleterious, influence on running a patient-centric practice.

- Inevitably, treatment fees have increased slightly between 2019-2023. I charge the same fees for comprehensive orthodontic treatment delivered by either fixed appliances or aligners, as I consider the initial outlay of the increased material costs of the latter 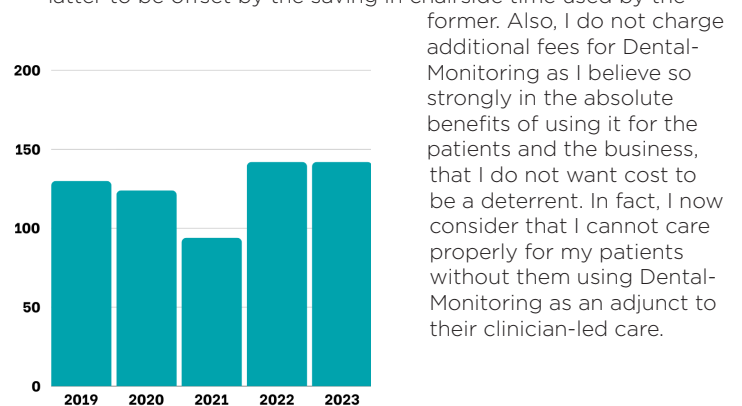to be offset by the saving in chairside time used by the former. Also, I do not charge additional fees for Dental-Monitoring as I believe so strongly in the absolute benefits of using it for the patients and the business, that I do not want cost to be a deterrent. In fact, I now consider that I cannot care properly for my patients without them using Dental-Monitoring as an adjunct to their clinician-led care.

Fig. 8 - Number of case starts over successive financial years (April-March)

Additionally, diving deep into my practice activity data revealed an interesting and surprising pattern that I was completely oblivious to. While I was able to significantly increase my treatment efficiencies with aligners thanks to DM, my fixed cases efficiency got considerably worse. Between 2019 and 2023, there was a 50% increase in the adjustment visits needed per fixed treatment (Figure 9) which made me question the reason behind these 5.5 additional appointments per treatment.
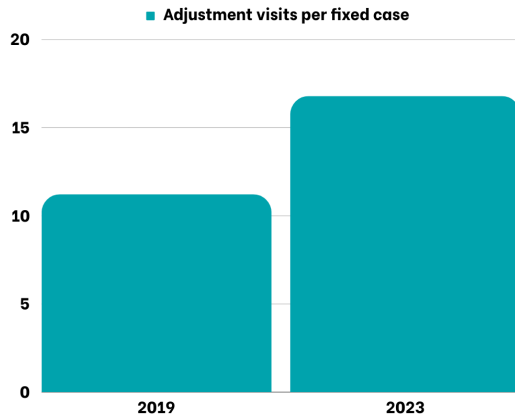

Fig. 9 - Adjustment visits per fixed case 2019 vs 2023

On delving further into the reasons why, I think that the mindset of the reception team hadn't kept pace with the evolution of the diary white space, due to clinical work patterns changing. Instead of rigorously opening the patient card to check exactly when the next appointment was due before booking, they would offer the next available appointment, which meant the fixed appliance patients were being brought back for adjustments prematurely. Additionally, some of our clientele erroneously believe that frequent visits increase the speed of orthodontic treatment, and the diary now has space to accommodate these expectations, which is a deleterious outcome that needs to be addressed further. In fact, having observed such a positive result from introducing DM for my Invisalign cases, I have now rolled it out throughout the practice, so that all fixed appliance patients are now using DM. It will take more time to assess what the benefits have been, but I can see an improvement in my patients' dental hygiene and identified early problems, such as incorrect application of elastic traction, for example, that have enabled me to correct these earlier in treatment.

6. Where next for you in your DentalMonitoring journey?

Firstly, I want to improve compliance with regular scanning for the younger patients by ensuring their parents download the DM app too and receive the notifications. Secondly, I hope to introduce DM into the NHS hospital service where we have the challenge of constantly increasing unmet demand for treatment but an insufficient number of clinicians to meet it if we continue to work with a traditional approach. I think we can only hope to manage the volume of patients in need of treatment by embracing technology to help us reduce the need for patient attendance, whilst maintaining (and possibly improving) the standard of patient care, which will help us to carry a larger caseload.

7. What are the takeaway messages from your journey and what would you say to people considering embarking on a similar path?

In reflection, my experience with DentalMonitoring illuminated a crucial lesson in orthodontic practice – genuine growth arises from a willingness to adapt to the dynamic needs of our patients, even if it necessitates challenging and transforming our mindset.

The key takeaway is clear: prioritizing the patient initiates a ripple effect, aligning efficiency, profitability, and personal and professional growth. It's not just about adopting new technologies but fostering a patient-centric mindset for continuous improvement and success in orthodontics. It is also essential to Measure and Monitor your business KPIs reasonably frequently, and certainly year on year. For those considering a similar path, my tips are to embrace change, invest time in training, and reflection, and always prioritize the patient's experience. This patient-centric approach is a powerful catalyst for positive outcomes and sustained growth in orthodontic practice.