



FOCUS ON  
**HEALTH**

## **Dental Assisting, Dental Therapy & Oral Hygiene**

**Self-study CPD activity**

**Activity Reference Number**

**B11(25) 2029**

**Topic**

Top tips

**Article(s)**

Top tips to improve aligner tracking

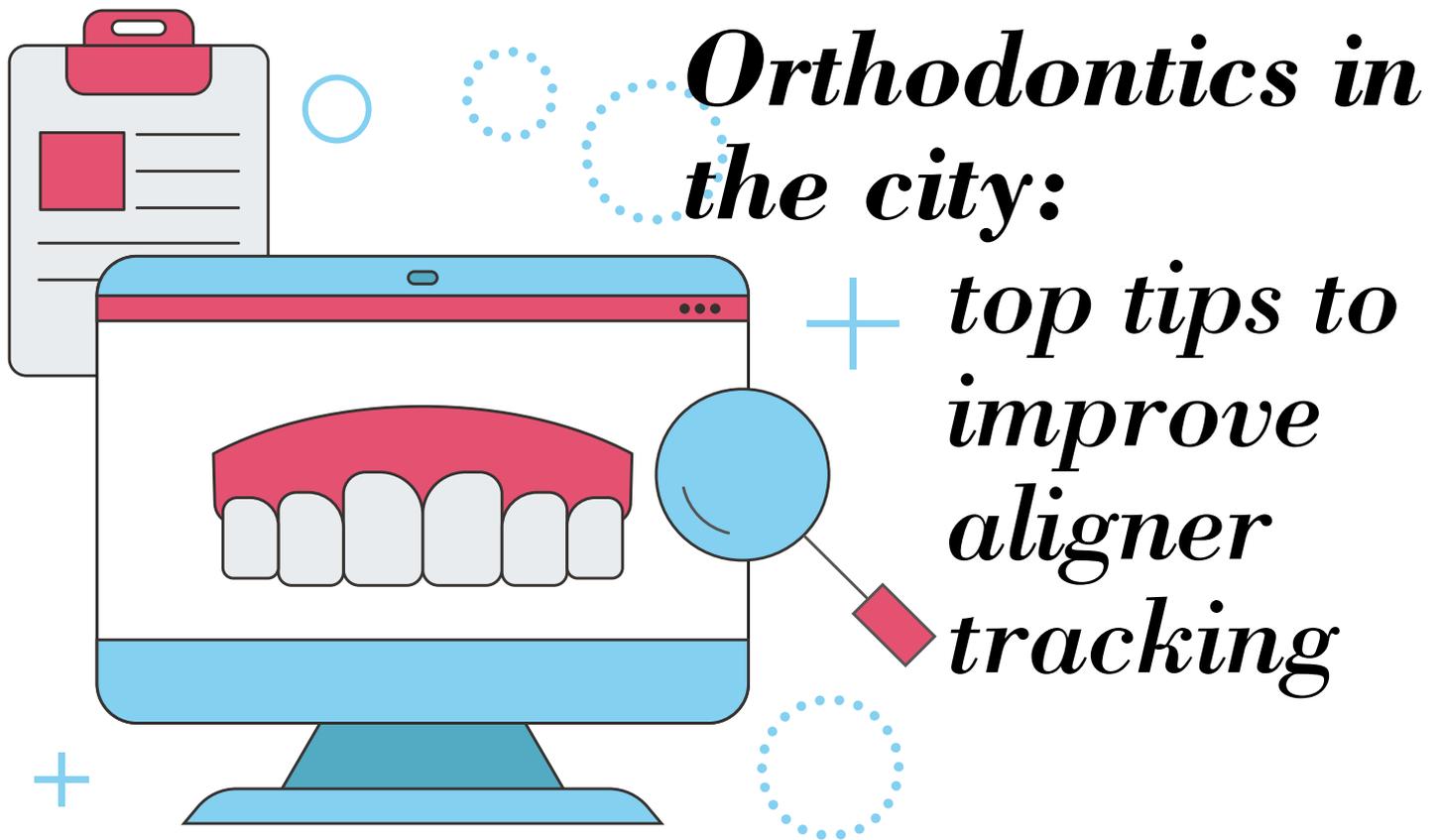
**Profession(s)**

Dental Therapist

Oral Hygienist

Dentist

This activity is approved for **THREE (3) Clinical** Continuing Education Units (CEU's)



**Chrystal Sharp** is an award-winning orthodontic therapist based in a private clinic in London.

**W**elcome back to my regular feature in *BDJ Team!* To start the year, I will be discussing aligner tracking and exploring top tips to improve aligner tracking. I will also be catching up with Ed Calvert from DentalMonitoring, the world's first orthodontic remote monitoring system powered by artificial intelligence (AI).

**Dental aligners**

Aligners are a series of removable orthodontic appliances which gradually move teeth into the desired position. The patient wears the aligners 22 hours a day and changes into new aligners every 1–2 weeks, as prescribed by their treating clinician.

Aligners are custom fabricated to fit over a patient's teeth with movement of up to 0.3 mm applied within each aligner.

When we refer to aligner tracking we are referring to the fit of the aligner and the movement of the teeth in comparison to the

*'When we refer to aligner tracking we are referring to the fit of the aligner and the movement of the teeth in comparison to the ClinCheck'*

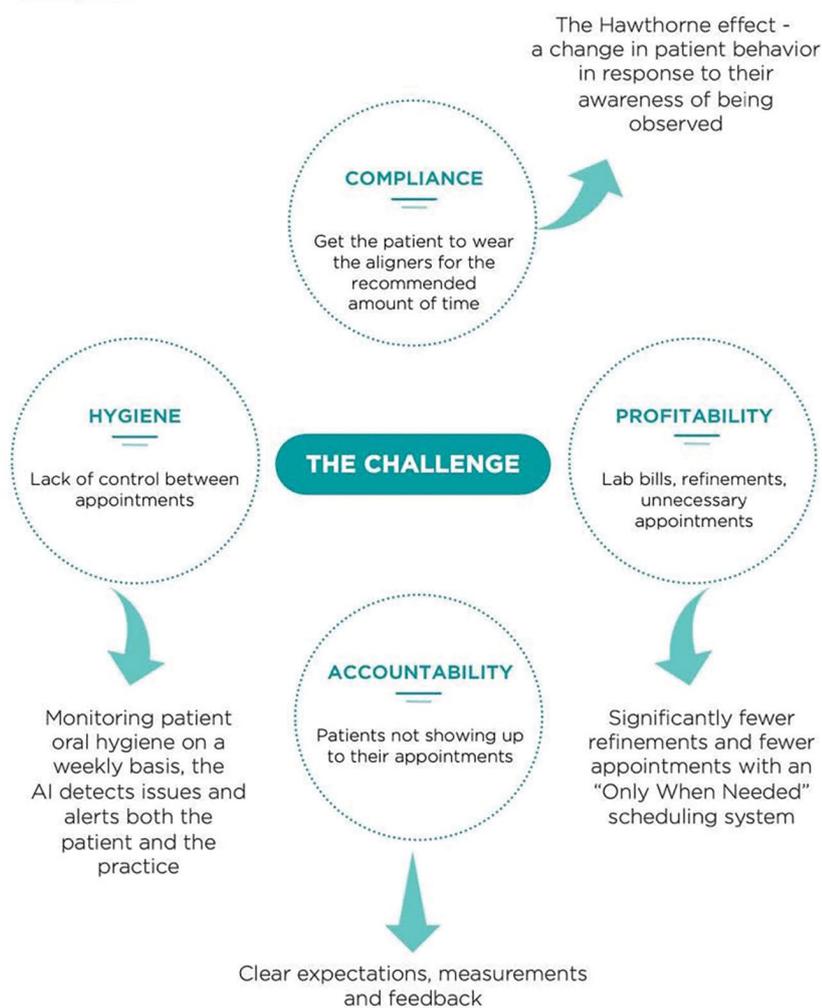
digital personalised care plan, referred to as the ClinCheck.

The ClinCheck highlights how many aligners a patient has, where attachments will be placed, identifies how much interproximal reduction (space creation) is required and the location/translation of the movements per aligner.

There are multiple reasons why a patient may experience aligner tracking problems, with compliance being a dominant reason. As an orthodontic therapist (OT) we are seeing the patient at the very beginning of

their aligner treatment. Our role within this appointment is to ensure the patient understands the importance of compliance within successful aligner treatment in achieving the desired results. Patients need to take ownership of compliance as clinicians cannot be responsible for this. Clinically our responsibility is to ensure that the ClinCheck plan is followed, for example attachments placed when needed, interproximal reduction (IPR) appointments scheduled as required and all aftercare instructions provided. Compliance comes with motivation. We have

Overcome the top 4 challenges of clear aligners with DM



For more information on the topic watch Dr. Donna Galante's Academy video <https://academy.dental-monitoring.com/discover/the-truth-about-dental-monitoring-webinar>

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Fig. 1 Overcome the top four challenges of clear aligners with DM. Image courtesy of DentalMonitoring (DM)

multiple tools available to use within the clinic or suggest that our patients purchase, to increase their motivation and therefore achieve the desired compliance. As OTs we can establish a rapport with our patients and provide time to ensure patients fully understand all instructions.

Figure 1, provided by DentalMonitoring, shows the top four challenges of clear aligner treatment.

Top tips

The following are my top tips to help prevent aligner tracking problems and create compliant patients.

Tip 1: Use AI to remotely monitor your patients

It is common now for clinics to be using artificial intelligence (AI) to monitor their patients during orthodontic treatment, using systems such as DentalMonitoring or Invisalign Virtual Care AI.

With DentalMonitoring, patients are provided with a scan box that attaches to a mobile phone (with Invisalign it is a mouth retractor); this enables videos/images to be taken of their teeth through a smartphone app. The patient's orthodontic clinician will set the intervals at which they wish the patient to scan their teeth whilst in the comfort of their own home. These images are then assessed by their orthodontist allowing the patient to be provided with feedback, checking the teeth are moving as planned and the aligners are fitting perfectly. This allows the orthodontist to intervene as necessary and ask the patient to come to the clinic sooner or later than the next scheduled appointment or increase the aligner wear and advise on use of aligner chewies if necessary, for optimal aligner seating.

Using remote orthodontic monitoring can change patients' behaviour, referred to as the Hawthorne Effect, where an individual may alter their behaviour as they are aware of being observed, which improves compliance.

Figure 2 shows a picture of a patient with their aligners in that they sent via DentalMonitoring. The treating clinician or OT can assess this photograph and highlight (as in red in this photo) areas where the aligner is not fully fitting, referred to as an 'unseat'. In this way the patient can visually understand what is happening and we can communicate directly through the DM dashboard with the patient, sending personalised instructions.



WRITE YOUR MESSAGE:



Select a quick reply

Hi

Let's stay in this aligner a little longer due to an unseat on the highlighted tooth in the photo above. No need to worry, we will keep an eye on this. We recommend using your chewies in the highlighted area for about 5 minutes. Chewies are a useful tool that you chew on to close any air bubbles between your aligners and your teeth. They improve the fit of your aligners and ensure they feel comfortable and work properly. If you do not have any chewies, we will provide you with some at your next appointment. 😊

Thank you,

Fig. 2 Example of patient photo sent through DentalMonitoring and annotations/notes by treating clinician. Courtesy of DentalMonitoring

Tip 2: Use an aligner compliance app

Ensure the patient is accountable for the

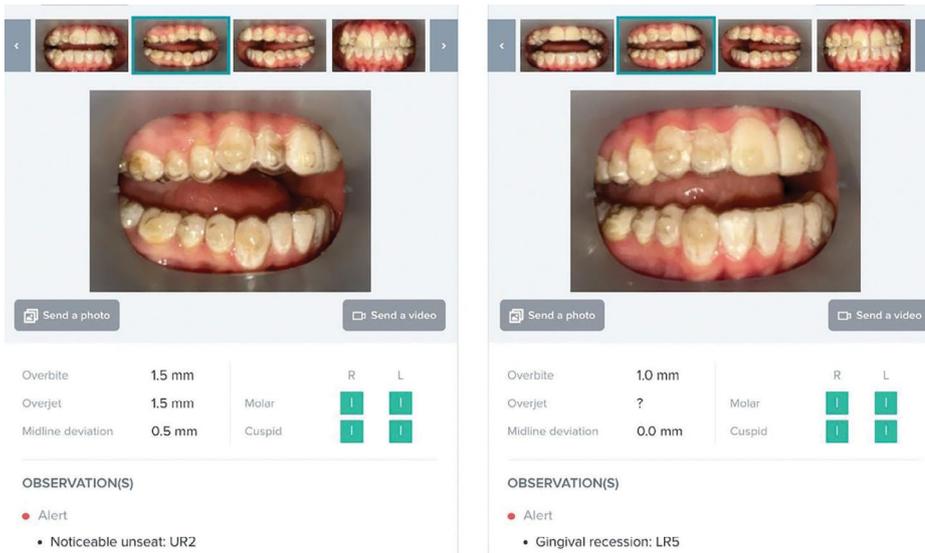


Fig. 3 Example of the clinical dashboard flagging a noticeable unseat of the 12 (UR2), creating a halo effect. Courtesy of DentalMonitoring

*‘As OTs we cannot carry out IPR but it is normal for us to be reviewing patients’ aligner wear, aligner fit and aligner tracking at appointments’*



Fig. 4 Attachments with no excess

hours the appliance needs to be worn. Invisalign should be worn for 22 hours a day to ensure optimal tooth movement. The best way for the patient to track their wear is using an aligner compliance smartphone app. If undergoing Invisalign treatment, the patient can download the relevant app for free. This has a timer function which the patient can start and stop every time an aligner is removed and reinserted. An accurate wear time will then be displayed to the patient, allowing them to extend aligner wear as necessary. It is advisable that the patient achieve 22 hours’ wear a day for either seven, ten or 14 days per aligner, depending on the aligner change schedule they have been advised by their clinician. If for example they are on seven-day changes and have not achieved seven days of 22-hour wear, they should then extend the wear of this aligner by the number of hours they have missed, before changing onto the next scheduled aligner.

By asking the patient to download the app ahead of their aligner fit appointment, you can ensure this schedule is set up correctly on their app and ensure they know how to navigate the app. If the patient is undergoing treatment with a different aligner brand, they can access other aligner wear smartphone apps such as TrayMinder or AlignerTracker.

*Tip 3: Ensure the teeth have space to move*

The majority of patients undergoing aligner treatment will require interproximal reduction (IPR). This is the minimal removal of enamel between the teeth up to a maximum of 0.5 mm per contact to allow space for teeth to align. This is a routine orthodontic treatment and will be preplanned and staged within the ClinCheck.

As OTs we cannot carry out IPR but it is normal for us to be reviewing patients’ aligner wear, aligner fit and aligner tracking at in-clinic review appointments or via remote monitoring. If during these assessments we can see the alignment of teeth is not progressing as per the ClinCheck plan, this may be due to a lack of space. We as OTs can assess the space. Firstly, I would suggest looking at the ClinCheck staging plan, ensuring that the IPR appointments have gone ahead. If they haven’t then the patient will need to continue to wear the same aligner until this appointment has occurred, scheduling the next available slot or asking your prescribing dentist, if onsite, to carry this out within the appointment.

If all the IPR appointments have happened as per schedule, you can check the contacts of the teeth to see how tight they are, assessing

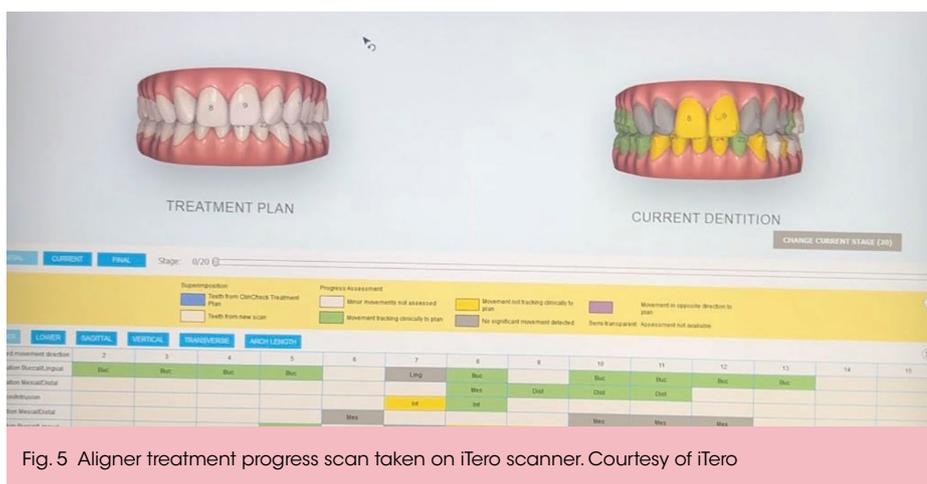


Fig. 5 Aligner treatment progress scan taken on iTero scanner. Courtesy of iTero

*‘Patients require more regular dental hygiene appointments during orthodontic treatment and should take ownership of booking these.’*

if any calculus is present that could be preventing the tooth movement. I would suggest using either Oral-B Satin Floss or Tooth Angel Soft Floss. Doubling up the floss will indicate if the contacts are tight; if they are then a review appointment for IPR may be necessary. If the contacts are tight due to calculus being present then a hygiene appointment should be scheduled before any more aligners are provided. Patients require more regular dental hygiene appointments during orthodontic treatment and should take ownership of booking these. It is best to advise hygiene appointments every 3–4 months during orthodontic treatment. As OTs we can ensure every patient we are reviewing is following this.

Remote monitoring allows us to assess patients’ oral hygiene more regularly and send communication to book hygiene appointments where needed.

#### *Tip 4: Ensure the aligner is fully seated*

When the patient places their next aligner it is common for it not to fully seat on that first insertion then for up to a few days after. This is due to the movement of up to 0.3 mm placed within the aligner. The teeth have not yet moved to this position and it will take a few days for this movement to occur. By advising the use of aligner chewies (which are soft cylinder-shaped tubes used to bite down on with aligners in place, to place pressure

to seat the aligner fully) we are eliminating air bubbles within the aligner and therefore ensuring a tight fit. If the aligner is not fully seated then the movements within the aligner will not occur fully, causing the teeth to not be positioned as planned, creating further unseats in the next aligners known as a halo effect – where a halo-shaped gap is present between the teeth and the aligner.

Aligner chewies should be used multiple times a day. I usually advise on every insertion going back and forth over every tooth a few times to ensure the aligner is fully seated.

Patients feel that chewies can be unhygienic as they are reusable. Patients should be advised to disinfect these daily using their preferred aligner cleaner method and replace when disintegration occurs, such as areas of separation present on the chewie.

Aligner chewie mints such as StarMintz are a great alternative to suggest to your patients: an innovative product that will enhance the patient’s aligner journey [previously discussed in my *BDJ Team* feature in November 2024]. Common concerns from aligner patients are bad breath whilst using aligners; not enjoying the reusability of aligner chewies so therefore not following the recommended use; and not being able to have mints or chewing gum whilst wearing aligners. For these reasons I recommend StarMintz to my patients which are completely safe to have whilst wearing

aligners. They combat bad breath and can be used to seat the aligner in the same way an aligner chewie is used. This positively motivates the patient in the chewie method meaning unseats are less likely.

Figure 3, provided by DentalMonitoring, shows the clinical dashboard flagging a noticeable unseat of the 12 (UR2), creating a halo effect.

#### *Tip 5: Ensure attachments are placed precisely*

Attachments – pre-planned 3D components that come in multiple shapes and sizes designed for each patient’s case – are made of composite, a tooth-coloured dental resin, and placed on the teeth. Attachments are commonly used within aligner treatment to achieve the full grip of the aligner and guide the movement of the teeth.

When placing attachments we are provided with an attachment template which is a passive tray to enable us to bond the attachments in the correct position, size and shape. When we fill this template with composite and apply pressure whilst setting the attachment in place we will inevitably have some excess composite. It is imperative this excess composite is removed as this distorts the shape of the attachment and will affect the fit of the aligner as the aligners have not accommodated for excess composite. To ensure the composite is fully removed I would suggest that your nurse firstly does not place too much composite material in the attachment template. Secondly, once the template is removed and the aligners are in place, assess each attachment, gently removing any excess using a hand scaler or removing it carefully with a composite removal bur. Figure 4 shows attachments with no excess.

#### *Tip 6: Share progress with patients*

The best way we can improve compliance is to motivate our patients through communication with visual aids. Patients undergoing aligner treatment usually understand they will require refinements (additional aligners on top of the original ClinCheck). If a patient requires early or multiple refinements this usually indicates they have not been compliant. I find a great way to show this to patients is through the iTero progress scan which clearly highlights teeth which have not moved as per the ClinCheck (Fig. 5). This usually will also show areas of unseat present in a patient’s aligner. We can use this progress scan to commend patients where teeth are tracking well and further motivate them in finishing the course of treatment.

#### REFERENCES

Available on request

# QUESTIONNAIRE

B11(25)

## Top tips to improve aligner tracking

### INSTRUCTIONS

- Read through the article and answer the multiple-choice questions provided below.
- **Some questions may have more than one correct answer;** in which case you must mark **all** the correct answers.

### Dental aligners

**Question 1:** Dental aligners are .....

- A:** A series of irremovable orthodontic appliances which gradually move teeth into the desired position
- B:** Custom fabricated to fit over a patient's teeth with movement of up to 0.3 mm applied within each aligner
- C:** Worn by the patient 22 hours a day, changing into new aligners every 1-2 months

**Question 2:** What does aligner tracking refer to?

- A:** The fit of the aligner
- B:** The movement of the teeth in comparison to the digital personalised care plan (ClinCheck)
- C:** How many aligners a patient has
- D:** Where attachments will be placed

**Question 3:** What is the dominant reason for aligner tracking problems?

- A:** Compliance
- B:** The ClinCheck plan not being appropriate for the patient
- C:** Pain
- D:** Discomfort

**Question 4:** Clinically the responsibility of the orthodontic clinician regarding the ClinCheck plan is .....

- A:** Taking co-ownership of compliance
- B:** Scheduling interproximal reduction appointments proactively once a month
- C:** Providing all aftercare instructions
- D:** Ensuring that the ClinCheck plan is followed

**Question 5: TRUE or FALSE?**

"Compliance comes with motivation."

- A:** TRUE
- B:** FALSE

### Tip 1

**Question 6:** How can artificial intelligence (AI) be used to remotely monitor patients during orthodontic treatment?

- A:** Check whether teeth are moving as planned
- B:** Intervene as necessary to adjust the treatment plan
- C:** Advise on use of aligner chewies
- D:** Check whether aligners fit perfectly

**Question 7:** Changing patient behaviour by using remote orthodontic monitoring, is referred to as .....

- A:** Halo effect
- B:** Hawthorne effect
- C:** Ramstein effect

### Tip 2

**Question 8:** How many hours a day should Invisalign aligners be worn to ensure optimal tooth movement?

- A:** 18 hours
- B:** 20 hours
- C:** 22 hours
- D:** 24 hours

**Question 9:** What is the best way for a patient to track their Invisalign aligner wear?

- A:** Manually recording wear times in a notebook
- B:** Using the timer function in the Invisalign smartphone app
- C:** Estimating how many hours they think they wore the aligners
- D:** Asking their orthodontist at each appointment

### Tip 3

**Question 10:** What is the maximum amount of enamel that can be removed per contact during interproximal reduction (IPR)?

- A:** 0.2 mm
- B:** 0.3 mm
- C:** 0.4 mm
- D:** 0.5 mm

**Question 11:** How often should patients have dental hygiene appointments during orthodontic treatment?

- A:** Every 1-2 months
- B:** Every 3-4 months
- C:** Every 6 months
- D:** Once a year

**Tip 4**

**Question 12:** What are aligner chewies used for?

- A:** To unseat the aligner
- B:** Eliminating air bubbles within the aligner
- C:** Ensuring a tight fit
- D:** To achieve the Halo effect

**Question 13: TRUE or FALSE?**

"Aligner chewies only need to be used once per day."

- A:** TRUE
- B:** FALSE

**Tip 5**

**Question 14:** Why is it important to remove excess composite when placing attachments?

- A:** It will affect the fit of the aligner
- B:** It makes the attachments more visible
- C:** It distorts the shape of the attachment

**Interview**

**Question 15:** AI allows practices to pick up which of the following issues?

- A:** Broken brackets
- B:** Aligner tracking
- C:** Archwires having become passive

**THE END**



# FOCUS ON HEALTH

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(Complete sections marked with an asterisk \*)

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**I hereby declare that the completion of this document is my own effort without any assistance.**

SIGNED:

DATE:

This activity is accredited for **THREE (3) CLINICAL CEU'S**. You have to achieve 70% to pass this activity.

## ANSWER SHEET

### B11(25)

Top tips to improve aligner tracking

	*Time spent on activity					hour		min				
	A	B	C	D	E			A	B	C	D	E
1						9						
2						10						
3						11						
4						12						
5						13						
6						14						
7						15						
8												

**How relevant was the content of this activity to your scope of practice?**

			
Not at all	Somewhat	Mostly	Extremely

**RETURN ANSWER SHEET TO**

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