

Dentistry's

September 2017

iTero: In association with **Dentistry**

guide to the real benefits of digital workflows



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open stl files
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the future.

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*With the iTero 1.5 software upgrade, patient scans can be completed in as little as 60 seconds
with the same accuracy and reliability that you have come to expect from iTero scanners.
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Digital dentistry is here

Everything is turning digital nowadays. From our watches to our radios, digital technology is being integrated into every part of our daily lives. Dentistry is no different, yet while there are so many digital solutions available, few dentists are willing to take the leap and fully embrace digital dentistry.

One such digital solution is an intraoral scanner. Scanners have been around for a while now, with the iTero range first launched 10 years ago. Yet despite this, many dentists are still reluctant to take the plunge and invest in a scanner. Those dental practices that have moved to using an intraoral scanner are already enjoying the benefits, with many now investing in their second generation of scanners, proving their worth.

This supplement aims to give you some of the reasons why an intraoral scanner can work so well in a dental practice. Covering all aspects from myth busting through to how long it may take to get a return on your investment.

If you've never thought about getting an intraoral scanner, or even if you're thinking of investing in one in the near future, this supplement can help you to understand what to look out for and what questions to ask when you're shopping for one.

One hour of verifiable CPD is also available in this supplement thanks to an educational grant from iTero.

So please enjoy the read and think about how an intraoral scanner could take your practice to the next level.



Seb Evans
Editor

Contents

4-5

Digital impressions for a wide range of applications

New materials and manufacturing processes have led to the conversion to digital workflows in many dental laboratories. However, many dentists still hesitate with the last step in the digitisation of dental implant manufacturing process: digital impressions. Ingo Baresel discusses why.

6-7

Improving your workflow

We speak to Ashley Byrne about how digital scanners are helping with communication between dentists and dental labs.

8-9

Scanning in practice

How easy is it really to introduce a scanner into the practice? We speak to Mohsen Tehranian about his experience.

10

Top tips for digital scanners

Hanel Nathwani gives his top 10 tips to get the best investment when you go shopping for an intraoral scanner.

11

CPD questions

Get one hour of verifiable CPD.

Digital impressions for a wide range of applications

New materials and manufacturing processes have led to the conversion to digital workflows in many dental laboratories. However, many dentists still hesitate with the last step in the digitisation of the dental implant manufacturing process: digital impressions. What could be the reason for this?

Precision backed by clinical studies

The reason is not because of the lack of proven accuracy of digital impression technology. Numerous studies have verified that the accuracy of this impression-taking technique is often superior to that of classic methods. Now scans are also fully equipped to handle full-arch rehabilitations, extensive implant work, and occlusal splint therapy.

Many companies currently offer intraoral scanners for significant distinctions. What are the main criteria that one should consider when deciding which system to use?

The iTero Element® from Align Technology (Figure 1) has been on the market for approximately two years, although the iTero line was first launched in 2007. This intraoral scanner is designed as a universal multidisciplinary tool for restorative and orthodontic use. In our experience, the triangular representation of the generated scan, ie the quality of the scan, is clearly different from that obtained using other intraoral scanners. The precise technology and sharp images produced by the iTero Element® allows for highly accurate fabrications.

There are also a number of helpful software tools that can be used after the actual scanning procedure. Following the scan, the space available for restoration can be immediately reviewed and corrected by means of a colour scale (Figure 2). This is the feature that adapts to the material used, thereby indicating if more tooth structure should be removed to avoid lab remakes. Rescanning the tooth is not necessary because of iTero's technology. With the cut out function, the area requiring correction can be rescanned. This function also helps with any margin line errors.



Dr Ingo Baresel is a dental practitioner at a dental group practice in Cadolzburg and founding member of DGDOA (German Association for Digital Oral Impressions).



Figure 1: The iTero Element® Scanner from Align Technology

Digital impressions are state-of-the-art for precise and advantageous patient treatments

Smart scanning strategy

Unlike other intraoral scanners, the iTero Element® allows for impressions for long-term prosthetic restorations in the scanning strategy. Prepared teeth are first individually scanned at a high resolution and then added to a full-arch scan with the preparations. Particularly in the preparation of multiple abutments, this offers the advantage that each abutment can be handled individually in the scan operation and thus the necessary retraction aids can be removed just before the scan. Other intraoral scanners are restricted

to scanning the overall situation. As in classic impression-taking, keeping multiple prepared teeth dry and blood-free is a challenging task. Thus, subsequent corrections of the scan through cut out and rescan errors at the preparation margins is necessary. The option of a pre-preparation scan with subsequent cut out of the region to be scanned and addition of the prepared abutment teeth is also not an adequate alternative. For multiple adjacent preparations, this additional preparation is not accurate enough due to the lack of information about the surrounding area.

Thoughts from a UK dentist



So why aren't we incorporating this fantastic technology routinely into our practices in the UK? For many, the balance between cost and return may be a perceived issue.

Those of us in general practice with a special interest in one particular aspect of dentistry may calculate for instance X implants per year doesn't add up to cover the initial cost. However, I believe this is missing a huge amount of the benefit to the practice and practitioner. The very presence of a new piece of cutting-edge technology in the surgery is enough to raise interest from patients. The ability of the iTero to be used across all disciplines further raises the justification.

In my clinics, my treatment coordinator routinely scans all new patients so as to achieve a digital baseline model. Any consultation that the patient subsequently has with any of the dentists – restorative, implant, ortho etc, is enhanced by having an interactive model of their own teeth to talk about. These records can then simply be stored, printed, waxed up by your laboratory or even be the definitive starting records for Invisalign. This can be taken a stage further by incorporating with aftermarket smile design software or Invisalign's own built in outcome simulator as a further stage in informing our patients of potential issues they have and solutions we may be able to offer.

To invest in the technology you can't simply offset the figure against your annual silicone impression material costs, you have to view it as a full time member of staff. It saves time and offers access into a far more efficient and profitable workflow.

Reconsider starting the digital workflow earlier in the process.

Share your toys – get a system that has the broadest applicability and encourage all team members to use it.

Don't fall into the trap of considering just material cost savings – time is even more valuable. With a study model/Invisalign scan time for both arches and bite of 90 seconds (in my hands but I've seen faster). How much does an impression rejected by the laboratory cost us in time/materials/embarrassment?



Darren Stone,
platinum elite level Invisalign
treatment provider and clinical
speaker for Invisalign

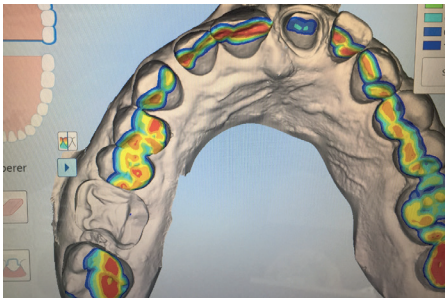
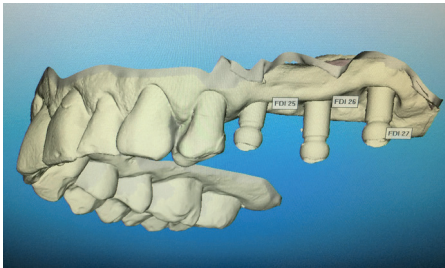


Figure 2: Scan with occlusal clearance scale



Figures 4: Display of the implant impression reviewed remotely by a lab or clinician



Figures 3: Implant with scan posts in position



Figure 5: Restorative scan with margins added

Full-arch and implant restorations

The special scanning strategy used by the iTero Element® also makes it ideal for full arch with multiple restoration scans. This option is appealing not only as a basis for fabrication of dental prostheses but also for occlusal splint therapy or as a basis in fabrication of surgical guides for implants.

Intraoral scanners offer additional advantages for implant impressions. With conventional methods, the transferring of the patient's implant situation is cumbersome and difficult for both the patient and the dentist. The impression is often hard to remove, especially in the molar areas, due to the long transfer posts used. In addition, the precision of the impressions of implants and teeth frequently vary from one region to the next, making remakes necessary.

Digital impressions do away with these problems. The iTero Element® offers a convenient solution facing the dental industry today with traditional impressions. The arch, including the exposed implant screw, is scanned first to enable representation of the emergence profile. Then a scan post suitable for the implant system and the implant size is screwed in for transfer of the implant position (Figure 3). The scan post is also scanned and automatically added to the first scan. Thus, the dental lab will have the exact position of the implant in the arch as well as information on the surrounding tissue. After the opposite arch impression and digital bite are taken, the impression process is finished. If additional

prepared teeth are included in this impression, precise impressions can be taken of each of them separately – as described above – and immediately checked on the screen. In this case, it is crucial that the laboratory have access to the master list of the implant system.

Coordination with the lab

After the subsequent check, the scan data is transmitted to the Align Technology service team for editing. The data then appears on the Align portal at the iTero certified dental lab and can be processed further there (Figure 4). Through joint definition of the preparation margins by the dentist and the dental technician via remote access on the laboratory computer (Figure 5), the quality of the restorations are also improved.

Conversion to digital impressions requires conversion of the workflow in both the practice and in the lab. The two partners must discuss the new workflow in detail and each partner must understand the needs and problems of the other.

Conclusion

Digital impressions are state-of-the-art for precise and advantageous patient treatments. The iTero Element® from Align Technology is an intraoral scanner designed to be a universal dental practice tool for delivering extremely detailed results, even for large-scale restorations or implants. **D**

Improving your workflow

We speak to Ashley Byrne about how digital scanners are helping improve precision and speed in a dentist's and dental lab's workflow

1. I'm owner of a dental laboratory that is very heavily digital. Around 95% of our work is digital, of which about 50% of my impressions are intraoral scans. I would say we are one of the biggest digital labs in the UK, and we do a huge amount with iTero.

3. First and foremost, the patient finds the experience much more pleasurable. There's no choking, there's no gagging. It's much more accurate. We know the bite registration, when you put something like wax in someone's mouth to bite on, they often posture their jaw forward, so we get a bad registration. When you put nothing in their mouth and ask them to bite together they are normally in the correct position so you get a better bite. It's better for the environment, it means less postage, less travel. We're also not using Gypsum, which is also not good for the environment. The models don't wear like Gypsum – when you put crown on a Gypsum model, you get wear of the contact points, you don't get wear of the polyurethane. From our perspective, they're lighter, they're easier to handle, they're nice to work with. It's also the fact that it's digital as well, therefore it's traceable, so let's say for example that something goes missing in the post, I can just reprint or re-mill the models. Everything is trackable and traceable, there's no storage of the models, it's just much more efficient for every party – dentist, patient and technician.

1. What's your background?

2. What work do you do with iTero?

3. Why is the scanner better than more traditional methods?

4. Is there a particular scanner you prefer dentists and practices to use?

2. As dentists are our customers, they take the intraoral scan, which is a much more comfortable experience for the patient. The intraoral scan then comes through to me via the cloud and I design the restorations from there, and that allows me to make the restorations.

Where iTero is quite unique is that the intraoral scan gives me a highly accurate model, which is milled in polyurethane. That means when I send my crowns back the contact points and the occlusion are almost guaranteed to be perfect. So from a dentist's perspective, not only does the patient prefer the impression process, the fit times are usually considerably less because there's less adjustment of the crown needed due to the quality of the scan being so accurate.

4. The two I like the most are the iTero and the 3Shape. They're the two winners for me by a long way. But if I had to pick one, I would pick the iTero.



Ashley is a dental technician and the owner of Byrnes Dental Lab based in Oxfordshire. Ashley's expertise in implants and digital dentistry has seen him lecture on these areas all

over the world and he is a key opinion leader to some of the largest implant and CAD/CAM companies in the industry. His highly-driven team is always looking to improve how technical dentistry is done and find new methods and materials to enhance this.



5. iTero is a quality controlled system, so I get the model back. With the 3Shape I have to print my own model and that creates a lot of regularity, compared to a closed system where iTero takes the responsibility of milling the models and they are the best models on the market. No model is better than iTero.

5. Why is that?

7. From a restorative perspective, iTero covers everything from veneers to implants. We can do implants very easily with the system. We just find that from a restorative perspective, the level of accuracy on everything we get is a much better, cleaner, tidier, process across the board. If I could switch all of my customers over tomorrow, I would. **D**

7. How do scanners help for restorations?

6. From our customer's perspective, first and foremost they shorten their appointment times for fitting because everything fits well. If you were fitting a great big full arch case, you would normally put aside say two hours, but most of our customers halve their appointment time. They know it comes out of the box, they put it in their patient's mouth and it's done – so you save surgery time.

It's also the fact that we find with iTero there are less adjustments in terms of remakes, so we get less fractures because the accuracy is much better. We're not forgetting margins they're all separate. Most of our customers, who have used iTero, have all upgraded to the latest model because it's been such a good investment for them.

Dentists also pick up a lot more new customers, word gets around that this practice doesn't use impressions, they use a camera in the mouth and patients love that. All of my iTero customers, they've all said they've seen an increase in patient numbers.

If I could switch all of my customers over tomorrow, I would

Scanning in practice

What is it like to introduce a scanner into a practice? We ask Mohsen Tehranian to give us his experience

1. What is your background in dentistry?

I've been doing private dentistry since 2002, and I started offering Invisalign around 2005. I've been using digital dentistry since 2009.

2. What made you get an intraoral scanner in the first place?

I've been using iTero since it came out and we were only offering crowns and bridges and veneers with it. Now I can use it for Invisalign, which is a big game changer for me, in terms of speed and efficiency.

3. What exactly were you looking for in an intraoral scanner?

I initially was using a Cerec machine and I just didn't get on with it because I couldn't produce those nice crowns that I used to get from the lab, laid and glazed etc. So because I couldn't produce this quality that I wanted I decided that it wasn't for me.

I started using iTero to produce a much better restorative element. Obviously, like any other technology, your first 20-30 scans will be quite slow, but I've now managed to reduce my time and that is why I love it and I wouldn't use anything else.

4. Was it quite straight forward to pick up?

You will start off slow and you're going to make mistakes, but it's a learning curve. You need to learn your way around it, but once you learn it you will see how easy it is.



Dr Tehranian is practice principal of Dream Smile Dental Clinic, south London. He qualified from Carol Davila Dental Institute with distinction in 1998.

Moshen is passionate about dental technology and his was also one of the first practices to use the iTero scanner.

5. Do you use the scanner for all of your patients?

We use it for everything, for all my crowns, all my bridges, every restoration that involves a lab.

It's quick, it takes under two minutes to take the scan, every time I take it, it is accurate, it reduces my clinical time, it increases my efficiency and the restorations fit better. There are many advantages.

6. Does it help when communicating with your patients?

When patients see that we're doing 3D scans, first of all they're amazed about the technology, they've never seen anything like it. They look at you in a different way and say: 'My dentist used this gluey material that I would choke on, I don't understand why they're not using this.' So at that point, patients are already sold.

But, when I've done the scan and explained to them in detail why we've done it, why I had to reduce from that surface of the tooth for example, they understand better the reason for tooth reduction, crown or the amount of tooth left. They've seen it in front of their eyes, it's very easy to get them involved in the treatment.

Once they're involved, they understand it better. Once we've scanned the patient they can see their teeth in 3D in front of them and we can start moving it and showing them every little detail of their teeth in colour.

7. Does it help to 'sell' treatment to your patients?

It's a fantastic tool to use on our patients, the moment they come and we tell them we will use the iTero. I have actually had other dentists sending me work as they've had patients that can't have their impressions taken.

Another element is as the world is digital now, when you tell patients that this will all be digital, it's a unique selling point.

8. How long does it take to get a return on investment?

To be honest, the first one I bought, I probably paid it off in the first two years.

The scanner software picks up details of what's worn down, what's chipped and you can show that to your patient. We scan every patient that walks into clinic for a routine examination. Also, when we scan a patient who has crowding we can very quickly use the iTero to show how the teeth will look when straight. A lot of patients have no clue how crowded their lower teeth are usually, it's only once they see





everything in 3D they get an idea.

So, a lot of people accept having orthodontic treatment to correct this lower crowding, which helps them maintain good oral hygiene.

9. Does it help to motivate your patients during treatment?

Yes. With Invisalign, we now use a progress tracker, which is only available on the iTero scanner, where we scan patients at different stages in their treatment. This assures the patient that their treatment is on track and I

To be honest, the first one I bought, I probably paid it off in the first two years

can tell them how accurate it is and be sure that they are definitely on track. Patients are more compliant and it makes them want to continue with their treatment knowing this. **D**



Top tips for digital scanners

Thinking of delving into the world of digital scanners? Hanel Nathwani gives his top tips when shopping for a scanner



What's your background?

I'm the practice owner of Reading Smiles and a cosmetic dentist.

Why did you first purchase a scanner?

I purchased it mainly for design to start off with. But we've ended up using it for most, if not all, restorative and orthodontic treatments as well. **D**

1

Buy one. I was very much against it at the beginning, but the way dentistry is going it's all going to be digital. So, I would highly recommend it. It's changed the way that we do dentistry at our practice ■

2

Look for one that's slim line. The iTero, for example, is slim line, which allows us to use it in several different surgeries. It is also portable, and interactive, allowing patients to move images across on a giant iPad type screen ■

3

Scan time. iTero scans take two minutes and are a lot quicker than taking impressions. People in this day and age hate impressions, so the fact you can just take a scan of someone's teeth is just incredible ■

4

Try to get a colour scan – people's teeth are brought to life, making them more susceptible to stick to a treatment plan because they can see their teeth in colour on the screen ■

5

Dentition changes – ensure your scanner software offers you the ability to show before and after scans of patient's teeth. iTero has a great new feature called 'Timelapse', which shows changes in dentition and gums over time ■

6

It is an invaluable aid to corroborate patient consent. Everything can be explained, every treatment option demonstrated and verification of this can be added to patient notes ■

7

Without a shadow of a doubt it is the best tool to sell an Invisalign or restorative case. A picture is worth a thousand words, why explain what you want to do when you can demonstrate it in minute detail – and show the predicted outcome on the screen? ■

8

It maintains a dialogue with your patients and keeps them compliant – it is possible to show them the progression of their treatment at every appointment, demonstrate the results of their oral health efforts, and a myriad of other factors to keep patients on track with your recommendations ■

9

Having a digital scanner maximises communication direct with your lab – it's like having a Bat Phone with your technician – or having them working alongside you in the practice. Dialogue is so much more effective when illustrated and restorations are so much more accurate thanks to clean scans ■

10

It gives the right impression! It makes you and your practice look cutting edge – the whole world is becoming digitally focussed, a practice which still uses gloopy impressions looks like a dinosaur. ■

Try to get a colour scan – people's teeth are brought to life



Dr Hanel Nathwani built up a strong following in London's Harley Street, Knightsbridge and Kensington before taking his expertise to Reading where he set up Reading Smiles. He is recognised as one of the leading European Invisalign providers.

Continuing professional development

Earn one free hour of verifiable CPD, sponsored by an educational grant from iTero



How to claim your free CPD

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1. Complete the four-question test
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This supplement has been supported by an educational grant from iTero, and entitles readers to one hour of verifiable CPD.

Just answer the questions below and fill out your details online to claim your certificate.

As the dental landscape changes, so does the traditional model of dentistry.

Digital dentistry is fast taking over the more traditional methods of treating patients, including with impression taking.

This supplement – and the CPD available here – aims to highlight some of the benefits to digitising your practice, introduce you to some of the latest methods and techniques and provide a basic understanding of what to look for if you are planning on upgrading some of your systems. **D**

Educational aims and objectives

The aim of these CPD questions is to educate readers in the latest opportunities afforded by intraoral scanning and how these may benefit a dental practice.

Educational outcomes

Successfully completing the CPD questions here, worth one hour of verifiable CPD, will demonstrate that the reader understands some of the key information relating to and benefits of intraoral scanning.

1. According to Ingo Baresel, what does the iTero Element offer that other intraoral scanners don't?

- a. Impressions for long-term prosthetic restorations
- b. Better teeth
- c. A drill
- d. More work for the dentist
- e. Larger file sizes
- f. Increased restorative failures

2. What are the reasons given for intraoral scanners being better than more traditional methods?

- a. A more pleasurable patient experience
- b. Increased accuracy

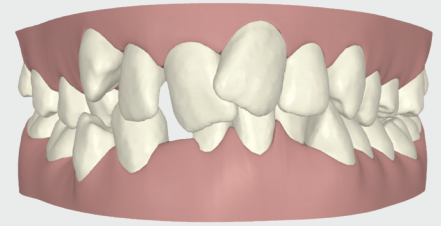
- c. Digital impressions are better for the environment
- d. Digital models don't wear
- e. Digital technology is more efficient for every party
- f. All of the above

3. How long did it take Mohsen Tehranian to make a return on his investment for his first intraoral scanner?

- a. One year
- b. Two years
- c. Three years
- d. Four years
- e. Five years
- f. Six years

4. Which of the following is not one of Hanel Nathwani's top tips when choosing a digital scanner?

- a. Look for one that's slimline
- b. Try to get a colour scan
- c. Check the scan time
- d. Check the image quality
- e. It's the best tool to sell an Invisalign case
- f. Make sure it gives you an open .stl file format



Before

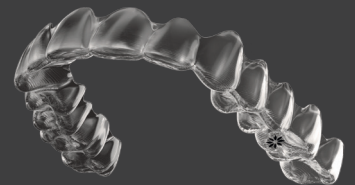


After

Show your patients their projected smile transformation on the first consultation.

Within seconds our iTero Element scanner can show your patient what their smile could look like after Invisalign treatment.

**> Call us today on 0800 9171643
to schedule a demonstration.**



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