

CASE STUDY

The CS 9600's Intelligent Features and Imaging Versatility Deliver Greater Confidence

by Dr. Antoine Diss



Dr. Antoine Diss works with dentists at the association he formed in 2006 called Génération Implant. At his practice, he trains dentists in implantology, periodontology, implant prosthetics, bone fillings, the management of extractions, sinus fillings and more.

Before implementing cone beam computed technology (CBCT) in his practice in 2010, Dr. Diss would send his implant patients to a radiologist for imaging, which always required an additional appointment. Once he added his own system into his workflow, it became indispensable for many reasons—not the least of which was time savings. Besides eliminating the extra appointment for imaging, Dr. Diss said “During a surgery, or after it, we can produce images for verification, all very rapidly. In addition, this imaging has enabled me to be more precise in my diagnoses.”

The ability to save time is something Dr. Diss values. It's also something he seeks to achieve throughout his workflow. Technology—and the willingness to adopt it—play a key role in his success.

Challenge

Find an imaging system with a larger FOV and the latest technologies to enable a scalable digital workflow.

Solution

CS 9600

Benefits

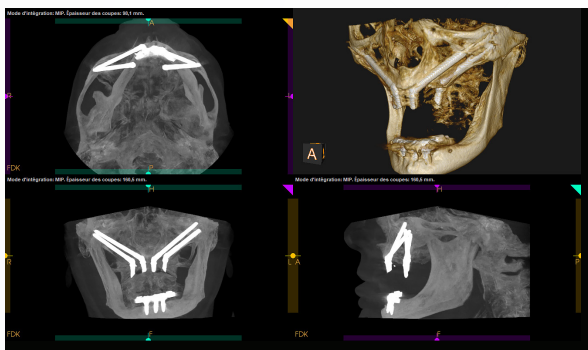
- Imaging versatility
- Consistent image quality from multiple users
- Ability to expand in other specialties
- Greater confidence for patient and practitioner
- Faster implant workflow
- Environmental impact and changing lives



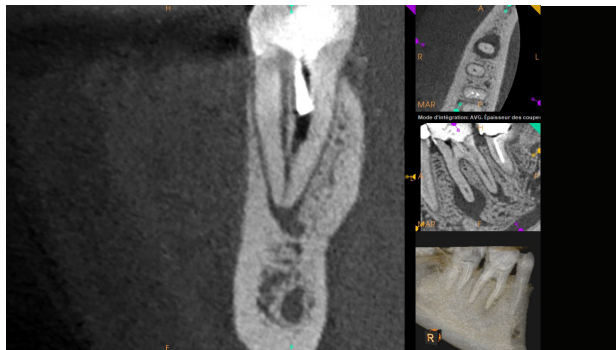
Image Quality and Versatility

The CS 9600 can accommodate Dr. Diss's imaging needs for implant and oral surgery— as well as those of the doctors he works with—because it features 14 field-of-view options that range from 4 cm x 4 cm to 16 cm x 17 cm. Dr. Diss upgraded his system from the standard 90 kV model to 120 kV. He appreciates the impact the upgrade brings: it enhances image quality without increasing dose. “We now have a system that is truly capable of adapting to the different workflows we have. It has clearly taken CBCT imaging to the next level,” said Dr. Diss. “In endodontics, for example, you can take a full arch image (10 cm x 10 cm volume size) at 75 micron resolution, which is very significant. You can also target a single tooth on the arch. The images are very good for implantology as well.”

Metal artifact reduction (MAR) also plays a role in improving image quality. Dr. Diss said, “Without CS MAR [Carestream Dental's patented software option on the CS 9600], we couldn't really manage artifacts in our images. We just had to work with them. CS MAR works like a magnifier that enables you to pass through an image and see it with and without the anti-artifact filter. You can compare the native image to the image with the algorithm applied and very easily analyze both.”



Zygomatic implants case using large field of view (16 cm x 12 cm)



Root canal assessment using 5 cm x 5 cm field of view and 75 microns resolution

Multiple fields of view were especially beneficial for a case that was referred to Dr. Diss where there was a complete failure of the maxillary. The patient was edentulous with almost no bone present. Dr. Diss was able to treat her with a system called a quad zygoma. To position four zygomatic implants, Dr. Diss needed both precise localized images as well as larger ones, since the zygoma are situated under the orbits. Certain anatomical risks made it imperative that he see the limits with the orbit. “I know that with my previous imaging system—which had a smaller field of view—my diagnosis could not have been as precise. My explanation to the patient would not have been as comprehensive, and I would not have had such ideal conditions in which to perform the surgery.”

In the future, Dr. Diss may expand the orthodontic services he currently provides. The CS 9600 can accommodate this expansion—thanks to the breadth of imaging capabilities it delivers. “We may consider offering adult orthodontics with aligners, given that we have an orthodontist who works with us in surgery,” said Dr. Diss. “We envision combining analyses of the bone bases with esthetic analyses from the Face Scan and being able to propose therapeutic orthodontic solutions for patients.”

“We now have a system that is truly capable of adapting to the different workflows. The voltage at 120 kV contributes hugely to image quality without an increase in dose to the patient.”



Easy, Stable Patient Positioning

Dr. Diss's previous imaging system did not have an integrated seat, and when he first saw the CS 9600, which has a seat option, he didn't immediately envision the potential benefit. Then it became clear. "On one hand, the seat provides stability for the patient and reduces movement during the scan. As a result, the images are clearer," said Dr. Diss. "On the other hand, the seat eases the process of positioning the patient. We carry out nearly all of our exams now with the patient seated."

The CS 9600 facilitates proper patient positioning by also guiding the user via several intelligent features. "The system is designed with a high degree of foolproofing so that when you follow the protocol, you avoid errors—even for beginner

assistants. The CS 9600 also guides you in using the supports specific to each modality. In Face Scan, like for any other examination, if you do not position the correct support on the machine, a red light alerts you that you're using the wrong accessory," said Dr. Diss."

First-Time-Right Imaging

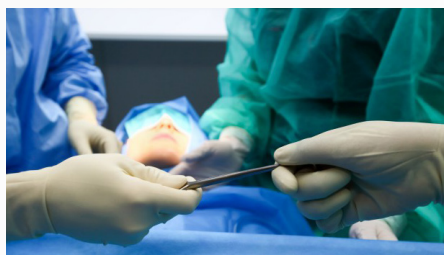
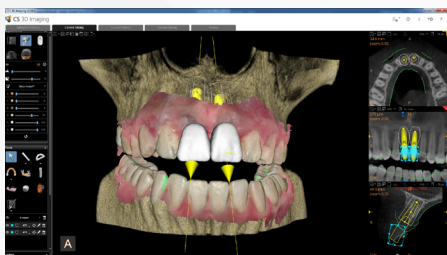
The CS 9600 has a pre-shoot function that helps prevent a bad first image. "You can set a scout view on the scanner to better position your patient," said Dr. Diss. "There's also a system of video cameras that helps you determine the Frankfurt plane for panoramic exams. A similar feature is available to position the field of view for CBCT exams. For instance, if you wish to take a CBCT image positioned towards the sinus you can move the cross on patient's face via the touch screen and the unit positions automatically to the right area.

"There is another remarkable feature that sets the CS 9600 apart—its ability to make intelligent recommendations," said Dr. Diss. After a pre-shoot, the system determines the form of the arch and proposes the settings. It's practically semi-automatic. We manage to generate highly reproducible and very high-quality images. So, whether it's me or an assistant, the system enables us both to obtain the same quality of imaging."

Powerful—Yet User-Friendly—Software That Speeds Workflow

Dr. Diss finds the system's software to be very easy to use. At the same time, it is also very powerful. The user can choose to use the most basic of visualization functions. "But if you want to get the most from the system, there are many tools to choose from," says Dr. Diss.

The software is open, which means Dr. Diss can use it with most any implant planning software. It facilitates his very organized workflow. "I can consult with patients about implants and prepare a treatment plan. I can send them to imaging, which enables me to provide them with a precise cost. It also validates my treatment plan. I can then use the software to virtually place the implants directly in front of patients to educate them on the procedure. If they accept the plan, my assistant sends the plan along with a digital impression (STL file)—if it is necessary—from the CS 3600 intraoral scanner. I can do all this via Carestream Dental's single software platform, which makes the process extremely simple and effective. It sets the standard for this type of software. Once I have completed planning my implant through the Prosthetic-Driven Implant Planning module, I export the DICOM file directly in Blue Sky Plan and then send it to the lab—without having to revalidate the position of my implant," said Dr. Diss.



Dr. Diss stated that the software is also very fluid in that he can access the images from the CS 9600 and the CS 3600 on all his workstations. He says, “The CS 9600 images are reproducible. There are no errors because this is a reliable machine—one that integrates with my other imaging machines solutions from Carestream Dental. Examinations are very rapid.”

Dr. Diss envisions the ability to one day perform 10 to 15 procedures per week, with 80 percent of them being implants with surgical guides. “Thanks to the software, which saves us a great deal of time, we can imagine this happening with real precision for each patient. It’s no longer just a diagnostic tool. It is becoming a tool of production—and one that helps us to ultimately provide better treatment for our patients,” says Dr. Diss.”



Trust and Confidence

Enabling patients to feel comfortable with a diagnosis and treatment plan is essential to treatment acceptance. It’s difficult for patients to fully comprehend their clinical situation from an explanation alone. Dr. Diss said, “You can talk to them about infection, for example, and that the tooth cannot be saved because there is bone loss. If you can attach an image to the words, immediately the message is much clearer, and you gain their trust. Patients will never commit to a surgery without trusting the surgeon.”

Besides instilling confidence in patients, images from the CS 9600 have the same effect on Dr. Diss. “The system brings me comfort in my work,” said Dr. Diss.

Environmental Impact and Changing Lives

Like so many people today, the environment is top of mind for Dr. Diss. He recently began replacing plastic cups in his practice with small glasses, which are washed, decontaminated and sterilized. It’s more work, but it’s less waste.

Digitalization also plays a role in the zero-waste process. Dr. Diss uses less plaster, plus fewer materials for both impressions and couriers for cases that involve his prosthetist. “It all contributes to the reduction of our carbon footprint,” says Dr. Diss.

Going digital has also impacted the lives of Dr. Diss and his patients. Dr. Diss said, “We have a duty to treat our patients according to medically proven data. The data evolves, though, and so must the dentist. It takes a lot of time and energy to change your way of doing things and learn new technology. In the beginning, it actually feels like you’re wasting time; but it’s an investment that pays off in the end. I no longer work the same as I did three or four years ago. I am faster and more reliable. I value the contribution of Carestream Dental in developing products of genuine quality. They enable me to play a role in changing the lives of my patients. Plus, I can spend the time that I save in better communicating with my employees—and we can all devote a little more time to our families.”

About the Author



Dr. Antoine Diss

Dr. Diss studied at the dental university of Nancy, France. He later became a university hospital assistant in the department of periodontology at the University of Nice, where he completed his PhD thesis, his DEA [post-graduate diploma] and science thesis. Instead of embarking on a university hospital career, he opted to go into private practice in Nice, specializing in implantology and periodontology. At that time, he founded his training association, Génération Implant. Dr. Diss currently specializes in implantology, guided implant surgery, soft tissue management, bone augmentation and oral surgery.