Digital technologies have become powerful tools for dentistry
By Dr Rodrigo Castillo, Spain

Digital technologies are universally present in almost every aspect of our lives. In dentistry, they have provided us with powerful tools for diagnosis, treatment planning and communication. As computers are becoming an essential part of state-of-the-art patient care, clinicians must stay up to date with this rapidly developing field in order to make informed choices in their use of technology.

When applied effectively, clinical software can help to improve efficiency and patient satisfaction to a large degree. Digital photography, high-definition video and advanced presentation software, for example, allow us to design a virtual aesthetic treatment plan. With the Internet, there is the possibility of sharing and reproducing any design with any device that runs the same software. Moreover, the ever-increasing storage capacity in this virtual world allows access to information from anywhere around the clock through Internet-capable devices, such as laptops and tablet computers. Communication and connectivity are the new cornerstones of modern dental practice.

Two of the most important contributions from the digital field for dentistry are clearly CAD/CAM and CBCT, which allows a 3-D view of the treatment site. This provides greater accuracy in implant planning for greater predictability and success of the treatment outcome, for example. The two technologies combined also allow the fabrication of custom-made surgical stents, which give clinicians better control in placing implants in a prosthodontically driven way.

Clinicians must be cautious, however, when designing a treatment plan, as an increasing number of patients are demanding minimally invasive dental procedures. The common denominator here is tissue preservation. In this regard, digital technologies help to enhance non-invasive or flapless surgeries.

Virtual planning procedures have become more intuitive with guided surgery software. Two of the requisites of such software are user-friendliness and evaluation of the precision of both surgical and prosthetic components, thus achieving prosthodontically driven implant treatment. In addition, such software allows sharing of the planning information among the dental team, which facilitates the decision-making process. The advantage of being able to present the treatment plan to patients on a large screen makes it an excellent tool for presenting oneself as a modern dentist.

Despite the new treatment possibilities that come with digital technology, however, important scientific criteria must still be taken into account when creating a virtual treatment plan in order to avoid pitfalls during the execution of the prosthodontic or surgical dental procedures. Therefore, a treatment protocol that combines digital and traditional concepts is recommended.

This Wednesday, Dr Rodrigo Castillo will be presenting a paper on modern virtual dentistry as part of the scientific programme of AEEDC Dubai 2014. He maintains a private dental practice focusing on oral rehabilitation in Murcia in Spain.