Current state of CAD/CAM in dentistry

Digital technologies are everywhere in our daily life. We no longer go to post offices to send letters to our friends; we e-mail them instead. We no longer have walls of CDs or DVDs, but a tiny hard drive containing thousands of albums and movies. Newspapers, books and magazines are available in digital format and we store them in our tablets to take them wherever we go. In this context, dentistry is no exception and the last decade has seen the rise of the digital age in dentistry. As a result, the range of digital equipment available to dentists has increased significantly. New technologies in dentistry offer patients modern treatments for their dental problems.

An increasing number of dentists and laboratory technicians are adopting a digital workflow, and the uptake of digital technologies has been more rapid for dental laboratories than dental practices. For many of them, the high cost of equipment, apparently long learning curves, and selecting the most suitable and up-to-date equipment are still reasons for hesitation. Like all revolutions, the digital revolution has started slowly while the technology has grown and matured.

During the last several years, we have seen an increasing number of new intra-oral scanners in the dental market. With these, dentists are able to achieve faster, more accurate digital impression taking, which is more comfortable for patients. Systems rely on a single image and video camera to record the digital file that is the foundation for an accurate outcome. There is no doubt that in the near future intra-oral scanners will be cheaper, smaller and integrated into dental units.

Intra-oral scanners are a wedge technology for in-office CAD/CAM solutions. With the adoption of this technology, dentists will be able to produce same-day single-unit restorations using in-office milling systems. As the majority of restorations fabricated for dental offices are single-unit restorations and three-unit bridges, in-office milling machines will become increasingly indispensable equipment in dental offices. Therefore, the market for chairside milling will grow at a faster pace than today. New companies are gaining a large share of the market, which is currently led by CEREC and E4D.

Chairside milling systems will be the impetus for new millable material. A large spectrum of materials that can be processed via digital options are available. Companies are investing significant amounts in developing new millable materials. Eventually, analogue methods and materials will be replaced by fully digital workflows.

Dental laboratories have been quick to make the transition from analogue to digital. They will be a valuable resource for dentists, offering immediate restoration to dental practices in close proximity. Nothing can take the place of a dental technician and a dentist working together to manufacture high quality restorations; there is still no replacement for skilled professional handwork on the horizon.

In this decade, dental CAD/CAM has reached a very high level of development. According to forecasts, more than 50 per cent of dental services will be performed using CAD/CAM technology by 2050. This figure demonstrates the importance of keeping pace with this fast moving technology. As the leading companies in dentistry are investing in this area, we would be wise to investigate it for our future.

I can say without question that the age of CAD/CAM dentistry is here. It is time to be part of it.