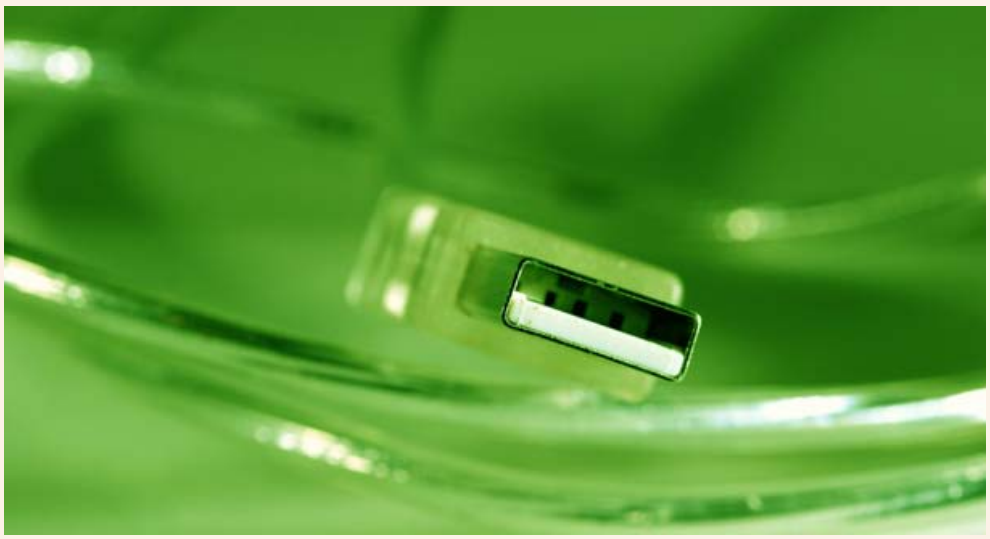

The U.S. dental market is rapidly adopting automated and digital technologies for the production of dental restorations. (DTI/Photo Jon Helgason, Dreamstime.com)

Aug 27, 2010 | USA

The adoption of digital and automated technologies drives CAD/CAM market growth

by Dr Julie Wong and Dr Kamran Zamanian, iData Research

The U.S. dental market is rapidly adopting automated and digital technologies for the production of dental restorations. This trend is primarily driven by a growing demand for more aesthetically pleasing dental prosthetics, coupled with technological innovations that are increasing laboratory production capabilities. These innovations are causing a consolidation of laboratories across the United States, changing the landscape of the dental prosthetic market.

Prosthetic devices such as crowns and bridges are used for restoring larger dental caries or damage that cannot be repaired with direct restorations such as amalgam fillings. In 2009, nearly 90 per cent of the U.S. population was affected by dental caries. Demand for dental prosthetic devices will continue to grow as periodontal diseases, tooth decay and caries become more severe and prevalent with age and as the elderly population in the U.S. continues to grow.

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Dental laboratories will need to scale up production to meet these growing demands and implement strategies to improve production capacity such as computer-aided design and computer-aided manufacture (CAD/CAM) systems. Advances and improvements to CAD/CAM technologies have been shown to produce restorations that are equal, or superior to conventionally made devices.

Furthermore, material improvements in zirconia and ceramic materials, which are often supported by CAD/CAM systems, are decreasing in price with growing competition in the CAD/CAM block market.

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U.S. dental laboratories to consolidate

The U.S. market for dental prosthetics includes nearly 13,000 laboratories. However, this number is on a decline and is expected to fall to 10,000 in the next five years. Larger laboratories are increasing their efficiency and capacity, while smaller laboratories are facing even tougher overseas competition.

As a result, the demand for automated technologies in the dental industry is expected to rise. In addition, the remaining laboratories will need to increase production in order to provide service to a growing number of dentists and dental clinics. The penetration of CAD/CAM produced prosthetics is expected to grow, representing over 30 per cent of all dental prosthetics by 2016, as shown in Chart 1-1.

CAD/CAM technology offers both time and cost savings

CAD/CAM technology has been used in the dental industry for over 20 years. Recent developments are making the technology much more efficient and cost-effective. Some labs have full CAD/CAM systems, whereas other (usually smaller) labs purchase only the scanning unit and send the scanned data to a milling center for fabrication.

Chairside systems can be used in-house by dentists, eliminating the need for the dental lab altogether. In addition to CAD/CAM, two other technologies are expected to have a significant impact on the market: three-dimensional printing and digital impression-taking.

Three-dimensional printing can allow for single or multiple devices to be manufactured in as little as 60 minutes with 25 micron accuracy. In 2009, the market was led by companies such as 3D systems and envision TEC.

Digital impression taking systems offer flexibility to dentists who may send out these scan files for creating either all-ceramic CAD/CAM restorations or porcelain fused to metal restorations (PFMs).

CAD/CAM technology trends will have an irreversible impact on the dental industry

Dental labs will need to adopt digital, automated technologies such as CAD/CAM in order to remain competitive. In 2009, the leading manufacturers of CAD/CAM systems included Sirona and 3M ESPE as shown in Chart 1-2. Both of these companies have built a reputation in the industry and provided a diverse range of CAD/CAM systems and related products such as CAD/CAM blocks and prosthetics.

Increase in denture and crown sales drive overall dental prosthetics market

The total dental prosthetics market grew by nearly 5 per cent in 2009 and is expected to continue to experience strong growth over the forecast period. This increase will be driven by high growth in the denture and crown markets, as these segments represented a considerable unit share in the total dental prosthetics market.

Financial constraints caused by the economic recession, which began in 2008, have driven market growth for dentures. In particular, partial dentures are considerably more affordable and can act as a temporary solution when more costly dental restorations are delayed. In addition, the demand for improved aesthetics is no longer exclusive to veneers.

With the improving track record of all-ceramic material and implant-based single unit restorations, crowns no longer function to simply repair or replace missing teeth. In addition, the growing demand for implant-based single unit restorations is expected to drive sales of crowns, providing a more aesthetically pleasing tooth restoration.

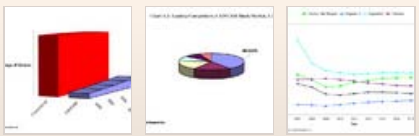
Veneer market recovers post-recession

Despite competition from all-ceramics, the veneer market experienced the highest growth rate in the total U.S. dental prosthetics market. The veneer market was significantly impacted by the global economic recession due to a decrease in elective and cosmetic procedures. However, the veneers market experienced a recovery in 2009 and is expected to stabilize over the forecast period.

Total market for dental prosthetics will reach nearly US$16 billion by 2016

The rapid adoption of automated and digital technologies for the production of restorations will drive crowns and bridges to dominate the overall dental prosthetics market by 2016. The high demand of all-ceramic material and increasing adoption of CAD/CAM technology will drive the market for crowns and bridges over the forecast period. More patients are becoming aware of, and more dentists are prescribing, all-ceramic restorations because of the advantages such as biocompatibility and superior aesthetic quality.

CAD/CAM market growth



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iData Research is an international market research and consulting group focused on providing market intelligence for the medical device, dental and pharmaceutical industries. The information contained in this article is taken from a detailed and comprehensive global 3-report series on the "Markets for Dental Prosthetics and CAD/CAM Devices 2010," which is available for purchase from iData Research and includes coverage on the United States, 15 countries in Europe and Asia-Pacific.

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