By 2016, the portion of dental imaging systems that are digital is expected to nearly double from 2009. (DTI/Photo provided by iData Research)

Jul 27, 2010 | USA

Global trends in dental imaging: The rise of digital

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The rapid emergence of digital technology for capturing intraoral X-ray images is a global trend and is driving growth in the overall dental imaging market. This trend is dramatically different across regions, particularly the United States and Europe. The United States is undergoing a rapid adoption of digital technology, although the majority of dental practices still use analog film.

In addition, France has seen some of the highest adoption rates of digital sensors, while Germany has experienced more moderate rates, with PSP sensors dominating the market. By 2016, the portion of dental imaging systems that are digital is expected to nearly double from 2009. In addition, the proportion of dental imaging procedures performed with analog systems is expected to experience a rapid decline, as shown in Chart 1-1.

Digital sensor advantages drive adoption

Intraoral X-ray procedures are the most common type of dental X-ray as they are typically performed in annual checkups. Dental practices can choose between analog film, photostimulable phosphor (PSP) systems or digital systems for capturing intraoral X-rays, with each system offering unique advantages.

Analog film has a long-standing history in the market, and many experienced dentists and dental assistants are more familiar with analog systems. Since dental practices already have analog X-ray equipment installed, the cost of performing analog intraoral X-ray procedures is relatively low compared to the cost of switching to digital. This is particularly evident for practices that employ a larger number of dental assistants who can develop the film. However, the low cost of film is partially offset by the time and labor necessary to develop film compared to digital images.

PSP systems are computed radiographic devices that operate by capturing X-rays on photostimulable phosphor plates. These systems allow for multiple plates to be scanned simultaneously, saving time and reducing the total number of X-rays needed per patient. In addition, phosphor plates are flexible and easy to position in a patient's mouth and are considered to be a more economically viable option for larger sized dental practices with multiple operatory rooms.

Digital sensors can upload X-ray images of teeth immediately into imaging software. The X-ray can be reviewed using the software at any time and is far less likely to be lost than a printed X-ray. By reducing film loss, digital imaging reduces the total number of X-rays performed and in turn decreases patient exposure to radiation. In addition, digital X-rays eliminate the labor necessary for the development of film and facilitate the transition of dental practices toward chartless capability.

U.S. experiencing rapid adoption of digital, but analog still dominant

The U.S. market is currently undergoing a rapid penetration of digital sensor technology, which is cannibalizing intraoral X-ray analog film and exceeding the sales of PSP systems. Unlike European dental practices that have much stricter regulations concerning X-ray radiation exposure to patients, dental practices in the United States typically take a much higher daily number of intraoral X-rays with annual full-mouth series, averaging sets of 15 to 20 shots. As a result of this high volume, the switch to digital will have a dramatic impact on the U.S. dental imaging market. The annual unit sales of digital sensors in the United States are expected to increase at a CAGR of 9.2 per cent by 2016.

Another factor that is driving the adoption of digital technology in the United States is the exclusive distribution agreements between digital sensor manufacturers and major distributors, such as that between Dexis and Henry Schein or Schick Technologies and Patterson Dental. The two dental distribution conglomerates are engaging in aggressive marketing campaigns to further promote their lines of digital sensors, primarily by offering attractive promotions and greater incentives to their sales representatives.

European markets differ in adoption of digital technology

In contrast to the U.S. market for dental imaging systems, many countries in Europe, such as France, have an established installed base of digital sensors for intraoral X-ray images. While the effects of the economic recession in 2008 and 2009 caused a slowdown in the digital sensor market in several European countries, the market is expected to recover by the end of 2011. Some countries in Europe, such as Germany, have been slow to adopt digital technology, instead switching from analog film to PSP systems, as seen in Chart 1-3.

France leads world in digital sensor adoption

Digital radiography originated in France, leading the country to have the most mature digital sensor market in the world and the highest penetration rate of any country in Europe. With a digital sensor penetration rate of almost 75 per cent, a significant portion of French system sales act to replace outdated digital sensors. Unlike the United States and other European countries, the French digital sensor market is saturated and digital sensor sales are not expected to increase significantly.

Digital radiography is prominent in France due to the country's health-care reimbursement policies. France's health-care system provides a higher reimbursement rate for digital X-ray procedures compared to analog film procedures to encourage the use of digital technology among dentists. The use of digital intraoral X-ray systems is expected to continue growing through 2016, as the remaining dental practices using analog film switch to digital, as shown in Chart 1-2.

PSP systems preferred in German market for dental imaging

German dental practices have one of the lowest rates of intraoral X-rays taken per practice in Europe, and therefore do not have strong demand for the instant imaging capabilities of digital technology (including digital sensors and PSP systems). The German health-care system reimburses dentists for a set number of intraoral X-ray shots per year to limit patient's exposure to radiation. As a result, Germany has seen a slower adoption rate of intraoral digital X-ray systems. However, the adoption rate of PSP systems has surged to the point that they are inhibiting sales of digital sensors. As a result, PSP will become the most widely used technology for dental imaging procedures in Germany, as illustrated in Chart 1-3.

PSP systems tend to experience high penetration rates in countries that have multiple operatory rooms per dental office, such as Germany, the Netherlands and Sweden. Due to the technological and operational improvements on the systems from leading manufacturers including Dürr Dental and Soredex in 2006, sales in Germany have surged. PSP systems have become more compact and affordable for smaller dental practices with improved ease of use, image quality and the speed of processing the phosphor plates. By 2016, it is expected that approximately half of the dental practices in Germany will own and operate a PSP system.

Digital market is expected to continue to grow

The global intraoral imaging market has seen a dramatic shift from analog film to digital technologies. In the United States, dental practices are rapidly adopting digital sensors, although many dentists, particularly the older generation, are continuing to use analog film. In contrast, analog technology in Europe is being replaced at a much faster pace. Countries with smaller dental clinics, such as France, Italy and Spain, tend to have higher penetration rates for digital sensors. Meanwhile, PSP systems are experiencing high penetration rates in countries that have a larger average number of operatory rooms per dental offices, such as Germany, the

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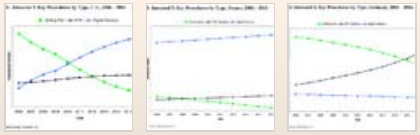
Netherlands and Sweden.

Trends in dental imaging



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