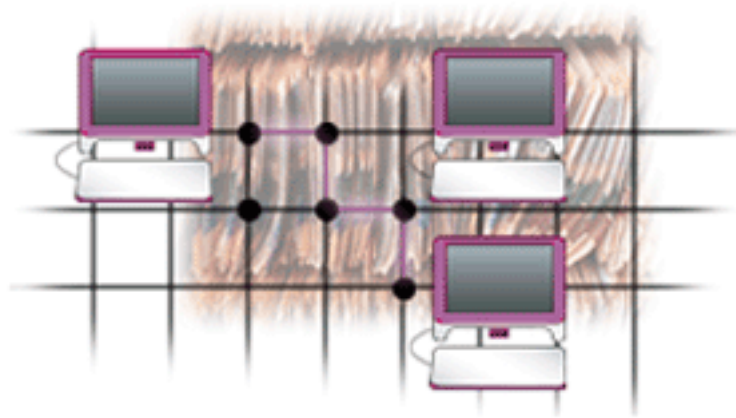


Connecting to Success: Practice Management on the Net

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Abstract

Profound changes in the way dental practices manage data, patient records, and communication are beginning to unfold. Sooner than most of us can imagine, secured patient medical and dental records will reside on the Internet. Additionally, communication between health care providers and patients will become virtually 100% electronic. As the Application Service Provider (ASP) dental models mature, practices will transition from paper to "paperless" to "web-based" management and clinical systems. This article examines and explains these future frontiers.

Keywords: Connectivity, microbrowser, application service provider, digital subscriber line, practice management

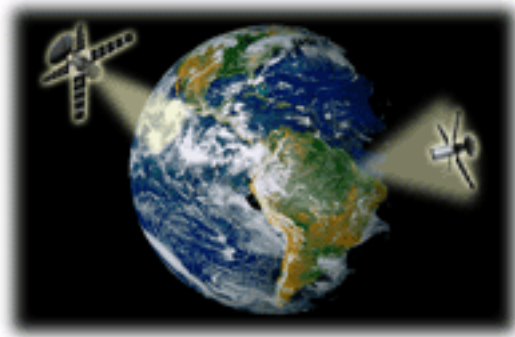
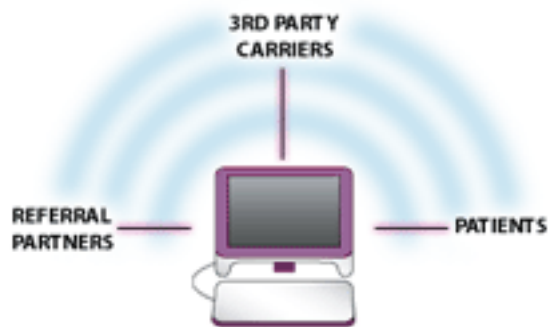
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Introduction

In recent years, a wave of new technology has opened a new frontier in dentistry that profoundly affects the ways in which dental professionals can interact with patients, undertake chairside routines, perform clinical procedures, and manage the business aspects of a dental practice. Such technological ventures have produced marked changes in the ways dental professionals can connect with patients and colleagues, as well as their families and friends. With the rapidly expanding use of the Internet and the World Wide Web, the perception of what constitutes timely and effective communication has the potential for changing dramatically. However, technological advances continue to meet resistance from those who may benefit most from new technologies. In fact, this resistance centers on the fact that technology may change every day, often disrupting established work routines. Technological advances such as the Internet could be perceived as a factor in the loss of personal interaction in and beyond the workplace when, in actuality, more personal contact can be achieved when one takes full advantage of the technological tools available. Communications with referral partners, third-party carriers, and dental patients become expedited and streamlined when these tools are fully utilized.

Dental professionals can now watch clinical procedures for the first time via live satellite transmission, perhaps thousands of miles from the clinician who is actually performing the procedure. This newfound efficiency requires staff to be computer-savvy, thus expanding traditional roles as dental assistants, practice administrators, office managers, and front-desk personnel.



Digital and Wireless Communication

In essence, the Internet is fundamentally and unequivocally changing the way business is conducted. "Connectivity" is the buzzword of the day, and being connected no longer simply recalls the sentimental commercials touting long-distance, land-based telephone service that allows us to, "reach out and touch someone." Now digital and wireless technologies provide new ways for people to connect with one another. For instance, we can read and send e-mail from any place in the world; we can buy or sell stocks at any time of the day or night, 7 days a week; we can use global-positioning systems in our cars to find our way around unfamiliar locales.

It is not uncommon for patients to give cellular or digital phone numbers, pager numbers, or e-mail addresses as their preferred methods of contact. This is indicative that many dental patients have adopted and accepted this new means of information exchange, yet many dental practitioners have continued to resist these new forms of communication.

These practitioners can no longer ignore technological changes. Consider these statistics: In 1990, only 5 million US citizens subscribed to cellular or digital telephone services. Today, approximately 90 million use cell or digital telephones, and this figure is expected to approach 140 million within the next two years. With few exceptions, telephones currently being manufactured have microbrowser capabilities (the ability to access the Internet via telephone).¹

On the other hand, skeptics of technology proclaim that connectivity does not necessarily bring people together, and dissenters from within the dental profession argue that connectivity is removing the human touch from patient care. On the contrary, e-mail contact is less invasive



than the telephone; although e-mail is not necessarily more intimate, it is a more considerate means of contacting patients. This is because e-mail does not interrupt either party and users control the length of communications as well as the time they choose to access, and respond to messages.



Connectivity means transmitting information to patients' desktop computers rather than being consigned to a string of voice mail messages, an overflowing paper message inbox, or a pile of faxes. Connectivity also means communicating with patients in a manner that is so convenient that e-mail is likely to be answered much faster than other forms of communication. By enhancing the digital information flow, dental professionals can increase the likelihood of quicker and more efficient communications and interactions with dental patients.

Ultimately, the use of digital information technologies will serve as the cornerstone of a successful dental practice. The flourishing practice of the future will use digital tools to revamp the practice of dentistry. At least two of the currently available digital tools are increasingly becoming essential: a customer-oriented web site and a comprehensive, yet research-friendly database (i.e., the practice management system).

Health Insurance Portability and Accountability Act of 1996 (HIPAA)

The intent of provisions of the HIPAA regulation is to create administrative simplification to assure portability of health insurance coverage in a secure electronic environment. According to the

ADA News, "HIPAA contains a statutory security provision that does not rely on publication of the final HIPAA security rule to take effect. The law already requires that each person who maintains or transmits health information adopt reasonable and appropriate administrative, technical, and physical safeguards:



- To ensure the integrity and confidentiality of patient information;
- To protect against any reasonably anticipated threat or hazards to the security or integrity of the information;
- To protect against unauthorized uses or disclosures of the information;
- To otherwise ensure compliance among employees or officers."⁵

It is anticipated that the security rule will be clarified over time. In the meantime, dentists who transmit patient information via computer networks should exercise caution to guard against a breach of patient privacy.

Technology Evolution and Revolution in Dentistry

Nearly two decades ago, dental offices began using computers to perform tasks that historically had been done manually and out of the patient's sight. Tasks such as filing insurance claims and preparing patient statements most readily lent themselves to computerization and thus were among the first functions to become automated. Dental practitioners soon discovered the efficiency of automating general office procedures, and staff began tracking referrals and running patient recall programs on computer systems. However, the functions traditionally undertaken by dental practitioners were generally not among the first tasks to be automated in early computer systems. Tedious scheduling and bookkeeping tasks were the crux of early practice management systems.

The next stage in the evolution of dental technology involved "decentralizing" data entry, or placing computers in dental treatment rooms. This diminished the burden on front-desk personnel because it allowed clinicians to enter patient data from multiple locations throughout the office



and reduce error rates associated with more traditional business methods. This stage also placed computers in front of the dental care providers themselves requiring them to become familiar with computer hardware, practice and clinical management software, and computer networks.

As clinical and management functions became interrelated, practice management software evolved from a narrow administrative focus to a more complete system. Such systems involve the integration of patient care with treatment documentation including various imaging and

charting functions along with all necessary billing, recall, referral, and external communications. The result of this integration has made it very cost-effective for dentists to add computer workstations in treatment areas, that capture, synthesize, and store all data obtained with intraoral cameras, digital x-rays, and computerized charting.

Today's dental practice requires a high-quality practice management system that assumes the role of "mission control" for the office. A reliable practice management system, in its broadest sense, is now the "central nervous system" of the dental practice. Use of such a system obligates all staff members to learn and become proficient with it in order to maximize the benefits associated

with computerized and automated practice management.

Clinicians must accept that computers need to be installed in every treatment room as soon

as possible. Management (practice and patient) benefits are immediately realized when computers are installed in treatment rooms because the entire staff is able to share duties traditionally performed by one or two staff members at the front

desk, thereby reducing the front-desk bottleneck and enhancing office productivity.² Eventually, every office should also incorporate digital camera and digital



x-ray capabilities, and have a high-speed Internet connection (such as digital subscriber lines [DSL's], T1, or Ethernet connections) networked into every treatment room and support room to facilitate the transmission of images from one computer to another inside the office and beyond.

Dentistry and the Internet

In a recent survey of several hundred patients in the small, middle-class community of Skokie, Illinois, 29% of the patients indicated they preferred to be contacted by their dentist by telephone, 31% said they preferred e-mail and 40% indicated that either telephone or e-mail would be acceptable. In other words, only 29% wished to be contacted by telephone, whereas 71% of the patients preferred to communicate by e-mail.

In addition to e-mail capabilities, dentists can take further advantage of the Internet as a communication tool for sending patients reminders and practice news. Dynamic, customizable electronic newsletters are available via the Internet with interactive linking capabilities that can direct patients to a variety of services, education, and oral health resources at virtually insignificant cost to the dentist when compared with printing and mailing patient newsletters.

By building a web site for a dental practice and submitting information about the dental practice to search engines (e.g., Yahoo!®, Excite™, Lycos® and Google™), and the digital Yellow Pages, dentists can turn the Internet into a valuable marketing tool.

The Internet also provides a powerful research tool. Dental professionals can access a number of journals, periodicals, suppliers, and other sites for learning about case studies, sharing ideas with other dental specialists, and gathering basic patient information. For patients, the Internet provides access to information about clinical

procedures and maintaining oral health, adding value to the care provided by professionals. However, dentists need to direct patients to quality web sites with accurate information to ensure they access the appropriate educational tools.

From a practice management standpoint, the ability to share patient records with other dental professionals, such as dental specialists and other generalists, is paramount. Transferring patient records via e-mail to referral partners is not ideal because of their vulnerability to viruses, limited attachment size, lack of security and privacy even if encrypted, and because it's not interactive. It is more desirable to use a secure Internet server, such as an Application Service Provider (ASP) which is a type of system that stores the information on the Internet.

Some dental schools are beginning to incorporate using x-rays, charting, laboratory prescriptions and other documents on the Internet instead of manually moving records from one department to another. This solution to enhancing efficiency is a low-cost investment compared with purchasing,



installing, and learning an entire computer system. The transfer of files and patient records from one office to another, or from offices to insurance carriers, will likely become one of the dental industry's most essential uses for the Internet. The dental profession has only scratched the surface in terms of capitalizing on the Internet's possibilities.

Connectivity-at home, at the office, on the road-has become a broad consumer message. The Internet is a dynamic way to interact with existing and new patients as well as an effective means of delivering information. Dentists should immediately begin collecting patients' e-mail addresses and Internet preferences-within the next few years, they will be glad they did!



The Internet also provides a different sort of interaction with online resources. The variety of online educational sources, scientific information, patient-education sources, brokerage and investment services, and travel-related services are only a few of the applications that can be accessed via browser interface. Our access, and the immediacy of our access, to these applications are changing the way we live and work.

Practice Management: The Next Generation

Connecting and becoming comfortable with using the Web will be essential to preparing for the next generation of dentistry-targeted software. Intra-office practice management software systems depend on regular maintenance by dentists and other staff for upgrades, backups, reconfiguration for compatibility with new programs, etc. This software can now reside on the Internet if the dental practice subscribes to an ASP, which would be responsible for this type of maintenance.

An ASP is a third-party company that manages and distributes software-based services and solutions to clients via a wide area network (a computer network that spans a large geographical area) from a central data center or location. For example, the Internet is the largest wide area network in existence.

Basically, dentistry-related ASP's allow clinicians to rely on another company to perform almost every task related to storing, maintaining, and supporting their practice management systems. The advent of ASP's in the dental community grants dentists the freedom to store, retrieve, and access practice management applications and data online from any location, permitting offices to share records on the Web and create



"virtual" group practices. Additionally, the move to an Internet-based practice management system, offered by an experienced, knowledgeable, dental-oriented company, places the dental

practice's data in a highly secure environment, eliminating the need for a costly software package.

Using the Internet for practice management is a low-cost investment compared with purchasing, installing, networking, and learning an entire computer system. The use of an Internet management system essentially eliminates the problem of technology obsolescence. Many offices are beginning to recognize that employing an ASP is a powerful way to defer capital costs and reduce the risk of dead-end technologies. "You don't have to go out and buy hardware, software, or networking gear. You don't need to hire an IT (Information Technology) staff and worry about upgrades, security and system performance."³

The ideal ASP partner will be one with access to vast knowledge about dentistry, exceptional technological knowledge, and the capital to invest in new ventures. This partner will be willing to serve dentists with cost-effective, valuable products and relationships, as well as the latest and greatest technology. Most importantly, the right partner will have invested in its employees as well as its products, hiring and training customer-oriented personnel who understand the needs of dental practices and who keep abreast of new issues and technologies affecting the dental profession and patient care. Additional advantages will materialize if dentists learn how to make wise hardware purchasing decisions and select the correct ASP partner—a company that provides superior service in addition to the product.

ASP's specializing in web-based practice management systems for dentistry will offer users a virtual private network (VPN - a network that enables users to create a network using the

Internet) to achieve connectivity. These VPN's will benefit from the use of data encryption and other security devices to ensure that only authorized users can access the network and that data cannot be intercepted. Such a provider uses what is referred to as an industrial-class ASP, a technology that is housed in a secure environment. "Server farms" boast special security features, in which the host computers are locked in "cages," limiting access to one or two people employed by the company offering that service; the cages reside in an earthquake-proof facility, which is guarded 24 hours a day, 7 days a week.

Eventually, companies offering ASP services to dental practices will differ according to the levels of security they offer. When evaluating the company for its services, practitioners will have to research the server facility and its security options. Overall, most issues involving maintaining and storing patient records in the practice will be resolved with a secure web-based system.

A practice management ASP will not require a complex network of in-office computers, minimizing hardware and software maintenance issues. Plus, the ASP will take care of all system backups.

The Future of Dental Technology

At the 1998 annual meeting of the American Dental Association (ADA), Intel demonstrated appointment scheduling using the Internet in a manner similar to that proposed by ASP's. The demonstration focused on problems that have been proposed as stumbling blocks for progress with Internet electronic scheduling vs. interacting with a human dental office scheduler. One problem addressed was patient privacy and data security. This new Internet scheduler provides





patients with a password to access their own information but not to other patients' information or to critical administrative information of the dental office. It is anticipated that web-based appointment scheduling will likely be universal in fewer than 5 years.

The investment in computer hardware and software for dental offices will be reduced considerably, thanks to the advent of ASP's. However, fees for Web access will likely increase because we will be paying to obtain higher access speeds, and ASP costs will likely be assessed based on actual usage, the same way costs were assessed according to the amount of time users spent on the Internet 5 years ago.

Dentists need to prepare themselves for these and other changes by attending lectures and technology conferences given by the ADA, local dental associations, and vendors. They will also need a high-speed connection to the Internet. In most communities, Dedicated Subscriber Lines (DSL's) or cable modem services are available and will continue to enhance the speed of Internet access in the future. More advanced fiber optic, cable, and satellite systems will undoubtedly be introduced that will provide even faster service. It is likely that the early adopters of ASP-based practice management systems will be dentists who have not already invested heavily in technology. Although most dentists will probably move their practice management system to the Internet within 2 to 3 years, the lower technology users will be moving first, primarily because their technology migration needs are less pressing. In other words, they do not have the huge volume of third-party products to

integrate. The higher technology users will follow en masse when Internet technology can easily handle these more advanced integrations.

The predictable and lower costs associated with implementation of an ASP also will enable dental practices that historically have not had the resources to invest in hardware and software the opportunity to take advantage of a feature-rich practice management system. These offices will not have to face many of the technology evolution updates that their computer-savvy colleagues have waded through over the last 5 or 10 years, but can jump right in to the Internet patient-management mainstream. However, it must be remembered that just as in the early days of the first incarnations of practice management software, these are the embryonic stages of the ASP, which may go through various stages of development before reaching maturity and sophistication.



Conclusion

Success in dental practice will depend on how well dentists leverage computer technology with their profession. Scheduling, consultations, insurance filing, and patient records are moving to the Internet. However, finding the time and resources to take full advantage of these powerful new tools remains a serious issue.⁴ For this reason, it is essential that dentists find the right technology partner to help them navigate these unknown waters. As with any technology, the product is only a small part of the purchase. The support and the people behind the product—that is, the connectivity among dentists and dental technology companies—will ultimately allow dentists to obtain the best combination of products and services available and have more time to connect with their profession and their patients.

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