

Digital X-Ray File Sharing Redefines the “Solo” Practitioner



Kenneth S. Magid, DDS

Historically, the great majority of dentists have been “solo” practitioners with limited access to immediate inter-dentist communication. The digital age has brought about a new ability for dentists to share patient clinical information, including radiographs and intraoral photographs, to provide a higher level of patient service. It isn’t necessary for the dentists involved in the communication to have the same digital x-ray software, since most current programs can export radiographs in a variety of formats that are mutually readable. It isn’t even necessary for the receiving dentist to have any digital radiography hardware or software at all. Radiographs can be sent in a standard “image” format, readable by any computer.

The digital age has brought about a new ability for dentists to share patient clinical information, including radiographs and intraoral photographs, to provide a higher level of patient service.

GENERAL DENTIST-TO-SPECIALIST COMMUNICATION

Perhaps the most significant benefit of this is found in the flow of information between the general dentist and the various specialists. For example, an endodontic consultation can now consist of the general dentist exporting digital radiographs of the suspect tooth highlighted by the area of concern, along with an intraoral photograph showing any cracks in the tooth structure (Figure 1). If the results of clinical tests and findings are included, this communication is very close to having the specialist in the office. This vital information can be sent to the endodontist before the patient even leaves the general dentist’s office. In offices that have part-time specialists, the ability of the specialist to digitally review x-rays and intraoral photographs remotely ameliorates many of the difficulties that occur when the specialist is not available “in person.”

Since with digital communication there is no difference between next-door and next-state, a consultation with an expert has its

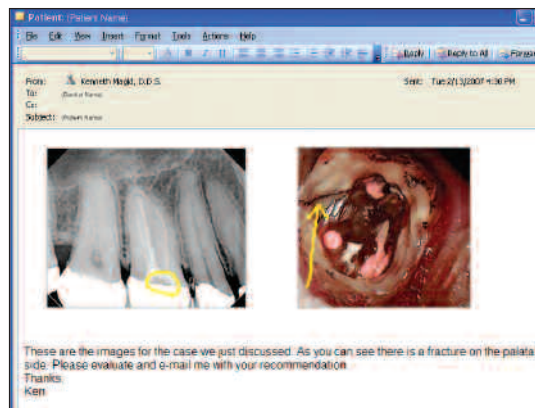


Figure 1. Save time and effort with e-shared x-ray and photographic images as well as clinical notes.

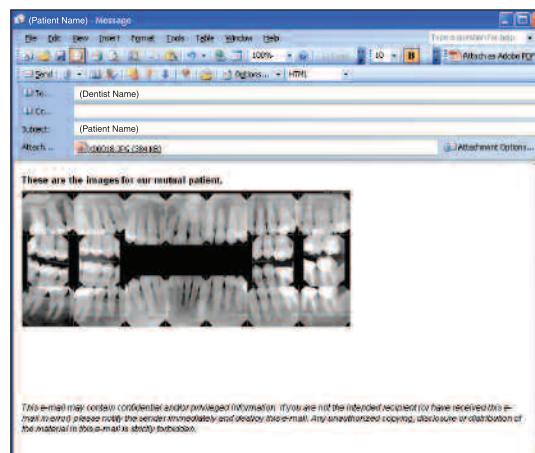


Figure 3. Messages generated from your digital imaging system messages work with your existing e-mail program.

broadest interpretation. The availability of digital panoramic radiographs expands the parameters of digital communication. With one of my patients in New York, a consultation on a questionable radiopacity with Robert Strauss, MD, DDS, at Medical College of Virginia resulted in a diagnosis of florid osseous dysplasia that prevented a problematic implant surgery.

Often, the general dentist “shares” the ongoing treatment of a patient with a periodontist. The ability to export a full series of radiographs provides both treating dentists with current diagnostic information. Although double-pack film can be used or duplicate films created, digital radiography permits exporting and importing without the difficulty, effort, or degradation inherent



Figure 2. Use your digital imaging system's e-mail feature to send images to colleagues quickly and efficiently.

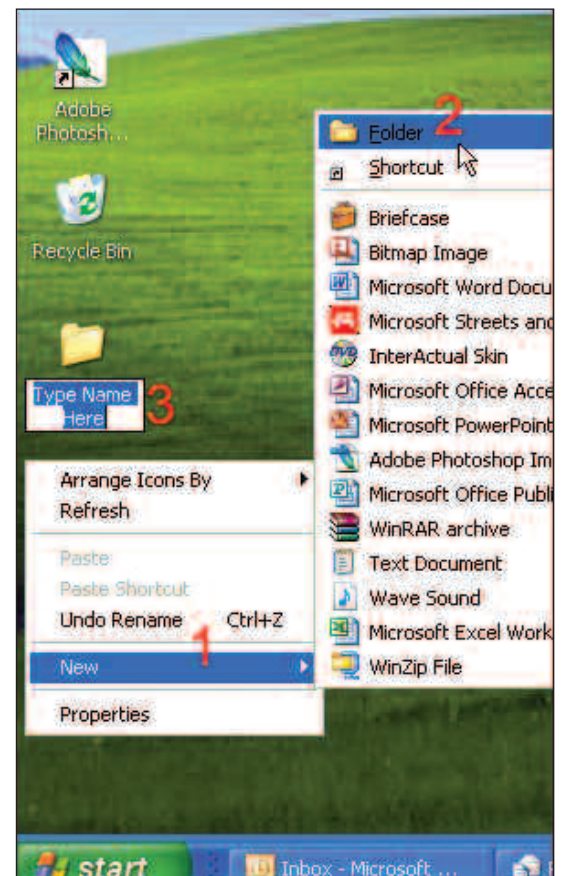


Figure 4. If there is no direct e-mail feature in your system, then create a new folder to hold images temporarily.

in these alternatives. With 2 or 3 clicks of the mouse, the full series is imported or exported, to be viewed within minutes.

continued on page 142

Digital X-Ray File...

continued from page 140

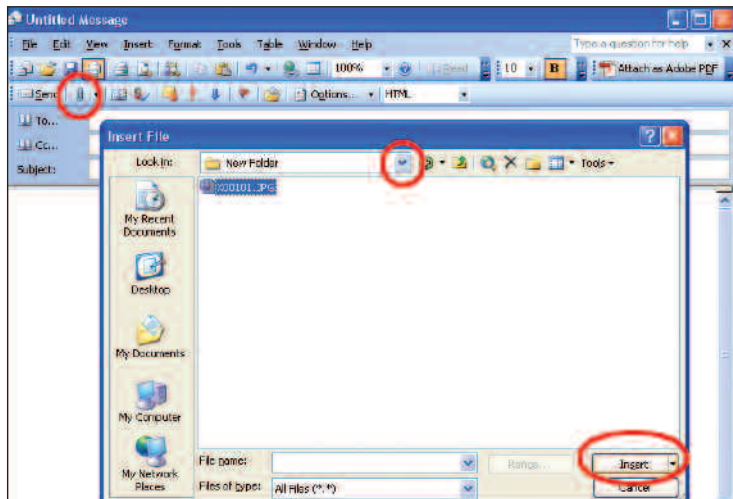


Figure 5. Browse for and attach the images, then send your message.

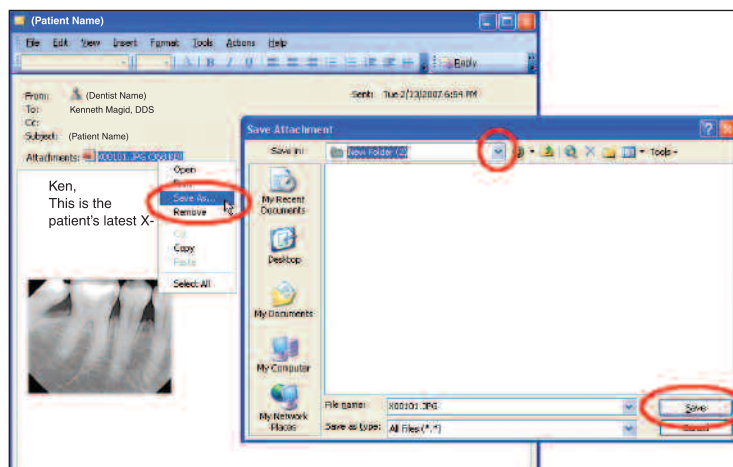


Figure 6. Save incoming image attachments in a folder.

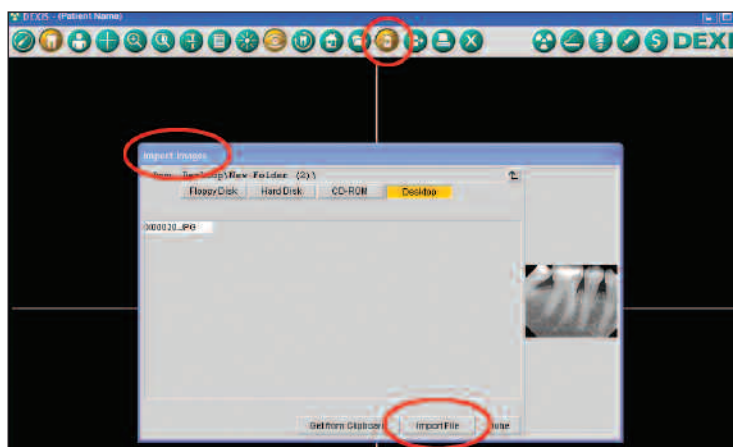


Figure 7. Use your digital imaging system's import feature to move images onto the patient's screen.

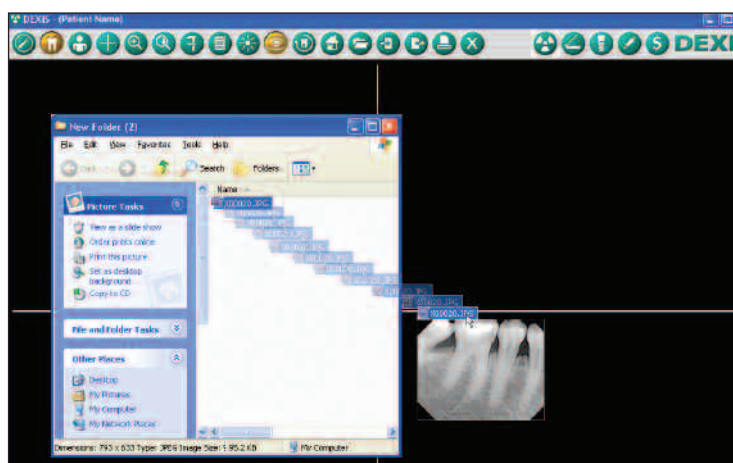


Figure 8. Drag-and-drop features save time.

TWO (OR MORE) HEADS ARE BETTER THAN ONE

The availability of digital radiographs and photographs permits solo practitioners to avail themselves easily of the wisdom of the group. E-mail networks such as Crown Council, EliteDOCS, or Dentaltown permit sharing diagnostic information with numerous colleagues at once. When this is done the extended "strings" of conversation often result in treatment choices that the solo practitioner had not considered. It is only with the ability for everyone to see the radiographs and photographs that informed choices can be discussed and the patient provided with the best and most complete treatment options.

One tremendous advantage of digital media that doesn't actually involve "exporting or importing" is dentists' ability to view their patients' radiographs and photographs from anywhere in the world where there is a computer with Internet access. When a patient calls with an emergency problem after-hours, the dentist can use an inexpensive Internet resource such as "Go to My PC" (gotomypc.com) to review all the patient's radiographs and photographs from home. This level of information results in a more informed decision about treatment than would be possible otherwise.

Although some dentists are practicing in large groups with specialists and other dentists "in-house" to consult about treatment, the ability of digital radiographs and intraoral photographs to be shared easily and instantaneously provides the solo practitioner with many of the same advantages. Even though interdental electronic communication offers such advantages, questions still arise about the essential ways to send images. Here is the how, why, and when on sharing files.

IMAGE FORMATS

Open formats like JPEG (.jpg) are probably the most-used format for pictures. Almost all digital still cameras use this format. Chances are that any pictures you

receive from a friend or family member via e-mail will arrive in this format.

In addition to the JPEG format, there are proprietary, or native, formats that specialized software (such as dental imaging programs) use. Examples include .dex (DEXIS) and .jif (Gendex). Clinicians who have the same programs can send each other images in these native formats, and should do so because the image file size is smaller.

Other formats also exist, such as .dcm (DICOM) and .tif (TIFF). DICOM was originally used in the medical community to send images electronically that carried a certain amount of patient and image information. In 2000, the first dental imaging software became DICOM Conformance, meaning dental images could now be transferred in this format. Other companies followed. TIFF format is an uncompressed format and usually yields a very large image file size.

Although images are captured and saved in the software's native format, most dental imaging programs also allow you to send these images in other formats. Mirroring the nondental world, JPEG is probably the most universally used among digital imaging software programs other than their native formats.

E-MAILING IMAGES TO COLLEAGUES AND PATIENTS

A few digital x-ray (DXR) programs offer a direct e-mail function within the software. Nearly all have an export feature that is described in the manual for your particular program.

As applicable, open the e-mail feature, choose the format, and then select the images to be sent. Or, if an option, send a series as one picture (Figure 2). Your message opens with the images as attachments (Figure 3). Choose a recipient and send it as you would any e-mail message.

If there is no direct e-mail function, then you will need to move the images to a folder. I suggest setting up a folder on the desktop or another easy-to-locate area. Start by right-clicking and choose "New," then "Folder," give the

folder a name (Figure 4). Open your e-mail program and attach the images by browsing for the folder (Figure 5).

When deciding which format to use, probably the best way to decide is to consider the recipient. If the doctor has the same DXR system, then use native format. If the doctor has a different system that is DICOM conformant, then send the image(s) in DICOM or JPEG format. If you are unsure of the system or technical experience of the receiving doctor, or if the images are going to patients, then send in JPEG format.

PULLING ATTACHMENTS OF IMAGES OFF MESSAGES

Whether you receive images in JPEG or in your own program's format, probably the easiest way to place these into your digital imaging program is to save them to a folder and then use the program's import feature. Start by creating a folder as previously described. Choose to save the attachments to the folder (Figure 6). Then, open your program and choose the import feature. Browse for the folder and import the images (Figure 7).

Some programs make the process even easier by allowing you to drag the file from the folder to the patient's screen (Figure 8). In this case you will not need to use the import and browse features.

For dentists who have yet to implement digital imaging software, saving images in folders is the most logical option. Using the steps above, create and save images to a properly labeled folder (patient name, date, referring doctor's name). For convenience, ask that images be sent to you as JPEGs so you can open them with your standard picture viewer, and if possible, that they be sent as "one picture" (shows patient's name and date).

SECURITY

Any time you open attachments, you run the risk of contracting a computer virus. It should be standard protocol to keep your virus protection current and to use proper precautions when opening received files.

HIPAA Security requires

With all of these technological breakthroughs at our disposal, there is no reason to let computer viruses or HIPAA discourage your e-efforts.

meets guidelines and move forward. Sending images electronically is just one of the gifts we've come to expect from the digital age. ♦

Dr. Magid lectures throughout the United States and Canada and is a contributor to many journals and newsletters on topics such as minimally invasive dentistry, lasers, and cosmetic procedures and techniques, as well as high-tech den-

tistry. He is Director of Predoctoral Laser Dentistry and Associate Clinical Professor of Honors and International Esthetics at New York University College of Dentistry. Dr. Magid has also appeared on nationwide television and radio programs to discuss high-tech and cosmetic dentistry. He

has helped develop and patented many widely used devices in dentistry. He maintains a private practice in general dentistry with an emphasis on high technology and cosmetics in Westchester, NY. He can be reached at ken.magid@gmail.com.

healthcare providers to safeguard patients' personal information with regard to electronic transmission. The most secure way to send images is to send them without patient information attached. However, these types of images are labor-intensive for a non-DXR owner to store and use. This method also inhibits the use of practical functions within most DXR programs. This is a complicated matter, not one that can be fully addressed in a few paragraphs. However, the rule permits practitioners the opportunity to assess their own risk of a breach in confidentiality and integrity of the information to be sent, and then to formulate a plan to minimize those risks. In fact, the HIPAA Security rule gives total flexibility to providers to create their own privacy procedures, tailored to fit their size and needs.

For the e-mailing of images, this can mean something as simple as a password-protected e-mail account or computer station that is used to receive e-mail messages with images as attachments. In addition, you as a sending party can set passwords with recipients so that only those with these passwords can open the messages and documents. A variety of technical expertise is available to help you set the standards you feel are appropriate for your particular practice. One source of information is the American Dental Association (ada.org).

CONCLUSION

With all of these technological breakthroughs at our disposal, there is no reason to let computer viruses or HIPAA discourage your e-efforts. Create a process that