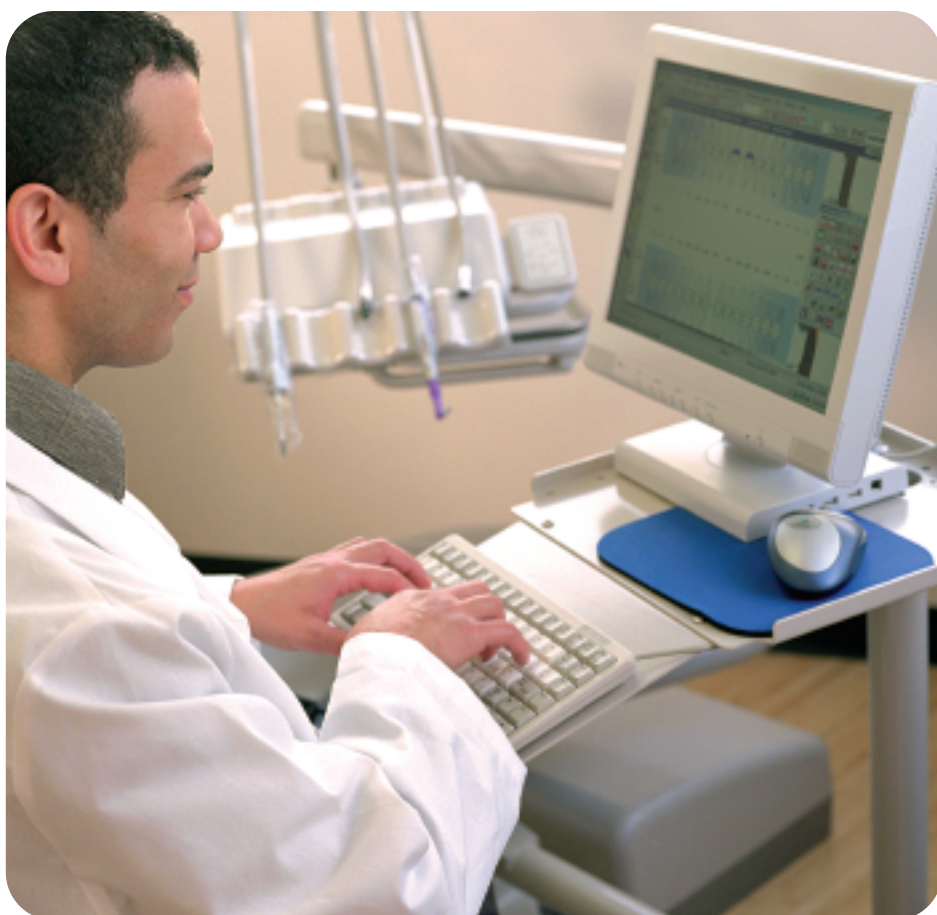




# Online consultations: Connecting with specialists worldwide



*A range of consultation services are becoming available online as digital data—from x-rays to virtual 3-D models of appliances and implants—grows.*

of online-consultation services are becoming available online. This article looks at services providing:

- clinical specialists and laboratory prescriptions,
- orthodontic-appliance specialists,
- business services,
- specialty diagnostic centers (as ones assessing radiographs), and
- dental implant centers.

### Clinical specialists/laboratory prescriptions

The simple e-mail Dr. Dalton sent to Dr. Bright worked fine. However, for a more refined approach, dentists can use a specialized Web site, such as Transcend Inc. ([www.transcendonline.com](http://www.transcendonline.com)), which offers the TransNet clinical consultation service and the Dentist RX Online laboratory prescription service.

### Clinical consultations

Here's how the TransNet service works. The transmitting dentist can start a new consultation and then upload any digital-diagnostic information he or she wishes. This can include photos, radiographs, clinical findings, health history, and chart notes. Next, the dentist can write a message with whatever level of detail desired and click "Submit."

The dentist or dentists (that is, the consultants) are notified by e-mail from Transcend that a new consultation has been submitted.

It's important to note that e-mail is used as a subsystem of Transcend to notify participants that submissions have been made to their secure and private database. No private data is sent or e-mailed. As a result, the materi-

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**D**r. Montie Dalton, a dentist in Bossier City, La., took a routine periapical x-ray of a patient's maxillary centrals. The digital image showed a suspicious change along the root surface. Dr. Dalton enhanced the image, reversed the contrast, and was pretty sure he was seeing external root resorption.

External resorption is unusual enough, though, that Dr. Dalton wanted to confirm his diagnosis with an endodontic specialist. He also wanted to check out the latest protocols for its diagnosis, treatment, and prognosis.

In the past, Dr. Dalton would have been forced to copy the x-ray, write a report, and then send the patient off to the local endodontic specialist. It would be days or even weeks before he heard from the endodontist. Or, the patient might not even bother to see the specialist. After all, the tooth wasn't bothering her.

What Dr. Dalton did instead of sending his patient to a local specialist was to e-mail her x-ray image to Dr. David Bright, an endodontist he respected in Tyler, Texas. Together on the phone, they both reviewed her x-ray in real time. Dr. Bright confirmed the diagnosis, and Dr. Dalton heard the latest in how to evaluate and treat this unusual condition. All this was done while the patient was sitting in the chair.

This is a simple example of an online consultation—made possible by the ability to transfer digital information anywhere in the world—instantly. What makes online consultations possible is the growing collection of digital patient information. Digital information can include photos, x-rays, charting, patient histories, and any number of new digital-diagnostic systems that are coming to dentistry. Once the data is in a digital format, it is possible to transmit it to specialists using the Internet. And it is just as easy to transmit digital data to the world's leading authority, as it is to transmit it to a colleague across the street.

As a result of the proliferation of digital-dental data, a growing range

## Building a high-tech office: A 10-article series

How do you build a high-tech office? To find out, we asked Dr. Larry Emmott, DPR's technology editor, to present a 10-article series (see topics below) to guide you through the process of choosing and using high-tech systems, from practice management software to online consultations using digital data, the subject of this month's report.

- **Management software:** charting (February), scheduling (March), and finances (April)
- **Hardware in the operator** (May)
- **Digital photography** (June)
- **Q&A on building a digital practice** (July)
- **Digital marketing: Part 1** (August)
- **Digital marketing: Part 2** (September)
- **High-tech diagnostic devices** (October)
- **Online consultations** (November)

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al is protected, and the data is managed for the participant.

The receiving dentist logs on to Transcend, and can view all the data on the case. When an opinion is requested, a red button on the participant's secure database lights up, along with an e-mail to notify the participant that an entry has been made. The receiving dentist also could phone the transmitting dentist for a real-time conversation.

All of the parties can view the images and data simultaneously while having a phone conference. Because this is not e-mail, the parties do not have to be on their own computer. They can access the information from any Internet-connected computer, using their security codes. Both patient security and confidentiality are maintained with passwords and encryption used by all involved in the consultation.

### Lab Rx

Requests for consultations aren't restricted to dentists. With the Transcend Dentist Rx Online service, requests can be sent to laboratories using an online lab Rx.

Here's how it works. The service links a dentist to a chosen lab for prescriptions. It also provides the dentist with a "smart" form that guides the dentist through the lab-prescription process, based upon the

type of lab service requested.

Dentist Rx offers a range of lab services. The dentist can track all laboratory cases, determine lab costs per case, document cases with images, inventory study models, generate reports, and provide the laboratory with complete, legible scripts.

The only requirement is that both parties—transmitting and receiving dentists/labs—be members of Transcend.

Transcend is being used by a number of institutional and private practitioners as well as be a number of dental schools, who use a version of the lab program de-

signed for the needs of institutions and large groups.

### Ortho-appliance specialists

More sophisticated diagnosis and treatment-planning online consultations are being done right now in orthodontics with

## Cosmetic consults



Photos courtesy of Transcend Inc.

Transcend offers online treatment simulation by prescription; that is, the dentist submits a digital image of a patient needing treatment (top photo) to Transcend along with a prescription detailing the treatment the doctor wants done. Then the Transcend consultant uses cosmetic imaging to simulate what the prescription would look like (bottom photo), and submits it to the doctor for assessment.

Dentrix  
Standard page spread

Invisalign from Align Technologies Inc. ([www.invisalign.com](http://www.invisalign.com)).

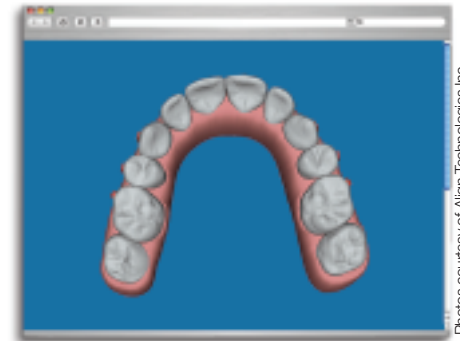
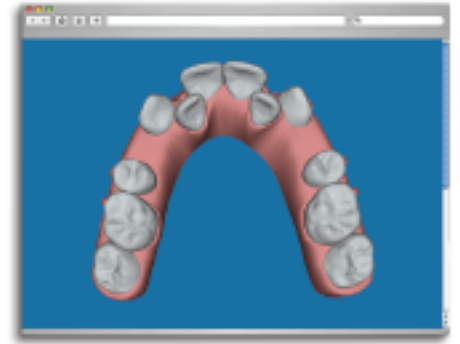
Suitable for adult patients who do not want to wear metal or ceramic braces, the Invisalign system is comprised of a series of clear computer-designed orthodontic "aligners" that snap over the patient's teeth.

Worn for about two weeks, each aligner in the series incrementally shifts the teeth until the final position for that aligner is reached. The next aligner with a slightly different calibration then replaces it.

Here's how the Invisalign consultation works. The submitting dentist can send all

the needed information for the aligners to Invisalign via the Internet, except for PVS impressions and bite registrations. Documents can include photos, x-rays, patient data, and treatment-planning information. But, the best part of this online planning isn't the case submission. It is the

## Ortho consultations



Photos courtesy of Align Technologies Inc.

The Invisalign online consultation service uses virtual 3-D models to show the course of orthodontic treatment. A doctor can go online and view such models throughout a patient's treatment and make adjustments, as necessary. The photos above show models of the beginning and ending stages of a patient's realignment.

## Dentrix Standard page spread

online treatment plan called "ClinCheck," which Invisalign sends back to the submitting dentist.

The Invisalign ClinCheck plan provides exact 3-D virtual models of the shifting teeth as they are being corrected (see photos above). The dentist can view these on-screen models in any direction and evaluate the projected course of treatment on a week-by-week basis. The online plan also includes attachments and tooth modifications, as needed. The dentist can accept the plan or alter it at their discretion.

## Business services

It is possible to perform business and financial consultations online with some practice managements systems.

For example, with programs such as the Dentrix system from Dentrix Dental Systems Inc., a Henry Schein Co. ([www.dentrix.com](http://www.dentrix.com)), a dental administrator can connect directly from the software to a patient's insurance company. Then the administrator can determine eligibility and benefits without the dreaded 20-minute on-hold phone call.

It is also possible to arrange patient financing on the Internet. Companies offering such financing include CareCredit ([www.carecredit.com](http://www.carecredit.com)) and Dental Fee Plan by Capital One ([www.dental.feeplan.com](http://www.dental.feeplan.com)).

For example, it is possible to connect

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directly with CareCredit to upload a patient's personal information and to have financing arranged within minutes.

### Specialty diagnostic centers

The next level of refinement is specialty diagnostic centers. These centers will re-

ceive digital diagnostic information as their primary method of patient contact. Although any type of digital diagnostic could be used, the most obvious ones are radiographs.

For example, Dr. Dale Miles, MS, FRCD, a leader in radiography, soon will open a new radiography practice in Scotts-

dale, Ariz., designed to work exclusively with transmitted digital images.

Dr. Miles, an Associate Dean of Clinical Affairs and Professor, Oral and Maxillofacial Radiology, at the Arizona School of Dentistry & Oral Health, has taught at universities in Canada and the United States for more than 20 years. He also has

authored three textbooks in radiology and more than 90 scientific papers. His Web site ([www.learn.digital.com](http://www.learn.digital.com)), provides dentists with the latest information on digital x-ray imaging.

To consult with Dr. Miles, a dentist will acquire a digital image or images of a patient in their practice. The digital data could be routine dental images, panoramics, TMJ tomograms, or sophisticated 3-D CAT Scans. Then, the dentist will transmit the data to Dr. Miles (at [damiliesrad@cox.net](mailto:damiliesrad@cox.net)). Dr. Miles will enhance, process, and diagnose the image, and send a report to the referring dentist.

In this way, Dr. Miles' skills are leveraged to far more patients. Any patient, anywhere in the world, could benefit from his expertise. Patients will not be forced to settle for whatever level of skill the local expert might provide.

### Implant centers

Another online consultation program under consideration is centralized treatment planning for implants. Here's how it could work. A potential implant patient would acquire a CAT scan anywhere in the world. Then, the patient's dentist will transmit the CAT-scan data to the diagnostic center.

When the implant specialist at the center receives the CAT scan, the specialist will use sophisticated imaging software to create a virtual 3-D model of the patient's skull. The software would show the presence of nerve canals, sinuses, teeth, and any other features critical to implant placement. The specialist then would place virtual implants and develop an exact guide for placement, including position, size, depth, and angulation of the fixtures.

In this way, the skill, experience, and technological expertise of the leading implant specialists can be leveraged anywhere in the world to improve care for far more patients than ever could be seen in a single office.

### Digital data propels growth

As the collection and use of digital patient data continues to grow, we will be able to use it in even more creative ways. The online consult of the future will include interactive voice and data, video conferencing, multiple online participants, virtual impressions, and much more. The future is coming and it will be amazing! **DPR**

*Dr. Larry Emmott, an authority on dental technology, is a practicing general dentist in Phoenix. He addresses professional groups, is a featured instructor at the Las Vegas Institute, and is a member of the American Academy of Dental Practice Administration. He writes articles on dentistry, computer use, and management, including a monthly electronic newsletter, "Emmott on Technology." He also offers hands-on technology seminars. His next hands-on course is scheduled for March 18-19, 2005. For more information, call Dr. Emmott at 602-279-1641 or visit his Web site [www.drlarryemmott.com](http://www.drlarryemmott.com).*

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