



Dental practice websites: creating a Web presence

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Background

According to the Nielsen NetRatings, 60% of Americans have access to the Internet, with a total of 168 million people using the Internet as of January 2001 [1]. In the preceding year, 52 million Americans sought information about health care online, and 47% said the information they found influenced their decisions [2]. Thirty percent of the 10 million monthly visitors to WebMD.com, a popular consumer health Web site, are reportedly looking for information on oral health care [3]. These figures are similar to the results of a public opinion survey conducted by the American Dental Association (ADA) in November 2000, which found that 27.8% used the Internet to access general or oral health care information [4]. Patients come to their appointments educated (sometimes inaccurately) about new dental products, treatment procedures, and diagnostic tests that they have learned about through advertisements and the Internet. Practices that have established a Web presence are able to reach an untapped population who use the Internet to find services and information online and support patient education and treatment information for current patients. As of the 1997 ADA survey, 25% of dentists had Internet access in their offices [5].

Guide to Web design

The cliché that you only have one chance to create a good first impression is true, especially when the first contact is on your Website. When designing a Website, the primary concern should be to project a professional image that reflects the goals and philosophy of the practice while providing

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current, relevant information to potential and current patients. This goal can be achieved by following simple rules of design: maintain a balance of graphics and text and display information using appropriate color schemes and fonts that are easy to read and visually stimulating.

An effective site begins with a foundation of useful content. Content should drive the designing phase and provide an outline of how the pages look and feel and how users access the information. Several key questions to answer in developing a Website are:

- What is the purpose of the Website?
- Who is the target audience or potential population you want to reach?
- What categories of information do you want to provide?
- How will the site be built and maintained?

The following list provides ten guidelines that can assist a person in designing a Website.

1. Define the purpose of the Website and what categories of information it should contain.
2. Describe the target audience (demographics, age, income, location). This information helps define the focus of the Website and the type of information that is marketed and provided.
3. Provide detailed contact information that is easy to locate and read. Links to e-mail for the office manager or staff are helpful.
4. Ensure that graphics, clip art, and photographs should serve a function. Define the purpose of each graphic or photograph. Do they project a professional image and are they a reflection of the mission statement or goals? There should be a balance between pictures and text.
5. Provide the audience or patients with helpful information about the office, services and procedures provided, quality of care, and product or consumer information. Define the types of information that the audience or patients find useful.
6. Ensure that the site is easy to navigate. Information should be located and identified or labeled easily.
7. Make the site easy to read. The font and color scheme should enhance the information and make it easy to find and understand (large font, easy-to-read colors). Information should be well spaced, with not too much or too little information on each page.
8. Provide relevant links to information of interest to the target audience. For example, links for parents with children include baby bottle tooth decay, nutrition, good snacks, sealants and fluoride, brushing motivation, and techniques. Links for older adults include taking care of teeth, root caries prevention, implant care, product information, and xerostomia caused by medications. Links to product information include tooth whitening or bleaching, power toothbrushes, mouth rinses for plaque and gingivitis, halitosis, and caries prevention.

9. Make sure the site contains complete and accurate information and that links to other sites are credible and provide up-to-date information.
10. Make sure the site is labeled as to when was it created or last updated.

Within these guidelines, more specific information about one's practice is solicited. The answers provide the framework for the Website development process.

Several tools are available to help establish a Web presence, one of which is a checklist that helps ensure that the site reflects one's philosophy and creates an image that captivates viewers so that they want to come to the office (see box). Before starting the process of developing a Website, it is helpful to review Websites of other dental practices and businesses using the checklist. This review gives a good idea as to the categories of information, pictures,

Website categories of information checklist

About the office

Office philosophy/mission statement/goals
Services and procedures provided
Description of the office (equipment, digital radiographs, patient amenities) Includes images and pictures
Dr., RDH, CDA, Staff Bios Include awards, professional affiliations, Continuing Education/certification courses attended
Directions/maps to the office/online "virtual" office tour
Contact Information
 Phone numbers
 E-mail addresses (direct e-mail links are helpful and convenient to patients)
Names of whom to contact for insurance, scheduling, general questions

Marketing information

Services and procedures provided
 Preventive, diagnostic, and treatment services; specialty care
 Case examples with intraoral pictures before and after (with patient permission only)
 Patient testimonials or quotes regarding specific services (with permission only)
 Pictures, graphics, and images
Insurance/provider information
Payment methods and policies
New patient forms

Necessary security precautions taken
Frequently asked questions
Consumer information

Bleaching
Brushing
Products
Technology
New materials/procedures/products

Patient section

Online forms to update address/phone numbers, work
information, insurance
New patient forms
New medical history forms
Patient care

Links to other sites

Links to product sites
Links to government sites
Links to research findings (amalgams, new materials,
bleaching, implants, health concerns)

graphics, and images one might want to include and the design and layouts that one prefers.

Categories of criteria include, but are not limited to:

- Patient care
- Information: preventive, diagnostic, and treatment services; specialty care
- Pictures, graphics, animation, video, and images
- Language used to create image, gimmicks

It also is important to consider the amount and size of text, images, and white space. The Web page should be easy to read, text and graphics should flow, and information should be well spaced. The colors used to display information also should be selected carefully. There should be a distinct contrast between background and text. Generally white or pale color backgrounds with black or dark text are easier to read. Be cautious about using a small text size or textured background. Often the texture or pattern is distracting or makes information more difficult to read. As a result, some search engines do not index these sites.

Once one has an outline and has prepared a draft, have them reviewed by others. Get opinions from various interest groups: friends, family, staff, and

new and current patients. Make sure these opinions represent the range of age groups treated in the practice (eg, young, middle-aged, and older adults).

Keep the user in mind when outlining and designing the site. Although the speed of the Internet continues to increase with high-speed connections, many users still have dial-up modems and older computers that do not quickly load sites with extensive graphics and multimedia. This may be a turn off to the site before patients and potential clients even see the home page. This problem can be avoided by keeping the page simple and straightforward. Once at the home page, there should be a guide as to what is on the site and how the information is displayed. For example, one can provide options for viewing content, such as having users click on small pictures that enlarge or select to view a video. Navigation also should be easy through the use of clearly labeled icons.

Taking advantage of Web technology can increase the ability to capture the viewer's attention. For instance, animation, streaming video, music, and three-dimensional graphics offer advantages not available using traditional means to convey information. It is important that these features are used to enhance the content and take-away messages one wants emphasized rather than distract or entertain the viewer.

When incorporating images on a Website, it is necessary to consider copyright laws. Unauthorized copying of any original work of authorship is prohibited, including images, animation, and pictures posted on the Internet, even if a copyright notice is not included in the original work [6]. Lists of specific links also are protected under copyright laws if original thought was put into compiling the listing. Copying several links from a list may not be a violation, however [7].

If one has licensed the right to use an image for a brochure, this license does not extend to one's Website. To use a copyrighted image on the site, a license must be obtained from the author or artist of the original work. The license should specify how the image can be used, the cost, and other relevant restrictions and conditions [7]. If one plans to include intraoral images, radiographs, before-and-after photographs, or patient testimonials, it is necessary to obtain written permission from each patient before posting their information on the Website. The permission acquired from patients also should outline the use of the images.

Companies and resources to help put the site online

If one does not have the time or the design skills to develop one's own Website, certain companies provide this service and also may manage the site. There are two types of companies with whom one can work: those that use templates or those that work with the client to create an original design. Most of the companies that use templates have several predesigned formats from which to choose. These companies ask for specific predetermined

information that is inserted into the template. As a result, practices that select this Website development option look similar. Features that can be customized are often limited to only colors, links, and categories of information.

Companies that use design templates offer different packages that allow for some customization of the site and support services. These services may include selecting categories of information (pages), number of pages per Website, account management, E-mail, and Web-hosting options. Account management options may involve choosing to have the company update the site, provide customer and technical assistance, and provide data back-up. Web-hosting options may include choosing the amount of Web storage space allocated for the site, the size of bandwidth or traffic allowance, e-mail accounts, and Web usage statistics. Some companies charge initial set-up fees or customer support and consulting charges in addition to monthly Web-hosting costs. It is important that one select a company that fits one's needs and philosophy. Before contracting with a Web-design company, one should be sure to ask for Web addresses of several current customers to see examples of how their sites look and feel.

Pages on a customizable site may include:

- *Homepage* to introduce the dental practice and provide simple navigation to the site
- *About Us/Philosophy* section in which practitioners can display staff and dentist biographies, general office information, and a mission statement or office philosophy
- *Frequently Asked Questions (FAQs)* section that provides a forum for addressing commonly asked questions and controversial topics, such as mercury poisoning from amalgams and risks or benefits of specific treatments
- *Credentials* section to display one's credentials for current and potential patients
- *Links* section, which may be a preprogrammed template of oral health care sites
- *Contact Information* section so that patients easily can reach the office
- *Download Files* section that includes one's medical and health history, new patient information sheets, and other forms for patients to complete and read before their first visit

One example of a Website company that uses templates for dental practices is Netopia, Inc., <http://adaecco.netopia.com>, which is endorsed by the ADA. It offers its service starting at less than \$20 per month. This fee includes 10 megabytes (MB) of disk space for storing files, folders, pictures, and other information that one uses to personalize the practice. Other companies that offer dental practice Website templates are

<http://www.rdental.com>

<http://www.dentalnic.com/servlet/Home>

<http://usadentist.com/Web/>

<http://www.dentalicon.com/>

<http://www.dds4u.com/>

<http://www.dentalxchange.com/>

<http://www.afdd.com/Web-Centric-DMD/>

http://www.lwnet.com/enter_dentalicon.htm

<http://pro.dentistryonline.com> (This company offers Web starter packages using design templates that start at \$495 and customized sites that range from \$1995 to \$3995.)

The benefit of using a company that uses a template is that the company does most of the work. The practitioner's only task is to provide the Web design company with the specific information requested; however, this may limit the ability to have the site convey one's office philosophy and goal(s).

Companies that work with a client to create a more original customized site are considerably more expensive and produce a site that is generally more complex and flashy. Dentistry Online, Inc, <http://pro.dentistryonline.com>, offers customized sites with an Internet communication suite, including patient education, patient newsletter, oral pathology guides, and e-mail center. Set-up fees range from \$1995 to \$3995. Some design companies also use sound, animation, and Flash technology to enhance the appearance and appeal of the sites. In addition to the set-up fees for building the site, monthly Web-hosting fees can range from \$30 to \$70 depending on hosting options one selects. Examples of sites designed by [dentistryonline.com](http://pro.dentistryonline.com) can be found at <http://www.vancouverdds.com/> and <http://www.nsdadentists.com>.

Although Web development and site maintenance may seem pricey, the cost is less than a phone book advertisement [8]. In contrast to the phone book advertisement, a Website provides an additional visual impact, has more extensive information and space, and can be updated easily and immediately. From a practical perspective, an office Website can be a cost-effective marketing and educational tool. Website usage also can be tracked automatically and analyzed. This information provides practitioners with access to invaluable statistics about the demographics of visitors, the time of day the site is accessed, which pages receive the most traffic (visits), and how much time is spent on each page, to name just a few statistics that can be obtained. Even a carefully planned mass mailing does not provide the extensive feedback that can be accessed from a Website.

There are several ways to obtain statistics to analyze or measure the traffic on one's Website [9]. One option is to install traffic-analysis software directly onto the server. Another alternative is to hire a company that specializes in Website analysis. A third option is to subscribe to a tracking service such as WebTrends Live, a Web analytics company that offers real-time analysis online and billing based on usage [9]. Examples of utilization reports from WebTrends Live can be found in their online demonstration at <http://webtrendslive.com/demo.htm> (click on "Live Business Edition HTML Demo").

Do-it-yourself: designing your own Website

If you are interested in designing and maintaining your own Website, several helpful resources are available. Online tutorials on HTML can help you learn how to speak the language of Website design. Some of these tutorials can be found at the following:

<http://www.webdeveloper.com/tutorials.html>
<http://www.relisoft.com/Web/html.html>
<http://www.pageresource.com/>
<http://www.htmlgoodies.com/>
<http://its.med.yale.edu/wdd>
NCSA Beginner's Guide to HTML
<http://archive.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimer.html>

A book by Musciano and Kennedy also is available [10]. There are also Website programs that simplify this process, including Macromedia® Dreamweaver™, Microsoft FrontPage®, NetObjects Fusion®, and Adobe GoLive®.

Once the Website has been designed, one must register the domain name to be assigned a Web address. One such company is Register.com™, which is found online at <http://www.register.com>. This site allows one to search to see if the domain name one would like to use is already registered and, if not, register the domain name for multiyear periods of time. If the domain name is already being used, Register.com™ suggests other variations that are available. If one does not have a computer server, a Web host also is required. This host provides Internet space on a server to store the site online.

Uses of Websites for dental practices

A Website can be an excellent cost-effective marketing tool by allowing practitioners to publicize and showcase their practice without spending a lot of time, energy, or money. It provides widespread visibility and projects an image of being modern and up-to-date while increasing the perceived value of the practice. Internal and external marketing opportunities are available depending on how the site is used.

Websites can promote a practice by making it accessible to potential and current patients through providing a convenient means to communicate, present information, and demonstrate the unique qualities of the office. Patients can learn quickly about key elements of the practice, meet staff members, view the treatment rooms, and learn about hours of operation and the office philosophy conveniently from the comfort of their own home. This information should be easy to locate on the site. The Website should project an image of professionalism while introducing patients to the dental team and facilities. This goal can be accomplished with short biographies next to

photographs of each team member and photographs of the reception area and treatment rooms. Examples of these can be found at <http://www.4dental.com/>, <http://www.gatordental.com/>, <http://www.dentistrynorthwest.com/>, and <http://www.cltpediatricdentistry.com/>. Some practitioners have taken this a step further by adding video so potential patients can take a “virtual tour” of the office at their convenience.

Another advantage of a Website is the ability to provide online forms for patients. This service allows patients to complete medical and dental health histories, insurance forms, and other necessary information at their convenience before the appointment. Providing a printable form that patients bring to the office the day of their appointment eliminates issues of online security. If one prefers to have patients submit this information online directly to the office, however, one should make sure the information transfer is secured.

Secure socket layer technology can be used to encrypt information sent across computer networks. Using this technology greatly reduces the risk of such information being read or used by someone should he or she intercept messages. Most Internet service providers that offer Web-hosting services can provide this level of security. In addition to securing the data transfer from the patient’s computer to the Web server, it is equally important to have security as a practitioner while one downloads the information from the Web host/server to the office computer or as one integrates it directly into practice management software. This process also can be secured by secure socket layer technology or other encryption techniques.

Establishing a Web presence also enables dentists to promote the care they provide by displaying case examples, before-and-after treatment pictures, and patient testimonials. The old adage, “A picture is worth a thousand words” can be used to convey the quality of care provided by the office. When case presentations are supported by patient testimonials, a dentist’s credibility can be strengthened and the acceptance of treatment plans by current and new patients is likely to increase.

Websites also can strengthen the dentist-patient relationship by targeting key issues that affect a large proportion of the patient population and providing information and links to related credible sites and support groups. This relationship can enhance trust and credibility as a health care provider by showing concern for patients and their problems. Specifically, if one’s patients are primarily older, the Website might include an explanation of common medications, their oral side effects, and how to relieve discomfort from xerostomia. Including links to many of the online sites devoted to older adults also could assist patients with other health concerns. Ageline, available at <http://research.aarp.org/ageline/home.html>, is a searchable database for geriatric resources that contains summaries of publications about older adults and aging. It is sponsored by the American Association of Retired Persons and contains information for older adults on health and health care, employment, housing, fitness, travel, financial planning, care giving, retirement, pensions, Social Security, Medicare, family relationships, and self-help.

The Centers for Disease Control and Prevention has a senior health topics section, <http://www.cdc.gov/health/seniors.html>, that provides information on falls, cancer, and conferences. HealthanswersTM, a consumer health site available at <http://www.healthanswers.com>, provides information on topics such as Alzheimer's disease, cataracts, and wrinkles. This site also has audio and video categories, chat rooms, and discussion forums for seniors.

If one's patient population is primarily families with young children, the site should provide Web resources directed to parents and children. These resources may include links to information about baby bottle tooth decay, sealants, fluoride, proper brushing and plaque removal techniques, and nutrition, some of which can be found through the government and professional associations free of charge. One resource is the National Institute of Dental and Craniofacial Research, <http://www.nidcr.nih.gov/news/publications.htm>, which provides online brochures that cover the topics of baby bottle tooth decay, diabetes and periodontal disease, sealants, nutrition and the importance of calcium, and brushing. Another resource is the American Academy of Pediatric Dentistry, www.aapd.org, which also has parent education brochures and a "No Adults!" section for children (<http://www.cyberkids.com/>) and teenagers (<http://cyberteens.com/>). In addition to the American Academy of Pediatric Dentists, the ADA Website contains a kid's corner with games, puzzles, and information just for kids about eating healthy and taking care of their teeth (<http://www.ada.org/public/topics/kids/index.html>), and the American Dental Hygienists' Association's site has a "Kids Stuff" section with common questions, games, and links (<http://www.adha.org/kidstuff/index.html>).

Promoting the Website

Once the site is online does not guarantee that people will look at it or be able to find it. The volume of information available via the Internet is growing exponentially, which makes pinpointing specific information or sites increasingly difficult. According to Coiera's theory, as the amount of information available increases, the number of matches per search also grows, which makes it more challenging to find specific information [11]. The solution for Web consumers is to find providers such as search directories or search engines to filter the vastness of information for them [11]. Search directories are human-compiled Web guides that list sites by category, whereas search engines use a special algorithm to index the content of Web pages as they search the Internet for Websites that match key terms. These search strategies are more likely to supply high-quality Websites with information relevant to a search (Table 1).

Promoting one's Website can begin by adding the URL (Web address) to the office stationery, business cards, signage, and all correspondence and forms used with patients and other providers, including prescription forms,

Table 1
Search directories and search engines

Search directories		Search engines	
Yahoo!	www.yahoo.com	Google	www.google.com
Lycos	www.lycos.com	Northern Light	www.northernlight.com
GoTo	www.go.com	Alta Vista	www.altavista.com

new patient forms, billing statements, notepads, return address labels or envelopes, referral letters, and appointment reminders. The same practice applies to e-mail correspondence. Most e-mail systems include a signature feature in which the URL can be included. Encourage current patients to visit the Website to access information about a specific procedure or to learn more details on how to care for a temporary restoration or partial. (Be sure that the information is available on the Website.)

In addition to promoting the Website internally, there are various free and paid methods to publicize one's practice online. Two directories that list the Website at no charge are <http://www.dentalsite.com/directory/> and <http://www.webdentistry.net>. As a member of some professional organizations, such as the ADA, Academy of General Dentistry, American Academy of Pediatric Dentistry, and American Academy of Periodontology, a dentist can list his or her Web site; however, the organization may not create an actual link to one's site.

Several sites offer to list a person's practice in their directory if that person registers with their company or sets up a Website with their business. Dentist Directory, <http://www.dentistdirectory.com/>, lists a person in their directory when that person establishes an account with www.dentalxchange.com or if one selects them to build a Website. Other dental directories can be found by searching for "dental directory" using a search engine.

Subscription-based dental directories often allow one to provide more information about the practice. Some of these directories advertise that they maintain high ranking in search engines, which means that they are usually within the first 25 results posted on search engines.

Communities Online Co. Dentist Directory (<http://www.thedentistdirectory.com>) offers a directory listing for a quarterly fee. Dentistry 2000 (<http://www.dentistry2000.com>) offers to list the office and Website link for \$45 for the first 2 years.

Free submissions to search engines are another avenue for Web promotion. Almost every search engine has an area to manually add one's website URL to their index. Some of these areas penalize Websites that are submitted too often, however, either by removing them from the index or placing them in a low ranking position so that they do not appear on the first pages of results.

Several online businesses offer to submit one's URL to numerous search engines for a fee but may use automated software that submit the Website repeatedly, which can cause more harm than good. Some search engines are adopting policies to block automatic Website submissions. Firms also offer

manual submissions that may be worth considering; however, they may charge higher fees than companies that provide automated submissions.

Other options for website promotion involve purchasing links or banner advertisements that are displayed when specific key terms are searched. Sponsored links are often listed on the first page in a section entitled “Featured site,” “Partner listings,” or “Sponsored Links.” These can appear either before or after the search engine lists the number of results found. Fees are usually assessed by how many times the link appears or by “per click,” which can be cost effective. In contrast, banner advertising can be costly and may not be effective. The average number of responses or click-throughs to banner ads has declined to an estimated 0.44%, which is a significant drop from a high of 2.12% in 1996 [12].

The future of Websites in dentistry

Companies are in the process of incorporating dental Websites with practice management software to provide Web-based practice management. This management integrates online appointment scheduling, patient registration, electronic claims submission, digital image storage, and the basic functions of most practice management software suites.

Summary

Web technology provides an opportunity for dentists to showcase their practice philosophy, quality of care, office setting, and staff in a creative manner. Having a Website provides a practice with innovative and cost-effective communications and marketing tools for current and potential patients who use the Internet. The main benefits of using a Website to promote one’s practice are:

- Making office time more productive, tasks more timely, follow-up less necessary
- Engaging patients in an interactive and visual learning process
- Providing online forms and procedure examples for patients
- Projecting a competent and current image
- Tracking the usage of Web pages

Several options are available when considering the development of a Website. These options range in cost based on customization of the site and ongoing support services, such as site updates, technical assistance, and Web usage statistics. In most cases, Websites are less expensive than advertising in the phone book. Options in creating a Website include building one’s own, employing a company that offers Website templates, and employing a company that offers customized sites. These development options and benefits will continue to grow as individuals access the Web and more information and sites become available.

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