



The Internet: Implications for the American Academy of Pediatric Dentistry

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The Internet — one of the most publicized technologies in history — is best described as a world-wide network of networks; an enormous interconnected database of information that is diverse, broad, and deep. But it is much more than that.

- It is a vast communications network.
- It is an essential source of operational, strategic, and financial business information.
- It is the *best* source of technical support for computer-related systems.
- It is a vast multimedia resource for all fields of endeavor.

The world has not seen the likes of it before — and that is why governments, international business conglomerates, libraries, and savvy individuals are flocking to its incredible potential.

But the Internet is not new. In fact, it has been around since the mid-1960s, a cold-war driven communications system. At first it was limited to the military institutions of the US. Then, gradually a few major suppliers and contracted universities were added. The nonmilitary users got to be so many that the military sensed a probable lapse of security and branched off to a system known as MILNET. The remnant became the NSFNET (National Science Foundation network). This network became a consortium of education, research, and selected business institutions.

However, it was still the stuff of nerds. With no graphical interface, it was relegated to a convoluted, complex, text-driven vehicle. In the early 90s, a computer guru at CERN — recognizing that the many researchers who came from around the world to work at the European research center needed a better way to communicate with colleagues across the globe — developed a method for scientists to “talk” across networks of diverse computer platforms. It was called the World Wide Web (WWW). A tremendous accomplishment, it still was the playground of computer geeks since it was keyboard driven. In 1994, however, a clever graduate student at the University of Illinois computing center put a picture/icon interface on this WWW subset of the Internet. It was called Mosaic.

Overnight, it seems, the landscape of the ‘Net changed. With this new user-friendly graphical inter-

face, noncomputer major students began to use the ‘Net. Its advantages were also obvious to non-nerd faculty and they, too, “got online”. Soon, their non-university friends were introduced to the phenomena and the WWW became a darling of a select group of opportunistic businesses. This began a clash of “cultures”. Long the medium of research, the old-timers resented the commercialization of the ‘Net. Early business adopters were “flamed” (overwhelmed with less than complimentary e-mail messages).

Seeing the handwriting on the wall, the National Science Foundation pulled out of the administration of the Internet and on April 30, 1995, MCI, Sprint & America Online took over daily operation. The floodgates were opened, and the rest is history; the commercialization of the ‘Net was a given and demand for the technology hit the ceiling. Depending on whose statistics you believe (none, probably, are accurate), the Internet doubled in size about every two months — give or take a million or so new subscribers a month (or a week). Every announced quantum leap in users started another growth spurt as potential users became convinced that it was finally time to jump on (Fig 1).

What can the World Wide Web do, exactly?

As described above, the WWW is a network of networks; a transparent information pathway. What that

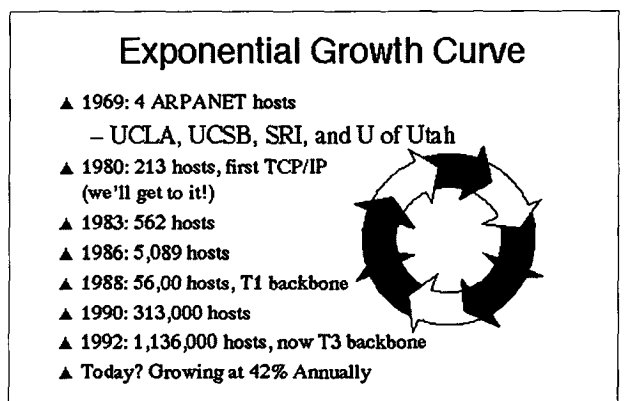


Fig 1. The growth of the WWW has been phenomenal; growth now is increasing internationally.

means is that a network of computers — more importantly, the data they contain — at the University of Michigan can be connected to a like network at Cambridge University. Cambridge will not only be connected to Michigan, of course, but to CERN, NASA, the NIH, etc., etc. In practice, this means that a dental student at Michigan can search the 'Net for information related to child behavior and find many sites with information. By simply clicking with her mouse on a citation, she will be taken directly to the information at a site in England. From there, she can click on a site in Belgrade and go to that site — all in a matter of minutes. In fact, the world penetration of the Internet, though already phenomenal, is just now beginning to take off (Fig 2).

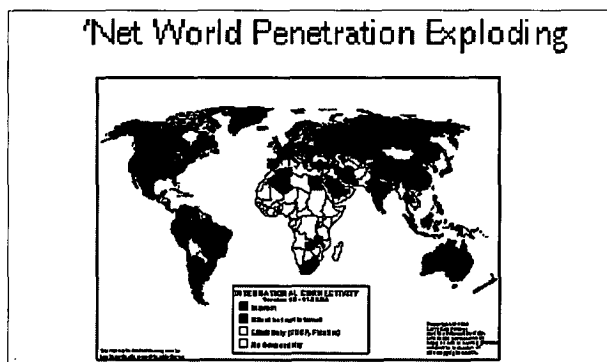


Fig 2. World penetration of the WWW will allow the AAPD to compete for members globally and increase "presence" internationally in ways not possible before the web.

Another use of the WWW is to communicate via e-mail. Because the language of the Internet allows a DEC user to communicate with a PC user, it is simple to send off messages to virtually anyone with an e-mail address. Unlike the early '90s, a CompuServe™ user can now send a message to an AOL™ user without having a membership to both services. One can also send files and documents, pictures, and sounds via e-mail.

Another use of the Internet is to download files from a remote computer. The file may be a financial report, a movie cut, even a computer program. You can also "chat" live with colleagues via the keyboard or even a mini-TV monitor atop your computer. You can phone someone anywhere in the world paying local access charges. It's easy to see why there is such a furor over the Internet!

The Internet and the AAPD: a strategy

The Central Office has been computerized since the mid-80s. In addition to computer technology, we have adopted fax and a variety of other telephony technologies as they matured and as AAPD membership began to adopt them in useful numbers.

Our user hardware consists of a variety of computers, printers, scanners, data storage devices, and other peripheral devices. Besides document and database

servers, our network comprises a blend of medium- and high-capacity cabling and sophisticated backup devices and software. We use a broad variety of programs including: business applications such as word processing, spreadsheet, accounting, and databases; publishing applications such as document layout, graphics, and scanning; and communications programs such as network-accessible faxing and e-mail. All hardware and software strategies are based on the multiple goals of increasing staff efficiency and decreasing communication, production, and distribution costs.

As the Internet became easier to use and, consequently, more widespread in late 1994, we began to study the possible use of the technology. In early 1995, we proposed the establishment of an AAPD web site and developed a model site based primarily on public relations (PR) and nonmember communication possibilities.

The first step in developing an Internet strategy that was closely integrated with our overall communication strategies was to survey membership about its use of technology. We also developed a web site audience analysis to determine who our visitors might be in the first, third, and fifth years. We considered the findings of these two studies as we defined our communications needs with: members, dental colleagues, medical colleagues, governmental/regulatory agencies, the media, and the general public.

Based on the combined information, we performed a technology analysis to determine the physical requirements of our communication needs — incorporating current and future technologies. Finally, we developed an overall communication systems approach toward the integration of Internet technology.

We took a broad approach toward implementation that included input from: leadership, key staff members, consultants, and exhaustive research of both hardware and software systems. After defining the mechanisms, we developed a procedural plan that was defined as follows: site development, membership site

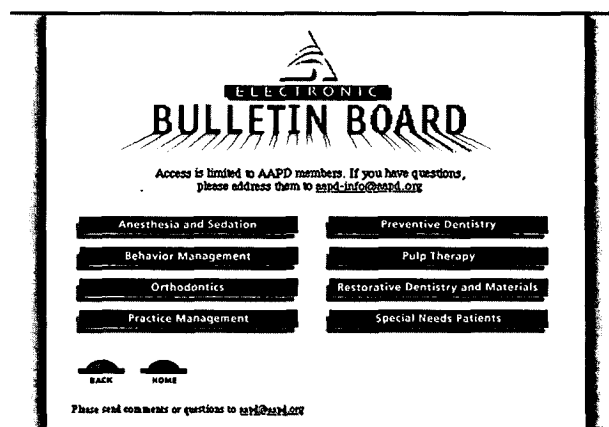


Fig 3. Our bulletin board system (BBS) is now available in our members-only area.

publicity, site implementation, site PR within the Internet community, AAPD patient PR program, and site evolution. With all key factors in place, we determined funding requirements and approached the Board of Trustees with a proposal.

AAPD site implementation

After the Board approved initial funding, staff began to outline content areas and to refine site organization. Our executive team and key staffers revisited and came to consensus on a goal for the site; to concentrate on the PR aspect of the site while the numbers of 'Net-capable members increased. We saw the PR value of the site as an immediate benefit; we would instantly have a "presence" on a world-wide medium. This not only meant that we would be visible to individuals and media that we could otherwise never reach, but we also would have a presence in many foreign countries for the first time.

While the PR benefit alone was sufficient to warrant the expenditure of dollars and staff time, we also knew that accessing the 'Net would become easier and more affordable; therefore, more and more members would have access to the 'Net in a few years. This meant that we could begin to use the web site as an integral means of communicating with our members. We knew that most academics and researchers in the membership already had access to the web. We also knew that a small group of influential and progressive clinicians would soon realize the potential of the Internet for practice marketing and as a business resource. We predicted that within two years of implementation, the site would become a cost-effective medium for member communication.

In order to "drive" the technology down to members, we planned a ramped introduction of services. At implementation we knew that members could access staff quickly and easily via e-mail. We planned to implement a private member's area within 18 months that would incorporate a PIN-accessible bulletin board system for networking (Fig 3). We anticipate that this alone will encourage a significant number of members to become 'Net-capable.

Future improvements

Our next step will be to add financial transaction capability to the site now that a wide variety of secure financial systems are available (Fig 4). This will include: membership application and renewal, CE and Annual Session registration, materials (brochures, etc.) purchases, subscription to AAPD publications, and more. We plan to offer price reduction "incentives" with site-based purchases because they are much more staff-time efficient. These reduced prices should also encourage members to become 'Net-capable.

Other site-related benefits such as on-acceptance publication of Journal abstracts (instead of the paper-publication wait of 12 months), and an expanded *E-Today* "newsletter" will serve to further encourage par-

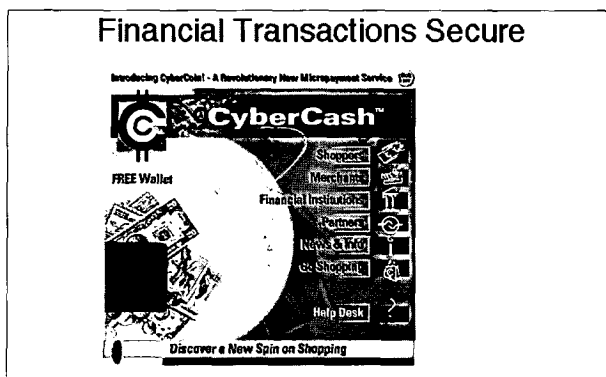


Fig 4. A variety of secure financial transaction mechanisms are now available, including those for transactions as small as 25¢.

ticipation on the site. As participation increases we will also add member location capabilities for parental and nonpediatric dental and medical referrals.

We also may be looking at electronic subscriptions to selected serial publications — including the Journal. As imaging technologies improve and as the speed of transmission and retrieval improves, it will be entirely possible for entire Journal articles complete with com-

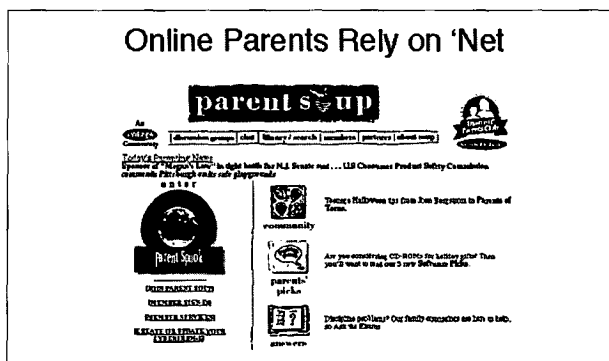


Fig 5. In a society noted for its mobility, affluent parents are turning to the WWW to replace information formally received by parents and neighbors.

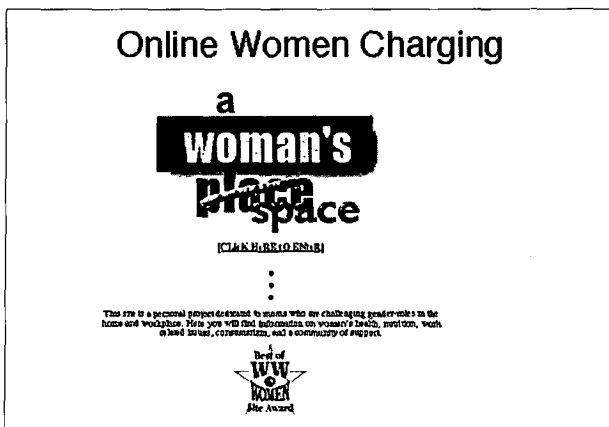


Fig 6. Women are increasingly turning to the WWW to gain information of all sorts — including health care.

Research Robots Are Invaluable

TECH TALK's Hot News For Thursday October 31, 1996

Check Out Our New Updated Page For The Best Tech Stories

<http://www.talk.com/news.htm>

Bay Networks Tops Intel Exec as Chairman

<http://www.latimes.com/401E/NEWS/BUSINESS/1000094769.htm>

Microsoft unveils e-commerce strategy

<http://www.oring.my.com/star/itech/itnewshtml#Microsoft>

Microprocessor sales leading chip resurgence

<http://www.sjmercury.com/business/chip30.htm>

New software to encourage Web commerce

http://www.seattletimes.com/topstories/browse/html/serv_103096.htm

Why spend \$2,000 to get onto the Web if your kid's Sega game player can do the job?

<http://www.times.com/times/11049R/S811350a.htm>

Fig 7. Leadership and staff can utilize the services of "Bots" — robot information seekers that can put together newsletters customized to the needs of individuals.

plicated illustrations and photographs, graphs and tables to be "printed" to the computer monitor.

'Net developments affecting the AAPD

One of the most important developments that will affect AAPD members is that affluent parents — and especially mothers — will be accessing the WWW in increasing numbers (Figs 5 & 6). This means that the precise category of the population most likely to utilize our services will be using the web in disproportionately higher numbers in the near future. This is an obvious advantage for our practices.

Another development already apparent to "surfers" is that the web is an invaluable business research tool. This will allow AAPD staffers to more easily and deeply research topics affecting the Academy. By this spring, key staffers will have "robots" search the web for issues related to us and "download" a custom newsletter each morning (Fig 7).

As we have seen bandwidths grow, we will be able to use the web to deliver more, better, and more timely information to larger groups of members less expensively. There will be a marked shift of many of our paper publications to a digital format — especially on the web (Fig 8). This means that we will have to develop mechanisms to "write-once/publish-many." In other words, a staffer will create one document and then "save" it in such a way that multiple formats are generated for paper, computer monitor, TV monitor, and CD-ROM (or DVD) (Fig 9).

The WWW has much to offer as a tool for the AAPD; it is essential that we modify our communication and

Paper to Digital Migration

- ▲ There will be a migration from paper to digital-based publications
- ▲ This will allow more content at reduced costs
- ▲ It will also require a significant shift in operational strategy and staff training
- ▲ The benefit will be more timely, thorough, cost-effective, and useful information flow to our members

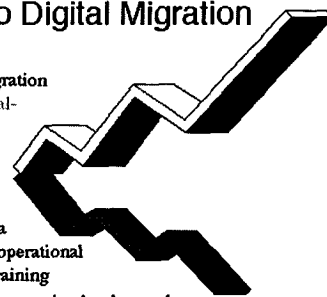


Fig 8. Beginning immediately, there will be a migration of information from paper-based publications to digital publications. The AAPD's *Directory of Advanced Education Programs in Pediatric Dentistry*, formerly an expensive every-other-year paper publication, is now online only and can be updated on a weekly basis instead of an every-other-year basis.

Multipurposing Strategy

- ▲ A primary goal will be to generate files that can be "repurposed" automatically for any medium
- ▲ The time savings for staff will be enormous
- ▲ The flexibility will allow quick migrations for any purpose to any media type

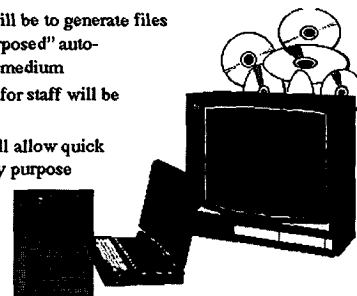


Fig 9. We currently are developing programming that will allow staff to create a document once, but to "print" in formats suited for many end-uses.

legacy systems now to ensure that we can fully utilize the technology in the future.

Mr. Ferguson, AAPD Director of Publications and Information Technology, has been with the AAPD for more than 16 years. He oversees all publications and all communications technologies including data, fax, telephony, computer, and network systems. He has more than 32 years experience in publication and information technologies — from lead hot type to the Internet — with the Associated Press and Gannett Newspaper Group. He has taught document layout and design as well as Internet technologies to key staff at more than 150 organizations, including the Centers for Disease Control and Prevention, National Institutes of Health, major teaching hospitals such as the Mayo Clinic and the MD Anderson Cancer Center, and all major international pharmaceutical companies.