

Introduction to the Pediatric Handheld



By David C. Stockwell, MD
Newsletter Coeditor, Steering Committee on Clinical Information Technology

The use of handhelds (also known as personal digital assistants [PDAs]) in medicine is growing every day. There are a number of applications, medical resources, patient record-keeping programs, and other software that help make the handheld a terrific asset to anyone involved in medicine. Pediatrics is no exception. This article explores the current state of the pediatric handheld and offers a few resources that can help to maximize its utility.

Usually the first question asked is, "What handheld should I buy?" This is not as difficult a question as it used to be. The first decision is which operating system to use. Just as in the PC world with Windows and Macintosh, there are 2 big groups of handhelds, the Palm OS and Pocket PC. Unlike the PC world, however, Microsoft's product (Pocket PC) does not dominate the market. Handhelds running Palm OS hold the vast majority of market share. No matter which OS you choose, many current medical programs are available in both formats. Your choice likely will come down to the gadgets you want attached. Handhelds now come with cameras, MP3 players, and voice recording; they can be bundled with cellular phones or other wireless capabilities; the options never seem to stop. Pick the one that fits how you will use it. Also consider getting one similar to your colleagues, as they can be great resources if using it gets confusing.

The first medical application that pediatricians usually acquire is a drug reference. There are many



available, and they range in price from free to about \$80. The program that has the greatest number of users is ePocrates (www.epocrates.com). This company offers a free version as well as a "Pro" version that costs \$60 a year. As can be assumed, the free version has less information than the Pro, with the Pro version having alternative medical information, a medical calculator, and more. Texts rapidly are being converted to the PDA format. *The 5-Minute Pediatric Consult* and *The Harriet Lane Handbook* are just a few of the many pediatric references available. Most can be purchased from a company called Skyscape (www.skyscape.com).

Before purchasing an application, remember that almost every commercially offered medical software for handhelds is available in a trial

version. This allows the user to test the program without risk. If you like it, buy the full version after the trial period ends. Avoid purchasing the product and being disappointed with it.

There are numerous opportunities for handhelds in pediatrics. Dosing calculators, growth charts, vital signs by age, laboratory values by age, and immunization schedules are just some of the current offerings. There are a few pediatric handheld Web sites that offer assistance with sorting through the vast number of programs. Consider visiting *Pediatrics on Hand* (www.pediatricsonhand.com). This is a site that I maintain to help anyone in pediatrics that has an interest in handhelds. Please stop by to learn more.

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Remembrance of 1993



By Mark M. Simonian, MD, FAAP
Education Chairperson

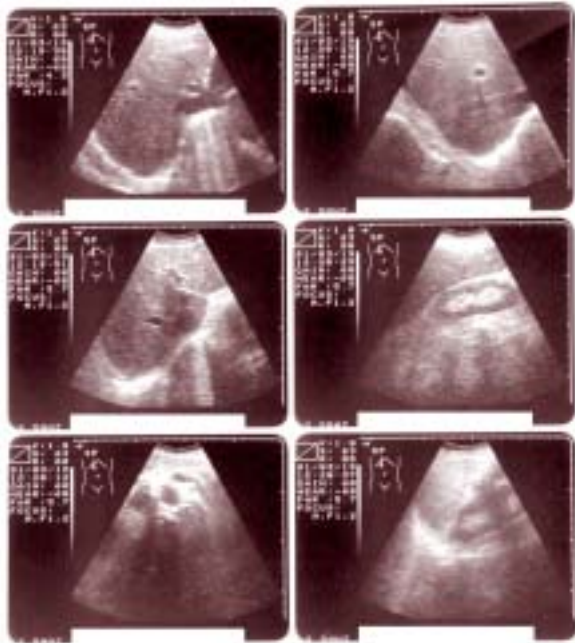
I just moved my office for the second time. You know how things pile up. I am the typical pack rat. In the process of moving, I found a folder called "SCOT." There were a couple of old issues of this newsletter from 1993. In the May issue, **Jerold Aronson, MD, FAAP**, was the chairperson of the Section on Computers and Other Technologies (SCOT). Dr. Aronson, **Mitchell Feldman, MD, FAAP**, and **Richard Shiffman, MD, FAAP**, were the contributors, and **Yan Chow, MD, FAAP**, was the newsletter editor. Some hot issues in 1993 are still under consideration in 2004.

One question raised was about American Academy of Pediatrics (AAP) software endorsements. Should the organization endorse practice management software? Because the AAP had many media distribution outlets and was thought to be influential with families, would there be a value for the AAP to endorse this type of software?

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Are Personal Digital Assistants Underexploited in Medical Education?

By Pradeep Alur, MD
Candidate Fellow, American Academy of Pediatrics



Nowadays, personal digital assistants (PDAs) are seen as ubiquitously as stethoscopes among medical students and residents. Small size coupled with ample functionality make PDAs convenient tools for all mobile medical students and residents. Personal digital assistants probably are used more commonly by students and residents than by their teachers. According to an American Academy of Pediatrics

survey, PDA use is highest among pediatricians younger than 30 years.¹ To harness all the advantages of PDAs, teachers and students should be adept in their use.

Personal digital assistants are used most commonly in general terms for contact addresses and appointments and medically for drug references and rapid reference e-books.² But the most common use of PDAs depends on the user—residents or consultants may use PDAs for patient information purposes,³ compared with consultants who use PDAs more for clinical information and medical news.⁴ Some universities, which have actively incorporated PDAs in their student and resident curricula, also have been using the devices for procedure logs, schedules, Internet access, and program feedback. The mobile devices and data services market in the health care industry is expected to reach \$1.2 billion by 2006.⁵

It is obvious that PDAs are increasingly adopted by medical universities and programs. But are all the functionalities on PDAs well used? My frank observation is—not yet. Let us look at some of the features the present PDAs offer that can be better used in medical education. Use in clinical medicine needs to be dealt with separately.

Voice Recorder

This probably is one of the most underused features on PDAs in medical education. Though in clinical settings it has been used sporadically as a dictating machine, we are still in search of better use of it in medical education. In our present medical education system, a lot of emphasis is placed on the communication skills of medical students and residents. I suggest that history taking by medical students and residents be recorded on PDAs. Tutors

can then review with students and suggest improvements. This enables more periodic and objective assessment of communication skills. Video recording of interviewing sessions, such as in patient rooms, may give more information on body language, but frequent assessments may not be practical. Some parents or patients may be more willing to consent to audio recordings rather than video recordings. This may also give opportunities to teach coping with different patient attitudes and personalities. I am sure that in the long run, students will be more confident in dealing with so-called “difficult” patients.

Video and Audio Player

Heart and lung sounds (normal and abnormal) can be stored on PDAs. This would not only aid tutors in teaching, but also enable students to compare with patients at bedside and learn to recognize differences more easily. Some electronic stethoscopes support digital recording of auscultated sounds, which can be transferred to PDAs to be replayed for tutors to assess and teach. This can help teach students and residents, for example, to differentiate between the commonly mistaken stridor and wheezing, which they heard the previous night. Stethographics is a company that produces software that enables an ordinary stethoscope to record chest sounds directly to a PDA and even make a diagnosis of crackles and wheezing. This may aid students in self-learning and prompt them to focus on soft sounds they may have missed. Camera-enabled PDAs also may be used to capture abnormal neurologic movements noted by residents or students on call. Many times, these movements may be short-lived; recordings may help not only in diagnosis by neurologists, but also can be educational for other residents. Basic teachings of echocardiograms can be stored on PDAs, as well, for bedside comparisons as well as later reviews. Some universities have developed anatomy dissection videos for students to review. These videos are stored on local servers, and students can review them before proceeding for dissection. With the advantage of wireless fidelity (Wi-Fi)-enabled PDAs, these videos can be watched at the point of dissection itself. This is most convenient as students can review any number of times without having to leave the dissection area.

Image Viewer

I have noticed that many students have a few medical figures on their PDAs, but this has yet to catch on widely. I have various congenital heart disease figures and diagrams on my PDA, and I have observed parents of various educational backgrounds easily grasping the basic concepts of the heart disease their children have when these diagrams are shown on the PDA. When I review with them, they exhibit better understanding. Similarly, histologic and hematologic slides can be stored or downloaded from the intranet before explaining to patients or students. These are just a few uses for this great software.

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Remembrance of 1993

(continued from page 1)

As there were clear guidelines printed in that issue, I must assume SCOT thought it would be advisable. Today, the Steering Committee on Clinical Information Technology (SCOCIT) also struggles with the possibility of endorsing a few electronic medical record vendors. Can we review software thoroughly, or maybe have a vendor showdown at the National Conference & Exhibition? We are still struggling with this issue.

In 1992 and 1993, the Clinton Administration announced a major immunization initiative. The plan was to develop a computerized monitoring and tracking system tied to a national vaccine registry. The Centers for Disease Control and Prevention proposal suggested a coordination of local registries. The Section on Computers and Other Technologies planned to discuss this at the national AAP meeting in Washington, DC, as its

primary program topic. Today in California, counties are struggling to build the technology and get the “buy in” from the provider community of physician offices, clinics, hospitals, schools, and health departments. I have been active for several years, using a Web-based system in my office for the last year. Unfortunately, the state-based program is run on a county-by-county system, so they do not talk to each other. With this struggle to build a provider consensus on the registry, we are a long way yet from sharing information around our large state. Who can predict if we will be able to tie these systems together with other states? We are not on the verge of a national registry.

Surveys are not new to SCOT; in 1993, Dr Aronson lamented that only 10% of members had answered so far. The last 2 years we have created an online survey, and even though it is easier to complete,

we continue to have about the same number of respondents. Ten percent will decide topics at meetings. Back then, the choices included patient education, teaching, continuing medical education, MEDLINE searching, and advances in hardware and software. Ten years later, the requests are very similar. Check out scocit.aap.org and vote.

In 1993, SCOT had 288 members; today, SCOCIT is growing gradually to more than 450.

Dr Shiffman discussed his review of articles on the latest software to help physicians, from diagnostic aids in the emergency department to genetics. Decision support software was mentioned for the critical care specialists in neonatology and diabetes. They sounded like custom-made experimental tools for a limited number of practices. Now we use ePocrates and mobilePDR in general pediatric offices and hospital hallways. Many manuals are available

online and for PDAs for physicians, including *Red Book*.[®] Tools are available for anyone.

Lastly, in this 1993 issue, there was an insight piece on Dr Feldman, who started as a general pediatrician and later completed a National Library of Medicine fellowship in medical informatics in Boston, MA. His story still resonates today for some current SCOCIT members who learned to program, became adept with some software or hardware, or were serious tinkerers in technology. Dr Feldman has been an immensely valuable resource for SCOCIT, and there are other Dr Feldmans out there who help today. Their names are seen throughout this issue and recent newsletters. Serious technology tinkerers and wannabes who are members of SCOCIT—thank you for your contributions.

☆☆☆ COMMITTEE UPDATES ☆☆☆



Technology Committee

By Kevin B. Johnson, MD, FAAP
Application Technology Chairperson

2004 promises to be an exciting year for the Application Technology Committee of the Steering Committee on Clinical Information Technology (SCOCIT). Over the last 6 months, there has been increasing interest in the electronic medical record (EMR). Since the tabling of the American Academy of Family Physicians (AAFP) open-source EMR initiative, the organization has developed a new entity called the Center for Health Information Technology (CHiT). The American Academy of Pediatrics (AAP) is investigating what role it is able to play in CHiT. Details about CHiT are available at www.aafp.org/x24654.xml. The Center for Health Information Technology has offered the AAP a liaison position.

The Application Technology Committee is working on 2 initiatives that should be available by the end of 2004. The first of these initiatives is a Web site dedicated to providing information and a forum for EMR discussions. The Web site currently is in development and will be piloted later this spring or summer. The second initiative is a speaker's kit to help our members and others educate their constituents about the importance of pediatricians adopting EMRs. The speaker's kit currently is being proposed to the AAP, and we await approval before beginning. We will keep you informed as it progresses. Our current plan is to provide the speaker's kit free of charge online for all members of the AAP in an effort to hasten the adoption of EMRs. We look forward to tremendous amounts of help and support as we launch both of these exciting initiatives over the upcoming year.

Keep an eye on this newsletter and the SCOCIT electronic mailing list for more about these projects.



Education Committee

By Mark M. Simonian, MD, FAAP
Education Chairperson

Topics for the 2004 National Conference & Exhibition (NCE) are in order, and plans for the 2005 NCE are being formulated. Our proposals go to the NCE Planning Group, and the final speaker choices are made there. We expect an experienced group of speakers well known to the SCOCIT membership with a fresh face in the mix. That is my personal goal while I serve as committee chairperson—to present timely topics and experienced speakers and add some new talent whenever possible.

Planning 2 years in advance for technology topics seems to be impossible with the newest gadgets and software poking their noses through the marketing blitzes. But as noted in "Remembrance of 1993" (see page 1), it seems like member expectations are similar. *The consistent theme is to incorporate information seamlessly into the record and patient encounter.*

Lewis C. Wasserman, MD, FAAP, has organized the Computer Lab into a center for technology, hardware, and software with abundant consultants to answer questions from passersby. The sessions are accompanied by an assortment of topics in technology that apply to the practicing pediatrician. I believe that at last year's NCE, these sessions were attended by larger crowds than previous years, but we have not tallied the audience numbers. Questions in the leadership still surface about the best forum for this information and technology. My opinion is that this event gives a terrific environment to allow new speakers from our SCOCIT membership an opportunity to share information and break in their presentations. With good responses, these same speakers may step up to the general NCE. The Computer Lab also gives us free reign to present topics to the AAP membership without the rigorous restrictions of the general AAP continuing medical education sessions, which have limitations of topics for each section or committee. There are 3 days of talks covering a wide assortment of technologies and experiences.

I attempted to film some of these sessions for later video streaming, but my limited experience doing this with home video and microphone equipment did not demonstrate adequate quality to present to the audience. (Give me a jingle if you want the details.) Our plans are to repeat the attempt but with professional cameras and microphones supplied by the same company responsible for the equipment in the general Computer Lab.

The Abstract Session was a tremendous success, with the after-session wine-and-cheese reception well attended. The quality of the abstract presentations has never been better, and all applause goes to **Christoph U. Lehmann, MD, FAAP**, for orchestrating the topics. A special acknowledgment goes to our own Webmaster, **Stuart Weinberg, MD, FAAP**, who won "Best Presentation" at the Abstract Session.

This is the second newsletter issue in the new beefed-up layout. We are interested in the quality of the content, and we want the presentation to be at a professional level. I hope you agree that it is a fine presentation. Welcome to **David C. Stockwell, MD**, who will coedit the newsletter with me.

A reminder to all: we have added a discussion group through the Members Only Channel of the AAP Web site (www.aap.org/moc). You can start your own topic and have easy access to answers from our members, most of whom are experienced with technology. Please try it out.

Also on the Web, you can look at our survey list for topics that will be used to pitch proposals to the NCE Planning Group. Your votes determine the ranking of the topics. You also can add your own proposals. If a topic receives enough votes, we will add it to the list for future meeting choices. The survey is linked through the SCOCIT Web site (scocit.aap.org). If you have any questions, you can reach me at 559/325-6850 or msimonian@childrenscentralcal.org.



Policy Committee

By Edward M. Gotlieb, MD, FAAP, FSAM
Policy Chairperson

As the Policy Committee prepares for its spring meeting in Chicago, we have been working busily on a number of projects.

Policy Statements and Government Regulatory Activity

Two papers currently are at the AAP Board of Directors. The board reviewed a telemedicine in pediatrics statement (written by **S. Andrew Spooner, MD, MS, FAAP**, and myself, among others), and the Policy Committee responded in January 2004 to comments by the board. A statement on e-mail communication between pediatricians and families (written by **Robert S. Gerstle, MD, FAAP**, among others) was submitted for board review in October 2003.

A companion paper on legal and regulatory issues in telemedicine is expected in first draft (written by **Jan Ellen Berger, MD, MJ, FAAP**, and **Charles H. Deitschel, Jr, MD, FAAP**, among others) by spring 2004.

A review by **Joseph H. Schneider, MD, FAAP**, and **Eugenia Marcus, MD, FAAP**, of the August 2001 policy statement, "Special Requirements for Electronic Medical Record Systems in Pediatrics," is underway to determine whether it needs to be updated.

The National Committee on Vital and Health Statistics, Subcommittee on Privacy and Confidentiality, which reports to the Secretary of Health and Human Services, asked the Policy Committee to identify an AAP representative to appear at a hearing on working out possible differences between the Family Educational Rights and Privacy Act and Health Insurance Portability and Accountability Act (HIPAA). This has implications on how pediatricians and schools can share information. The committee recommended **Jane McGrath, MD, FAAP**, from the Section on School Health. The hearing was convened in Washington, DC, on February 19, 2004. Dr McGrath's testimony is posted on the Members Only Channel (www.aap.org/moc) in the HIPAA area.

Liaison Relationships With External Technology Groups

Dr Schneider is representing SCOCIT and the Policy Committee in advocating for pediatric needs in the Continuity of Care Record (CCR). The Healthcare Information and Management Systems Society, ASTM International, AAFP, and Massachusetts Medical Society have begun developing a draft standard for the CCR that defines the basic health record data that must be available for all patients when they appear at a new health care encounter, whether a physician's office or hospital. With the CCR, health care professionals can base future care on relevant and timely patient information. In the latest draft, head circumference, height, and weight are in the core data, as are immunizations (the diseases for which an immunization is given, in addition to brand information).

Dr Spooner attended the formation of a Pediatric Data Standards Special Interest Group at Health Level Seven as the AAP representative. He will review that meeting at the spring Policy Committee meeting.

Dr Gotlieb continues to represent the AAP at the National Immunization Program Technical Working Group, developing standards for immunization registries. He also represented the AAP at a December 2003 meeting of the Public Health Informatics Institute (with keynote speaker **Richard Shiffman, MD, FAAP**). Representatives of 55 organizations and government agencies met in Atlanta, GA, to recommend the next steps for developing child health information systems that meet medical care and public health needs. The group identified actions that should be taken immediately and in the next 3 to 5 years to integrate information about the health care that a child receives from birth into a simple yet comprehensive format so end users (eg, parents, families, health professionals, insurers, policy makers) can take all appropriate actions.

Common threads in the recommendations were

- The need to develop a national coalition of stakeholders to promote integration of separate child health information systems within the context of ongoing national initiatives such as the National Health Information Infrastructure and Public Health Information Network
- The need to develop business and policy cases for integrated child health information systems
- The need to develop agreement on standards for collecting and transferring information
- The need to get the word out about the importance of integrating separate child health information systems to improve health and health services

Executive Summary: Steering Committee on Clinical Information Technology Executive Committee

Hilton New Orleans Riverside, LA
November 2, 2003

The Steering Committee on Clinical Information Technology (SCOCIT) Executive Committee met in New Orleans, LA, on November 2, 2003, in conjunction with the American Academy of Pediatrics (AAP) National Conference & Exhibition (NCE). The following recommendation was made:

RECOMMENDATION: That the AAP move quickly to develop a process to allow the licensing of intellectual property for inclusion in technology products such as electronic medical records (EMRs) and that this process recognize and value the importance of inclusion of AAP-developed pediatric content in electronic technology to the AAP goal of improving pediatric care.

In addition, the SCOCIT Executive Committee discussed the following items:

- **Eugenia Marcus, MD, FAAP, was appointed to the Executive Committee following the resignation of Douglas Stetson, MD, FAAP. Rebecca Marshall became the SCOCIT staff person in November 2003.**
- The terms of the Executive Committee members were reviewed. Edward M. Gotlieb, MD, FAAP, FSAM, and S. Andrew Spooner, MD, MS, FAAP, will complete their final terms in 2004. A nomination committee has been appointed to nominate SCOCIT members to run for election. Per the AAP-approved SCOCIT structure, the Executive Committee will elect the next SCOCIT chairperson.
- The SCOCIT budget was approved.
- The goals and objectives of the Application Technology and Policy committees were reviewed.

- An update was given on the status of statements under development by the Policy Committee.
- An update was given on the National Health Information Infrastructure and Health Level Seven.
- An update was given on the efforts to develop a standard Continuity of Care Record (CCR).
- The Executive Committee discussed 2 resolutions referred from the 2003 Annual Chapter Forum regarding the electronic CCR and universal EMR.
- The Executive Committee reviewed a request from Carden Johnston, MD, FAAP, to submit a resolution to the American Medical Association calling for the development of tax incentives for improving technology infrastructure.
- An update was given on the AAP cosponsorship of a conference on developing child health information systems.
- A report was provided on the SCOCIT programming for the 2003 to 2005 AAP NCEs.
- The fall SCOCIT newsletter was reviewed.
- The Executive Committee determined that the aapscot domain name for the SCOCIT Web site should be renewed.
- The Executive Committee decided to discontinue the effort to form Special Interest Groups.
- There was a discussion on the development of bylaws and a strategic plan for SCOCIT.

The SCOCIT Executive Committee will next meet in Elk Grove Village, IL, in spring 2004.

For a complete set of minutes or further information on specific items, please contact Rebecca Marshall, health policy analyst, at 800/433-9016, ext 4089, or bmarshall@aap.org.

Are Personal Digital Assistants Underexploited in Medical Education?

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Infrared Beaming

This is useful not only for beaming contacts, but also for file sharing. One scenario we found very useful in our PDA study at the National University of Singapore was beaming of PowerPoint or PDF files to students just before small group tutorial sessions.⁶ This facilitated interactive teaching with small groups of students. This also allowed small groups to be outside of regular classrooms.

Wi-Fi

This feature can be used effectively in a number of ways. We exploited this feature in our study for 3 different purposes.

First, student feedback after every lecture was mandatory in our university. But compliance of students and tracking were issues. We asked students to access the intranet and fill out a feedback form immediately after lectures. By doing this, we were able to achieve 100% compliance and analyze the satisfaction of the students immediately while maintaining confidentiality.⁷

Second, formative assessment questions (multiple choice, image based, even "match the following") were stored on the local server and formatted to fit the PDA screen without the need for horizontal scrolling. Students' feedback was very positive. In addition, grading was automatic and reduced tutors' burdens. This facilitated learning as students could immediately verify correct responses after completing assessments.⁸ This also helped those who are too inhibited to ask questions in the midst of others and thus promoted active learning.

Finally, question time during or following the lecture can be more effective if students are allowed to ask questions anonymously through their Wi-Fi-enabled PDAs. Only the tutors will be able to see questions, and they can clarify doubts without students feeling silly because of their questions. This can greatly enhance learning, especially in an environment where students are generally inhibited. One university devised software for this purpose.

Miscellaneous

Many PDAs come equipped with PowerPoint viewers. PowerPoint lectures or continuing medical education (CME) courses can be beamed or downloaded for easy reference later. This should eliminate the tons of paper handouts given at these CME courses or lectures, which are generally

misplaced or irretrievable at times of great need. I have found that storing my own lectures on PDA helped to refresh my memory on several occasions.

This discussion only touches on how some of the already existing features on PDAs can be used effectively to augment learning in the medical education setting.⁹ Personal digital assistants are useful for medical and nonmedical purposes. They have a great future in education, especially with rapidly advancing technology making them lighter with better screen resolutions. In the future, head-mounted displays may overcome the limitations of small screens. Similarly, projection keyboards also may improve the input process. We hope that PDAs can not only assist, but also enhance learning in the medical community.

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Electronic Medical Record FAQ



By S. Andrew Spooner, MD, MS, FAAP
Chairperson, Steering Committee on Clinical Information
Technology

“By computerizing health records, we can avoid dangerous medical mistakes, reduce costs, and improve care.”

President George W. Bush
State of the Union Address
January 20, 2004

It is not every year that the president mentions electronic medical records (EMRs) in a State of the Union Address. But that is how far into the mainstream EMRs are.

In honor of this ascent to popularity, I will share with you some responses to frequently asked questions about EMRs. These responses are culled from numerous e-mail exchanges with American Academy of Pediatrics (AAP) Fellows over the past year.

I have a small office with 3 providers. Which EMRs should we look at?

The most important thing to realize in your situation is that EMR vendors see themselves as either small- or large-group vendors, generally speaking. The large-group vendors are interested in selling their products to large, possibly multispecialty groups of dozens, if not hundreds of physicians. The small-group vendors aim their products at, well, small groups. The latter tend to be smaller companies, including a lot of very small, local operations. The ability to survive in the EMR marketplace is dependent on a company's securing as many large accounts as possible, so the small-group vendors are going to tend to be less stable financially. This conundrum drives some small groups to band together with other groups to provide a large enough customer for a more stable vendor.

As for which system works best for pediatricians in small groups, that is a rapidly moving target. The best system is one that is already working in a pediatric environment. I know JMJ Technologies, Inc has been in pediatrics for a long time (www.jmjtech.com). CompuKID seems well designed and has a nice application service provider model of delivery (www.compukid.com). NextGen Health Information Systems, Inc seems aimed more at larger groups (www.nextgen.com).

The best way to find out who has implemented what is to get on the Steering Committee on Clinical Information Technology (SCOCIT) e-mail list (if you are a member of SCOCIT) and ask around. There are hundreds of vendors, especially for the small practice market, and no particular market leaders.

Which EMR should I pick?

The most common reason to select a specific EMR is whether it plays nice with your financial system. This is not a cynical view...it is just business reality.

If you have no (electronic) financial system, you are free to move about the EMR marketplace to look at features.

Beginning in 2004, Towards an Electronic Patient Record (TEPR) (www.medrecinst.com/conferences/tepr) is sponsoring a “Pediatric Documentation Challenge” in which vendors of EMR products compete head-to-head in documenting several pediatric scenarios. There should be a videotape available of this event, which occurs at the TEPR meeting in May 2004.

There are a couple of e-mail discussion lists to which you ought to present your question: peds-informatics@yahoogroups.com and scocit@listserv.aap.org (see scocit.aap.org for instructions on how to sign up).

Also, there is the August 2001 policy statement, “Special Requirements for Electronic Medical Record Systems in Pediatrics,” by the Task Force on Medical Informatics (aappolicy.aappublications.org/cgi/reprint/pediatrics;108/2/513.pdf). The steering committee currently is updating this statement and harmonizing it with the Health Level Seven EMR functional requirements specification.

As for which system works best for pediatricians in small groups, that is a rapidly moving target. The best system is one that already is working in a pediatric environment.

The following EMR software systems (listed in alphabetical order) are known to have a pediatric implementation, but there are undoubtedly dozens more:

- Allscripts Healthcare Solutions (www.allscripts.com)
- Amazing Charts (www.amazingcharts.com)
- CompuKID (www.compukid.com)
- e-MDs (www.e-mds.com)
- JMJ Technologies, Inc (www.jmjtech.com)



- Logician (www.medicalogic.com)
- NextGen Health Information Systems, Inc (www.nextgen.com)
- Noteworthy Medical Systems (www.noteworthyms.com)
- PowerMed (www.powermed.com)
- SOAPware (www.docs.com)

If you want to get a look at one physician's attempt to list all the EMRs out there, check out www.elmr.com, a Web site maintained by Kirk G. Voelker, MD.

As mentioned earlier, the best way to find out who has implemented what is to get on the SCOCIT e-mail list and ask around.

Can't I just dump my financial system and transfer all that data to whatever system works best with my EMR of choice?

You probably can, but here is why you might not want to.

- If you have been using your financial system for a while, there are lots of data that need to be moved. And those data have lots of errors, eg, duplicate records for the same patient. Even under the best of circumstances, to export data from your old system, clean the data up, and import the data into the new system is a major undertaking.
- Your old vendor is probably not going to be excited about helping you do this. After all, the vendor is losing you as a customer.
- The way the data “look” in the old system is going to differ from the way the data look in the new one. For example, you might have a 9-digit identification code in one system, but only an 8-digit code in the new system. It is not like opening a Word document in WordPerfect; it is a translation into a different language.

How much does an EMR cost?

It depends on what you are after. You can get started for as little as a few hundred dollars. SOAPware (www.docs.com) and PowerMed (www.powermed.com) are 2 vendors that offer a truly low-cost solution. Amazing Charts (www.amazingcharts.com) is another.

The biggest cost of an EMR is the time it takes to react to the changes required in your office work. Electronic medical records and other clinical information systems tend to force people to work the same way when doing the same task—on the face of it, not a bad goal. But in medicine we take some pride in individualizing our work. The resistance most people feel toward clinical information technology comes from not wanting to change well-established patterns in their own work. It is a natural reaction. If you want any sort of automation in your office to succeed, you have to emphasize the big-picture benefits (ie, more legible records, access to records at multiple sites, ability to look at patterns in the data).

How can I justify the cost of an EMR?

In return-on-investment analyses, reductions of the following usually are used to justify the cost of an EMR:

1. Dictation costs (the biggie)
2. Medical records personnel (but as long as you still have your old records, they need to stay)
3. Records storage space (but ditto for the old records here)
4. Better justification of billing (but we in pediatrics do not get scrutinized as much as some other specialties, so we are not as worried about this)

One thing that an EMR system *cannot* do to help pay for itself is allow you to up-code. Just because an EMR system allows you to generate mounds of data to “justify” a level 4 visit for, say, otitis media, that does not make it a level 4 visit! Even after an EMR implementation, your histogram of how many visits occur at what level should be appropriate to the care you give, documentation or no. I have heard EMR vendors boast that their systems allows physicians to see “20 level 3 visits in an hour, with no fear of documentation audit problems.” That is fraud, no matter how good your documentation is.

(continued on page 6)

Influenza and Health Information Technology

By Kristin Benson, MD, FAAP

Member, Steering Committee on Clinical Information Technology

I am fortunate to work in a typical, busy pediatric group. Whenever I get excited about implementing health information technology, my day-to-day experience is there to keep me grounded. I am faced with a myriad of *unmet informational needs*. Maybe I should know these things, but I don't. Take, for example, influenza.

I am wondering what strains we are seeing. We have a rapid test kit that is about 70% sensitive and 98% specific for influenza A or B. These results are not reported to the health department. I am not quite sure who provides the *surveillance* data to the health department. My own clinic does not report influenza unless it is proven by a viral culture test, and this test is not typically done. If it is done and the test result is positive, the pediatricians are supposed to report it to the health department. But the forms are in a drawer, and I am personally not sure which drawer. I know that the reference laboratory is supposed to report positives as well, and I hope that happens. I wonder about the pathophysiology of the 93 pediatric deaths reported to the Centers for Disease Control and Prevention as of January 9, 2004, and why the death toll seems so very high. I wonder whether any patients from my own group have been admitted to the hospital with influenza and do not know. I wonder whether hospitalization rates are a legitimate measure of risk in infants with fevers of uncertain etiology. I do not know how much vaccine we have left, or how much we should order next year. I am not sure what rules we are using from one day to the next as far as who is eligible for the vaccine. I wonder how many patients in my own clinic have tested positive for influenza, and how many who had been vaccinated with 1 or 2 doses tested positive. I wonder how many infants who tested positive or had symptoms had been vaccinated. I wonder how many kids ended up getting the attenuated intranasal influenza vaccine, and how many of those kids tested positive. I wonder what the lifelong effect of receiving yearly inactivated influenza vaccine is. I wonder what the connection is with avian influenza and whether we need to worry about a mutant virus that spawns from the slaughter of infected chickens in China. I wonder about the epidemiology of the 1918 influenza epidemic that killed

around 50 million people that year, as opposed to the approximately 10 million people killed in World War I in 4 years. I wonder how we will ever find answers to these questions.

My clinic has one computer in an office area for the use of the physicians away from the workstations. This computer has Internet access, although there is a firewall that prevents direct e-mailing and downloading of software. We have paper charts that typically lack a problems list. Charts are all handwritten, and we have handwriting issues. We have no disease registry from which to list patients at risk for influenza. We have no way to track outcomes of vaccinated versus unvaccinated patients. We do not know how many patients whose test results were positive were checked with an antigen test kit or a viral culture. We are not on a vaccine registry. We do not notify patients if they need the vaccine. We have a clinic Web site, but it is not flexible enough to post the day-to-day availability of influenza vaccine. We have no way to track hospital admissions or outcomes of influenza. We have no way of knowing what the other physicians in the group are seeing. We often rely on anecdotal experience to advise our patients. Few of us use personal digital assistants. Few know what a relational database is or what it can do. No one is demanding assistance from information technology. We have absolutely no information technology support, except as it relates to the administrative and billing system. We are all very busy and exhausted by the end of the day.

If ours is a typical clinic, we have a long way to go. Influenza season is only an example of the gaps that exist between primary care practice, public health, epidemiology, quality improvement, patient safety, and basic science that could begin to be bridged by the use of health information technology. It is unfair to expect physicians to practice with such a lack of information in this day and age. I am hopeful that the Steering Committee on Clinical Information Technology will be fruitful in bringing health information technology to practicing pediatricians, and I welcome reports of successes and failures from members.

Electronic Medical Record FAQ

(continued from page 5)

Are there any EMR systems that are specifically designed for a pediatric environment?

There are two kinds of answers here: "Yes" and "Yes."

Yes #1: There is a system called e-CompuKID (www.compukid.com), which is the only EMR of which I am aware that is specifically designed for pediatrics. If there is another one out there, I want to hear about it. The pediatric market is very small, so one can understand why there are not a lot of pediatric-specific vendors out there.

Yes #2: EMR systems go through extensive redesigns and customizations at each new installation. Every new customer imposes new requirements and brings up hundreds of new issues. Any EMR that has been implemented in a pediatric environment successfully has been customized to accommodate pediatric requirements. The best answer here is to find one that works well in a practice similar to yours.

Is there a checklist for evaluating an EMR?

The Steering Committee on Clinical Information Technology would like to develop this, but it is a major undertaking that would be out of date before it was published. Most pediatric groups do their own, ad hoc evaluation of what is available and put it in a proprietary report. The steering committee is working on ways to be able to share these reports with other practices, but you can imagine that if a practice puts 1,000 person-hours into a report, it is not eager to give it away.

Is there a "best" EMR out there?

No. There are too many products, each of which changes so rapidly that it is impossible to make blanket recommendations.

I will, however, refer you to the following 2 excellent sources of information to help you make an informed decision:

1. "Electronic Medical Records: The FPM Vendor Survey" (www.aafp.org/fpm/20010100/45elec.html) is a nice article that reviews features of a couple dozen EMR systems. You can at least see what features are offered so you know what questions to ask.
2. The AAP Bookstore offers a recently released book on EMRs (www.aap.org/bst/showdetl.cfm?&DID=15&Product_ID=2300). This book, which I have read, takes a very general approach (nothing pediatric-specific) but it makes one a lot more informed about how to think about automating your office.

Won't tablet PCs make it a lot easier to use clinical information technology in the office?

Approach tablet PCs with caution.

Tablet PCs are an appealing concept. After all, we are all pretty comfortable toting a clipboard, and it would seem that a tablet PC would be just like that.

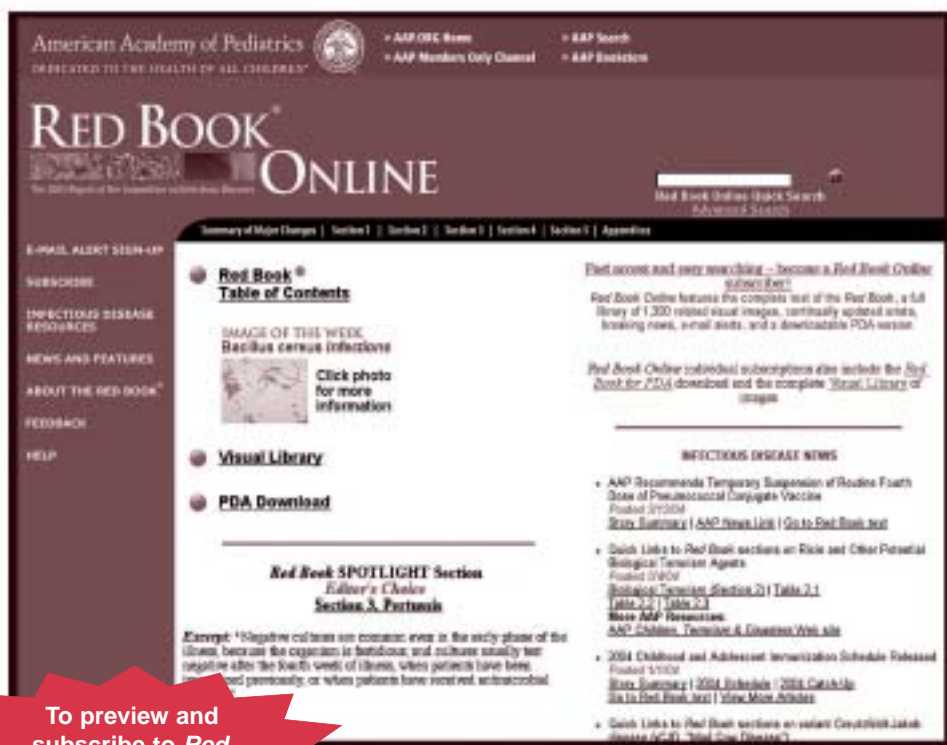
The following 2 reasons underlie the usual disappointment people feel after they have used a tablet for a while:

1. It is hard to get text into these things. The handwriting recognition is excellent, and you can use an on-screen keyboard. But I have been practicing for a while and I still find a regular keyboard to be an order of magnitude faster. I just returned from a meeting at which there were hundred of attendees carrying some sort of mobile computing device. I saw precisely 3 tablets, and all of them were being used with their hardware keyboards attached. Maybe there is something to learn from that observation.
2. Applications are designed from the ground up with the assumption that the user is using a keyboard. It is possible to design an application in which most of the input depends on gestures rather than typing, but those are few and far between (the only one I have really seen is the T system emergency department charting tool, but that was gesture-based even when it was a paper-based system).

So until designers design software that is less dependent on a lot of text entry, tablets will have limited appeal for the average user. Sure, there will be some early-adopter technology-savvy types who will see some advantage to the platform, but Joe User is likely to prefer a regular laptop or desktop with a keyboard and mouse.

The much-touted function of these machines to capture an image of your handwriting (rather than capturing it as text data) is not of much use in health care, where the whole point of using technology is to capture the data, not an image of someone's handwriting.

If I were you, I would get a tablet and try it out on a couple of typical users to see if your experience mirrors my own. Tablets are a hot topic right now, and what I have written here is what I hear other people saying.



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Improve Your Bottom Line: How You Benefit by Participating in the MGMA Cost Survey for Pediatric Practices



By Anne B. Francis, MD, FAAP
Chairperson, Section on Administration and Practice Management Executive Committee

The American Academy of Pediatrics (AAP) and Medical Group Management Association (MGMA) are working together to produce the *MGMA Cost Survey for Pediatric Practices: 2004 Questionnaire for 2003 Data*. The survey, available in April 2004, is offered to Section on Administration and Practice Management, Steering Committee on Clinical Information Technology, and Pediatric Research in Office Settings (PROS) network members. The AAP and MGMA need your help to make this project a success.

Why Should You Participate?

In addition to organizations with a participating member receiving a free *MGMA Cost Survey for Pediatric Practices: 2004 Questionnaire for 2003 Data*, knowing the costs of your practice and how they compare to similar practices is very useful in improving your practice's bottom line. The following are more reasons to participate:

- 1 Completing the survey gives you the opportunity to review your practice costs compared with other pediatric practices.
- 2 Knowing the cost experiences of your practice and similar pediatric practices helps you assess the success of your practice management and target areas for improvement.
- 3 The *MGMA Cost Survey for Pediatric Practices* is updated annually, which allows for year-to-year comparisons of charges, total medical revenues, operating costs, and staffing.
- 4 The introduction of the *MGMA Cost Survey for Pediatric Practices* this year generates future pediatric-specific data.

- 5 The AAP can use the aggregate data to advocate more strongly for you with various national insurers.
- 6 The AAP can use the data to develop pediatric practice management resources to help you better manage your practice.
- 7 The MGMA will offer 40% discounts on its best-selling management publications (*Mastering Patient Flow: More Ideas to Increase Efficiency and Earnings*, *Building Practice Revenue: A Guide to Developing New Services*, *Rightsizing: Appropriate Staffing for Your Medical Practice*, *Chart of Accounts for Health Care Organizations*, *RVUs: Applications for Medical Practice Success*, and *Performance and Practices of Successful Medical Groups*) and the AAP will provide 40% off of its 6 best-selling publications to AAP members who **complete and return** the *MGMA Cost Survey for Pediatric Practices*.

When the survey arrives, take the time to complete it in conjunction with your office administrator/manager/businessperson. You have the option of completing the short form or regular survey. It should not take more than a few hours to complete the short form (longer if you elect to complete the regular survey). For any inquiries about the survey questionnaire, please call the MGMA Survey Operation Department toll-free at 877/275-6462, ext 895, or e-mail surveys@mgma.com. The Section on Administration and Practice Management also is planning to establish a toll-free number for you to call for technical support. The information you gain about your practice, how it compares to other practices, and pediatric practices in general allows us all to do a better job of managing our practices. Please participate.

Nanobyte Electronic Prescribing Mandated

About 9% of US physicians do some electronic prescribing. A January 2004 article in *Healthcare Informatics* reviewed the fact that Massachusetts is considering mandating the use of electronic prescribing for all its physicians. Legislation has already been considered in the US House of Representatives to force physicians to use electronic prescribing if they are to qualify for Medicare. Physicians are using different technologies in every state to create and send prescribing information by fax or e-mail. Let's see what the next development will be from our legislators. Your congressman, rather than your patients, might be twisting your arm.

Update on Continuity of Care Record Standard

By Joseph H. Schneider, MD, FAAP

Member, Steering Committee on Clinical Information Technology Executive Committee

In January 2004, the American Academy of Pediatrics officially added its support to the Continuity of Care Record (CCR) effort. This standard, which should be in the voting process by press time, specifies what patient health care data is to be sent between practitioners when a patient is referred or transferred. It is not the entire medical record, only an extract of it. It includes a summary of the patient's health status (eg, allergies, medications, height, weight, head circumference, diagnoses, recent care provided, immunizations), basic insurance and advance directives information, and recommendations for future care (ie, a care plan), along with patient and practitioner identifying information and the purpose of the document.

"The addition of pediatricians to the CCR list of sponsors provides a huge boost to establish the CCR within the medical community and makes eminent sense," said Thomas E. Sullivan, MD, president of the Massachusetts Medical Society and cochair of the American Society for Testing and Materials E-31 work group developing this standard.

"The American Academy of Pediatrics is pleased to be a sponsor of the Continuity of Care Record project," said Carden Johnston, MD, FAAP, AAP president. "We are particularly enthused as this effort—aimed at effectively communicating relevant information—will help our members help children at any time of the day or night and has significant potential to improve health care in our highly mobile society."

The CCR will provide information portability and convenient accessibility. While it can be created on paper, it will have significantly more

impact when produced automatically as a standard part of electronic medical record (EMR) systems. The final CCR standard will contain an extensible markup language (XML) schema and XML tags that will allow data exchange between otherwise incompatible EMR systems. Through XML, the CCR can provide easy transfer of data between EMRs, eliminating the need for patients to repeat their health information multiple times and eventually eliminating the need for each physician to reenter the same data. Extensible markup language also will allow the patient's CCR data to be shown in a Microsoft Word document or PDF file for those physicians who do not yet have an XML-enabled EMR. The CCR Steering Committee is working closely with Health Level Seven (HL7) to make sure that the CCR XML is as compatible with the efforts of HL7 as possible.

The CCR is not an immediate panacea for all medical information problems. There still will be a need to confirm that information is complete (eg, specialists may leave out medications or problems that are not related to their specialty), and patients initially will have multiple CCRs as they move from physician to physician. However, as vendors increase the ability of EMRs to handle CCRs and physicians become more comfortable with the standard, these issues will decrease and the concept of a single set of core health data for a single patient across multiple physicians will be closer to a reality. This can streamline health care encounters and reduce the potential for medical errors.

For more information about the draft standard, please e-mail me at drjoes@pol.net.

What Happened to the Open-Source Electronic Medical Record?

By Alan E. Zuckerman, MD, FAAP

Member, Steering Committee on Clinical Information Technology

Last year, the American Academy of Family Physicians (AAFP) invited other professional societies, including the American Academy of Pediatrics (AAP), to join in a venture to create and distribute an open-source electronic medical record (EMR) based on an existing commercial product (MedPlexus EHR) that would be transferred to foundation for further development. The project did not move forward as originally planned, and there is no free open-source EMR for AAP members available today. What happened instead was the creation of the AAFP Center for Health Information Technology (CHiT), which signed Principled Group Purchasing Agreements (PGPAs) with software, hardware, and other equipment vendors (including MedPlexus EHR). It has also produced the now-underway Open EMR Pilot Project, Phase One, which is studying the implementation of MedPlexus in a group of small offices.

The PGPAs adopted by the AAFP for its Partners for Patients vendor partnership program were derived from surveys of AAFP members. The principles apply equally well to the needs of the AAP.

Affordability is the effort to reduce and control costs and risks for physicians working in small offices. New strategies for providing standardized data services in local areas have emerged from the open-source project as a pathway to affordability and ease of implementation.

Compatibility will enable a modular approach to EMRs so that it is not necessary to replace all existing systems. Physicians should be able to add EMRs to their existing billing and appointment systems. They also should be able to add sophisticated electronic prescribing modules or decision support modules to enhance the basic data entry functions in their EMRs. This will prevent "vendor lock" and preserve future choices and options, thus reducing the risk of choosing the wrong system or having a vendor that goes bankrupt.

Interoperability means that EMR systems can exchange data with practice management, laboratory, and pharmacy systems and share data with other physicians.

Data stewardship is a new role for professional societies—promoting ethical computing practices that will enable physicians to retain ownership and protection of their health information while it is in the hands of vendors while still enabling selective other uses of that data under physician control and choice.

Many lessons were learned from the open-source EMR project; the most important may be that open source is not the answer to the real problem. Software costs only are part of the total cost of operating an EMR, and open-source software still requires technical support, training, workstations, servers, networks, and database licenses. User-modifiable computer code never was part of the original plan because of security risks. What is really needed are interoperable standards and interfaces. We need an open-source standard for the content and format of clinical records that can be transported and used by multiple vendor systems. It is the patient record that should be open source and not the computer programs used to read and manipulate data in the record.

Is the open-source EMR really dead? Absolutely not, and efforts continue worldwide to develop an open-source EMR. Perhaps of greater importance are efforts to use new Internet and desktop tools such as Microsoft Office 2003, which includes InfoPath and extensible markup language (XML) databases, to develop low-cost pathways to EMRs and other medical documents. The Continuity of Care Record (CCR) is being implemented as an XML-standard document that can be used with simple desktop applications (eg, Internet Explorer, InfoPath, Word, Access) as a human-readable document, as well as interfaced with larger integrated EMR systems. The search for more affordable EMRs will continue, and the AAFP project has done much to advance the field and provide pathways to the future for all physicians, particularly those working in small offices with limited funding resources and on-site technical support. The AAP now is working with the AAFP on the CCR, and other collaborations with CHiT can be expected.

Do We Know How to Find You?

To provide important membership benefits to you, we need to have updated contact information on file. The Membership Information Change Form, located on the Members Only Channel of the AAP Web site (www.aap.org) under "Member Services," is available to provide you with an opportunity to view your address (including e-mail), demographic, and subspecialty information and update it at your own convenience. We understand that members are changing information more frequently. Now, each time you make a change, simply enter it into the form and our database will be updated the

following day. This way, there will be no delay in receiving your member benefits, including this newsletter!

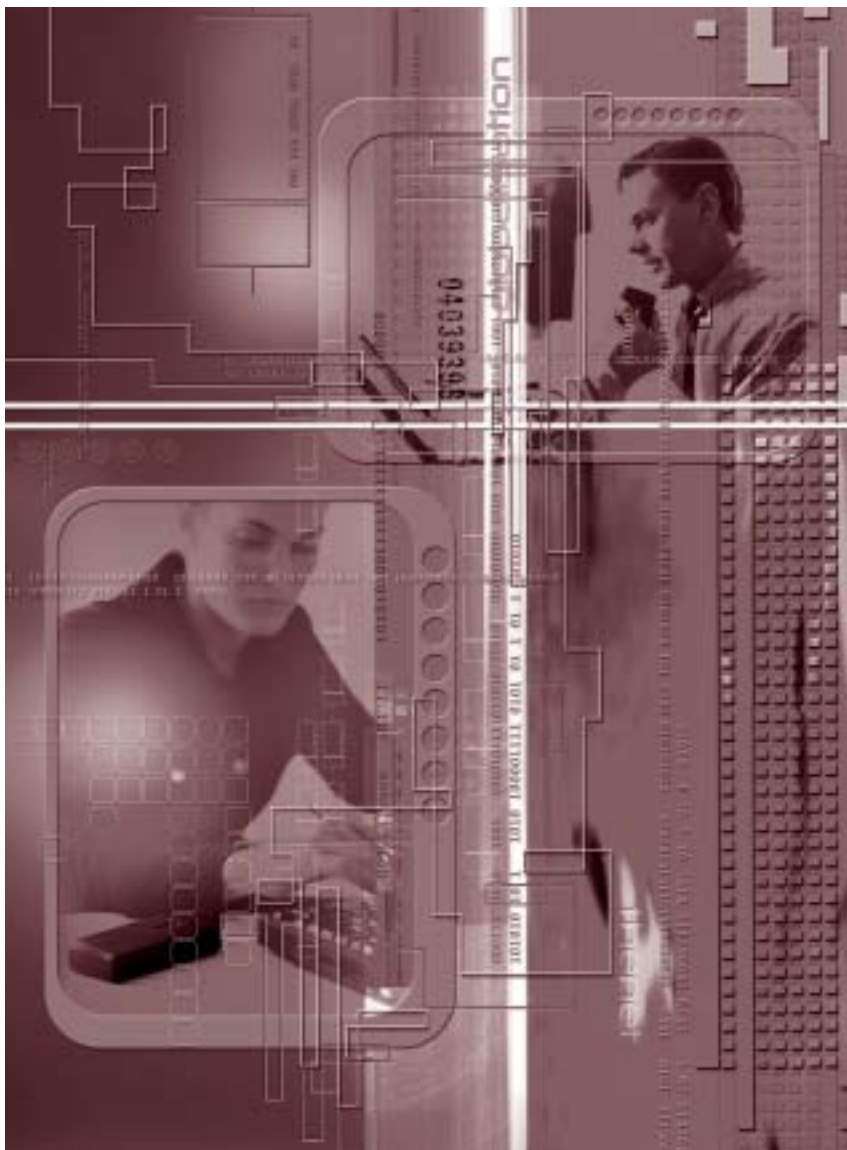
With 15% to 20% of our member contact information in a state of change at any given time, the online AAP Member Directory, available on the Members Only Channel, should be *your primary resource* to locate colleagues. Quite simply, it has the most accurate, up-to-the-minute contact information available. To make sure your colleagues also can reach you, log on to the Members Only Channel and make sure your contact information is correct.

Tablet PCs: Realizing the Potential of Mobile Computing



By Kevin B. Johnson, MD, FAAP
Application Technology Chairperson

As I was perusing past Steering Committee on Clinical Information Technology (SCOCIT) newsletters and beginning to write my article for the month, I realized that the very device that I was using to write this article was probably worthy of a report. So I quickly threw away the article that I was working on about prescription writing (as if you have not heard enough about that already) and started musing about my newest toy, my tablet PC. For all the bad press that Microsoft has received over recent years, the company did a wonderful job of naming and building a specification for the tablet PC. As a former Newton user and longtime personal digital assistant (PDA) evangelist, I was excited about the opportunity to use a pen on a device that was shaped and could function like a notebook. Of course, I long ago learned to quash any enthusiasm I have for any version 1.0 device or application. This was the first time in my life that I can honestly say that I waited too long (1 month) before buying a new device.



We all heard the hype and promos. A few of us probably went to the PC Expo where the tablet PC was unveiled. When I finally had an opportunity to play with the tablet PC, I started out by typing or printing with block letters my name and a basic patient history (“The patient is a 5-year-old with a history of otitis media...”). To my surprise, every word was recognized perfectly! Still skeptical, I decided to wait a few weeks and watch reviews come in. Once the device had been out for more than 2 weeks, it was clear to me that I could benefit from this new technology (OK, toy). I went to the nearest computer superstore and to my chagrin, found that all the ones that I most liked had long ago been on back order.

What Is a Tablet PC?

For those of you who have not had an opportunity to see or touch a tablet PC, recognize that in our current world there are a variety of different types of mobile devices. Many of us use one- or two-way pagers. Pagers are wonderful for notification and alerting. Some of us have cellular phones; in fact, all of us have cellular phones that are capable of receiving messages including sports scores or laboratory results (depending on your passion). Cellular phones also support wireless e-mail, photographs, and low-resolution video. However, during the evolution of the cellular phone, PDAs also have become quite a bit more sophisticated. As I sit here typing, my Sony Clie, a PDA that looks like a small tablet PC, is capable of allowing me to type up a small memo, take a picture, record a video, listen to MP3 files, record memos, and dictate a paper. However, for all the value of PDAs, there comes a time when my hands just do not feel like being cramped on a small PDA or when Graffiti gets tiresome and I crave my notebook

computer. Wouldn't it be wonderful to carry around my notebook and turn it into a mobile pen-based device (or even speech-recognition-based device) whenever it was appropriate? Answer—the tablet PC.

Because it is a tablet, it is much more mobile than a notebook or desktop computer. The tablet PC allows you to do normal PC things such as read documents, construct documents, surf the Web, or respond to e-mail in situations in which you normally would be able to use a standard notebook. However, with a simple flip of the screen (or, in some cases, removal of the keyboard), you are able to continue to do these things in situations in which there is no desk. Tablet PCs are lightweight, fully functional notebook computers that are capable of using the pen as a mouse or an input device with unique gestures for a variety of different activities. Moreover, Microsoft and other vendors have built applications that seamlessly provide standard Windows-based applications such as Word with the functionality afforded to those applications by the introduction of a pen and/or speech recognition. This is what makes the Tablet PC so excellent—it is a seamlessly integrated environment in which a pen works as a mouse, a mouse could work like a pen (but who would want to do that?), and applications that recognize this can do novel things. For example, OneNote (as described by Donald E. Lighter, MD, FAAP, in the fall 2003 *scocitnews*) is capable of integrating text, graphics, images, sketches, audio, and speech recognition input all in a large or full-screen notebook—perfect for conducting focus groups, taking notes at meetings, or organizing portfolios of information. What makes applications like this so wonderful is that you literally do not miss a beat. You are able to move from an environment in which typing is easy to environments in which other types of computer communication are more feasible without any change in hardware or software. One of the added benefits of the tablet PC is the integrated, wireless 802.1x technology that is included. I can officially get more work done in the airport than I can in my office!

Tablet PCs are not cheap. The average price of a tablet PC is between \$2,500 and \$3,000 for functionality that is roughly equivalent to a laptop costing half that price. Hopefully, this will change in the coming months as more vendors develop notebook computers with tablet PC functionality.

So what is the big deal about tablet PCs? David Lubinski, former general manager of the Healthcare Industry Solutions Group at Microsoft, stated, “The tablet PC is being readily adopted in the health care industry because of the enhanced flexibility it offers. Through its innovative digital ink and pen-based input, providers can make notes on medical charts in their own handwriting or annotate digital images. The tablet PC will be a valuable tool in the fast-paced practice of medicine by helping medical providers automate many paper-based processes and streamline the practice of medicine.” What that means to me is that it allows my existing applications to work well and new applications that exploit the pen to do new and novel things. Now ending all of the hyperbole, let me tell you about my experience with my tablet PC.

I started out pining over a tablet PC that had long been on back order, the Toshiba Portégé. Reluctantly, I purchased an Acer, which was lightweight but had a smaller screen and slower processor tablet PC than any of its competitors. While the lighter weight was immediately a valuable asset, the slower tablet processor meant that recognition was slower, application launching was slower, and the normal things that I would do with a notebook became less practical. Therefore, I quickly found another purpose for my Acer when the Toshiba Portégé 3505 came out. Almost immediately, I found my ability to work enhanced. Within a week of having received it, I had to take a trip. I was able to successfully load all of the applications (eg, Office) and most of the data files that I needed. I then detached the CD-ROM drive and quickly realized that it would be smarter to purchase a USB drive. I purchased a 256-MB USB drive that has been invaluable. I got on the plane and started working on the notebook. After we hit 15,000 feet (and the person in front of me decided to recline), I immediately realized that I did not have to stop working. I simply flipped over the screen, carefully (very, very, very carefully) latched the screen to the body of the notebook, and continued with my work, using my pen on my lap and taking up very little space on the plane! I was able to completely review a paper, making all of my edits and annotations using a pen with Microsoft Word Tablet PC edition, and not skip a step on the plane.

Subsequently, I started searching the Web for other applications. I soon found OneNote. As a systems developer with an interest in user-interface design, I was able to use OneNote to build prototypic user interfaces that I was then able to shrink. With those figures, I was able to copy to a PowerPoint presentation and create a storyboard on the fly!

(continued on page 10)

Determinants of Pediatricians' Use of Information

By George R. Kim, MD, FAAP

American Academy of Pediatrics District III Webmaster

As electronic sources of trusted pediatric information become available to pediatricians and the families they serve, interesting questions arise about the use and incorporation of these resources in clinical care. A recent survey of American Academy of Pediatrics (AAP) Fellows has shown that use



of information technology (eg, Internet, e-mail, personal digital assistants [PDAs]) by pediatricians has increased markedly over the last several years, extending into the home and workplace. Despite increased access to information, there is evidence that pediatricians still do not use the technology in their daily workflow and many questions are not pursued, resulting in lost opportunities for pediatricians to improve care, incorporate new knowledge into practice, and learn.

Cited reasons for this phenomenon include lack of time to read, lack of familiarity with electronic resources, and mistrust of online resources. Increasing availability of online information from trusted sources such as the AAP, federal agencies such as the National Institutes of Health and Centers for Disease Control and Prevention, and traditional publishers of standard texts and journals may help to address some of these barriers, but there may be other issues.

I am collecting data for a research project that examines ways in which general pediatricians in office settings process and resolve questions and/or information needs that arise in practice. The results of this project may

help to identify barriers that primary care pediatricians encounter in finding answers and help leverage information technology to solve problems.

I am looking for general pediatricians who are primarily office-based to provide data in a set of verbally described clinical scenarios for which responses to presented cases will be recorded, transcribed, and explored in conjunction with demographic data using qualitative data analysis methods. No personally identifying information will be used. The total time for collection should be approximately 30 to 40 minutes.

If you are interested in participating in this study, please contact me at

George R. Kim, MD, FAAP

National Library of Medicine Postdoctoral Fellow in Health Sciences Informatics

Johns Hopkins University

E-mail: georkim@pol.net

Research Information

JHM-IRB X Application No. 03-10-31-02e, Determinants of Physicians' Use of Information

Principal Investigator: Harold P. Lehmann, MD, PhD
(with George R. Kim, MD)

American Academy of Pediatrics Division of Health Policy Research
Periodic Survey #51: Use of Computers and Other Technologies
American Academy of Pediatrics, 2002

www.aap.org/research/periodicsurvey/ps51exs.htm

Attention Steering Committee on Clinical Information Technology Members! 2004 Section Election Update: Web-based Election

In 2004, voting Steering Committee on Clinical Information Technology (SCOCIT) members will have the opportunity to vote for open positions on the SCOCIT Executive Committee using a new, easy-to-use electronic ballot system. The online ballot, as well as the candidates' biographies, is available at www.aap.org/elections. Because not all members have computer access or capability and voting is a right and privilege, paper ballots are available by contacting the American Academy of Pediatrics (AAP) Department of Committees and Sections at 800/433-9016, ext 4079. *Affiliate members are not eligible to vote in SCOCIT elections.*

Ballots, whether paper or online, must be received by the AAP no later than Friday, April 30, 2004, to be counted. If SCOCIT members inadvertently vote by paper ballot and online, *only the online ballot will be counted.* It is hoped that the Web-based ballot is found to be an efficient and enjoyable means by which to vote for the candidate(s) of your choice.

For the Web-based election, SCOCIT members will receive an e-mail notification when the online ballot is available; this e-mail will contain the link to the ballot site. There also will be a link to the ballot site on the Members Only Channel of the AAP Web site, www.aap.org/moc. To enter the ballot, section members need to enter their preassigned log-in number and password, which will be provided in the e-mail notification. For those who are unable to locate their log-in number and password, instructions will be provided on the election Web site. In addition, a technical support e-mail address also will be provided.

Those elected will take office following the 2004 AAP National Conference & Exhibition.

Any questions about this new service may be directed to Carolyn Mensching, manager, section administration, Department of Committees and Sections, AAP, at 847/434-4079 or cmensching@aap.org.

Content Submission

Would you like to contribute to this newsletter? Articles should be approximately 500 to 1,000 words in length. Submit articles to David C. Stockwell, MD, newsletter coeditor, at dstockwe@cnmc.org.

Articles submitted for the fall 2004 issue should be received no later than July 15, 2004.

Tablet PCs: Realizing the Potential of Mobile Computing

(continued from page 9)

My other experiences with the tablet PC have been similarly gratifying. Since purchasing my Toshiba, I have given all of my presentations on my tablet PC, and about 50% of the time, I do a standard demonstration in which I write lots and lots of words on the tablet PC and show how even though the words are not recognized through text translation by the user interface, simply searching on text demonstrates that there is virtually 100% recognition. Microsoft was extremely smart in using digital ink for all things that are handwritten so they can remain handwritten. However, the tablet PC provides an opportunity to use sophisticated functions such as searching and converting to e-mail on handwritten text.

It is clear that I love my tablet PC. I highly recommend that you go out and purchase a tablet PC if you are interested in buying a notebook computer. However, it is very important that you recognize the following 3 things:

1. The tablet PC will be more expensive for the functionality that you get than a regular PC.
2. Many tablet PCs do not come as notebooks, but as slates (no keyboard) or with detachable keyboards. You should inspect all the different tablet PCs or read reviews on the Web. I have found that there are very important differences between the different types of form factors that affect their ability to integrate with my work flow.
3. Tablet PCs are not necessarily intuitive. How the pen works, how the right mouse works, how to configure the device to portrait or landscape, how to adjust the pen, and how to configure the device for left- to right-handedness are a short list of the many features (necessities) needed to take best advantage of using a tablet PC. Although battery life is excellent and CD devices are wonderful, most older tablet PCs do not come with rewritable CD drives, and only recently have tablet PCs supported DVDs. Tablet PCs have smaller screens and generally slower processors than non-tablet versions of the same notebook computer. Take all of this into account before deciding whether to purchase one of these devices. However, if you can tolerate compromises in speed and screen size, I think you would be wise to invest your money in a tablet PC.

Food for Thought



By William M. Zurhellen, MD, FAAP
Webmaster, Section on Administration and Practice Management

Who owns medical information? Tradition and the Health Insurance Portability and Accountability Act would lead us to believe that the patient does, but that only applies to patient-specific information, and the vast majority of the commerce in medical information (more than \$100 billion a year—not a small amount) is on non-patient-specific, aggregate data.

We always have been protected by the *paper barrier*—the information was so hard, time-consuming, and expensive to collate that we as physicians were *safe*. However, the advent of electronic data systems with real-time data acquisition and collation threatens this safety. No longer can we tell pharmaceutical representatives that yes, we prescribe their products, and please leave us some samples; they already know the truth before they come in the door. Now the same process looms for medical records through the use of the electronic medical record. Haven't we always wanted such rapid, effective access to our records? Won't it make a tremendous, positive change in quality medical care, as we have been told? But then, why worry?

Whoever Controls Medical Information Controls Medicine

As we move into the digital medical world, the storage of medical information will become centralized, and the ambulatory office, rather than having stand-alone systems, will have browsers with broadband access to centralized information. There are strong financial (eg, cost of acquisition and maintenance of systems) and informational reasons (eg, multiuser access, contribution of data, safety and integrity of data) to do this.

Once centralized data is achieved, there will be much value to the aggregate (non-patient-specific) information contained therein. In 1995,

an estimated \$132 billion was spent on the purchase of aggregate medical data. Some of the data were used for the betterment of medical care; much were used for cost control.

There are two buzz phrases we commonly hear—*quality improvement* and *quality assurance*. They sound much the same but are vastly different. Quality improvement is a process that sets a tentative guideline, but tolerates variation in care delivery. Quality improvement monitors outcomes for positive or negative variation. Analysis of a positive variation reveals an improvement to care, and the guideline is revised; analysis of the negative variation reveals a flaw in care, and it is corrected. This is the process of improvement and advancement in medicine.

Quality assurance does not tolerate and, in reality, punishes (through fiscal and/or administrative penalties) variation. A guideline of care is set and adherence to the guideline is measured, not the outcome of care. Thus, all variation is, in essence, negative and is corrected. This is the process of policing medicine. With this in mind, it bears repeating—*whoever controls medical information controls medicine*.

It is important that we all be proactive in developing the digital world that is coming for the medical practitioner. The ownership and management of centralized aggregate data, however, need to be stipulated from the beginning, and the rules for their use (and misuse) should be laid out in advance. Quality improvement and evidence-based medicine are absolute needs; quality assurance can be a dangerous intrusion. We are all too familiar with the past results of leaving the decisions to others and not leading or participating in design and decision making. *Be involved*.

Washington Report

By the American Academy of Pediatrics Department of Federal Affairs

The American Academy of Pediatrics (AAP) Department of Federal Affairs, located in Washington, DC, has been the AAP link to federal legislative and regulatory activities for 33 years. It exists to ensure the administration and Congress are working on behalf of pediatricians and their patients. With the help of AAP members, the AAP has played a major role in helping to create important programs, ranging in the earliest days from poison prevention packaging to the more recent State Children's Health Insurance Program (SCHIP). Pediatricians often serve as a source of information in Washington by testifying at congressional hearings, attending federal agency meetings, and visiting with members of Congress.

Federal Advocacy Action Network

The AAP Department of Federal Affairs invites you to be a part of the Federal Advocacy Action Network (FAAN). It is a network of AAP members who help support federal legislative and regulatory activities from their positions as constituents. Members choose the level and range of activities that suit their busy schedules, from simply faxing or calling congressional members about issues of concern to requesting a personal meeting. Over the years, FAAN has affected numerous positive gains for children and pediatricians, thanks to AAP member commitment to child health advocacy efforts. Federal Advocacy Action Network members receive education and guidance and updated legislative information for the issues on which they take action from the AAP Department of Federal Affairs. Join online by going to the Members Only Channel of the AAP Web site (www.aap.org/moc) and clicking on "Federal Affairs" in the left-hand column and then on "Join Federal Advocacy Action Network."

Department of Federal Affairs Resources

In-between issues of *scotitnews*, the Members Only Channel Federal Affairs Web site will keep you up-to-date on federal legislative efforts by the AAP. Another source is the monthly "Washington Report" column in *AAP News*. For breaking news on Capitol Hill, the Department of Federal Affairs sends out special alerts to members of FAAN telling them to take action on legislation when needed.

Contact Us

You can contact the AAP Department of Federal Affairs anytime if you have a question about federal legislative efforts or are interested in advocating for pediatricians and children. Your participation is critical to our success! We can teach the easy steps it takes to help. The phone number is 800/336-5475, and the e-mail is kids1st@aap.org.

Must-have Practice Management Problem Solvers From the AAP

New 6th Edition!

Medical Liability for Pediatricians—6th Edition

By the American Academy of Pediatrics Committee on Medical Liability
Editors: Jan Ellen Berger, MD, MJ, FAAP, and Charles H. Deitschel, Jr, MD, FAAP

This greatly expanded new edition of the definitive AAP liability guide focuses on practical approaches to avoiding malpractice risk exposure, with updated material on risk management; documenting pediatric care; vaccine liability; newborn, adolescent, and emergency care; and more.

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Now completely updated for 2004, *Pediatric Telephone Protocols* contains more than 100 protocols for common pediatric conditions, plus highlighted triage assessment questions and practical home care advice for each condition.

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 programs at the NCE, SuperCME,
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www.aapca1.org/aapca1/scocit.asp

Please note: Inclusion in this publication does not imply an endorsement by the American Academy of Pediatrics. The AAP is not responsible for the content of resources mentioned herein. Web site addresses are as current as possible, but may change at any time.

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Helping Your Practice Become a Medical Home

By Amy Brin, MA
 Manager, Training Programs, American Academy of Pediatrics

Because providing a medical home for children is a charge for every primary care physician, the sustainability of this care concept needs to be a paramount focus for the entire office. From the front desk staff to the billing department, as well as considerations for the physical layout of the office, the provision of a medical home becomes a focus of quality improvement for any practice. As a pediatrician who acknowledges

the value of providing a medical home, the *Every Child Deserves a Medical Home* curriculum is a tool that can assist you in developing such an office system. It can be used as a professional development resource for weekly staff meetings or serve as a guide for establishing office procedures. Following are selected topics included within the curriculum to assist in creating a medical home:

Quality Improvement

Creating a medical home within your practice is a continuous effort; therefore, tools exist to measure areas of needed improvement. These tools allow providers and families to lend input on the current status of office procedures and patient satisfaction, while providing a lens into where the practice can be enhanced. Examples include

- Medical Home Index
- Pre- and Post-Office Visit Survey
- Family Index

Communication

Coordinating care within a medical home does not only require knowledge of services, but the ability to communicate among providers and with the family. While different communication strategies and mediums have been introduced to facilitate this process, an office staff's capability of modeling proficient and compassionate communication provides a sound base for a child's medical home. Appropriate office forms and checklists, along with suggested communication strategies, are offered throughout the curriculum, including

- Care Notebooks
- Emergency Department Forms
- Intake Forms

Office Procedures

The patient and his or her family's experience with your practice begins from the moment the call to make the first appointment is made. How does your practice sound on the phone? How accessible is your office? Are you using appropriate *Physician's Current Procedural Terminology (CPT®)* codes for the services you are providing? Gain insights on ways to improve your practice environment, because adjustments to office layout and procedures can greatly affect the way patients and families perceive the quality of care they receive. Tools, resources, and checklists are available in the curriculum to guide your office procedure development, such as

- Reimbursement Crosswalk
- Front-office Staff Checklist
- How to Maintain a Patient's Chart

Surveillance and Screening

Sixteen percent of children have developmental disabilities, yet only 20% to 30% are detected prior to school entrance.¹ Continuous monitoring of a child within the medical home ensures early detection of disabilities. Learn more about how your practice can incorporate effective surveillance and use appropriate screens in the newest component of the *Every Child Deserves a Medical Home* training program: Surveillance and Screening. Screens include

- Developmental
- Mental
- Oral

The *Every Child Deserves a Medical Home* training curriculum is available in hard copy, on CD-ROM, and in a downloadable format at the National Center for Medical Home Initiatives Web site, www.medicalhomeinfo.org/training/index.html.

To learn more about this and other medical home initiatives, please visit our Web site or call 800/433-9016, ext 4917, and let us know how we can assist your practice in providing a medical home!

1. Boyle CA, Decoufle P, Yeargin-Allsopp M. Prevalence and health impact of developmental disabilities in US children. *Pediatrics*. 1994;93:399-403

