Innovative Use of Technology in Providing Peer Reviewed, In-Time CME

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In October 2004, the Office of CME at the University of Pennsylvania School of Medicine partnered with a new company, MedPage Today™ (www.medpagetoday.com), on a project that has changed our approach to CME.

Where Was the Need?

Advances in biomedical sciences and research are occurring at an astonishing rate. Among busy physicians, keeping pace with medical literature and cutting edge information related to emerging therapies poses a major challenge. According to Davenport and Glaser, physicians must stay abreast of approximately 10,000 different diseases and syndromes, 3,000 medications, 1,100 laboratory tests, and 400,000 new articles added each year to biomedical literature.[1] In addition, recent studies indicate decreasing performance with increasing years in practice, suggesting that the ability of physicians to remain current with medical practice declines with time after medical school graduation, which adversely affects patient care.[2]

At the same time, an astounding number of patient deaths (approaching 100,000) are attributed to medical errors in this country annually, making medical errors the eighth leading cause of death in the United States.[3] In addition, medical errors result in more than one million injuries each year.[4] When we add to this the escalating cost of medical care, including increasing out-of-pocket expenses and frequently rising costs of medical plans, it is no longer surprising that patients are increasingly turning into educated consumers of health care services and are trying to self-manage their health. Patients are also increasingly inundated with direct-to-consumer advertisements of various prescription drugs, screening tests and other heath care services, as well as breaking health news from radio, magazines, television and the Internet.

All of this adversely affects doctor-patient communication in the sense that it poses an added burden on busy physicians struggling to competently address patients' requests for new diagnostics and/or treatments. We understood these phenomena to mean that additional needs and opportunities existed, for ongoing physician education, that go beyond traditional CME, and we decided to address these needs.

New CME Design

We considered several factors when designing these educational resources. Much evidence in recent studies, as well as every CME provider's experience, supports the concept that the educational impact of CME increases when it is associated with daily clinical practice.[5,6] Theories in adult education teach us that retention of new knowledge is greater if educational material is presented in small bites, and we know that application to clinical practice increases with systematic, ongoing education. In an effort to provide this type of educational service to a broad base of physicians, we considered the Internet to be the best way to reach our target audience. In the past four years, web-based CME has represented by far the fastest growing type of educational activity and has increased by 500 percent.[7] A steadily growing number of physicians use the Internet for education. The number of physician participants in this type of CME for the same period increased ninefold, and that

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number is believed to currently represent about 85 percent of practicing physicians.[6,7] Time flexibility and ease of access greatly contributed to the increased use of Internet-based CME compared with other, more traditional CME events, according to comparative data from 1998 and 2005.[7] Additionally, we hypothesized that use of Internet technology would provide education at or near the point-of-care, getting us closer to the goal of just-in-time learning. The hypothesis that point-of-care learning is retained is also supported by a recently published review of information-seeking behaviors.[8] In this review, the primary motivations for medical information searching on the Internet was a patient-related specific problem, followed by the wish to learn about the latest research on specific topics, new therapy or products, or to obtain dosing information. To ensure credibility beyond CME certification, we designed the system to present data based on best evidence available, including a built-in process of physician peer review of content, see Figure 1.

The model we used combined breaking medical news and CME to create a new online resource, MedPage Today™ (MPT), which was launched in January 2005. The main goals of MPT are:

- On a daily basis, to provide health care professionals with immediate, brief, concise, peer reviewed and CME certified discussion of content, background, and significance of breaking health news appearing in mass media and/or published in peer reviewed journals, or presented at major medical meetings

- To provide physicians with a reliable resource that will enable them to competently address what their patients read in mass media and to enhance communication between physicians and patients on these topics, regardless of the institutional and geographic boundaries.

This peer reviewed, web-based model for in-time delivery of CME activities has several additional unique features:

- Information is presented in 400–600 word briefs and contains clinical recommendations as action points designed specifically for physicians.

- Briefs are provided at the rate of 6–10/day and then archived.

- If users opt in, they receive a daily morning email with links to the briefs published in the previous 24 hours.

- In contrast to usual online programs, choice of material presented is based upon breaking news—highly relevant to most users.

- Content areas can be customized for individualized educational needs.

- Teaching briefs are published in real time, every business day, and we have seen sustained growth of activity over a 20-month period.

- News-driven content provides for a balanced approach and absence of influence from any commercial interest.

- Teaching briefs and meeting reports can also be obtained wirelessly for use on handheld devices (PDAs) directly from the MPT website and on Epocrates (www.epocrates.com) as MobileCME™.

Results to Date

In 2005, the University of Pennsylvania School of Medicine reviewed, certified, and designated for credit over 1,700 teaching briefs and meeting reports as CME activities on MPT. A total of 202,000 certificates, each worth 0.25 American Medical Association Physician Recognition Award (*AMA PRA) Category 1 Credit(s)™*, were issued in the last 12 months alone, for a total of 262,000 issued since the 2005 launch. A total of 23,360 certificates were issued to Epocrates users in the first seven months of 2006. On the basis of the data reported by MPT, we are reaching 269,000 physicians, 209,300 nurses and nurse practitioners, 31,000 pharmacists, and 46,500 physician assistants. When we looked at the distribution of those receiving CME/CE credits for participating in the activities, we found that the content is used most by physicians: 77 percent physicians vs 23 percent nonphysicians.

In-Time CME

This program provides in-time learning, as data show that users choose to read breaking stories more frequently on weekdays rather than weekends, suggesting a form of *at-the-point-of-care* education. In addition, 66 percent of users come back on a regular basis—weekly or more often. Contrary to some expectations and the belief that online learning, particularly learning that results in a CME certificate, is completed mainly from the privacy of home and on weekends, we found our data on daily usage of great interest as they show that 88 percent of all CME certificates on MPT are earned between Monday and Friday. These data are tracked for various specialties and reveal some interesting trends. Thus, the use of CME briefs peaks on Wednesdays for gastroenterologists, on Tuesdays for psychiatrists, while neurologists and infectious disease specialists show a fairly even distribution between Monday and Friday.

Evaluation Results

In an effort to better understand their future needs and current use, 756 users were surveyed. The combination of CME and the media news was considered to be of greatest value to the users (85 percent), followed by daily news (75 percent), and email announcements and daily headlines (70 percent). The service that the site provides was rated as *excellent* or *very good* by 88 percent of respondents. Another interesting statistic is that 52 percent of physician users found the teaching briefs to be relevant to the needs of their practice *to a great degree* or *completely*. We find this highly relevant considering that the target audience is so diverse, and that topics covered are generated based on daily medical news that reflects mass media interest. The users asked for more CME, longer CME and

PDF downloads of original source journal articles. A section of the website titled *CME Spotlight* provides contextually placed links to larger CME activities from other providers, and PDFs of original articles that were the basis for the briefs are provided, when available, free of charge. Some of the recent additions on the site include the designation of specific state-based required CME topics on selected briefs, as well as expert video clip interviews.

CME Office Logistics Related to this project

Surprisingly, our staff of 10 full time employees in the Office of CME are able to keep up with close to 2,000 teaching brief activities and additional 200 or so larger CME activities that are typical of any other academic CME program annually. The logistics of this process, as well as the main writing and editorial services, are handled by MPT, and we are always truly amazed that the site is run in such a professional manner, and that we, all together, manage to produce these stories daily. In addition, if and when mistakes are discovered, and they do happen occasionally, we are able to react and correct them immediately. The site is also very dynamic, we listen to the suggestions and needs expressed by the users and accommodate their requests whenever possible.
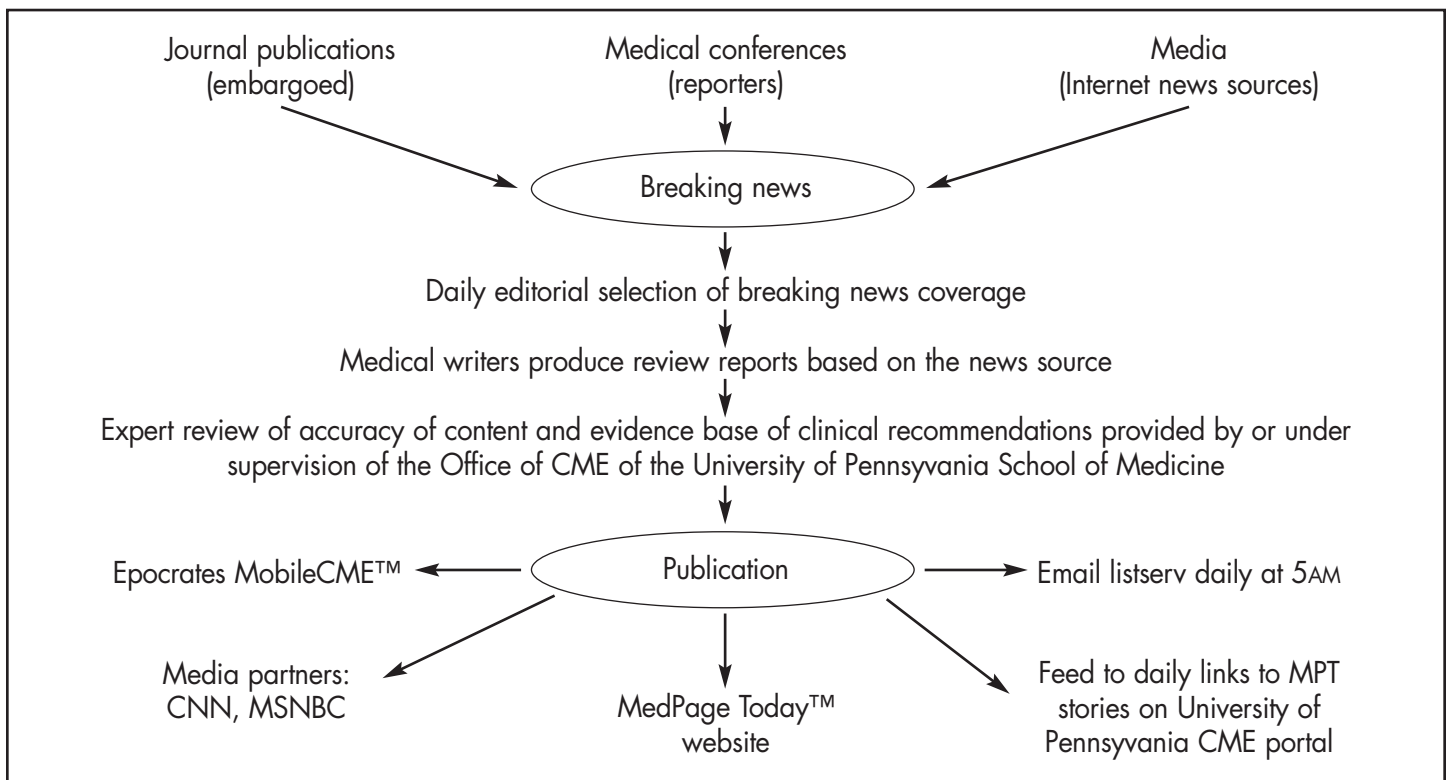
Documentation for each teaching brief is stored electronically as each is considered a separate activity in the CME sense. Electronic records of participants credits are kept on file and each health care professional that takes teaching briefs for credit has a running transcript on the website as well as the opportunity to print individual certificates, if they so choose. MPT and Epocrates provide us with monthly and quarterly reports of participant and credit data records.

The Office of CME at the University of Pennsylvania School of Medicine is fortunate to have a full time associate dean. Dr. Zalman Agus, Professor Emeritus of Medicine, and former Chief of the Renal Division and Developmental Editor at *UpToDate,* provides most of the peer review himself. In case he is absent or unavailable, several other peer reviewers, selected based on their qualifications and absence of any relationships with commercial interests, serve as back up reviewers. Our process is focused on the review of the original source(s) (usually an article in a medical journal or scientific data presented at major medical meeting) and the draft of the teaching brief to ensure that what we report accurately represents what was said in the original source as well as that the review represents a balanced view and is not commercially biased. If, for example, we find that the study in subject was funded by a commercial interest, we will insist on including that information in our briefs. In addition, our clinician reviewers pay close attention to the appropriate wording for the physician-patient action points.

MPT has developed a data management system that is very helpful in running the review process from the logistical point of view. Most CME components, such as the learning objectives, physician-patient action points, and posttest questions are reviewed at the same time as is the content.

Figure 1: MedPage Today™ Website Publishing Methodology

Journal publications (embargoed) → Breaking news ← Media (Internet news sources)

Medical conferences (reporters) → Breaking news

Breaking news → Daily editorial selection of breaking news coverage → Medical writers produce review reports based on the news source → Expert review of accuracy of content and evidence base of clinical recommendations provided by or under supervision of the Office of CME of the University of Pennsyvania School of Medicine → Publication

Publication → Epocrates MobileCME™

Publication → Email listserv daily at 5AM

Publication → Media partners: CNN, MSNBC

Publication → MedPage Today™ website

Publication → Feed to daily links to MPT stories on University of Pennsyvania CME portal

Summary

Based on the data collected and feedback we receive on a daily basis from our readers, we have reached our primary goals and are well positioned to tackle upgrades of this very dynamic web-based CME delivery model. We remain excited at the prospect of analyzing all the cumulative user data and tracking learning trends and topical interests of our readers.

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New on the Alliance Website
www.acme-assn.org
Enhanced State and Regional Organizations Web Page

State and regional organizations for CME (SROs) enhance the quality of CME by providing education and networking opportunities for CME professionals in the locales they serve. Some have established by-laws and are legally incorporated. Others are informally organized around ongoing projects or educational activities. Many work closely with their state medical societies to promote best practices in CME. All share a commitment to education, collaboration, and professional growth.

In recognition of the important role SROs play, the Alliance for CME has launched an enhanced web page where individuals interested in SROs can share and obtain information. Located on the Alliance website, the SRO web page provides a listing of active SROs and links their websites, announcements of SRO educational activities, and resources to help SROs get started, develop, and grow. Visitors are encouraged to submit information, ask questions, and network with their colleagues at the grass roots level. We hope you find the material useful and look forward to receiving your input. By facilitating communication and understanding among SROs, the Alliance seeks to encourage collaboration with and support of SROs.

Part One of Two:
Conversations in Compliance: A Discussion on New Developments in 2006

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Note: The following article reflects the opinions of the authors, but not necessarily the opinions of their employers.

In 2006, there were many new developments in regulatory and compliance areas impacting stakeholders in CME. To help shed light on and explore some of these changes and challenges, Jennifer Smith and Marissa Seligman (J and M) conducted a discussion on some of the key issues. This is the first of a two-part article that presents excerpts from their conversation.

Assessment of the Accreditation Council for Continuing Medical Education 2005 Provider Report: Findings, Points of Interest

J: From the commercial supporter perspective, it was very interesting to contrast the reported data in the Accreditation Council for Continuing Medical Education (ACCME) 2005 Annual Report[1] against what the *buzz* in the industry had been—that grants were going to go way down in 2005 based on the establishment of the Office of the Inspector General April 29, 2003 report.[2] At that time, most 2004 educational grants funded from pharmaceutical companies were already in place, so the projection was that if there was going to be a big change, it was going to be 2005. And, again, the buzz was that it would be a big drop. Instead, funding from commercial supporters went up by about four

percent. From the commercial supporter perspective, it was really important to find that the industry and providers still believe funding CME is of value.

M: We had very similar thoughts from the education provider perspective. We also had heard the same buzz, and there was anticipation that commercial support would go down. Some providers predicted that, based on data from previous years, physicians were getting saturated with CME and that their attendance numbers would go down. In fact, we did not see either of these trends. In addition to the findings of the growth in commercial support, the ACCME 2005 report also listed that there was an increase in the number of activities and attendees while the number of hours of instruction declined. I speculate that this could be because providers became more efficient, offering more activities with lower number of credits per activity, or because there was a decline in the number of absolute hours in activities and thus a decline in credit opportunities. The reported number of activities from some providers did go down, such as those from state medical societies and the military and government.[1] And, overall, while there were fewer hours of instruction in the aggregate, physicians (and non-physicians, too) participated in more activities than ever. They are intensively interested in CME. Based on surveys that Pri-Med has conducted,[3] physicians continue to accumulate many hours beyond their certification or licensing requirements.

J: These are actually interesting findings. We have been getting reports from some academic centers and state societies that they no longer will accept commercial support, not only relative to CME, but for other things such as research, and I wonder if it is reflected in this report. Another point to note is that regardless of commercial support, some academic centers may not have as many offerings because they don't have the funding to put them on. It would certainly be interesting to look at those data more closely and to hear from these organizations in this regard.

M: The ACCME report highlights that physicians need education from a variety of sources, and they are actively seeking CME. If one group is not able to accommodate their needs, for whatever reason, other providers will.

What is the Most Essential CME Best Practice?

M: I think that in terms of a best practice standard, the one item that is critically important is the concept of more defined, validated and substantiated needs assessment for and from CME providers. I think that to meet a best practice standard, and provide increasing documentation, credible and reliable information is needed from all of those who you are trying to engage into your activity. The increased detail that is being asked on these needs assessments, including immediate learning, anticipated outcomes and health data, will serve all providers well by supporting the validity of the educational activity. Information is needed at national, regional and local levels, where available, and at granular levels. The impact of this education on a public health or a disease state issue is in line with ACCME standards, starting from 2004 Updated Standards for Commercial Support[4] that were revised to include the need to educate on new developments or improvements in patient care, and continuing with the newly issued ACCME criteria.[5] These have helped motivate us to go above and beyond perceived needs and above and beyond the static literature to delving into dynamic and engaging data, pulling information from a number of fielded sources, such as actual barriers to care. We do this by analyzing our participant database and information identified from our physician focus groups. We make sure that it is a *real time* need, as opposed to historic information, and we really make sure that contributors to our educational activities commit to act upon the educational needs assessment when they work with us to deliver the activity.

J: Needs assessment is vitally important to a successful educational event and, therefore, a large part of how we judge grant proposals. We have seen great improvement in the past year regarding the quality of needs assessments submitted to our review committee. Aside from the quality factor, we need a validated needs assessment for documentation purposes. We need to be assured there is a legitimate need for the education and, as a result, it's something that we spend quite a bit of time on. We conduct internal continuing professional development events for our staff on proper development of needs assessments so we can ultimately recognize superior needs assessments in proposals. The better providers can be at needs assessments, the more likely they are going to be successful, at least at receiving commercial support.

M: Jen, from your perspective, how close does the organization using an information source for a needs assessment need to be to data? That is, can organizations take health level data from other organizations and employers and use these data for their needs assessment even though they are not in the position to impact that data (eg, the needs assessment is based on patient level data from a chronic care institution not related to that organization)?

J: Oh, absolutely. In fact, I am a big proponent of everybody doing their best to publish their needs assessment data. As a CME community, we all recognize that we are limited by the lack of available data. In the past we have witnessed an inappropriate proprietary attitude, from all types of providers, that their needs assessment data is *owned,* and can be utilized only by themselves. In my opinion, it's important that as a CME community we try to get over that, because we really need to share data. The more public the data are, the more apt we are to be able to accept them as something legitimate. So, anywhere you can get data is good as long as it's a high-quality source. Needs assessment is not an exact science. You generally want multiple needs sources . . . if you have multiple sources you can get a better picture of the need.

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M: Another question that's often posed to me is, "Is there a magic number of sources that should be included in a needs assessment?" My answer has been *no*, but maybe I'm not responding correctly. What do you think?

J: There is definitely not a minimum or maximum number of sources. It is the value of the information itself that is key. However, as with all research, multiple data sources make it easier to come to a legitimate conclusion.

M: I agree with your point: it is the need for multiple sources to look at the issues from different angles—at different instances. One survey or one source may be misleading, but for some issues, there is only one information source available and that is what you need to use.

J: That is true, and we get a lot of grants that are specifically literature review only. Evidence-based literature can represent a high evidence level, but the problem is that, at the end of the day, we want to look at the current and immediate needs of physicians and patients. That's often something not yet published, or something emerging. So, it's important to get proof from multiple sources.

Another Best Practice Identified

J: I think we have seen dramatic improvements among pharmaceutical companies in their dealings with support of CME. In particular, we are much more interested in two things. One is hiring people that have a background in education and/or have a lot of experience in CME, as opposed to transporting somebody, say, from marketing into the position. The second thing, which I think may be a result of the first, is that pharmaceutical companies are looking at CME providers differently. First of all, we are looking at them as independent providers and certainly not as vendors. We have a very consistent process for how we assess providers. We have collaborative discussions with providers, and we have a consistent way of scoring providers on specific aspects, such as administration, compliance and professionalism. We review their CME expertise, whether they are involved in the CME industry, and their experience with commercial support (particularly with multiple supporters at once). We are interested in different accreditations, the length of accreditations, and the number of activities. We are really interested in their compliance program: do they have a compliance officer, do they have specific ways of updating their staff on compliance issues, do they have internal firewalls that are separating promotion from education? Then, equally rated is knowledge of education. Do they incorporate adult learning principles and do they have an understanding of how long it takes to change behavior? Will they use a proper educational design? All those things, I think, have definitely improved the CME arena by having the commercial supporters become more knowledgeable about how CME works.

M: I believe that there has been inconsistent understanding, appreciation and application of adult learning principles by providers. Increasingly, providers are getting better, and more appropriately

trained, staff or hiring them at higher levels. This is needed. It is well-established that professional associations, such as the Alliance, report almost a binary kind of division within the membership.[6] There are the folks who are five years and less, and they are in and out of CME, and then there are *long termers*. I have consistently heard that there is a really high turnover rate staff early in CME Careers and, having attended the Alliance for CME Annual meeting regularly over the years and seeing and talking with so many new people supports this for me. I think high turnover is, in part, because it can be very difficult getting into CME as a profession given that there is a lot of learning you have to do up front and then continuing through your career. It is so important to know how adults learn, not just how to put the venue together. It's about what the learners will get out of the program to meet their and their patients' needs.

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Case Study of an Innovative CME Project: A Cautionary Tale

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A physician's need for evidence-based medical information at the point-of-care often goes unmet. A partial solution lies in physicians

learning how to use technology to access evidence-based medical information. The Medical Association of Georgia Institute for Excellence in Medicine, developed an innovative demonstration project targeting primary care physicians, with funding provided by a major insurance company. We asked how primary care physicians would utilize PDAs at the point-of-care to support clinical decision-making by utilizing evidence-based medicine (EBM), and what would be the impact of utilizing these resources on patient care?

Participants attended two four-hour CME activities. The sessions, led by a nationally known expert in information mastery and evidence-based medicine, were designed to introduce participants to the concept of information mastery, help participants learn to use a PDA, and provide a detailed overview of clinical decision support software that could be accessed at the point-of-care. The second session provided evidence-based best practices on four common conditions seen by primary care physicians.

Criteria used to select the conditions included:

- Common enough to study
- High variability in diagnosis or treatment strategies
- Good, evidence-based guidelines exist
- Complexity of guideline may be barrier to implementation
- High impact cost or morbidity
- Data availability from the insurance company's databases.

Three broad outcomes categories were identified:

- Clinical outcomes: quality/quantity of life, symptoms
- Process outcomes: changes in which tests are ordered, hospitalization rate, drug prescribing
- Knowledge/attitude outcomes:
  1. Knowledge of EBM, knowledge of indicator condition, knowledge of computers
  2. Attitudes toward above, and self-assessment of their integration into practice.

The four selected clinical conditions and key outcomes were: respiratory tract infection (RTI) (ie, cough, bronchitis, sinusitis, pneumonia, viral RTI), hyperlipidemia, low back pain, and gastroesophageal reflux disease.

Participants were asked to synchronize their PDA with their desktop computer and email a file to the project director showing the software usage related to the four selected conditions.

Overall this project was not successful. The project was confronted with difficulty from the beginning, and very few useful results were obtained.

- The review and approval of the conditions and outcomes to study was very slow.

- Recruitment of participants to the study was difficult.
- Skill levels among the participant group related to usage of the PDA was highly variable.
- Study participants were not compliant in sending data files required to do the usage analysis.
- Few participants completed the follow-up evaluation.
- The baseline data were not provided by the project partner.
- Of the thirteen physicians in the project only two completed what was asked of them.

There are hardware and software issues in projects like this. The two most frequent reasons for physician frustration were hardware failures and difficulty navigating the software efficiently to get the information they were seeking. Learning the hardware and software took time, especially among physicians not comfortable in using hardware or software. Several physicians reported the device crashing—causing them to have to reboot the unit and begin their search again. Some reported difficulty getting the software updates downloaded and installed on their PDA. Some had difficulty determining how to sync the PDA with their personal computer. Several reported difficulty in finding and taking advantage of the information that was in the software.

In practice sessions, physicians frequently had difficulty in posing focused clinical questions, making it hard to narrow down the search to find the answer(s) they were seeking. Part of this difficulty was an unrealistic expectation of the software. The software provided clinical decision support and *not* answers to specific questions. The physician still had to take the information and use it to make a diagnosis or select a treatment option.

Future studies should consider providing training to closely related affinity groups of physicians—like a group practice or a hospital/clinic-based group. This kind of relationship could foster support among the group especially during the early learning curve. The common problems seen by such a group would facilitate discussion and a sharing of what each is finding useful in the hardware and software.

Physician access to practice-based clinical information technology is growing significantly, but there's still a long way to go. Despite substantial growth rates, many physicians are still not taking advantage of access to practice-based clinical information technology. Yet, the rate at which relevant and valid information supporting clinical medicine is becoming available is growing exponentially.

The practice of modern medicine requires efficient access to relevant and valid information to support clinical care decisions. Projects like this offer promise in this area. New ways to encourage adoption of these innovations must be found and disseminated in a timely manner.

Calendar of Events

January 17–20, 2007
2007 Alliance for CME Annual Conference
JW Marriott Desert Ridge Resort and Spa
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