E-Encounters
Acknowledgments

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More than half of American adults and two-thirds of physicians are now using the Internet. At the same time, the health care industry is being pressed to find more affordable, convenient, and accessible means to provide care. The convergence of these developments provides fertile ground for the growth of Web-based communication between patients and their providers.

Early experience points to a wide range of potential benefits for participants, including:

- For both patients and physicians: ease of communication, avoidance of telephone tag, and reduction of medically unnecessary visits.
- For patients: improved access to care and advice.
- For physicians: the opportunity for increased follow-up communication with patients and better patient satisfaction and retention.
- For the physician practice: the efficiency of fewer telephone calls, more productive capacity, and possible growth.

So far most of the industry attention and debate has been focused on patient to physician email messaging. In fact there are several different categories of communication via electronic mail. In this report, an e-encounter is defined as:

A two-way, Web-based exchange of clinical information between a patient and his or her caregiver that involves a closed loop conversation around a particular clinical question or problem specific to the patient. It may be initiated by either the patient or the caregiver.

This type of electronic communication most closely resembles care delivered today via the telephone or a face-to-face encounter. Questions can begin with either the patient or the physician and possibly involve several communications back and forth before the issue is resolved. In the context of an organized disease management program, messages are likely to include periodic patient self-assessments and transmission of home monitoring results, with feedback from the patient’s nurse case manager or physician.

Other communications—that don’t fit the definition above—are also occurring electronically between patients and physicians or physician practices. Examples include the physician
practice sending reminders to patients concerning upcoming appointments, the need to schedule an annual physical, or influenza immunization; patients requesting an appointment, prescription renewal, or clarification of a bill; or notifying the clinic of a change in address. These messages often deal with more administrative aspects of care and replace a telephone call or mailed communication. For physician practices, electronic communications enable a whole new form of outreach to patients.

All forms of electronic communication between patients and physicians are in an early stage of adoption:

- As many as 3.7 million Americans are already communicating with their physicians via electronic mail. Surveys consistently show that many more are interested in doing so.
- Physicians, about one-half of whom are already on the Internet, are more cautious (in one study, 9 percent were interested), although as a group they also believe the Internet will eventually radically improve communications with patients.

Many potential participants in electronic communication—patients, physicians, and provider organizations alike—have unresolved concerns about clinical appropriateness, patient privacy and security, and (among the provider community in particular) physician time and reimbursement. The health care industry will only be able to leverage this tool effectively if these concerns are allayed by careful and thoughtful measures.

The umbrella of an organized effort by the physician practice or health system provides a framework within which to define policies and procedures ensuring that use is appropriate and patient privacy and security ensured. Organizations can be guided by policy statements and recommended practices from a number of industry groups such as the American Medical Association, the American Medical Informatics Association, the American Academy of Family Practice, and the Massachusetts Health Data Consortium.

These groups, as well as early adopters, offer the following considerations as starting points:

- Treat electronic communication as a new process and adopt organizational policies and procedures for all aspects.
- Apply the same approaches to patient privacy and security as to other patient-identifiable information and Internet communication and ensure that these meet the requirements of HIPAA.
- All new technology involves changes to workflow. Proactively address these, considering how electronic communications are handled alongside other types of patient communications in an efficient process for all participants.
- Consider an operational model incorporating triage of messages. Electronic communications are similar to telephone messages in that many do not require the direct attention of the physician.
- Start implementation with a pilot. This provides an opportunity for proof of concept and fine-tuning the approach. Solicit and address physician, patient, and operational concerns as part of this effort.

Because electronic communication in the health care field is a large and complex topic—as well as an extremely important one—FCG and CHCF are publishing a series of reports on aspects of the subject. In addition to E-Encounters, the series includes:

- Wireless and Mobile Technology
- E-Disease Management
- E-Prescribing
WEB-BASED TECHNOLOGY AND THE Internet offer new ways for patients and their caregivers to communicate, sometimes avoiding the need for telephone calls, paper communications, or even face-to-face encounters. Both the potential and the challenges of incorporating these new modes into care delivery and the physician-patient relationship have captured the popular attention and garnered industry responses ranging from enthusiastic to cautious.

This report is intended to serve as an information resource for organizations looking into or actively engaged in Web-based physician-patient communication. It introduces the possible forms that these exchanges can take, reviews the state of the practice, and offers practical advice from early adopters. The report is based on information gathered from the latest literature, a review of vendor products and approaches, and interviews with vendor staff, project managers, and physician users (see the Appendix for a list of interviewees). Because there is still little formal research on the subject of e-encounters, much of the information provided is necessarily anecdotal. Here is a thumbnail sketch of the contents of this report:

<table>
<thead>
<tr>
<th>Report Section:</th>
<th>Description</th>
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<tbody>
<tr>
<td>Purpose</td>
<td>The potential value of electronic communication to the participants</td>
</tr>
<tr>
<td>Approaches to electronic communication</td>
<td>Approaches and operational models for different types of electronic communications; technology, workflow, and vendor considerations</td>
</tr>
<tr>
<td>Attitudes and use</td>
<td>Views from the physician side and the patient side, and potential impact on the physician-patient relationship</td>
</tr>
<tr>
<td>Challenges and evolving solutions</td>
<td>Issues of clinical appropriateness, practice workflow, payment, patient participation, and legal/regulatory considerations</td>
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<td>Emerging “best practices” for email</td>
<td>A compilation of recommended practices from a number of industry groups</td>
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<td>Case examples</td>
<td>Mini case studies of organized programs of electronic communication in different practice environments</td>
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<td>Industry resources, references, glossary</td>
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What Are E-Encounters?

With the increasing technological savvy of both patients and physicians, many communications approaches are now available online. While all of these methods (see Table 1) are useful to patients, practices, or both, only a few include the type of two-way physician-patient interaction that might effectively take the place of a traditional office visit or phone call. For the purposes of this report, such “e-encounters” are defined as:

*A two-way, Web-based exchange of clinical information between a patient and his or her caregiver that involves a closed loop conversation around a particular clinical question or problem specific to the patient. It may be initiated by either the patient or the caregiver.*

Most Web-based tools support both e-encounters and a number of the other electronic communications listed. Much of the discussion in this report, however, focuses on e-encounters, which have garnered the most attention and debate because of their potential for changing the nature of patient care as we generally define it.

An in-depth look at e-encounters in the context of disease management programs is provided in a companion report titled *E-Disease Management.*

Table 1: Which Electronic Communications Are E-Encounters

<table>
<thead>
<tr>
<th>Method/Approach</th>
<th>Purpose of E-communication</th>
<th>E-encounter?</th>
</tr>
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<tbody>
<tr>
<td>Appointment reminder message</td>
<td>Notification to patient of upcoming appointments</td>
<td></td>
</tr>
<tr>
<td>Clinical reminder message</td>
<td>Notification to patient that it’s time to obtain refills for prescribed medications</td>
<td></td>
</tr>
<tr>
<td>Dialog via electronic mail: new problem or medication</td>
<td>Electronic communication between a patient and physician to obtain more information about a new problem diagnosed at a recent visit or a new medication</td>
<td>✓</td>
</tr>
<tr>
<td>Dialog via electronic mail: patient self-management</td>
<td>Physician-initiated dialog with patient about how they are doing with self-management</td>
<td>✓</td>
</tr>
<tr>
<td>Dialog via electronic mail: appointment request</td>
<td>Patient request to physician or physician practice for an appointment and return message giving patient appointment information</td>
<td></td>
</tr>
<tr>
<td>Dialog via electronic mail: prescription refill</td>
<td>Patient request to physician or physician practice for a prescription renewal for a chronic medication and return message notifying patient that prescription has been sent to the pharmacy</td>
<td></td>
</tr>
<tr>
<td>Dialog via electronic mail: self-monitoring status</td>
<td>Physician query to patient about self-monitoring of status and patient response with requested information</td>
<td>✓</td>
</tr>
<tr>
<td>Dialog via electronic mail: test results</td>
<td>Physician notification of patient that all laboratory results from last visit were normal and no other follow-up is required</td>
<td></td>
</tr>
<tr>
<td>Upload from home monitoring device</td>
<td>Transmission of clinical data from home monitoring equipment used by patient to measure weight, blood glucose level, or pulmonary function for physician or case manager review</td>
<td></td>
</tr>
<tr>
<td>Upload from home monitoring device with feedback</td>
<td>Patient-initiated transmission of home monitoring data with either automated feedback/advice on self-management or return message from case manager about same</td>
<td>✓</td>
</tr>
<tr>
<td>Real-time telemedicine consultation over the Web</td>
<td>Remote consultation regarding patient using Web-enabled video</td>
<td>✓</td>
</tr>
</tbody>
</table>
The Value of Web-based Communication

Web-based communication between patients and physicians has a number of appealing characteristics:

*Informal.* Communications can be informal, casual, and relatively personal—similar in style to phone calls.

*Thoughtful.* Email offers both patient and caregiver the opportunity for a more thoughtful, composed response—more like an informal letter rather than the generally spontaneous nature of a phone call.

*Asynchronous.* Because e-communication is asynchronous—both parties do not have to be “live” at the same time—it is less disruptive and more accessible for both physicians and patients. Physicians can effectively batch-process many messages in a short period of time and patients can initiate them any time, eliminating phone tag and the often-protracted delays associated with connecting busy physicians with their busy patients.

*Self-documenting.* Electronic communications can provide a permanent record of communications, if managed with that in mind.

*Relationship enhancing.* For both patients and physicians, electronic communications can increase opportunities for contact between face-to-face encounters, thus strengthening the care relationship.

*Inexpensive.* Unlike mail and phone calls, email communication—once systems are in place—is essentially free.

As applied to different situations, Web-based communication offers a number of potential benefits to the direct participants and the institutional sponsors participating in organized e-care programs.

The extent to which these benefits materialize remains to be seen. Some proponents of e-care anticipate that the value will turn out to be very large; one survey of industry leaders and executives suggested that 20 percent of in-office visits could be eliminated if patients could communicate with physicians or be monitored through the Internet.1

But, as is discussed later in this report, many provider organizations and physicians have unresolved concerns about clinical appropriateness and impacts on physician time and reimbursement; and both patients and providers are concerned about patient privacy and security. The health care industry will only be able to leverage the potential benefits of the new electronic tools if these concerns are allayed.
### Table 2. Potential Benefits to Participants in E-Care

<table>
<thead>
<tr>
<th>Type of E-care</th>
<th>Participant</th>
<th>Physician</th>
<th>Practice Site</th>
<th>Health Plan/Employer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E-communication</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Administrative reminder</td>
<td>• More frequent targeted reminders</td>
<td>• Improved patient compliance</td>
<td>• Reduced cost of routine communication</td>
<td>• Patient satisfaction with care and service</td>
</tr>
<tr>
<td>• Clinical reminder</td>
<td>• Improved compliance</td>
<td>• More proactive communication with patients</td>
<td></td>
<td>• Improved patient compliance</td>
</tr>
<tr>
<td><strong>MD-Patient email</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Clinical</td>
<td>• Increased access to advice</td>
<td>• More productive use of face-to-face encounters</td>
<td>• Reduced administrative overhead</td>
<td>• Patient satisfaction with care and service</td>
</tr>
<tr>
<td>• Administrative</td>
<td>• Ability to avoid unnecessary visits</td>
<td>• Patient satisfaction/retention</td>
<td>• Ability to deliver improved customer service</td>
<td>• Reduction in medically unnecessary visits</td>
</tr>
<tr>
<td><strong>E-disease management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient self-report</td>
<td>• More information for self-management</td>
<td>• More frequent updates on patient status to supplement disease management</td>
<td>• Increased capacity to support organized disease management for targeted patients*</td>
<td>• Patient satisfaction with care and service</td>
</tr>
<tr>
<td>• Home monitoring upload</td>
<td>• More frequent support and feedback</td>
<td>• Opportunity for earlier intervention</td>
<td>• Reduced cost of care due to support and early intervention*</td>
<td>• Increased capacity to support disease management for targeted patients*</td>
</tr>
<tr>
<td>• Outreach/assessment</td>
<td>• Increased access to advice for self-management</td>
<td>• Increased ability to meet needs of chronically ill patients</td>
<td>• Reduced costs of care due to support and early intervention*</td>
<td>• Increased capacity to support disease management for targeted patients*</td>
</tr>
<tr>
<td>between face-to-face encounters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* If sponsor of disease management program

* Applies to physician practice or host provider organization if providing prepaid care to population
I. Approaches to Electronic Communication

Understanding electronic communication—and thus e-encounters—requires considering the types of content in different clinical communications and how the technology and processes are configured. This section reviews current practices and ways that institutional sponsors of organized electronic communication programs acquire the necessary technology.

Message Content

Figure 1 shows the possible types of clinical information that can flow between patients and caregivers.

**Figure 1. Examples of Electronic Communication**

<table>
<thead>
<tr>
<th>PATIENT</th>
<th>PHYSICIAN</th>
</tr>
</thead>
</table>
| **Self-Assessment Reports**  
Electronic report of patient’s clinical status recorded by patient | **Self-Assessment Questionnaires**  
Query by physician to obtain information from patient |
| **Clinical Questions**  
Queries by patient via email | **Clinical Follow-up**  
Responses by physician to patient questions; can include Web links and resources |
| **Home Monitoring Data**  
Electronic results from patient’s use of home monitoring equipment | **Clinical and Administrative Reminders**  
Specific reminders for follow-up care based on patient’s age, disease management group, or appointment |

Although Figure 1 shows the physician as the participant in the electronic dialog, some implementations allow for triaging messages in much the same manner as telephone calls are triaged in physician practices to establish urgency and handle as many queries as possible, without requiring the physician’s
involvement. In addition, in e-disease management applications, the linked caregiver is usually a nurse case manager.

Currently, the types of communication that are supported range from one—typically email between the patient and physician/practice site—to several of the options shown, but rarely all of them. The basic email mode is often used as a first step for physician practices to begin employing more sophisticated models of electronic communication supporting care.

Content of Web-based communication varies widely from practice to practice depending on a number of factors, including physician concerns about appropriateness, whether or not the electronic linkage is part of an organized disease management program, and how the technology is set up to support communication.

Administrative content

Many patients—and some physician practices—handle non-clinical communication via email. Such communications can include:

- Requests and confirmations for appointments.
- Questions and responses regarding bills and insurance statements.
- Administrative issues: changing an address, requesting a camp/school form, or forwarding medical records to another practice.

For these kinds of communications, the technology and workflow in physician practices typically are set up to direct the incoming messages to non-clinical office staff for follow up. The triaging and workflow for these tasks are usually integrated with the process for similar non-electronic requests.

Clinical content

Some of the communications involve the discussion of patient-specific clinical information via electronic mail. Although any topic theoretically could be discussed via the electronic medium, actual practice shows that boundaries are used to define what is appropriate and not appropriate. The most common types of communications allowed within these boundaries are those that would otherwise be likely subjects for phone or letter communication, including:

- Prescription renewals.
- Laboratory results from last encounter.
- Questions about dosage or possible side effects of a prescribed medication.
- Follow-up concerning a diagnosed problem under management.

The diagnosis or treatment of new symptoms is generally not on the list because at least a real-time conversation via telephone, if not a face-to-face encounter, is deemed more appropriate. In addition, many physicians are selective about the specific patients with whom they will engage in clinical email and under what circumstances; these physicians often take into account the clinical context and how well they know the patient.

Clinical electronic communications are being used more frequently for follow-up and routine monitoring of patients with chronic disease. These messages and dialogs tend to center around patient status—either initiated by the patient or the physician—and sometimes involve adjustments to care management based on the new information provided. Figure 1 lists examples of patient situations where this has been applied.
Organized disease management programs may include electronic diaries, questionnaire format patient self-reports, and measurements of physiologic parameters transmitted by home monitoring equipment. Electronic feedback to the patient can include online personal messaging and/or interactive automated feedback based on rules stored in the e-disease management application (e.g., advising patient to consider altering self-management measures or to contact physician).

**Operational Models**

Organizations have a number of options for configuring physician-patient e-communications, including commercial email and specific applications designed to host secure email, as well as other Web-based content and interactive elements. To a great extent, the technology employed determines the management of electronic messages and workflow in the practice site.

**Two email-based models**

Some organizations simply use an industry-standard email package such as Microsoft Outlook or Lotus ccMail installed on a secure organizational server to support physician-patient email. Caregivers communicate via desktop PCs directly with patients who use their own home or work versions of similar email software. This method is easy and relatively inexpensive to implement and universal in its reach. The disadvantage is that messages cannot be easily formatted, triaged, or securely protected. Interoperability—the compatibility of the organization’s email package with those of its patients—may present problems with attachments, formatting, or delivery. (See Figure 2.)

Rather than sending email directly to their physician, patients at some organizations submit emails to a practice-based mailbox (“Westside Clinic”). In these cases, the practice support staff play a greater role in triaging incoming requests, routing them to the appropriate staff person or physician, and tracking all messages to be sure they are attended to in a reasonable time. This more centralized approach mirrors the typical workflow in a physician practice for managing telephone calls and other incoming communication. (See Figure 3.)

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**Figure 2. One-on-One Physician-Patient Email Model**

<table>
<thead>
<tr>
<th>PATIENT</th>
<th>PHYSICIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Initiates email communication to physician</td>
<td>2. Sends electronic notice to patient explaining risks</td>
</tr>
<tr>
<td>3. Confirms consent</td>
<td>4. Physician gathers relevant information from patient record</td>
</tr>
<tr>
<td></td>
<td>5. Physician reviews relevant web and other resources</td>
</tr>
<tr>
<td></td>
<td>6. Sends reply to patient, with resources if relevant</td>
</tr>
<tr>
<td></td>
<td>7. Physician documents information in patient record</td>
</tr>
</tbody>
</table>

*Figure 2. One-on-One Physician-Patient Email Model*
Two models involving communication applications

Using either a vendor-supplied solution or one they build, some organizations employ a special Web application to manage the communication flow. This approach allows organizations to customize the patient-user interface and to link or integrate email with other legacy systems such as the AMR (ambulatory medical record). The application can also include features such as message templates and instructional messages to guide patients in appropriate use and automated routing of messages based on the type of communication they are initiating (appointment request, prescription renewal request, physician question, etc.).

Typically in this model, the patient accesses a personal Web site, which includes other personal health-related features such as content and self-management tools. In some cases, a personal health record is also provided, which allows patients direct access to their medication list, laboratory test results, and other medical record content. The provider organization or health plan sponsoring the service determines the content available. Personal health records contain information entered by the patient and/or derived from claims or clinical systems.

Several vendors now offer Web applications that specifically support physician-patient email in addition to other types of electronic communication. These applications are either interfaced with the email server at the physician’s organization so that mail can be routed directly to the physician desktop, or require the physician to log on to a separate application to retrieve information. Figure 4 provides an example where the application allows the physician or physician practice to send both individual and broadcast messages to patients.

Figure 3. Practice-based Email Model
This approach shown provides an encrypted, secure private channel for delivering email messages. It also offers the ability to employ structured templates that keep messages brief and focused, and often can route incoming messages to the appropriate staff person. On the downside, these applications can come with added costs, technology requirements, and workflow integration challenges if the application is not linked either to the organization's commercial email mechanism or its AMR—making it difficult to route messages and incorporate them into the patient's record.
Some applications integrate email communications and personal health records with the AMR available in the physician practice. Physicians can integrate documentation of e-encounters into the medical record by storing the message exchange or cutting and pasting messages into an electronic encounter note. In many cases, the handling of physician-patient email is managed within the workflow of the AMR system. (See Figure 5.)

This approach provides a single tool for managing and documenting patient email communications, along with notes of telephone care and actual encounters. The prerequisite is obviously an AMR that includes an integrated personal health record module and the major investment required to purchase and implement such a system.
In the context of a disease management program, communications from the patient can include personally recorded information and physiologic measurements transmitted by monitoring equipment. Often the information is communicated to a nurse case manager, who periodically gives the patient’s physician an update. In some cases the information is routed directly to the patient’s physician. In either case, the application typically alerts the responsible caregiver when information and measurements received indicate that patient contact is advised. See Figure 6.

### Home-monitoring model

<table>
<thead>
<tr>
<th>Patient</th>
<th>Service Center</th>
<th>Database</th>
<th>Physician</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A patient with a chronic illness is issued a home monitoring unit to track daily progress, weight, and medications taken. Patient measures and/or records specific status indicators using the device, which uploads the data to the service center via telephone dial-up. Patient may also have access to interactive self-care advice via the monitoring unit or PC dial-up to a secure personal Web site.</td>
<td>2. Patient’s daily information is uploaded into the service center and stored for review.</td>
<td>3. The patient’s information is stored in a database for review, liability protection, and aggregated analysis.</td>
<td>7. Receives alerts when patient status declines and is given a regular summary of patient status/progress often including a flowsheet. If physician is not electronically linked, this occurs via fax, or mail.</td>
</tr>
<tr>
<td>8. If the patient’s status is good, the patient continues to regularly submit condition indicators.</td>
<td>4. The case manager regularly logs onto the system to check patient progress, assisted by alerts flagging situations that require attention.</td>
<td>5. Case manager contacts the patient regularly to deliver general education or as a response to a decline in status, to advise seeking physician care, or provide care instructions (adjust meds, diet, etc.).</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 6. Home Monitoring Model with Case Manager Linkage**
Three Approaches to Connectivity

A common misconception about patient-physician electronic communication is that patient-specific medical information is always flowing over the Internet. In fact, three different approaches are used to connect participants with the supporting applications:

Direct data transfer: Use of a direct dial-up connection via an analog phone line to exchange data. Data are transmitted over the phone lines directly to the sponsor’s application.

LAN dial-up: Similar to direct dial-up connection, but instead of simply uploading data, patients dial into the sponsor’s local area network (LAN) using a PC-based modem, with which they access the application.

Internet access: The user goes through an Internet service provider to a Web site, accessing either a public or secured, private portion of the site. Mobile computing and wireless Web devices can also use the Internet to send and receive information, although application to clinical email and other e-encounters is still experimental.

Several approaches are used to reach patients with messages. These include response to their personal email account, posting on the personal Web site for patient pick-up, or a notification message advising patient to check for new messages or information on their personal Web site. Many vendor solutions rely on either of the latter two designs. Physicians are typically connected by integrating patient messages into their email in-box or by requiring them to log onto a separate application to send, receive, or review information. Connections to the application may occur through any of the three approaches at left.

CASE IN POINT

CareGroup combines email with personal health record

Boston’s CareGroup developed its own Web application to support clinical email and patient direct access to a personal health record.

- Patients can request appointments, communicate with a physician, request prescriptions and referrals, check benefits and bills, and access medical records.

- Physicians can choose to participate, designate what type of medical information is posted, respond to patients at their own convenience, post explanatory notes, and direct patients to health content.

- CareGroup can send group reminders such as for flu shots.

The PatientSite application pulls data from CareWeb, the organization’s Web-based provider application used to integrate patient data throughout the organization. Patient access is set up by the practice administrator; patients enter a user ID and password to log in. See https://PatientSite.CareGroup.org.

Source: 2,3
Acquiring Technology: Building or Buying

Some organizations build their own Web-based applications to support patient-physician email and other e-encounters. The simplest form is a secure Web site where patients can send messages to their physicians. Some organizations have bundled email with other types of patient support such as educational content, self-management tools, and personal health records. This model obviously expands the possibilities for information sharing.

Many organizations purchase (generally through licensing agreements or on a subscription basis) applications specifically developed for health care. A range of technology solutions supports electronic communication from both the physician and the patient perspective. Their level of complexity and integration with other products and systems varies, as shown in Figure 7.

Applications specifically developed for health care (i.e., not including use of industry-standard email) are summarized with representative products in Figure 8. This is a fluid area of the vendor marketplace, with frequent partnerships, mergers, and acquisitions. (See vendor information, page 45.)

Patient-focused products incorporating a personal Web site typically serve as the patient’s portal to health care information and incorporate a number of elements in addition to electronic communication with the physician. Applications incorporating a personal health record can include information feeds from claims or clinical systems. One design for the latter tightly integrates the personal health record with the AMR used by the patient’s physician. A number of vendors support this integrated approach to physician-patient email.

Figure 8. Vendor Marketplace for Applications Supporting E-communication

<table>
<thead>
<tr>
<th>PATIENT</th>
<th>PHYSICIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient Personal Web Site Including Communication</strong></td>
<td><strong>E-mail Communication</strong></td>
</tr>
<tr>
<td>• CareSteps.com</td>
<td>• Healinx</td>
</tr>
<tr>
<td>• My Health Channel</td>
<td>• Medem</td>
</tr>
<tr>
<td><strong>Patient Communication Integrated with Practice Management System</strong></td>
<td><strong>Patient Communication Integrated with Practice Web site</strong></td>
</tr>
<tr>
<td>• About My Health</td>
<td>• Beansprout</td>
</tr>
<tr>
<td>• MyChart</td>
<td>• The Patient Center</td>
</tr>
<tr>
<td><strong>Personal Health Record Including Communication</strong></td>
<td><strong>Personal Health Record with EMR Integration and Communication</strong></td>
</tr>
<tr>
<td><strong>Electronic Feed (Claims)</strong></td>
<td>• iSolution Patient Online</td>
</tr>
<tr>
<td>• Well Patient</td>
<td>• IQ Health Personal Health Record</td>
</tr>
<tr>
<td>• PersonalPath.com</td>
<td><strong>Self-Reporting</strong></td>
</tr>
<tr>
<td>• I-Return Consumer Health Record</td>
<td>• My Health Record</td>
</tr>
<tr>
<td><strong>Costom User Device</strong></td>
<td>• Personal Health Manager</td>
</tr>
<tr>
<td>• Health Buddy</td>
<td>• CAREvision</td>
</tr>
<tr>
<td>• Well@Home</td>
<td><strong>Monitor-Based</strong></td>
</tr>
<tr>
<td><strong>Patient Personal Web Site</strong></td>
<td>• AlereNet System</td>
</tr>
<tr>
<td>• Compare Care CCM</td>
<td><strong>Disease Management Including Communication</strong></td>
</tr>
<tr>
<td>• My Health Channel</td>
<td></td>
</tr>
</tbody>
</table>
II. Attitudes and Use

Because of broad interest in electronic communication between patients and physicians, a number of surveys have been conducted to look at the extent to which the various models have been adopted, as well as the attitudes surrounding their use (or avoidance).

**The Physician Perspective: Interested But Cautious**

More than half (55 percent) of physicians now access the Internet daily and 64 percent of those use email to communicate with colleagues. A smaller number of physicians online each day are engaging in email communication with their patients. More of the physicians using the Internet each day are interested in using email with their patients in the future and many expect the Internet ultimately to improve communication among patients, providers, and payers.

Reasons cited by physicians for not yet participating in online communication with their patients reflect the same general reasons many provider organizations are not yet supporting email communications. (These challenges—and the practices of early adopters to address them—are discussed on page 24.)

Insight gained from surveys of hospitals and health systems, which are likely institutional sponsors of technology to support email for affiliated physicians, confirm the picture from physician surveys indicating that the current state of early adoption will likely grow.

Figure 9 shows the implementation progress of e-communication functions in 70 hospitals and health systems.
The Patient Perspective: Enthusiastic

More than one-half of the adult population in the U.S. is now online and nearly 40 percent are using email. More join the ranks each day.6

Not surprisingly, the online population sees email as an attractive option for communicating with health care providers. Surveys confirm that, from the patient perspective, emailing their physicians cannot happen soon enough.

Extrapolation from survey results indicates as many as 3.7 million Americans are currently communicating with their physicians via email.7 Estimates of those who would be interested in emailing their physician’s office range from 40 percent to 48 percent8-10 (with 22 percent—33 percent saying “they would be likely to switch their doctor in order to be able to use doctor-provided Web sites or to email their doctors”).8-11

Within two or three years:
- Two-thirds of the workforce will use email.
- Email accounts may outnumber phone lines and TVs.

Source: 6

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Figure 9. Status of Hospital/Health System Implementation of E-communications

<table>
<thead>
<tr>
<th>Service</th>
<th>Full</th>
<th>Limited</th>
<th>Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician-patient communication</td>
<td>6.8%</td>
<td>3.4%</td>
<td>10.2%</td>
</tr>
<tr>
<td>Individual health management report</td>
<td>6.9%</td>
<td>3.4%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Access to patients own medical record</td>
<td>1.7%</td>
<td>5.2%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Personalized health content</td>
<td>3.4%</td>
<td>1.7%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Home-based monitoring linked to records</td>
<td>3.4%</td>
<td>5.2%</td>
<td>8.6%</td>
</tr>
</tbody>
</table>

Source: 5

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Figure 10. Percentage of E-health Consumers Interested in Customized Online Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personalized disease info</td>
<td>82%</td>
</tr>
<tr>
<td>Risk assessment</td>
<td>70%</td>
</tr>
<tr>
<td>Email doctor</td>
<td>59%</td>
</tr>
<tr>
<td>Universal record</td>
<td>59%</td>
</tr>
<tr>
<td>Email reminders</td>
<td>58%</td>
</tr>
</tbody>
</table>

Source: Hospital and Health Networks, March 2000
Growth in email interest and use has been driven by increased consumer demand. In a time-starved culture with busy families and increased job demands, many patients have less patience for taking time off from work, dealing with transportation and parking, then sitting and waiting for a rushed face-to-face visit with a physician—especially if their need for advice can be met in another way. Email represents a better alternative for obtaining help and seeking answers to nagging health questions. In one survey of online users, 60 percent cited forgetting to ask all of their questions when they see their physician as one of their frustrations with health care, and 41 percent cited having to see a physician to obtain information they could obtain by phone or email as a great frustration.\textsuperscript{13} Current users find email an improvement over traditional communication methods, citing “speed, convenience, utility for managing simple problems, efficiency, improved documentation, and avoidance of telephone tag” as its benefits.\textsuperscript{14}

Estimates of online patients who would be interested in emailing their physician’s office range from 40 percent to 48 percent, with 22 to 33 percent indicating that the opportunity to make use of a doctor-provided Web site or email could be enough for them to switch.

Source: 8-11

As a result of privacy concerns, only 7 percent of online users are very willing to store or transmit personal health information on the Internet.

Source: 20

Other benefits may accrue as well, suggest industry observers. Maintaining contact with the physician via email may keep patients more involved in their care and contribute to improved health.\textsuperscript{15, 16} Similarly, increased contact between patients and the physician—particularly before and after visits—might help optimize the value of personal encounters.\textsuperscript{11} In addition, patients may find it easier to communicate about sensitive issues via email, rather than face-to-face in the hurried, intimidating setting of the office visit.\textsuperscript{17, 18} Finally, email communication may help reduce a patient’s sense of alienation from the physician and the medical institution.\textsuperscript{19}

Patients do have some concerns, most notably in the area of confidentiality and privacy. This is particularly true for those accessing email through employer-provided Internet access or through a non-private home email account. Questions can also arise regarding security protections, system access, and data use when a patient’s physician is part of a larger health care delivery or Web service (possibly including email), sponsored by a payer organization.
The Physician-Patient Relationship: A Trend Toward Partnership

What are the long-term prospects for enhancing the physician-patient relationship with electronic communication? Some observers suggest that the move is part of a larger, Web-supported trend toward a more equal “partnership” between patients and their physicians. They point out that as patients gain greater access to Web-based resources, physicians no longer hold a monopoly on health and medical information.

“*The informational asymmetry we traditionally had in the doctor-patient relationship is dead.*”

—Dr. Daniel Sands

Industry organizations are beginning to weigh in on new ways, including Web-supported ways, to enhance the care relationship. The Institute for Healthcare Improvement has initiated a national collaborative to transform the physician practice (Idealized Design of the Clinical Office Practice). Likewise, the Institute of Medicine has made recommendations to move beyond encounter-based care to a continuous healing relationship. According to their Committee on Quality of Health Care in America:

“*Face-to-face visits will likely continue to be an important form of clinician and patient interaction; for many people, some direct human contact is critical to establish and maintain a strong healing relationship. Face-to-face visits also allow the clinician to physically examine the patient and observe the patient’s demeanor. But in many cases, face-to-face visits are not wanted by either clinician or patient, nor are they truly needed. Substituting other forms of care, such as electronic communication, for some face-to-face visits presents an opportunity not only to improve care—make it safer, more effective, patient-centered, and timely—but also to make it more efficient.*”

In addition, several professional associations—including the American Academy of Family Practice, the American Medical Association, and the American Medical Informatics Association—support the appropriate use of physician-patient email. (See Associations/Web Sites page 44.)

Physician proponents of electronic communication have pointed to opportunities for new types of communication. One physician interviewed for this study provided examples: a patient with dementia whose daughter in Israel is kept informed of her status, and a patient suffering chronic pain who finds frequent communication with his physician comforting.

“The ability for patients to have easier, more direct access to what they need far outweighs any concerns people have about lack of voice or face-to-face interaction.”

—a group practice physician
III. Challenges and Evolving Solutions

A number of issues have been raised around substituting electronic communication for other more traditional forms and transmitting patient-identifiable information over the Internet. Wider adoption awaits resolving these issues to the satisfaction of physicians and patients who are still on the sidelines and to the physician groups and health systems who are potential sponsors of organized programs. These concerns are reviewed below, along with approaches taken by early adopters to manage them.

Clinical Appropriateness

Exactly when is it appropriate to substitute email for a live phone conversation or a face-to-face encounter between the physician and the patient? For both early adopters and those still on the sidelines, this is a central question about the wisdom and safety of using e-communication. The discussion and the range of viewpoints is reminiscent of the introduction of the telephone into physician practice.24

Although exact boundaries differ among early adopters, all set ground rules about what does and what does not constitute acceptable uses of e-communication. The following reflect the range of typical positions:

- Some institutions bar e-communication altogether because of concerns about appropriateness and medical liability.
- Others restrict use to questions or follow-up of previously diagnosed problems under management, prohibiting diagnosis and treatment of new problems.
- A third position leaves to the individual physician where to draw the line on appropriateness because the physician knows the patient’s medical history and can judge each situation in much the same manner that physicians manage what they can accomplish in a telephone call and when a face-to-face encounter is warranted.

In programs organized by a physician group or health system, particularly sensitive clinical conditions and topics are generally out of bounds, and patients are advised that any urgent issues need to be addressed by a telephone call rather than an email. For other policies recommended by a number of industry groups, see page 34.
Enforcement of institutional policy around clinical appropriateness is addressed through combinations of technology and operating procedures, including:

- Incorporating instructions in patient consent agreements and patient training.
- Displaying reminders about appropriate use in all e-communications with patients.
- Using message templates to guide the subject matter and specific content of messages.
- Disenrolling from email patients who have difficulty following the ground rules.

**Physician Workload and Productivity**

The impacts of e-communication on physician productivity are not well understood because published reports of experience are rare and formal research almost non-existent. One randomized control study is underway at the University of Michigan (funded by Intel). Begun in 1999, this study investigates the impact of physician-patient email on the physician practice, as well as the satisfaction of patients and physicians with its use. In the meantime, anecdotal accounts from the literature and interviews are the best available information.26

“It’s all too easy for someone sitting up at midnight to think up questions and hit the ‘send’ button. Then there it is in my mailbox and what am I going to do with it?”

— a physician skeptic25

Concerns center around the potentially unmanageable volume of messages and the time required to respond. On the issue of message volume, individual physicians report that patients are reasonable and do not flood a physician practice with messages:

- One family practitioner in Columbia, South Carolina, receives 8 to 12 emails per day.27
- A Stanford Medical Group physician receives 20 to 30 emails per day.21

However, wide variation in protocols related to enrolling patients, triage, and the content of messaging from practice to practice make it difficult to generalize from anecdotal reports such as these.

According to the only published study on the workload impacts of physician-patient email, it takes slightly less than four minutes on average to answer each email consultation request.18 Other anecdotal reports include the following:

- One practice received twice as many patient emails as phone calls, but said that responding to emails is much less effort.15
- Fifty percent of the 800 patients in an Ann Arbor, Michigan practice use email; it takes less than two hours per week for the physician to answer the 20 to 30 messages received.19
- One physician early-adopter interviewed for this study receives 2 to 3 messages a day from a patient population of 300 (all using email). On average, the physician spends 10 to 15 minutes a day responding to patient emails. Extrapolating this physician’s experience to one with a patient population of 2000, the physician would receive 20 to 30 messages a day and spend 60 to 90 minutes handling it.
A physician practice in Orange, California realized substantial cost savings with the implementation of patient email communication. According to this physician, “Email helped us make quantum leaps in office efficiency and patient goodwill.”

“Although 340 patients registered for email, only 160 actually use it. The physicians found that they only received 1 to 2 messages per day on average.”

—an email pilot with three physicians

Early anecdotal experience from the ID-COP (Idealized Design of the Clinical Office Practice) collaborative indicates that phone call volume declines with use of email and that managing email messages does not add significantly to physician workload.

Final answers on questions about physician workload and productivity await more industry experience and investigation.

“As email increases, other transactions decrease; email is an easier transaction to handle.”

—an independent family physician

**Paying for E-Encounters**

One of the most-cited reasons for physician resistance to e-encounters is the lack of reimbursement from health plans and payers. Proponents of e-communication point out that physicians have never been reimbursed for telephone care and that they ultimately control what they communicate with which patients. Furthermore, they say, physicians in a capitated environment may find financial reward in the long run if they are able to utilize face-to-face encounters more effectively.

Nevertheless, clarifying payment for e-encounters remains an important issue for many physicians. Potentially, institutional sponsorship and reimbursement for e-encounters can come from a variety of sources, including: health plans/payers, employers, and provider organizations.

Although payers have not historically reimbursed physicians for patient-based email, two recent developments are noteworthy:

– One PPO (The First Health Group) has begun paying $25 for “e-visits” conducted between patients and physicians over a private intranet email system. This reimbursement mechanism is intended to encourage physicians to interact more frequently with chronic-disease patients. 28-30

– Blue Shield of California is rolling out the Healinx secure messaging system to all its physicians in California to support physician-patient communication. And while they do not yet reimburse physicians for its use, they are supporting physicians in charging patients a $10 copayment, and are investigating the possibility of a $25 physician reimbursement.29

Others in the industry are watching these early experiments with reimbursement with great interest.
“We see 30 patients a day. When do we do this email thing?”

—a physician skeptic

On the buyer side, several employer consortia have begun supporting e-encounters in an effort to better control their health care costs. Here are two recent examples:

– The Silicon Valley Employers Forum in California is piloting a program to encourage the use of email communication between physicians and their patients in an effort to curb costs and improve employee satisfaction and quality of care. This employer group will employ Healinx to present patients with formatted templates to guide and prompt their queries. Physicians will be reimbursed $20 per e-encounter.

– The “Dr. Goodwell” initiative in Seattle is launching Web-based videoconferencing between Microsoft and Bellevue Medical Center to reduce Microsoft employees’ lost work time due to travel to the physician office. Microsoft plans to reimburse physicians for their use of this technology on the assumption that it will keep their employees healthier in the long run and will actually be less expensive than the lost work time they would otherwise experience.

None of the organizations contacted for this study were receiving reimbursement for clinical email or e-disease management communications. Most were in a pilot or early rollout, having begun with physician volunteers who are likely to be more enthusiastic than some of their peers.

In one case, the physician leader of the effort cited lack of reimbursement as the single biggest challenge in achieving widespread adoption.
(An interesting side note is that physicians in this organization had been unwilling to sign on to a prior effort in which patients would be charged.)

Workflow Integration

Integrating physician-patient e-communication into the workflow of a busy office practice is a daunting, but necessary, task. While some organizations structure their mechanisms so that physicians receive emails directly from patients, others set up general delivery mailboxes so that messages can first be triaged by nursing or office staff and routed to the appropriate person for follow-up (similar to the way incoming phone calls are often handled). Such general delivery mailboxes might simply say “Westside Clinic” or “Dr. Jones’ Practice,” or might even provide separate email addresses by function (“Westside Appointment Requests” or “Westside Prescription Refills”).

“As a stand-alone system in my office, email caused more problems than it solved. Often, in responding to patients’ emails—with a prescription, for example—I would have to log off the system and resort to manual operations. So much for efficiency.”

—a frustrated physician
Other important decisions related to workflow must be addressed by an organization considering physician-patient e-communication:

**Will physician use of electronic communication be optional, or will all physicians in the organization be required to use it?** Physician use in most practices starts with one or two volunteer physicians before spreading to the rest of the practice. Early adopters advise that going beyond volunteer users to an organization-wide effort may require active recruiting of physicians based on the demonstrated results of their peers.

**How will patient email addresses be stored and maintained (whether on desktop PCs or a central server)?** In making this decision, it is important to consider the following: (1) if addresses are stored in the patient’s paper medical record, there can be errors in re-typing the address into the email system; (2) storing addresses in a field in the automated medical record, practice management system, or master patient index can be effective, though integration with the organization’s email system might still be problematic; (3) most organizations have physicians store addresses within the email application itself (often in a specific Patient Address Book), but physicians must take precautions to select the correct patient name from among the many in the listing.

**For organizations that seek formal consent from patients who use e-communication, how will consent be obtained initially and how will it be verified each time physicians communicate with their patients?** Such a process can become complicated and unwieldy, even undermining some of the attributes such as speed and informality that make email so attractive.

**How will user names and passwords be managed at organizations that use a proprietary email program?** When the technology requires assignment of patient passwords, there are operational challenges for new patients and those who lose their passwords. At least one major health system cites password maintenance as a major reason for not proceeding with clinical email beyond a carefully studied pilot.

**What standards for turnaround time will be maintained?** E-communication etiquette (as for phone calls) generally requires a one-day turnaround. But some organizations advise patients not to expect responses in less than 72 hours (to allow for weekends and to discourage use of email messages for urgent problems or questions).

**For organizations that decide to store physician-patient communications in patients’ medical records, how will this be accomplished?** Will the appropriate communications be routed to some centralized person or to Medical Records for printing? Most organizations adopt similar guidelines to those used for documentation of telephone care to guide what needs to be saved and have physicians print the message chain for filing.
Patient Participation
Given patients’ strong and growing interest in online communication, the challenge for physician practices is identifying the approaches that will most effectively engage and support them. A number of decisions must be made in the areas of recruiting, training, and supporting patients who take part in electronic communication programs.

Recruiting patients
Nearly all practices employing e-encounters pilot their approach with a sub-population of patients. Those interested in e-encounters tend to come forward in both passive and proactive ways:

*They self-identify.* Some physician practices post notices at their reception desk and in the waiting and exam rooms announcing the availability of email or other e-communication, spurring interested patients to identify themselves. An announcement on the practice’s Web site, in the practice’s newsletter, or via a letter mailed to patients’ homes can also be effective. Even without such promotion, patients will sometimes ask their physicians during an office visit or phone call whether e-communication is available. Others search out their physician’s email address and simply begin sending him or her messages.

*They are chosen by the physician or practice.* Some physicians proactively identify the patients they feel might be appropriate for electronic communication. These patients are usually handed an information sheet or business-card-sized explanation of the appropriate uses and protocols for email.

*They are targeted by the physician or practice for certain diagnoses or risk factors.* The most advanced physician practices identify such patients and solicit their involvement in an e-disease management or other electronic communications program.

For physicians who worry about too many patients signing up, experience from early adopters suggests that only relatively small numbers of patients are interested, even when all are invited. In case examples collected for this study, one practice estimated that only 2 to 3 percent of patients email their physicians, while in another only 15 percent signed up, with many fewer actually using email.

Training patients
The type and level of patient training and education required for e-communication depends on the approach used. Practices that use Internet email typically distribute an information sheet or business card containing guidelines. Most of the vendor-based approaches are so intuitive that special user training is not needed; in other cases, the practice sends out a brochure with instructions to facilitate the program’s use.

Some e-disease management applications—such as those involving home monitors or computers given to patients without computer experience—require home training and/or installation assistance.

Supporting patients
In smaller physician offices, either the administrative support staff handling phone calls and incoming emails, or the practice director/office manager, help solve patient email problems and questions. Since these staff often triage incoming emails anyway, they make the most likely candidates for this patient-support role.

In large provider organizations and when vendor solutions are used, a Help Desk may be provided by the host organization or vendor.
Legal and Regulatory Issues

Practices engaged in physician-patient e-communications need to stay abreast of four topics related to legal and regulatory requirements:

Technology and security—the methods and technologies for protecting access to physician-patient communications;

Patient privacy—decisions about who should have access to patient-based information;

Medical records—Whether and how organizations should consider documenting physician-patient communications in the patient record; and

Medical practice liability—I issues affecting risk management and physician liability.

Technology and security

The security of physician-patient email is predominantly driven by two issues: regulatory requirements (the most significant of which is HIPAA, the Health Insurance Portability and Accountability Act of 1996) and technical capabilities. HIPAA sets forth requirements for the security and privacy of patient-identifiable information stored electronically. While final recommendations for the security of patient-identifiable information under HIPAA have not yet been released, it is clear that organizations using physician-patient email need to consider several new requirements to protect access to and transmission of patient-identifiable information. Likely required will be guidelines that forbid sharing of email accounts and passwords, disciplinary policies for inappropriate use of email or breach of patient confidentiality, and technical capabilities that ensure secure, point-to-point transmission of all patient-identifiable information.

While HIPAA security requirements move toward approval, most users generally lack the ability to encrypt or securely "scramble" and protect email messages in transmission. For vendor applications where patients and physicians are communicating within the confines of the application (i.e., they each log onto the application with a secure username and password), encryption is not an issue. But for Internet-based email, it usually is. Although the American Medical Informatics Association (AMIA) recommends wide adoption of encryption “as soon as practicable,” the current industry standard for encryption (i.e., 128-bit) is not yet widely available at the user desktop or practical from an administrative or management perspective. In the meantime, HIPAA may yet present interim guidelines and recommendations for secure transmission of patient information that will gradually migrate the industry toward an encryption standard.

Separate from HIPAA and other security requirements, there are technical issues that challenge the reliability of physician-patient email. Without solid network communication and email server capability, problems with system availability, delays in message delivery, or loss of messages can occur. An experienced network administrator—or email support that is reliably outsourced—can minimize these problems. Wireless email communication presents special technical and security issues.
Solid technical expertise is essential to creating and supporting email archiving and storage approaches. For example, not all messages are saved indefinitely on most email servers or applications; an email administrator needs to determine how frequently to back-up the main server files to protect the organization in case of a server failure. Regular archiving of older email files also needs to occur on a regular basis. Whether these files are archived onsite or stored remotely, and whether such files can still be accessed on desktop PCs, needs to be determined. An organization’s legal counsel should make a determination regarding the length of time that archived emails should be kept. For organizations that consider email an integral component of the medical record, email retention must match that of the medical record.

Patient privacy
The privacy of patient-identifiable health information has been the subject of much debate thanks to the pending HIPAA privacy rules. While the rules have yet to be enacted, they will likely guide more than any other federal action how quickly email and e-encounters are adopted by physicians. Early interpretation of the privacy rules suggests several steps that physician practices should consider taking if they employ physician-patient email:

Patient notification. Under HIPAA privacy, physician organizations will need to inform their patients about all of their practices related to the use and protection of patient information. This notice of patient privacy must include an explanation of the routine uses and disclosures of patient information, the steps that the organization takes to protect patient information, and the recourse patients can take if they feel that information about them is incorrect or is shared inappropriately. This is likely also the appropriate venue for informing patients about the organization’s practices regarding email.

Patient consent or authorization. HIPAA privacy rules may in certain cases require that physician organizations obtain consent or authorization from patients for the further use and disclosure of their information. While HIPAA is not likely to require organizations to gain patient consent for exchanging email between patients and their own physicians, it may still be wise to adopt such an approach in this new HIPAA climate as some practices have already done.

History of disclosures. Both the security and privacy components of HIPAA grant patients the right to obtain a history of the disclosures of their information that an organization has made over a certain period of time. While not all uses and disclosures of patient information may ultimately be covered, organizations should begin to prepare for such a requirement—at least by restricting access to electronic patient information and ensuring methods for identifying the individuals who have used or accessed this information.

Medical records
If a practice decides to document physician-patient email communications in patients’ medical records, a whole new workflow element must be considered. Often this decision can be guided by legal counsel (see next topic). Says legal expert Alissa Spielberg: “A failure to preserve all such medical record information [communication that is generated by or about the patient] may constitute malpractice if a patient is harmed by a health care practitioner’s actions that result from mistaken assumptions about the medical record.” This is not unlike some medical/legal views held about documentation of clinically significant telephone calls.
Organizations with an automated medical record system must determine where these email communications are stored in the record and who has access to retrieve them. Since most organizations lack an automated medical record system, the approach involves printing out email correspondence to file in the paper chart. Several associated questions arise:

- Will all email communications be saved or just those that are deemed of significant clinical relevance? How do physicians determine “significant clinical relevance”?
- Should both incoming and outgoing messages be printed and filed?
- Should patients have the right to determine which messages (or portions thereof) are saved in the medical record? (It should be noted that most organizations do not grant patients this option given the complexity of implementing such a variation, and instead inform patients up front that all email communications become part of the medical record.)

Medical practice liability

Maintaining documentation of all e-communications could either increase or decrease physician liability. There have been attempts to admit email communication as evidence in malpractice suits.\(^3\)\(^4\) Organizations should understand that: (1) admission of emails in a court of law could occur whether or not emails are officially included in the patient’s medical record; and (2) even emails deleted from a physician’s desktop PC might still be recoverable from the PC’s hard drive.

Other medical/legal and risk management issues—many of which have been well-documented and discussed by Spielberg\(^1\)\(^7\)\(^,\)\(^3\)\(^3\)—should also be considered, including:

- Emails, particularly when they are transmitted over the public Internet or reside on an organization’s email system, are at risk of being accessed inappropriately by unauthorized users.
- Information can be inadvertently sent or forwarded to the wrong person if physicians addressing patient emails do not take precautions. Witness the incident at Kaiser Permanente whereby 19 members inadvertently received via email potentially sensitive information intended for 858 other members.\(^3\)\(^5\)
- An organization is at risk of receiving inappropriately sent urgent clinical messages from patients, particularly if no mechanisms exist for warning patients up-front or responding quickly to these messages if they are received.
- Interstate communication by physicians with patients may be problematic from a licensing perspective. According to Spielberg, “When physicians transmit email messages across state lines for the purposes of rendering medical advice, they may be unwittingly practicing medicine without a license.”\(^3\)\(^7\) Use of email within a state, however, is not generally deemed problematic since “state medical boards have not promulgated regulations specifically related to email in the physician-patient context.”\(^3\)\(^4\)
- Since emotions can be difficult to express in email and easily misinterpreted, physicians should exercise caution regarding use of angry, critical, sarcastic, or libelous third-party-reference language in email messages to patients.
Because the right of employers to access employees’ email has been upheld by some courts,15 patients should think carefully before using their employers’ email systems for communicating with physicians about personal health issues.

Though no cases of email malpractice have yet come to light,36 physician-patient email communications must not become an inappropriate substitute for direct patient care.

To protect against all of these risks, policies and procedures—particularly in the area of security—should be worked out and documented in advance for both staff and patients so that the rules, limitations, and risks of email use are clear. Eventually, physician use of email to communicate with patients will likely become less problematic (as was the case for phone communication). In the end, Spielberg predicts that “clinical email use will be governed by evolving norms, particularly regarding expected response time… Physicians who are not prepared to respond to email regularly may decide not to offer it to their patients.”33

It is important to note that in addition to clinical and service benefits of physician-patient email, there are additional advantages from a medical/legal perspective as well. Says AMIA: “Since many malpractice claims can be traced to faulty communication, good communication is part of good insurance.”16
A NUMBER OF PROFESSIONAL GROUPS HAVE produced guidelines for the use of physician-patient email, although the same principles can apply to other types of e-communication.

As organizations seek to deploy physician-patient email, an essential step is establishing guidelines and communicating the expectations and limitations of email to both patients and physicians. Several organizations and individuals have published their recommendations for guidelines, including the American Academy of Family Physicians (AAFP), the American Medical Association (AMA), AMIA, Dr. Sands, and Alissa Spielberg. The following is a compilation of these recommendations.

**Patient and physician preferences.** Just as physicians should ask patients how they wish to be notified of test results, they should also ask how they would like to communicate about general health issues and questions. A patient’s response may differ for different times and situations—not unlike asking whether it is all right to call work or home given potential privacy issues. Other guidelines related to physician preferences might include:

- Consider offering email to some but not all patients in a given practice.
- Use a phone call or visit for lengthy exchanges and questions. (AAFP takes an overall cautionary tone, listing face-to-face communication as the preferred method, followed by telephone communication.)
- Remind patients of the “rules” if necessary.
- Consider terminating the email relationship if the patient is unable or unwilling to abide by the guidelines set forth by the organization.
Patient notification. Notification of protocols and risks can take one of several forms, ranging from formal to informal methods:

- Obtain explicit, signed, documented consent with agreement from the patient and file in the medical record.
- Create an information sheet or brochure on email guidelines and practices to be mailed or made available to patients.
- Include email guidelines and practices in the email footer or “signature line” for all outgoing messages and replies.
- Place abbreviated guidelines and practices on the back of business cards.
- Provide verbal explanations to patients as necessary and document discussion in the patient’s medical record.

Appropriate uses for email. Physician-patient email programs typically include the following:

- Prescription refills.
- Test results.
- Appointment requests and reminders.
- Insurance questions.
- Routine follow-up inquiries.
- Reporting of home health monitoring/self-management for chronic disease.

Inappropriate topics for email. Most physician-patient email programs do not use email for discussions related to:

- Mental health.
- HIV/AIDS.
- Substance abuse.
- Confusing or abnormal test results.
- New diagnoses.
- Bad news.

Urgent communications. Physician-patient email is not appropriate for urgent or time-sensitive issues (especially medical emergencies); for these, patients should telephone the office. Many organizations repeat these messages as often as possible in templates and sign-on screens. In addition, the organization should:

- Spell out its emergency and escalation procedures.
- Establish an expected turnaround time for patient email responses and inform patients that if they do not hear back within that time period to call the office.
- Clarify their hours of operation (for example, will email be answered during evenings, weekends, vacation, or when a physician is out sick?).
- Use the “out-of-office auto-reply” feature available in most email systems when the physician will not be responding to messages.
Security issues. Patients should be informed about security issues. Practices cannot assume that patients who use email for other purposes understand the security implications in the medical context. Organizations should request patients to:

- Avoid email communication for sensitive or confidential topics due to the risks of forwarding, interception, and unintended receipt of email.
- Use caution when emailing from employer or shared residential PCs.
- Be aware of the security policies and mechanisms that have been put in place at the organization to reduce risks to the patient.
- Understand that the organization is indemnified against unforeseen problems such as network failure.

Information about procedures. Patients should be informed of the office’s general practices for using email. For example, patients should be told that:

- Other staff in the physician office may handle or see patient messages.
- All email messages are filed in the patient’s medical record.

Formatting emails. Standardized formatting increases efficiency of email programs. Patients should be asked to:

- Include the full patient name and identification number in the body of the message.
- Use the subject line to identify the purpose of the message (prescription refill, appointment, test results, insurance/billing question, medical advice).
- Include the original message in any reply.
Physician users and physician leaders were interviewed from a number of physician practices and health systems with organized programs supporting e-communication. Several operational models are described in these case examples. Lessons learned and advice that came from the interviews have been integrated into the body of this report.

**LARGE REGIONAL HEALTH SYSTEM**

**Organizational Information:**

Three out of 210 employed physicians in a seven-hospital health system have been using email with their patients for a year and a half. With access to an ambulatory medical record (AMR), these physicians are piloting use of email through a patient portal offered by the medical record vendor. Patients volunteer to exchange email with their physicians; about 15 percent of the patients of the three physicians have signed up, although not that many use it on a regular basis.

**System Configuration/Workflow:**

Patient emails are received at a central mailbox for triage. A medical assistant forwards clinically relevant messages to the appropriate physician mailbox. The first version of the product these physicians tried required them to manually add messages into the medical record; in the current version messages are posted automatically.

**Patient Consent:**

Formal consent is obtained with a signed form.

**Reimbursement:**

None

Physicians involved in the pilot in this practice use email for:

- [x] Prescriptions
- [x] Test Results
- [x] Visit Follow-up
- [x] Patient Questions
- [x] Insurance/Billing Issues
- Home Health Monitoring/
  Disease Management Reporting
- [x] Appointment requests/Reminders
SMALL PHYSICIAN PRACTICE WITH ACADEMIC AFFILIATION

Organizational Information:
Two physicians in this small group practice have been using email regularly with their patients. Email is offered through a patient portal sponsored by a parent organization. It was piloted in February 2000 and is now available to many physicians affiliated with the health system. The two physicians in this practice offer email to all their patients, but so far have only seen it taken up by about 10 percent of their patient population.

System Configuration/Workflow:
The patient portal offers physicians different options for system configuration, so messages can either be triaged or sent directly to the physician. This email product offers patients a choice of subject headings to enable automatic routing of messages. For example, an appointment request would be sent directly to the administrator or front desk mailbox instead of to the physician. In this practice, an office manager and the physician view the same mailbox, and the office manager filters off administrative items. The physician interviewed wanted to “err on the side of seeing more,” noting that most of the messages are clinical questions for him in any case. Patient messages and physician responses are archived in the system, but they are not posted in the medical record.

Patient consent:
Formal consent is obtained with a signed form.

Reimbursement:
None (although the practice has a number of capitated patients).

The two physicians in this practice use email for:
✓ Prescriptions
✓ Test Results
✓ Visit Follow-up
✓ Patient Questions
✓ Insurance/Billing Issues
✓ Home Health Monitoring/Disease Management Reporting
✓ Appointment requests/Reminders

INDEPENDENT FAMILY PRACTICE

Organizational Information:
In a private family practice with eight full-time physicians and five physician assistants in two offices, three of the doctors have been using clinical email for six months. The pilot program is conducted with patients who have volunteered, representing about 2 to 3 percent patient participation. The practice uses a commercial email product; they are working with their AMR vendor to incorporate messaging, but that is not yet available.

System Configuration/Workflow:
Messages in this practice are triaged through the practice administrator. Administrative items, such as appointment requests, are transferred to paper; clinical items are routed to the physician. Messages are documented in the medical record manually through cutting and pasting. Physicians schedule time for emails and other messages by counting messaging as every third patient. Thus messages are generally taken care of every 30 minutes and physicians are not overwhelmed.

Patient consent:
Formal consent is obtained with a signed form.

Reimbursement:
None (although the practice has a significant number of capitated patients).

Physicians in this practice use email for:
✓ Prescriptions
✓ Test Results
✓ Visit Follow-up
✓ Patient Questions
✓ Insurance/Billing Issues
✓ Home Health Monitoring/Disease Management Reporting
✓ Appointment Requests/Reminders
SMALL GROUP PRACTICE WITH ACADEMIC AFFILIATION

Organizational Information:
This practice, with a total of 25 individual physicians or eight full-time equivalent physicians, has been using clinical email since 1997. Email is offered to all patients, but the percentage that choose to participate is not measured. The practice is currently using a commercial email product, but they are also piloting a vendor-supplied patient portal that will integrate messaging with registration, billing, and scheduling, as well as with the electronic medical record.

System configuration:
Currently, patient messages are sent directly to the physician's personal mailbox. With workstations in every exam room and nursing station, physicians can handle messages several times a day. Some physicians leave their mailbox open all day with the screen protecting access. Physicians print and paste any messages that are clinical and relate to patient care to the medical record. When the portal is available, messages will be sent to a central mailbox and automatically posted to the patient's electronic medical record.

Patient consent:
No formal consent is obtained, although the physicians do print guidelines for using clinical email on the back of their business cards and distribute them to patients. (The patient portal will obtain formal consent.)

SINGLE-PHYSICIAN RURAL FAMILY PRACTICE

Organizational Information:
This practice is affiliated with a regional medical center. The patient email program is not particularly formal in terms of patient publicity; instead patient candidates are identified or come forward and many patients are using this communication method.

System Configuration/Workflow:
Messages were originally directed to the physician's mailbox in Microsoft Outlook, but now patients are directed to send messages to a general practice mailbox. Incoming messages are triaged by the practice support staff who handle administrative issues themselves and route clinical questions to either the nurse or the physician.

Patient Consent:
No formal patient consent is obtained.

Reimbursement:
No reimbursement is currently received.

This practice uses email for:
✓ Prescriptions
✓ Test Results
✓ Visit Follow-up
✓ Patient Questions
✓ Insurance/Billing Issues
✓ Home Health Monitoring/
  Disease Management Reporting
✓ Appointment Requests/Reminders
ACADEMICALLY AFFILIATED FAMILY PRACTICE

Organizational Information:
The physician interviewed, who spends a good deal of time on academic duties, has a small family practice in which he has been emailing with all 300 of his patients since 1997.

System Configuration/Workflow:
Most patients send messages directly to the physician’s mailbox, although a small number use a vendor product that provides secure messaging for clinical email. Because the practice is small, the physician can handle any appointment requests or messages that require a face-to-face follow-up by scheduling appointments himself. By logging onto email twice a day (once a day on weekends and when traveling), this physician is able to respond in a timely manner and prevent any significant backlog. To document these interactions in the patient record, the physician prints the messages and adds the paper copy to the medical record.

Patient Consent:
Although the physician discusses the use of email with patients verbally, no formal consent is obtained.

Reimbursement:
The physician has not received any direct reimbursement for time spent emailing with patients. He does note, however, that because some of the initial dialog (such as history-taking or administrative details) has already taken place through email, he can charge a higher billing code for follow-up visits, which are sometimes shorter because of the prior email dialog.

This physician uses email for:
✔️ Prescriptions
✔️ Test Results
✔️ Visit Follow-up
✔️ Patient Questions
✔️ Insurance/Billing Issues
✔️ Home Health Monitoring/
  Disease Management Reporting
✔️ Appointment Requests/Reminders

LARGE MULTI-SPECIALTY PRACTICE

Organizational Information:
This 400-member multi-specialty practice, part of a larger health system, is piloting a secure messaging system. In the first phase (which began in January 2001), six physicians and 60 physician-selected patients are using the messaging system provided by the vendor of a personal health record. In the second phase (which began at the end of March 2001), the system expanded to about 500 patients.

System Configuration/Workflow:
Through the secure Web site, patients can select a variety of messaging options, including requests for medical advice, a prescription renewal, an appointment, and customer service. These requests are routed to the appropriate mailbox. One of the system’s advantages is that the format of the message can be controlled. For example, to request a prescription renewal, the patient views his or her own medication list and checks off those that need to be renewed. Clinical messages and prescription renewal requests are routed to an advice nurse who can triage the messages for the physician and in some cases provide protocol-based responses. Messages are automatically documented in the medical record as part of the patient encounter history.

Patient Consent:
Consent is obtained through a signed form that includes a discussion of procedures and cautions.

Reimbursement:
None at present, though the practice is considering a few options such as a subscription model or charging co-payments when the e-consultation can replace a visit.
Appendices

Appendix A: Contributors
Appendix B: Reference Articles
Appendix C: Associations/Web sites
Appendix D: Vendor Information
Appendix E: Glossary
Appendix A: Contributors

A number of individuals graciously contributed their time in sharing their own experiences with e-encounters with the research team. We appreciate their insight and wisdom.

Charles Burger, M.D. and Linda Turner, Practice Administrators, Bangor Maine

Ed Enos, Administrator, Latham Medical Group

Jan Feder, Quality Management Coordinator, and others, MeritCare Health System

Richard Gibson, M.D., Medical Director Information Services, Providence Health System

Karen McKinley, System Vice President, System Access and Care Management, Geisinger Health System

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Paul Tang, M.D., Chief Medical Information Officer, Palo Alto Medical Foundation

Philip Trifletti, M.D., Associate Medical Director, Beth Israel Deaconess Medical Center

Amy Weinschenk and Ann Droun, Martins Point Healthcare
Appendix B: Reference Articles

A number of articles published recently in the major professional and trade journals are good resources on the topic of physician-patient email:


Bell, Howard. “You’ve got mail,” e.MD, Spring 2000.


Mangan, Doreen. “Save time and please patients with e-mail,” Medical Economics, July 12, 1999.

Morasch, Laura Johnson, MPH. “Making the most of physician-patient e-mail,” Hippocrates, November 2000 (available online at http://www.hippocrates.com/archive/November2000/11features/11feat_email.html).


Fortunately, there are a number of professional organizations and early industry leaders who have given serious thought and consideration to physician-patient email. The following table lists the essential authoritative resources for understanding physician-patient email; each of these resources includes detailed guidelines for deployment and use.

**Table C1: Physician-Patient Email Resources**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Web site</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAFP—The American Academy of Family Physicians (1999, with link to AMIA guidelines)</td>
<td><a href="http://www.aafp.org/fpnet/email">http://www.aafp.org/fpnet/email</a></td>
</tr>
<tr>
<td>Dr. Daniel Sands, CareGroup, Boston, Massachusetts</td>
<td>• <a href="http://clinical.caregroup.org/ePCC">http://clinical.caregroup.org/ePCC</a></td>
</tr>
<tr>
<td></td>
<td>• <a href="http://www.informatics-review.com/thoughts/pat-email.html">www.informatics-review.com/thoughts/pat-email.html</a></td>
</tr>
<tr>
<td></td>
<td>• At <a href="http://www.mahealthdata.org/">http://www.mahealthdata.org/</a>, go to link for Patient-Centered Email Guidelines</td>
</tr>
</tbody>
</table>
Appendix D: Vendor Information

Vendor and contact information is provided below for the vendor e-encounter products listed previously in Figure 8. This is not a totally comprehensive list although an attempt was made to identify vendors active in this space for sufficient time to have solutions actually implemented. This is a very volatile market, with new partnerships, mergers, and entrants continually being announced, as well as some companies withdrawing from the marketplace. The information is believed to be current as of mid-2001. Products have been grouped according to the overall organization in Figure 8:

- Focused primarily on physician-patient communication,
- Disease management, including communication, and
- Personal health record, including communication.

**Patient Communication**
CareSteps.com, CareSteps, Inc., http://www.caresteps.com
MyHealthChannel, iMetrikus, www.imetrikus.com
The Patient Center, Salu.com, www.salu.com

**Disease Management Including Communication**
Compare Care CCS, Advance Med, www.advancemed.com
Health Buddy, Health Hero Network, www.healthhero.com
Primary Source, PhDX Systems, www.phdx.com
Well@Home, Patient Care Technologies, www.ptct.com

**Personal Health Record**
AboutMyHealth.com, Medscape, www.aboutmyhealth.com
CAREvision, HEALTHvision, www.healthvision.com
I-Return Consumer Health Record, I-Beacon, Inc.,
www.i-beacon.com
MyChart, Epic Systems, Inc., www.epicsys.com
My Health Record, WebMD, www.webmd.com
iSolution Patient Online, IDX, www.idx.com
PersonalPath.com, Personal Path Systems, Inc.,
www.personalpath.com
IQ Health Personal Health Record, Cerner Corporation,
www.cerner.com
Well Patient, www.wellpatient.com
Appendix E: Glossary

AAFP—The American Academy of Family Physicians has been interested in physician-patient email issues for some time (as witnessed by articles in Family Practice Management and Hippocrates magazines) and put forth the AMIA guidelines for clinical use of email with patients as their recommended source on the topic.

AMA—The American Medical Association adopted guidelines in 2000 for electronic mail between physicians and patients.

AMIA—The American Medical Informatics Association was the earliest professional group to issue guidelines for physician-patient email.

AMR—Ambulatory Medical Record. A physician practice-based computer system for storing, managing, and retrieving electronic patient health information that typically resides in a paper medical record. The most advanced versions of an AMR offer capabilities for data analysis and reporting in support of population health improvement and disease management; some provide secure electronic communication between patients and physicians via the Internet.

Case Management—Assignment of a nurse or other professional to assist identified patients through an episode of care. In the context of disease management, the case manager provides education, support, and outreach to patients, in some cases including home visits and assistance with arranging for needed medical and community services.

Disease Management—A coordinated and proactive approach to managing care and support for patients with chronic illnesses such as diabetes, congestive heart failure, asthma, HIV/AIDS, and cancer. See also E-Disease Management.

Electronic Communication—An general term describing a broad range of communications between patients and physicians, accomplished largely through electronic mail.

E-Disease Management—The use of Web-based technology in support of disease management in terms of communication, access to knowledge, and patient self-management. This definition requires use of Web technology but not transmission over the Internet. (In fact, patients and/or physicians are typically linked with the application via dial-up access or a Local Area Network more often than they communicate over the public Internet.) See also Disease Management.

E-encounter—A type of patient-physician electronic communication that is a two-way exchange of clinical information involving a closed loop conversation around a particular clinical question or problem specific to the patient. It may be initiated by either the patient or the caregiver.

HIPAA—The Health Insurance Portability and Accountability Act of 1996. A federal law intended to improve the portability of health insurance and simplification health care administration by setting standards for transmitting payer-based information and for ensuring the security and privacy of all patient-identifiable electronic health information.

Home Monitoring—Use of physiologic monitors to assess patient status in the home. In some cases, monitoring can be transmitted electronically to the case manager or physician.

IDCOP—The Idealized Design of the Clinical Office Practice is a collaborative initiative sponsored by the Institute for Healthcare Improvement aimed at comprehensive redesign of the office system. IDCOP designs, tests, and deploys new models of office-based practices-including e-communication practices—to improve performance levels, clinical outcomes, work satisfaction, and costs.

Industry Standard Email—Popular email programs such as Microsoft Outlook, Netscape Communicator, etc.

Internet—An international network of computers that operates on a backbone system without a central host computer. It links thousands of universities, government institutions, and companies. The Internet is the parent of the World Wide Web, although the two terms are often used interchangeably.

Personal Health Record (PHR)—Electronic patient medical information stored for subsequent direct access by the patient. Content may come from patient direct entry, electronic sources, or a combination.

Personal Web Site—A secure Web site customized and maintained for repeat use by the same user. In the context of health care, a personal Web site is likely to provide access to a variety of health-related information resources and health management tools. A personal Web site is one way of providing a patient portal for electronic communication between patients and their physician or other care providers.


5. First Consulting Group, unpublished data.

6. From a study by Messaging Online, as reported in Email Continues to Take Over the World, CyberAtlas (http://cyberatlas.internet.com), April 4, 2000.


8. From a national survey of women ages 25–49 conducted by Georgetown University Medical School’s Department of Obstetrics and Gynecology in association with HealthyMe.md, June 2000, via InternetWire.com, July 12, 2000.


10. 1999 Cyber Dialogue American Internet User Survey


20. Gallup MedicAlert Survey via PRNewswire, November 14, 2000


