



Information prescriptions (Ix): Bringing Internet-based health content into the treatment process; patients to your site

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Information therapy is a process in which clinicians recommend specific Web content to their patients. Systems can be highly automated and used in conjunction with patient portals, electronic medical records, personal health records, or insurance company claims databases. Or they can be manual and informal on the prescriber's end, where doctors simply recommend specific URLs to their patients. With careful coordination, any of them can bring more patients to a healthcare Web site.

For years, hospitals, medical groups, and other organizations have used good health content to attract users to their Web sites, get them to remain longer, and encourage them to consider using services relating to the content they've found. But static content no longer distinguishes a provider site, since virtually all have it. So organizations are seeking ways to generate more interactivity through applications such as personalized portals, personal health records, and systems that push information out to patients.

Tools for patients

One way to make good use of health content is Web-based information therapy. In essence, information "prescriptions"—often abbreviated as Ix—attempt to use health content in the actual treatment process.

Viewed one way, health content is always part of the treatment process.

Patients who educate themselves about their conditions and treatment options are likely to change the decision-making paradigm. But information therapy is a process in which providers in some way recommend specific content—usually Web content—to their patients.

Often this is done at the time the patient is first diagnosed, after the doctor has spent what limited time is available explaining the problem verbally.

"A primary benefit of information therapy is reinforcement," says Joshua Seidman, executive director of the Center for Information Therapy. "Studies have shown that patients forget more than 50% of what the doctor tells them."

When patients go home with a prescription for Web content, the chances that they will actually understand their condition are improved, Seidman asserts.

Some Ix for information therapy systems planners

The Center for Information Therapy site (<http://www.informationtherapy.org/index.html>) makes a number of resources available for professionals interested in information prescription (Ix) systems development.

These include, for example:

Information on presentations scheduled for the 2005 Information Therapy Conference, to be held September 21-23, 2005. Topics will include, for example:

- The business case for information therapy
- Latest advances in Ix applications
- How personalization, based on patient-entered data, procedure codes, and demographics, can be integrated into information therapy applications
- Consumer health information standards
- Delivering Ix in "the biggest and smallest settings"
- Ix computer model demonstrations.

Abstracts and slides of presentations from the 2004 Information Therapy Conference, available at http://www.informationtherapy.org/rs_conf_matls.html

Information on how to join the Ix Champions Online forum, a virtual community where professionals, from clinicians to site planners to IT experts, can share information and answer questions regarding information therapy systems and delivery, at https://www.informationtherapy.org/goix/x_forum.aspx

Case studies and other resources describing innovative Ix projects, at http://www.informationtherapy.org/rs_white_papers.html

The information therapy movement grew out of a recognition that patient education is part of each clinician's job, but is a task that few have the time, not to mention the skills, to do well.

Most doctors try their best to inform patients about their conditions and the tests they will be taking, but many of their patients leave the office with only a vague understanding of the situation.



Donald Kemper

"It's not rare for patients to be lost in the middle," says Donald Kemper, chief executive officer of Healthwise, a consumer health information developer (<http://www.healthwise.org>).

"They don't really understand why they are given a test, why they are being given a surgery, or even why they are given a specific drug."

Filling cost-containment cracks

Many information therapy advocates also believe the model can help fill the gap left open by the need to squeeze cost out of the American healthcare system.

They say there's a contradiction in a system where briefer doctor visits leave many patients in the dark while those same patients are being asked to do more on their own.

- The proliferation of new drugs has made regimens more complex.
- Shorter hospital stays require patients to do more of their pre-surgery preparations and their after-surgery recuperation at home.
- And the increased emphasis on lifestyle changes means that more healthcare activity takes place at non-healthcare facilities such as the gym or dinner table.

How Web-enabled Ix differs from general health content

Information therapy is a broad term that can encompass many different types of projects, and differs from general Web content in a number of essential ways.

Is provider prescribed

First, the specific information or URL is prescribed by a provider. Simply suggesting that a patient visit the hospital, medical group, or

health plan Web site for health content would not constitute information therapy.

But the process of prescribing URLs/pages can range from completely manual to completely automated, and from being based on pre-set criteria to being more seat-of-the-pants and informal. Which is not to say that any formal implementation of information therapy precludes the patient from exploring beyond the URLs or pages the clinician prescribes.

In fact, in most cases, the prescription is considered only a starting point for the patient, and may or may not send the patient to the provider organization's own site. But it almost always improves the patient's satisfaction.

Can be proffered "as needed"

The second important attribute of information therapy is that the information can be provided at the point in time when it can be most helpful to patients.

This may be when the patient is first diagnosed with a condition, or it could be a year later when reinforcement of a regimen might be deemed necessary.

Information therapy, as Kemper sees it, requires giving the patient access to credible, evidence-based information at every step in the treatment process. Unlike the traditional model of patient education, where patients diagnosed with a specific condition may receive a stack of literature on the first day, Web-enabled Ix can be transmitted continually as the situation changes.

"You have to develop information that is right for the person who is receiving it at the time they are receiving it," says Kemper. In some cases, this involves *predictive modeling*: knowing when patients need specific information, and the kinds of information they need at every stage of their condition from diagnosis to acute treatment to long-term management.

Seidman also cites a number of Web-enabled information therapy projects in which the health content sent to patients is triggered by events. Most of these systems are activated by an electronic health record or an insurance company claims system when a patient receives a specific test result.

Can be demographically tailored

And just as a provider may recommend some therapies based partly on demographics—such as asking selected older patients to start taking a low dosage aspirin each day—content recommendations in an information therapy program can also be demographically based. "If a 60-year-old man is about to get a physical, you want to supply him with different health content than you'd give a 30-year-old woman," Seidman points out.

Automated content provision based on diagnostic codes, claims

In a manual system, the doctor would suggest Web content based on either a checklist or simply the physician's knowledge of credible sites or pages that have the relevant information. However, Seidman says, many organizations are considering or beginning to develop systems that automatically send messages to patients based on diagnostic code.

In terms of the technology required to allow for this model, Healthwise's Kemper, for one, isn't looking for new technology but "piggybacking" on current technologies.

On a basic level, piggybacking can be used with an electronic prescribing system. Whenever the clinician fills out a prescription using the system, the application prints out drug information content or specifies Web links for the patient. This, however, is already being done by most drug stores.

A more advanced version, one that hospitals could consider implementing, would be to piggyback the information therapy program on the electronic medical record. Whenever an order or procedure code is entered, it triggers a process of sending the patient to content on the hospital's Web site. So the code for the colonoscopy will initially trigger information, via a secure Web site, on what a colonoscopy is.

Later, as the date for the procedure gets closer, it can send reminders on how to prepare for the procedure the night before, and the day of the test.

Privacy experts say HIPAA rules preclude sending information based on a diagnostic code to a patient's e-mail account. So generally e-mail is used only to let the patients know that a message is waiting for them at a secure Web site.

Similar applications are being piloted by managed care companies based on claims systems.

Content provision based on the electronic medical record or DM guidelines

Larger healthcare organizations, especially those that have specialized in creating internal health content, are in the forefront of the provider-based information therapy movement.

For example, The Cleveland Clinic is working to connect content it has created with entries in the organization's electronic medical record system.

Healthcare information in general is a key ingredient of the relationship The Cleveland Clinic develops with its patients, says CEO Martin Harris.

The Clinic licenses Web-based health content to other organizations, but in providing content to its own patients, Harris says, "We know something about them. So we can be more prescriptive in the information we provide."

That is, when Clinic patients view their electronic medical records online and see test results, they can also click on links that direct them to detailed information explaining those results.

"This gives them information at the very time they are motivated to read it, and are capable of doing something with the information," Harris says.

But importantly, he adds, the system isn't limited to providing information therapy during acute interventions, when a patient is diagnosed with a condition. It can also be used on an ongoing basis to keep patients healthy—to recommend flu shots or summertime exercise options, for example.

Or it can be used to dole out content in easy-to-digest doses over the course of weeks, months, or even years as a patient learns to live with a chronic condition.

For those patients who have chronic diseases that are challenging to manage, Harris says, The Cleveland Clinic is moving to online disease management modules.

Currently, The Clinic is conducting surveys on how best to influence behavior and improve outcomes using Web information.

One study, funded by the Robert Wood Johnson Foundation, will try to determine the best means and time to apply prescriptive information in order to get the maximum benefit.

High-technology not essential on the prescriber's end

To a certain extent, the concept of information therapy has been linked to technology-based models. But it doesn't necessarily have to be a technology-based project on the physician's end.

In fact, low-technology solutions may fit in with physician workflows more easily, since many of those workflows are paper-based. And a model that doesn't depend on technology can be implemented immediately while more technological solutions are being developed.

Michael G. Kienzle, MD, a professor of medicine at the University of Iowa's Carver College of Medicine, points to a successful low-technology information therapy pilot project he was involved in recently.

One primary goal of the project, which was co-sponsored by the National Library of Medicine and the American College of Physicians, was to get internal medicine doctors directly involved in educating their patients using Web resources. (See Kienzle's presentation, "Take this information and call me in the morning," from the 2004 Information Therapy Conference, at <http://www.informationtherapy.org>.)

"Research conducted by various groups confirmed that patients may use the Web to get information, but that they prefer to get the information from their own doctor. This project attempted to make that happen," says Kienzle.

To create a simple model that could be used by the largest number of doctors, the pilot "Used what for all doctors and patients is a common token: the prescription pad," Kienzle explains.

Kienzle believes the study was successful in recruiting doctors, who included about 150 internists in Iowa and 300 in Georgia, because the program followed the normal workflow for doctors very closely.

The doctors were supplied with prescription pads with check mark boxes for URLs in MedlinePlus. Each URL provided information on a common condition, such as hypertension or diabetes. Doctors could write in a URL on a line on the pad.

Some of the initial resistance to the project came from doctors who already had their favorite sites for each of those conditions. But Kienzle says that eventually many physicians "Saw the benefits of the one-stop shopping they could get with MedlinePlus."

The challenge of measuring compliance and outcomes

Speaking from his own experience using the prescription pad approach, Kienzle recalls that at first he was diligent about checking off the appropriate URL for the patient's condition, but then eventually moved to simply giving the patient the URL of MedlinePlus' home page, still using the prescription pad or another piece of paper.

Many other doctors in the pilot test did the same. MedlinePlus is very easy to use," Kienzle explains, "and patients who are willing to go to the Web are able to find their way to the specific condition at the site."



Michael Kienzle

On the one hand, an advantage of giving patients the home page URL is that they get a better idea of the large number of resources available on the site. They may then go back to the site on their own, to find other information for themselves or for others.

On the downside, the researchers who designed the study had hoped to use increased visits to the specific URLs on the prescription pad checklist as a measure of success. Since so many doctors decided to send their patients to the MedlinePlus home page, those data were not relevant.

For this and other reasons, Kienzle says, "We struggled with figuring out how we determine the impact of the pilot project." In his own practice, he began to question patients informally, and says he received positive comments. But that's far from scientific.

While some data were collected, most related to how doctors used the system, not the effect on patient health. For now, doctors may just have to take it as a matter of faith that providing Web content is at least somewhat beneficial to some patients. But since the pilot project added very little work and no technology cost, a positive

cost-benefit ratio should be easy to achieve with this simple approach.

Says Kienzle, "The actual clinical impact of the information for patients is very difficult to determine, and was beyond the scope of our project. So many factors affect the health of a patient on a daily basis, it's hard to tease out the effect of a single relatively modest intervention like an information prescription.

"Most of the rationale for doing it is derived from much more controlled studies of patient education and chronic illness management and outcomes, which tended to use much more intense educational programs and interventions.

"It's a little bit of a leap of faith to go from these studies to a less intense and more informal program like information prescriptions, but that's the basis for the belief that they might help patients stay healthy through access to better sources of information."

Still, information therapy boosters believe the model has the power to change the course of healthcare.

Says Kemper, "From the provider's perspective, the patient is more likely to have complied with the requirements of the procedure or of the regimen. From the patient's point of view, they get the benefit of clarity."

Patients may nod obediently when the doctor explains a procedure, but that doesn't necessarily mean they understand, Kemper adds. With the information therapy model, they are more likely to *really* understand the situation at hand. "And that has to affect the patient's satisfaction with the institution."

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For more information about Healthwise, the Center for Information Therapy, and the 2005 Information Therapy Conference, go to: <http://www.informationtherapy.org> and <http://www.healthwise.org>.

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