



INFORMATION  

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therapy

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*The Business Case  
for Information Therapy  
in Hospitals*

By Donald W. Kemper

CEO and Founder, Healthwise, Incorporated  
Chairman, Information Therapy Commission



# Information therapy

is the timely prescription and availability of evidence-based health information to meet individuals' specific needs and support sound decision making. These information prescriptions can have huge value for patients in helping them improve their care both at home and with their health professionals. And, for hospitals, information therapy can create huge benefits that can make the difference between success and failure in today's market. This white paper presents the promise of information therapy applications and the technical infrastructure needed to achieve it.

The information triggers are used to identify the patient's specific "moment in care."

## Is this really new? How does information therapy differ from patient education?

Information therapy differs from the common practice of patient education but not from its philosophy or intent. Because of the efficiency-enhancing technology behind it, information therapy is able to shift the value proposition of patient education from secondary to mission-critical. The technology allows for three things:

- Personalization—Information prescriptions are written for and addressed to a specific patient.
- Targeting—Information prescriptions are targeted to an individual patient's "moment in care." They are directed at helping the patient manage problems and concerns at each stage of his or her condition and care.
- Documentation—Information prescriptions are documented as part of the treatment provided.

*Ix™ is a trademark of Healthwise, Incorporated.  
Information therapy is a term in generic use.*

What is information therapy? I still don't understand how information therapy works.

Any Ix™ application involves three things:

- Information triggers already collected in the medical information system can identify, categorize, and describe the diagnosis, treatments, and characteristics of a specific patient.
- The information triggers are used to identify the patient's specific moment in care, which defines the immediate health and medical issues that the patient is most likely to be facing.
- Attached to every moment in care is "prescription-strength medical content" that is evidence-based, medically validated, and specifically useful to help that patient face his or her medical issues.

Some level of information therapy occurs every time specific data about a patient is used to select and present information to that patient. The more specific the triggers become, the tighter the moment in care is defined and the more specific and useful the information prescription becomes.

## Two "aha" moments

You will start to understand information therapy when you come to realize two things:

- Ix programs change the role of information in health care from information being "about" a patient's care to information being "an essential part of" a patient's care.
- Health care delivered without information prescriptions is incomplete. No care should be delivered without its information component included and documented.

## The bottom line: Why hospitals need information therapy

Hospitals today are faced with four basic challenges: cost control, revenues, staffing, and quality. If you can stay on top of them, success is yours. Information therapy is a new tool that offers substantial help in each of these four areas. Hospitals that take the lead in Ix implementation will gain a substantial competitive advantage over those that are slow to move. Information therapy will make a difference on the bottom line.



## Example 1: Ix test preparation and results reporting

A large share of hospital revenues comes from laboratory tests and medical imaging. Together, they can add significantly to the bottom line. To compete effectively for medical testing, hospitals need to enhance the patient experience while streamlining testing costs. An information prescription program that delivers test results, together with a clear explanation of their meaning, can greatly enhance the patient's experience while actually lowering the cost of testing. Here's how it works:

1. The patient receives an e-mail saying that important information has been added to his or her patient portal page.
2. The patient enters the secure portal.
3. The patient reads the results and clicks on a medical test explanation.

The screenshot shows a 'Provider Portal' for Timothy Garcia, M.D. on Tuesday, August 19, 2003. The patient is Scott Jones, 65 years old male. The interface includes a navigation menu on the left and a main content area with tabs for Summary, Visit History, Reports, Medications, Orders, and Documents. The 'Reports' tab is active, showing a table of 'All Reports / Results'. A red box highlights the 'Report / Result Detail' for a Creatinine test. Below this, a table shows the test description, value, reference range, and unit.

Req #	Req D/T	Ordering Phys	Source Facility	Order Priority
3166289430	12/04/02 9:30am	Garcia MD, Timothy	Park City	Routine
Test	Coll D/T	Result D/T	Result Status	
CREATININE	12/04/02 9:30am	12/04/02 9:45am	Final	
A	Description	Value	Reference Range	Unit
N	CREATININE	1.0	0.8-1.3	MG/DL

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Takes the patient here

The screenshot shows a patient portal page titled 'Creatinine and Creatinine Clearance'. The page includes a 'Results' section with a heading 'Results' and a paragraph explaining that creatinine clearance is calculated from urine and blood amounts. Below this, there is a table for 'Blood creatinine and creatinine clearance' and another table for 'BUN-to-creatinine ratio'. A 'Test Overview' link is visible in the 'Topic Contents' section on the right.

**Results**

The creatinine clearance value is calculated from the amounts of creatinine in the urine and blood and from the volume of urine. This value is reported as the amount of blood cleared of creatinine per minute, adjusted for a person's size.

**Normal**

Normal results may vary from lab to lab.

Blood creatinine and creatinine clearance	
Blood creatinine:	0.7-1.2 milligrams per deciliter (mg/dL)
Creatinine clearance:	90-140 milliliters per minute (mL/min)

Creatinine clearance values normally drop as a person gets older (normal values usually drop by 6 mL/min for every 10 years past the age of 20).

BUN-to-creatinine ratio	
Over 12 months of age:	10:1-20:1
Infants less than 12 months of age:	Up to 30:1

**Topic Contents**

- [Test Overview](#)
- [Why It Is Done](#)
- [How to Prepare](#)
- [How It Is Done](#)
- [How It Feels](#)
- [Risks](#)
- [Results](#)
- [What Affects the Test](#)
- [What to Think About](#)
- [Credits](#)



## What are benefits of Ix with medical testing?

As with many information therapy applications, you can find contributions in each of the four main areas of hospital challenges.

### Cost Control:

- Reduces cost of staff calls to tell patients their test results.
- Reduces cost of patient calls to better understand what the results mean to them.

### Revenue Enhancement:

- Patient appreciation for service provides a notable marketing advantage that will bring in new revenues.
- Clear information on test preparation reduces revenue loss from no-shows and rescheduling.
- Physicians favor hospitals that offer more streamlined scheduling, workflow, and patient communication amenities. By offering services that improve patient safety, care quality, and workflow conveniences, a hospital stands a better chance of winning a physician's admission and testing referrals.

### Staffing Benefits:

- Automated notification of test results reduces the workload on shorthanded clinical staff and improves job quality.
- Availability of service is a plus in staff recruitment.

### Quality Benefits:

- Better patient preparation leads to more accurate test results, improved diagnoses, and better outcomes.
- Good communication about testing that is comprehensive and automatically documented in the patient's record can reduce both medical errors and medical malpractice claims.

The medical testing Ix application leads to a stronger testing program and a stronger hospital.

Most medical offices still use "horse-and-buggy" (mouth-to-ear) technology to present the doctor's advice to the patient.

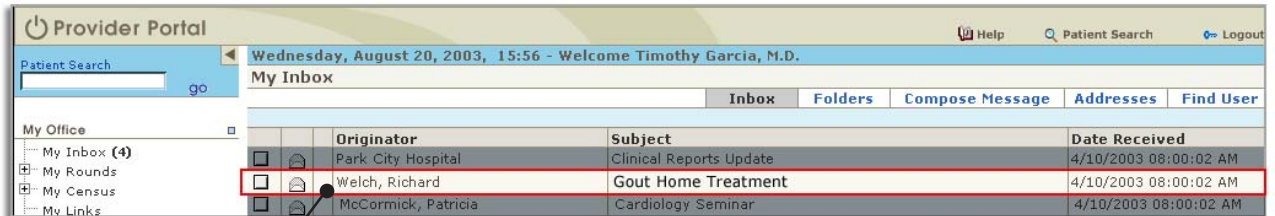
### Example 2: Ix after-visit summaries

As the shift continues from inpatient to outpatient services, hospitals realize that much of their success depends upon the workflow and effectiveness of their outpatient clinics. Here, hospitals must walk the line by offering a competitively viable service without appearing to compete overtly against their admitting physicians. Information therapy can help. The technological advantage that a hospital has over smaller clinics can be used to enhance the patient's experience by providing a clear advantage to the consumer.

The after-visit summary is a perfect case in point. More health care is delivered through the clinical visit than through any other form of care. Yet, most medical offices still use "horse-and-buggy" (mouth-to-ear) technology to present the doctor's advice to the patient. Studies show that much is lost before patients leave the office and precious little remains by the time they get home. Using after-visit summaries, hospital outpatient clinics provide clinician-approved, visit-specific health information, in a readable format, that patients and their families can refer to at any time. After-visit summaries provide tremendous value for the patient.



With both a physician portal and patient portal in place, a clinician can generate an after-visit summary for every clinical encounter. Within the clinic visit workflow, the provider portal delivers to the clinician a menu of potential information prescriptions relevant to the codes for diagnoses, tests, and drugs entered into the portal for that patient. The clinician simply clicks on the information prescription he or she would like the patient to receive. That sends the information link directly to the patient portal. The patient then receives an e-mail indicating that new and important information has been added to his or her patient portal home page (see page 8 ). For a person with a new diagnosis of gout, it could look like this:



A click here

Takes the patient here

The screenshot shows a patient portal page for 'Gout'. The page has a 'Topic Overview' section with a sub-section 'What is gout?' and an illustration of a human skeleton. Below that is 'What causes gout?'. A search menu is overlaid on the right side of the page, listing various links: 'Other Information About Gout', 'Topic Overview', 'Cause', 'Symptoms', 'What Happens', 'What Increases Your Risk', 'When to Call a Doctor', 'Exams and Tests', 'Treatment Overview', 'Prevention', 'Home Treatment', 'Medications', 'Surgery', and 'Other Treatment'. A red arrow points from the 'Home Treatment' link in the search menu to the 'Home Treatment' section on the page. Below the 'Home Treatment' section, there is a list of steps to take if diagnosed with gout.

**Home Treatment**

If you have been diagnosed with gout, take steps to:

- Decrease the pain of an acute attack.<sup>3</sup>
  - Rest the affected joint until the attack eases. This can be accomplished by sitting or lying for 30- to 45-minute intervals and by the use of crutches or a cane when moving about.
  - Elevate painful joints.
  - Apply a warm compress to the affected joints.
  - Take nonprescription medications, such as [nonsteroidal anti-inflammatory drugs](#), commonly ibuprofen. Do not take aspirin, which slows the elimination of uric acid.
- Prevent recurrences.
  - Being overweight is a risk factor for gout. If you are overweight, a diet that is low in fat may help you lose weight. However, avoid fasting or very low-calorie diets. Very low-calorie diets increase the amount of uric acid produced by the body and may bring on a gout attack. For more information, see the topic [Healthy Weight](#).
  - Alcohol can reduce the release of uric acid by the kidneys into your urine, causing an increase of uric acid in your body. Beer, which is rich in

### Summary

1. The provider records the diagnosis.
2. The diagnosis code is associated with information provided in an after-visit summary.
3. The system automatically notifies the patient that his after-visit summary is available on his patient portal.



## What are the benefits of Ix with after-visit summaries?

Perhaps even more than with testing results, after-visit summaries can provide substantial benefits in each of the four challenge areas for hospitals today.

### Cost Control:

- An after-visit summary linked to information that answers the patient's questions can reduce the number of phone calls back to the clinic.
- The routine use of patient-portal–delivered after-visit summaries will stimulate the shift of administrative services from high-cost phone- and person-based service to low-cost, Web-based service. When the patient is able to schedule visits, confirm lab appointments, or check on billing questions over the Web, the hospital saves money.

### Revenue Enhancement:

- More than anything else, the “new consumer” or “new patient” is distinguished by his or her desire for information and involvement in health care. The after-visit summary, linked to information prescriptions that are specific to the patient's condition and moment in care, exceeds the expectations of the patient and provides a solid reason to return to that hospital for additional services.

### Staffing Benefits:

- Every question that is answered on the Web rather than on the phone saves staff time.
- Using information prescriptions within after-visit summaries clinicians can deliver more valuable messages home to the patient in less time. As a result, fewer visits run late and staff overtime is reduced.

### Quality Benefits:

- The component patients value most from health care is advice and information from their doctors. By capturing that information within the lasting record of the after-visit summary, patients are fully able to use that value.
- Good information prescriptions result in better self-management, better self-care, and greater adherence to prescribed medication regimens and home treatments.
- Information prescriptions that target the major medical decisions the patient is facing will lead to better-informed and higher-quality decisions as well as improved health outcomes.
- The improved relationships built through the after-visit summaries and good overall communication will also reduce the inclination for a patient to sue—even if a medical error has occurred.



### Example 3: Ix for preventive services

Community hospitals build much of their public image around their commitment to prevention. They can offer no higher service to their communities than to help keep the surrounding populace from becoming sick. Often preventive services are thought of as a “must-do” or “payback” to the community without a clear contribution to the business plan. With information therapy, a business-smart look at preventive services may be more positive.

By providing timely, personal information prescriptions about the appropriate use of preventive services, a hospital can both protect the health of its community and generate revenue for its preventive service departments. The core of the application comes not just in reminding the patient of a recommended service but also in providing the decision support that helps the patient make a better decision. Preventive services particularly appropriate for highlighting in an Ix application include:

- Services in which appropriate users can be identified by age, sex, prior history of preventive services, and other documented factors.
- Services for which a personalized reminder message could be linked to decision guides that present the pros and cons of the service in a way that is relevant to the patient.
- Services that break even or better for the hospital—a profit center.

One example would be the evidence-based guidelines for a colonoscopy evaluation for anyone over age 50 who has one or more significant risk factors for colorectal cancer. Application of such guidelines has been shown to save significant numbers of lives. And yet, because of misconceptions or lack of awareness, the number of people getting the test is far lower than the guidelines would suggest. Here’s how it works:

A patient over 50 with no record of a colonoscopy is identified. An e-mail appointment reminder provides the patient with related information for screening from the appointment scheduling functions on the patient portal home page.

Clinical Area/Specialty:	General Practice
What do you want to discuss with your provider?	<input type="checkbox"/> General Health Concerns <input type="checkbox"/> Unusual Pains / Symptoms <input type="checkbox"/> Prescriptions <input checked="" type="checkbox"/> Routine Checkup
Reason for appointment or primary complaint:	Other: <input type="text"/> Colonoscopy
Send a Reminder	Check method(s) in which you wish to receive reminder <input checked="" type="radio"/> Mail <input checked="" type="radio"/> Phone <input type="radio"/> E-mail
Attach Document:	<a href="#">Attach Document</a>

A click here

Takes the patient here

The screenshot shows a patient portal page titled "DECISION POINT" with the heading "Should I have a sigmoidoscopy or a colonoscopy to screen for colorectal cancer?". The page includes an "Introduction" section, "Key points in making your decision", and a table comparing "Reasons to have a sigmoidoscopy" and "Reasons to have a colonoscopy".

Reasons to have a sigmoidoscopy	Reasons to have a colonoscopy
<ul style="list-style-type: none"><li>• A sigmoidoscopy requires less preparation than does a colonoscopy. The bowel-cleaning preparation for colonoscopy, especially the strong laxatives taken the day before, can</li></ul>	<ul style="list-style-type: none"><li>• Colonoscopy is the only screening method that can both detect and remove polyps in the entire colon during the same exam. A normal colonoscopy exam (no polyps are found) may</li></ul>



## What are benefits of Ix for preventive services?

### Cost Control:

- Because a secure message reminder delivered on a patient portal can offer easy access to Web-based scheduling for preventive services, it can reduce the administrative costs normally associated with preventive services.
- When preventive services result in less disease, the entire health care system benefits from lower costs.

### Revenue Enhancement:

- Many forms of medical testing are both recommended by medical science and profitable to the hospital. Preventive reminders that help people decide to use such services can result in substantial revenue gains for the service.

### Staffing Benefits:

- Because few hospitals now provide reminder services, there may be little savings of staff resources here. However, by promoting the reminder and decision-support service within the community and among the staff, the application can have a positive effect on staff morale and on recruitment.

### Quality Benefits:

- Many measures of quality relate directly to the success rate of matching the actual use of preventive services with that recommended by medical guidelines. An Ix program as described here could result in substantially improved HEDIS and other quality scorings.

The Ix applications described above are only three examples of hundreds of Ix applications that have substantial potential for improving a hospital's bottom line. A few more are listed in the chart below and further described in the Appendix. At any facility, the best way to select the first applications to implement is to sit down with the hospital's physicians and staff to discuss where improved patient communication could most dramatically improve the quality of care and the success of the hospital.

## Ix Applications by Infrastructure Needs and Category of Benefit

Information Therapy Benefits Chart			<span style="color: blue;">\$</span> Cost <span style="color: green;">R</span> Revenues <span style="color: red;">st</span> Staffing <span style="color: yellow;">Q</span> Quality			
Ix Application	Content Ready	Interacting Infrastructure Needed				
Lab Test Prep and Results Reporting	Ready	Patient Portal	<span style="color: blue;">\$</span>	<span style="color: green;">R</span>	<span style="color: red;">st</span>	<span style="color: yellow;">Q</span>
After-visit Summaries	Ready	Provider/Patient Portals	<span style="color: blue;">\$</span>	<span style="color: green;">R</span>	<span style="color: red;">st</span>	<span style="color: yellow;">Q</span>
Preventive Services	Ready	Patient Portal	<span style="color: blue;">\$</span>	<span style="color: green;">R</span>		<span style="color: yellow;">Q</span>
Visit Prep	Ready	Patient Portal/Scheduling Sys.	<span style="color: blue;">\$</span>		<span style="color: red;">st</span>	<span style="color: yellow;">Q</span>
Medication Regimen Adherence	Ready	Patient Portal/Meds Record				<span style="color: yellow;">Q</span>
Discharge Planning/Continuity of Care	To Be Developed (TBD)	Provider/Patient/Employee Portals	<span style="color: blue;">\$</span>		<span style="color: red;">st</span>	<span style="color: yellow;">Q</span>
Orthopedic Exercises	TBD	Provider/Patient/Employee Portals	<span style="color: blue;">\$</span>	<span style="color: green;">R</span>	<span style="color: red;">st</span>	<span style="color: yellow;">Q</span>
Hospital Preadmission Safety Kit	TBD	Patient Portal	<span style="color: blue;">\$</span>	<span style="color: green;">R</span>		<span style="color: yellow;">Q</span>





## What infrastructure is needed to support Ix?

While the concept of information therapy works in any environment, technology is needed at both ends of the Ix process to make it an effective tool in today's hospital.

The life of every information prescription begins as an "information trigger" entered into a database. Information triggers are usually well-accepted codes such as ICD9 diagnostic codes, CPT procedure codes, or NDC drug codes. Terms within structured languages like SNOMED or MeSH can also be used as triggers. Information therapy relies on other information technology (IT) applications within the hospital to capture these triggers and to transfer them in HL7 format.

At the heart of the information prescription is the content. To be worthy of prescription to a patient, the content must be both evidence-based and specifically useful in helping the patient reach better medical decisions. The needed specificity is achieved by providing metatags within each separate piece of content. The metatags allow automatic determination of the information's relevancy for a particular person at a specific moment in care. Ideally, such content should be completely compatible with whatever content is separately available on the hospital Web site.

Even the best information prescription has little or no value if the information can't reach the patient when he or she needs it. Again, information therapy must rely on other IT infrastructure to deliver the message. The following discussion describes the patient portal, provider portal, employee portal, and hospital portal as windows into a hospital's information system. Each of these portals has a role to play in the prescription and delivery of information therapy.

**The portal provides the patient with access to his or her personal health information and account.**

**A patient portal** is a secure, online patient interaction site that provides centralized knowledge and service for the patient. The portal provides the patient with access to his or her personal health information and account, including the ability to communicate directly with the provider. It also provides the patient with access to general health and medical information. This secure Internet feature allows the patient to access information and to conduct business anytime, anywhere.

Centralized access to the patient record and supplementary hospital information provides the ideal vehicle for the delivery of targeted patient information prescriptions. The electronic medical record (EMR), populated with codes about diagnoses, tests, procedures, and medications, can be selectively shared with the patient through the portal. It can also be used to deliver personalized information prescriptions that are specific to the patient's condition, surgery, procedure, demographics, or behaviors. The portal empowers patients to take a more active role in managing their health in partnership with their provider team.

**A provider portal** is an online feature that provides a centralized and secure knowledge exchange for clinicians and their staff. The provider portal provides convenient and personalized access to applications, data, resources, and services from any device, anywhere a provider can access the Internet.

The provider dashboard includes easy yet secure access to hospital data and to clinical information, which includes the master patient index and medical records along with any other relevant results, alerts, and reports. This type of information paired with the provider's knowledge of the patient supports directed information prescriptions targeting the patient's moment in care that can be shared at the point of care and/or pushed to the patient's personal home page on the patient portal.



**An employee portal** is a secure Web-based portal that is the point of entry for hospital employees. The role-based portal provides access across the hospital enterprise, enabling employees to access applications, news, and critical information (patient, provider, database, and system) throughout their day. The portal provides access to support services and workflow information that helps employees perform and document their jobs. Employees' jobs become more efficient since access to information is at their fingertips.

Nurses, health educators, pharmacists, and others providing patient services can use the employee portal to send information prescriptions to support the services provided. In some cases, entries made in the employee portal can automatically launch relevant information prescriptions unless specifically blocked by an employee.

**A hospital's community portal** is an open-access Web site both serving the community and allowing current and prospective patients to access certain secure services. The portal presents the hospital's online brand to the community with centralized access to, and information about, the hospital and its services, specialty areas, providers, employees, donors, facilities, etc. The portal facilitates moving resource-intensive administrative tasks from in-person or telephone contact to the Web.

The hospital portal allows patients, self-help groups, family members, and friends to access and recommend specific medical content relevant to a patient's needs. Broadly relevant health messages relating to epidemics, seasonal health risks, bioterrorism, or health promotion opportunities can be highlighted on the hospital portal for those who have not registered with the hospital's patient portal.

### **Click, read, or call—It works the same**

Although the percentage of patients with access to the Internet is rapidly becoming mainstream, most hospital patients and service-area consumers are still looking to other media for health information. To better serve their patients, most hospitals choose to augment Web-based information therapy with phone- and paper-based systems.

**The nurses, of course, can also e-mail information prescriptions to reinforce the key points of their conversations with patients.**


Medical call center nurses conduct telephone triage, give medical advice, offer at-home treatment instructions, and make appropriate referrals to patients, ER callers, and members of the surrounding community. These nurses often call patients following discharge regarding aftercare instructions and assessments. This form of information therapy engages patients who need to speak with a clinician to make the best health decision. The nurses, of course, can also e-mail information prescriptions to reinforce the key points of their conversations with patients.

Additionally, many information prescriptions are delivered on paper. A clinician, appointment specialist, or other medical office staff can log on and print the appropriate medical information for delivery to a patient at the right time in the care continuum to help the patient make a better health decision. Using the hospital's own community portal, the physician, patient educator, or other employee can print just the right health information and give it to the patient.

This "click-read-call" approach educates and informs patients in the media that best suit each particular patient. By using the same core content within Web, call center, and paper-based programs, the hospital and its physicians can take comfort in knowing that their patients are receiving consistent, evidence-based, and accredited health information regardless of the media used.



## In conclusion

Information therapy is a new tool for adding to a hospital's competitive advantage and overall effectiveness. It works by using the hospital's IT infrastructure to understand each patient's information needs and then to deliver information prescriptions specifically relevant to each patient. Each Ix application has a value to the patient, a value to the hospital, and a measurable ROI. Hospitals are facing severe pressures to deal with the challenges of cost control, resources, revenues, and quality. By adding information therapy applications to a hospital's options, each challenge becomes a little easier. All of these elements combine to serve hospital constituents in ways that are newer, better, faster, and cheaper. 

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The content used in these examples comes from the Healthwise® Knowledgebase [www.healthwise.org](http://www.healthwise.org). Content for information therapy could also be provided from other sources.

### About Healthwise and The Center for Information Therapy

Healthwise, Incorporated, a nonprofit organization, has been helping people make better health decisions since 1975. Healthwise established the Washington, D.C.-based Center for Information Therapy to develop the information therapy concept into the foundation for a new patient-centered health care system.

Information therapy is the prescription of customized, evidence-based medical information to patients and their caregivers at each step of the health care process. Healthwise works with the nation's most innovative hospitals and health plans to integrate online medical content from the Healthwise® Knowledgebase into Ix™ prescriptions via EMRs and other IT applications. Visit [www.healthwise.org](http://www.healthwise.org) and [www.informationtherapy.org](http://www.informationtherapy.org) or call 1.800.706.9646.

The descriptions of patient and provider portals used in the white paper were provided by Park City Solutions [www.parkcitysolutions.com](http://www.parkcitysolutions.com). Portal solutions are available from other sources.

### About Park City Solutions

Park City Solutions, headquartered in Midway, Utah, with offices throughout the United States, is a leading technology and professional services firm that advances health care performance through its people, processes, and technology. Park City Solutions delivers superior value for health care organizations by providing a broad range of solutions that enhance patient care and streamline processes, including eHealth portal solutions, business and management consulting solutions, laboratory management solutions, and government information technology solutions. For more information, visit Park City Solution's Web site at [www.parkcitysolutions.com](http://www.parkcitysolutions.com).



## APPENDIX

### Ix Projects of High Value for Hospitals

Examples detailed in “The Business Case for Information Therapy in Hospitals”:

1. Information prescriptions for test preparation and results reporting (see pages 2-3).
2. Information prescriptions for after-visit summaries (see pages 3-5).
3. Information prescriptions for preventive services (see pages 6-7).

Additional examples:

#### 4. Visit preparation (outpatient visits)

Each person who schedules a visit (whether by phone or the Internet) would receive an information prescription to help prepare for the visit. The information prescription would:

- Be triggered by the “reason-for-visit” field or ICD9 code in the scheduling system.
- Include a personalized and customized message with links to symptom topics.

**Value proposition:**

- Builds loyalty relationship.
- Encourages use of Web-based administrative services.
- Improves efficiency of clinic visit while saving clinician time.
- Leads to improved clinical decision making because the patient is better prepared to share in the decision.

#### 5. Medication regimen adherence product

For selected conditions in which medication plan adherence is a known problem, patients would receive information prescriptions to encourage improved medication management. These information prescriptions would:

- Be drug code-triggered (or triggered by name search).
- Specify pre-order, post-order or pre-reorder as the moment in care.
- Include a personalized and customizable message with links to a drug topic and other related topics.

The project could highlight the focus on two key adherence areas:

- Antibiotics.
- Heart medications (antihypertensives, statins, aspirin).

**Value Proposition:**

- Builds loyalty relationship.
- Reduces harm from medication errors.
- Improves health outcomes through improved adherence to treatment plans.

#### 6. Discharge planning/care and caring continuity (content to be developed)

This application would result in a major shift in preadmission preparation and discharge planning. The goals of the application include reducing readmissions through improved self-management and adherence and improving CAHPS scores that are generally low for satisfaction with the transition process.

- Triggers would involve ICD9 and CPT codes associated with an inpatient admission.
- For elective admissions, the process would begin a week prior to admission with a personalized message that includes content links of two types:
  - How to prepare for the hospital and what to expect.
  - How to prepare for returning home and what to expect.
- The discharge plan would be altered to accommodate the information therapy approach.
- Following discharge, the patient and family/caregivers would receive daily messages relevant to the recovery process and the self-management activities that support recovery.
- Interactive daily assessments would be included to help validate that the patient is on track for recovery.
- Integration with a call center nurse would be activated on a regular schedule as well as when the assessments indicate developing problems.

Note: This product could be closely linked to Example 8: Hospital preadmission safety kit product.



### Value proposition:

- Builds loyalty relationship.
- Improves efficiency of hospital while saving clinician and staff time.
- Greatly strengthens the hospital-patient relationship at discharge.
- Delivers a consistent communication chain which sets up realistic aftercare expectations.
- Improves health outcomes through improved adherence to treatment plans.

### 7. Orthopedic exercises product

The success of many forms of orthopedic surgeries is heavily influenced by how well the patient is able to learn and regularly perform the prescribed recovery and strengthening exercises. Each such patient would receive regular information prescriptions, complete with decision guides and reminders, for the next scheduled recovery services. These information prescriptions would:

- Be triggered by ICD9 and CPT codes in inpatient and ER discharge records.
- Address the particular moment in care—rehab following a specific orthopedic procedure.
- Include a series of customizable messages with links to rehab exercises and related self-management guidelines.

### Value Proposition:

- Reduces no-shows for rehab appointments.
- Increases rehab revenue.
- Improves recovery outcomes.
- Improves relationship/satisfaction with care.

### 8. Hospital preadmission safety kit product

Patients often enter the hospital unprepared for either the hospital stay or their eventual return home. By gaining a little knowledge and preparation, a patient and his or her family can help avoid medical errors in the hospital and be ready to help with self-management duties both before and following discharge. These information prescriptions would:

- Be triggered by ICD9, planned admission, and planned CPT codes.
- Address the particular moment in care—in advance of hospitalization for a specific procedure.

- Include a set of messages sent to the patient and (sometimes) family providing a practical safety kit for the patient and family to use to maximize the chances for an error-free hospital stay.
- Highlight any secondary conditions that may not be central to the admitting diagnosis. For example, for a diabetic patient admitted for a hip replacement surgery, the patient and family would be able to remind caregivers about the underlying diabetic condition so that they could appropriately adjust the care provided.
- Enhance understanding of, preparation for, and recovery from conditions that are commonly experienced following a major medical procedure. If depression is a common concern, for example, information prescriptions sent to the patient well before admission may be helpful in preventing or minimizing an episode of depression.

### Value Proposition:

- Greatly strengthens the hospital-patient relationship at preadmission and sets up positive expectations for the hospital stay.
- Increases the conversion rate from paper to Web for admission transactions.
- Reduces staff time normally needed to prep and orient a new patient as to what will happen; the patient will have had some degree of pre-briefing.
- Because the patient and the family have been prepared with information on what to expect, they will be better able to observe deviations in the treatment plan and to spot errors before they cause harm.
- Maintaining diabetic self-management during a hospital stay for a non-diabetic condition can help avoid costly complications.

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