Patient Education

Using the Intranet to Deliver Patient-Education Materials

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A key role of RNs in healthcare delivery is patient education. However, the time available for teaching in today’s healthcare environment is limited because of patient needs, high acuity, shortened length of stays, and increased use of outpatient services (Hansen & Fisher, 1998; Lipetz, Bussigel, Bamberman, & Risley, 1990). Printed materials have been shown to increase patient satisfaction, reduce psychological distress, and increase knowledge and retention, and they often are used effectively to educate patients (Newell, Girgis, & Sanson-Fisher, 1995; Vetto, Dubois, & Vetto, 1996). Frustration mounts, however, when busy nurses encounter barriers while attempting to access teaching tools.

The outpatient oncology Peggy D. Cowdery Patient Care Center of the Nebraska Health System (NHS), an affiliate of the University of Nebraska Medical Center in Omaha, is a fast-paced care-delivery setting that treated more than 44,000 patients in 2001. The nursing staff must have ready access to accurate and current patient-education materials. In the past, the main source for such information was preprinted instruction sheets. The sheets were bound together as tablets, and nurses tore off pages as needed. Depending on treatment regimen, each patient received one or several sheets as resources for self-care and monitoring of adverse drug effects.

Some barriers traditionally associated with this method were outdated or exhausted supplies of stock materials, expenses related to developing and printing materials, limited storage space, and the inability to locate materials when needed. The authors identified the intranet, an internal network that operates within a larger World Wide Web site, as a potential solution to these barriers. The Outpatient Oncology Clinic and Treatment Center of the Nebraska Health System, a fast-paced care setting in Omaha, agreed to serve as the project pilot area to evaluate using the intranet to generate patient-education materials. Teaching sheets about medication and symptom management, created by the oncology staff, were the first patient-education materials to be made available on the intranet. Advantages of using the intranet for patient education include online storage, decreased costs, easy access, real-time updates and distribution, and unlimited supply availability.

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Goals and Objectives

The overall goal of the project was to make oncology patient-education materials available for printing on demand via the campuswide intranet. The specific aims were to:

- Create templates for all printed oncology medication teaching sheets.
- Update existing oncology medication teaching sheets.
- Develop new oncology medication teaching sheets.
- Update research-based symptom management teaching sheets.
- Design the intranet site and load and store teaching sheets.
- Promote the use of the intranet to access oncology patient-education materials.

Patient Education

Providing information to patients so that they can understand and manage healthcare-related situations now is considered a basic right and mandated by the Joint Commission on Accreditation of Healthcare Organizations (1996). Ensuring that patients are educated about their conditions is complicated by numerous barriers associated with teaching by healthcare agencies and learning by patients. Because of nursing shortages, healthcare settings employ decreased numbers of professional staff, resulting in decreased contact time for teaching (D’Aunno, 1996). Patients’ ability to learn is hampered by limitations in literacy, differences in learning styles, and problems with information processing while they are acutely ill (Estery, Mussman, & Keithern, 1993; Kirsch, Jungeblut, Jenkins, & Kolstadt, 1993).

Aware of the numerous barriers to teaching and learning that exist in healthcare settings, Chelf et al. (2001) conducted an extensive overview of the previous decade of evaluation and research in cancer-related patient education. The key points of the report were as follows:

- Patients with cancer want information.
- Patients believe that written materials are supplemental to information from their doctors.
- Many printed materials are written at reading levels that are too advanced for target populations.
- Computers, audio and video recordings, and telephones can help educate patients.
- Foltz and Sullivan (1996) conducted a study that sought to determine whether teaching materials were understood and considered to be accurate by patients with cancer. The researchers used focus groups to determine whether two brochures were clear, how the presentation format was perceived by patients, and how these perceptions influenced patients’ understanding and opinions of the brochures. Patients preferred simple, clearly written brochures. Brochures written at inconsistent, varying literacy levels were considered to be confusing. The study’s findings agreed with those of Butow, Brindle, McConnell, Boakes, and Tattersall (1998), who found that booklets were best received when they were written in plain, narrative styles that were easy to read. Therefore, a need exists in today’s healthcare environment for easily accessible, simple, and clearly written printed materials.

Using the Intranet to Generate Patient-Education Materials

The process of using the intranet to deliver patient-education materials involved several steps. First, a task force of six experienced oncology nurses was formed: two inpatient and two outpatient staff nurses and two advanced practice nurses. The task force met early on a weekday morning every other week for about nine months.

Creating Templates

To increase the likelihood of retention of information, every attempt was made to develop teaching materials that contained clear and concise information. The task force decided to use vocabulary words at a fifth-through eighth-grade reading level to simplify reading and enhance comprehension, as suggested by Foltz and Sullivan (1996). The task force also believed all medication teaching sheets should contain consistent headings and a standardized vocabulary. The chosen headings follow and appear in Figure 1.

- Drug name
- Category of medication
- How given
- Appearance of medication
- Side effects (i.e., more common, less common)
- Special information
- When to call the healthcare team

First, task force members gathered samples and made a list of currently available oncology medication teaching sheets. Most had been created at NHS, some recently and others almost 10 years previously. The list was divided, and each task group member was responsible for updating the information on several sheets. Early task force meetings were spent proofreading and editing changes suggested by members. The task force standardized several instructions about when to call after

<table>
<thead>
<tr>
<th>Drug name</th>
<th>Cisplatin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Alkylating agent</td>
</tr>
<tr>
<td>How given</td>
<td>As an infusion into the vein</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear</td>
</tr>
</tbody>
</table>

Side effects:

- More common:
  - Nausea
  - Vomiting
- Less common:
  - Fatigue
  - Lower blood counts
  - Diarrhea
  - Thinning hair

Special information: Drink two to three quarts of liquid per day.

Refer to General Information About Chemotherapy sheet.

When to call:

- If unable to drink for 24 hours
- If unable to eat for 48 hours
- Signs and symptoms of infection: Refer to Low White Blood Cell Count sheet.
- Decreased urine output
- Severe muscle weakness
- Call immediately for any difficulty breathing.
- If have more than five liquid stools in 24 hours

Note. These materials provide general information and should not be considered as a substitute for medical advice and treatment. You are encouraged to talk with your doctor about your specific medical condition and any problems you may have.

<table>
<thead>
<tr>
<th>Figure 1. Template for Medication Teaching Sheets: Cisplatin</th>
</tr>
</thead>
<tbody>
<tr>
<td>sheets about symptoms; for example, the medication sheet about cyclophosphamide cross-referenced the symptom sheet about nausea management.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Updating Existing Materials and Creating New Materials</th>
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</tr>
</tbody>
</table>
cognitive dysfunction
constipation/diarrhea
fatigue
low platelet count
low white blood cell count
mucositis
nausea
neuropathies
pain
sleep disturbances

Figure 2. List of Symptom Management Teaching Sheets

Designing the Intranet Site

As work progressed on updating the teaching sheets, the IT analyst working with the team created an intranet site for maintaining the materials. With FrontPage® (Microsoft® Corporation, Redmond, WA) and Adobe® Acrobat® (Adobe Systems Incorporated, San Jose, CA), the completed teaching sheets were uploaded and cross-indexed for easy reference. NHS uses the LastWord® clinical information system (IDK Systems Corporation, Burlington, VT). A feature of the system is an icon-driven, user-defined toolbar available on all screens within the application. Icon functions include page navigation, patient look-up, and program exit. An icon was added and programmed to launch a URL, or address, to the “Patient Education” site. Once at the site, users select the type of educational material (i.e., symptom management or medication teaching) by highlighting a selection. The next screen displays the cross-referenced, alphabetical list of topics. Users highlight their choice and a teaching sheet is displayed; contents may be viewed before printing. Clicking the print icon directs to the Windows printer.

From any screen within the clinical application, nurses can click on an icon and go to the “Patient Education” site. Located on the application screens, the icon provides a visual prompt for users. For example, while documenting medication administration, users can exit the application temporarily and print the associated medication teaching sheets. While documenting vital signs, users can print the appropriate symptom management teaching sheets. After leaving the site, users automatically return to the medication administration or vital signs screen.

Promoting Use of the Intranet

The next step of the project was instructing the nursing staff how to access the site and get them excited about the new and more convenient method for obtaining printed teaching materials. Creative flyers informing the staff of the new intranet icon were posted in the appropriate patient-care areas. Education sessions were informal “roving in-services” that lasted 5–10 minutes and were held at times identified as convenient by the nurses. Members of the original task force went to various clinical areas and sought staff either individually or in small groups to try out the new site and to provide hands-on reinforcement. Colorful 8”x5” notices, which displayed the nurses’ customary toolbar and featured the new “Patient Education” icon, also were attached to computer terminals in nursing areas. Listed on the posting were simple instructions about accessing the site, selecting the appropriate medication or symptom management teaching sheet, and printing the documents.

The function was extremely simple; staff members quickly were able to instruct each other on use of the new system. Staff members also were encouraged to submit suggestions for new educational materials each time they logged on to the intranet. This technique is one way of keeping the site user-friendly and up-to-date with the materials needed by busy oncology nurses.

Patients with cancer and their families are at risk for experiencing fatigue. It takes time to recover from the cancer treatments, and all people respond differently.

Definition: Fatigue is a feeling of weariness, exhaustion, or lack of energy that results in decreased activity and alertness. This may be a response to physical and emotional stress.

Signs/symptoms: Complaints of feeling tired, weak, weary, or worn out. May appear pale, sleepy, or show a “tired walk.” A mental change in outlook or drive in life. Lowered physical endurance and energy level.

Self-care measures to manage fatigue (sample of two pages of content):
• Begin to identify factors that may be possible causes of fatigue and tire you the most.
• Do not try to do too much too quickly. Balance activity with quiet times during the day.
• Set goals and priorities each day that you can reach.
• Plan enjoyable activities for times when your energy level is highest (e.g., at a particular time of day or day of the week).
• Engage in mild to moderate exercise as you can tolerate. Do not exercise on the day you receive chemotherapy.
• Avoid temperatures higher than 75°F and humidity greater than 60% because high heat and humidity can increase feelings of fatigue.

When to call:
• When your level of fatigue is increasing despite using these hints or you feel the fatigue is lasting longer than you think it should.
• Signs and symptoms of infection: Refer to Low White Blood Cell Count sheet.
• Temperature greater than 100.5°F or other signs of infection.
• Unusual bleeding or bruising: Refer to Low Platelet Count sheet.
• If unable to drink for 24 hours.
• If unable to eat for 48 hours.

Note. These materials provide general information and should not be considered as a substitute for medical advice and treatment. You are encouraged to talk with your doctor about your specific medical condition and any problems you may have.

Figure 3. Template for Symptom Management Teaching Sheets: Managing Fatigue in Patients With Cancer and Their Families

Outcomes

About six months after project implementation, an informal survey was conducted. The collection tool was a one-page questionnaire that was completed during small group or one-on-one interviews with inpatient and outpatient staff nurses and case managers. Nurses had varying levels of clinical experience. Items scored included ease of use; teaching sheet content,
Implications for Practice

This article describes a streamlined process of making printed patient-education materials available by removing traditional barriers. Online storage of patient-education materials has several advantages, including online distribution, low cost, ease of access, regular updates, immediate availability, and no supply limitations. Having education materials online makes them easier to update, unlike booklets or pamphlets that need to be reprinted with each edition. NHS patient-education materials are current and easily retrieved on the campuswide intranet. This mode of delivery of patient-education can decrease nurses’ frustration and improve their job satisfaction and performance.

Plans for the future include using this delivery model in other service lines and extending it to outlying clinics. Further efforts to decrease barriers to patient teaching by use of the intranet will be identified and developed through the cooperative efforts of IT analysts and nurses.

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References


For more information on this topic, visit the following Web sites:

MGM: Designing the Healthcare Intranet
www.sechrest.com/mmg/proposal/

Patient Information and Education Resource
www.ons.org/xp6/ONS/Education.html/PIER.xml

These Web sites are provided for information only. The hosts are responsible for their own content and availability. Links can be found using ONS Online at www.ons.org.

Rapid Recap

Using the Intranet to Deliver Patient-Education Materials

- Disadvantages of using printed patient-education materials such as booklets include the expenses related to printing and storing materials, the need for storage space and inventory control, and the potential for the information to become outdated.
- An intranet, or internal computer network, can be used to electronically store, generate, and easily update patient-education materials.
- In oncology, patient-education materials that can be accessed via an intranet include medication teaching sheets, symptom management tips, and other materials, depending on the needs of patients.
- Use of an intranet system helps ensure that information for patients will be current.
- An intranet also can be used to generate institution-specific and patient-specific information.