Many patients diagnosed with cancer receive chemotherapy. Oncology nurses are responsible for educating patients prior to the chemotherapy experience. Studies have examined what topics should be covered for such patients and how education should be delivered, but little literature exists regarding how to help nurses organize the data and perform education. This article examines how a community oncology practice developed a checklist to assist oncology nurses in organizing and delivering chemotherapy education to patients. Principles of adult education are reviewed briefly. The principles can aid nurses in understanding how adult patients learn and how sessions can be most effective.

The American Cancer Society (2007) estimates that more than 1.4 million new cases of cancer will be diagnosed in 2007. Chemotherapy is a frequently recommended treatment for patients with cancer. Oncology nurses are aware of the issues involved when patients receive chemotherapy; however, opinions vary regarding how nurses can best prepare patients. Most oncology nurses provide chemotherapy education to their patients in some manner. Some follow formal programs, whereas others adopt more informal approaches. This article describes the educational process in a practice setting that moved from informal to formal through the creation of a chemotherapy education checklist.

Discovering a cancer diagnosis and learning that chemotherapy will be necessary can be very stressful. Patients must learn and retain highly technical and specialized information about treatments and related self-care issues. Internalizing new information under stress can be difficult. The American Cancer Society’s Web site (2006) stated that learning about cancer and its treatment can help patients regain some control and lessen the fear of the unknown.

Oncology nurses are responsible for the education of new patients. Several studies have questioned patients undergoing outpatient chemotherapy about their learning needs. In those studies, the most frequently cited needs were cancer-specific information and treatment-related information. Treatment-related information included exploring treatment options and side effects of treatment, coping strategies, drug information, and treatment procedures (Lock & Willson, 2002; Rutten, Arora, Bakos, Aziz, & Rowland, 2005). As for delivery method, patients preferred conversations with healthcare professionals and/or written materials (Lock & Willson; Smith et al., 2004).

Clearly, most patients prefer more information rather than less, and they wish to be informed. What is not clear is the best approach for teaching adult patients. The primary author decided to develop a checklist to accomplish the task of identifying the complex information that must be relayed to patients prior to chemotherapy. Learning plans sometimes are based on academic models, but adults do not always learn best under such models.

However, nurses may not be aware of certain adult-learning principles when educating their patients. Padberg and Padberg (1990) reviewed five years of clinical nursing literature and found very little mention of the use of instructional theory. They found that most journals focused only on what clinical information should be provided to patients. Although detailing clinical information that is important to patients is critical, understanding

At a Glance

- Adult learning is task or problem oriented and is motivated by internal pressures.
- Using the principles of adult learning, nurses can alter presentation to meet the needs of patients.
- A checklist can ensure completeness and consistency of educational sessions and provide a means of documenting that education was conducted, in addition to what was reviewed and discussed.

Peggy S. Mueller, MS, RN, OCN®, is an oncology clinical coordinator for Genentech, Inc., in South San Francisco, CA. At the time this article was written, she was a nurse oncologist at Santa Monica Hematology-Oncology Consultants in California. Catherine A. Glennon, RN, MHS, BC, CNA, OCN®, is director of nursing, cancer services, at the University of Kansas Hospital in Kansas City. The authors were participants in the 2006 Clinical Journal of Oncology Nursing Writing Mentorship Program. No financial relationships to disclose. (Submitted September 2006. Accepted for publication November 8, 2006.)

Digital Object Identifier: 10.1188/07.CJON.715-719
how adults learn is important to make educational experiences most effective. Padberg and Padberg applied Knowles’ (1980) adult-learning principles to patient education. Briefly, the principles (as adapted from Knowles’ [1990] updated publications) are as follows.

- Adults need to know why they need to learn.
- Adults need to be self-directed.
- Adults’ past experiences are resources for learning.
- Adults’ readiness to learn emerges from life’s developmental stages.
- Adults’ learning is task oriented or problem oriented.
- Adults are motivated by internal pressures.

Covering the aspects of adult learning in great detail is beyond the scope of this article, but nurses should keep those points in mind as they prepare for educational sessions with patients. The checklist does not address the learning principles specifically, but they should be considered while providing education. Here are some ways nurses can apply the principles of adult learning in chemotherapy education as they go through the checklist (see Table 1). Begin by asking patients about their goals for the educational sessions and their concerns about starting chemotherapy. Then explain to patients and families the importance of the education and how it will meet their goals and help them to manage their care and to prevent or manage common problems. This helps them understand why they need to learn. Nurses can offer patients choices in how they prefer to learn: by reading, through demonstration, on the Internet, or via responses to questions. This allows patients to be self-directed.

Ask patients about past learning experiences or life experiences that may relate to self-care needs; use knowledge of their backgrounds to convey information. Educators can help patients connect their past learning experiences to the new task. A crisis, such as a cancer diagnosis, provides a moment when a person is ready to learn as he or she enters a new life stage. Of course, many other stressful factors are at play at such a time, which may alter a patient’s willingness or ability to learn. Cancer chemotherapy is a problem-oriented situation, so patients may be motivated to seek information to address the situation. However, healthcare professionals also must consider patients’ goals for education to ensure that it is most effective. Again, review these with patients; if educational sessions meet their goals, they will be more effective.

Internal pressures that may motivate patients to learn include how to maintain quality of life, continue work, or attend social activities during chemotherapy. Such issues should be identified and discussed.

Most patient education materials are generic and do not address individual patient needs. Face-to-face encounters that include the principles of adult learning allow nurses to alter presentations to meet the needs of patients while matching the nurses’ teaching skills. This ultimately achieves the goals of learner and educator.

Development of the Chemotherapy Education Checklist

The outpatient oncology practice at Santa Monica Hematology-Oncology Consultants had been providing comprehensive patient education prior to the first chemotherapy appointment. Documentation in the medical record typically stated, “Patient education done, written materials given, and all questions answered.” Although that meets the practice’s criteria for documentation of the activity, it was not very specific. Also, each nurse providing the education determined what his or her patients were told.

Most organizations require patients to sign a “consent for treatment” document prior to starting chemotherapy. Informed consent implies that patients have received information about the risks and benefits of treatment and then have consented to receive treatment. The process protects patients and healthcare providers. Through consent documents, patients agree that they have been advised of treatments and their side effects, have had an opportunity to ask questions, and consent to treatment. But consent forms do not document that detailed instruction has been performed. In health care, the old adage is still pertinent: “If it wasn’t documented, it wasn’t done.” Therefore, documentation that details what education was provided to patients so that they could make informed decisions is very important, as is documenting what patients were told.

At the three-physician community oncology setting, five nurses were employed and provided one-on-one chemotherapy education to patients and caregivers prior to the first chemotherapy appointment. As new nurses were oriented to the process of educating patients, the primary author realized that formal process existed to ensure that each nurse conveyed consistent information. A policy that was developed by the physicians and the nurse manager was in place regarding what to cover, but it was not in a format that was useful during sessions with patients.

Why a Checklist?

Checklists are used commonly to ensure that all aspects of an activity are provided and nothing is overlooked. Checklists also can provide consistency by ensuring that each nurse providing education is reviewing the same topics with each new patient. Table 1 provides suggestions on how to apply adult-learning principles when using the checklist.

To determine the elements to include in the checklist, nursing input was sought. One nurse observed the nurse educator who had been delivering most of the chemotherapy education and had the greatest experience providing the education. The nurse observer documented the areas of teaching that were covered. A draft checklist was developed from the observations. Nursing and medical staff then reviewed the checklist for accuracy and provided input prior to development of the final checklist (see Figure 1). The following discussion reviews what is covered in each section of the checklist.

Orientation

Initially, patients tour the infusion room and receive an orientation to clinic procedures. During discussion of clinic procedures, patients are advised of the routine to expect during each clinic visit, including premedications and chemotherapy that will be administered and the length of each infusion. The concept of “days” and “cycles” and how they are numbered...
are explained. This is important because the terminology is used frequently during discussions concerning when patients must return for blood work or injections, and it is not common knowledge. Patients also are advised if they will need a driver, depending on premedications, and of the visitor policy. Patients are assessed for adequacy of venous access. They are informed that medications will be given via IV and that, if necessary (and previously discussed with a physician), a port or venous access device may be required to ensure safe delivery of medications. A port demonstration device is used to show patients what a port looks like and how it is used.

**Specific Drugs**

Each drug that patients will receive is discussed. Patients receive an information sheet about each drug from the Oncology Patient Education Resource Manual (Gillespie, 2002) and/or pamphlets from manufacturers. Patients are told how the drugs work in general terms. Such discussions help patients understand the side effects of the drugs.

**Side-Effect Profile**

The majority of the time during educational sessions is spent on discussion of medication side effects. As mentioned previously, patients receive written materials about each drug; the information includes the side effects of each medication. However, nurses still must review with patients what side effects to expect. Patients are given a copy of the booklet Chemotherapy and You: A Guide to Self-Help During Cancer Treatment (U.S. Department of Health and Human Services, National Institutes of Health, & National Cancer Institute, 2003a). The reference reviews side effects in general and provides suggestions for their relief.

- **Hair loss:** Hair loss can be the most devastating side effect for many patients. Patients are told when hair loss is likely to occur. During chemotherapy education, patients receive information about local resources for wigs and hair coverings, because they may wish to look at options prior to losing their hair.

- **Bone marrow suppression:** Patients who are given drugs that might cause neutropenia are informed regarding the signs of infection and when to call the clinic. Growth factor support products and injection schedules are discussed, if indicated. Prevention of infection is reviewed, and patients are instructed to avoid exposure to possible sources of infection, including certain foods. Proper handwashing techniques are reviewed as well. If prescribed medications can cause thrombocytopenia, patients are advised how to monitor themselves for bruising and bleeding. Anemia and fatigue are discussed, in addition to the use of supportive growth factors to manage anemia, if indicated. Nonpharmacologic measures, such as energy conservation and exercise, may be discussed as well.

- **Nausea and vomiting:** Nausea and vomiting can be the most time-consuming side effects to discuss. Many patients are on multiple drugs to prevent and control nausea, and each patient may have a different tolerance to nausea. Antiemetics and their schedules are discussed, as well as the side effects of the supportive products. In addition to medications to control nausea, nonpharmacologic measures are discussed, such as ginger products and other dietary recommendations. Patients are given the guide Eating Hints for Cancer Patients: Before, During and After Treatment (U.S. Department of Health and Human Services, National Institutes of Health, & National Cancer Institute, 2003b).

- **Sleep disturbances:** Patients undergoing chemotherapy can experience difficulty sleeping. Most are prescribed sleeping pills to use as needed. In addition, nonpharmacologic measures are discussed, such as taking warm baths, using relaxation techniques, and creating and following nighttime routines.

**Other Advice**

The checklist does not have to be completed in its original order, and some items may not apply to all patients. However, at this point in the educational process, nurses have developed relationships with patients; thus, discussing more sensitive topics may be easier, such as advice on sexual relations, avoiding pregnancy if appropriate, and limiting ingestion of alcoholic beverages.

<table>
<thead>
<tr>
<th>Table 1. Adult Learning Principles Applied to Prechemotherapy Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADULT LEARNING PRINCIPLE</strong></td>
</tr>
<tr>
<td>Adults need to know why they need to learn.</td>
</tr>
<tr>
<td>Adults need to be self-directed.</td>
</tr>
<tr>
<td>Adults use past experiences as resources for learning.</td>
</tr>
<tr>
<td>Readiness to learn emerges from life’s developmental stages.</td>
</tr>
<tr>
<td>Learning is task oriented or problem oriented.</td>
</tr>
<tr>
<td>Learning is motivated by internal pressures.</td>
</tr>
</tbody>
</table>

*Note.* Based on information from Padberg & Padberg, 1990.
bureaucracies to prevent toxic effects on the liver. Patients are counseled to contact the oncology practice if they need dental work or any other invasive procedure. Nurses review with patients how to make contact during office hours and after hours. Patients are given resources for community support, such as the Wellness Community and other local organizations. Reliable Web site resources are given to patients, including People Living With Cancer (www.plwc.org) and the American Cancer Society (www.cancer.gov). Web sites that are specific to cancer type also may be provided.

Nursing Implications

The checklist has been in use for more than two years. Covering the material on the checklist typically takes 45–60 minutes. The nurses have found the checklist to be helpful in organizing their educational sessions with new patients and their families. Nurses feel more confident that they are reviewing the necessary information with patients and that they are not leaving out any key points.

Oncology nurses can adapt the checklist to meet the needs of their practice settings or institutions. It can be expanded to include additional topics, or institution-specific changes can be made. A packet can be prepared for patients that includes information on each area of teaching (e.g., the wig referral sheet, hair loss information, teaching sheets on use of growth factors, dietary hints). When nurses are ready to perform teaching, all of the materials will have been organized in a format that patients can keep as a reference after the session. Some organizations may want to add the wording “Chemotherapy education checklist was done” to the patient consent form for treatment. Consent for treatment declares that patients were given adequate information to make informed decisions and consent. Reference to the checklist on the consent form clearly details what information was discussed with patients prior to initiation of treatment and that patients had time to ask questions regarding treatment. Also possible is adding a signature line for patients to sign to acknowledge that they received the education. The form currently is not given to patients in the author’s practice, but copies could be made for patients.

The checklist contains a great deal of information to discuss with newly diagnosed patients at one time. They will need reinforcement of the new materials. At each chemotherapy session, nurses can use the checklist to review information. Nurses should ask patients to express understanding of the use of antiemetics and other supportive medications taken at home. They should review the side effects and who and when to call to report symptoms. Hearing the information once usually is not enough to solidify the material in patients’ minds. If a patient does not seem to have a clear understanding during the initial session, a nurse can document on the checklist specific areas that need to be reinforced. Nurses can refer back to the checklist to review items on any subsequent appointments.

The checklist does not specifically address the use of oral chemotherapeutic agents. Many new drugs that have been approved for the treatment of cancer are taken orally. A shorter checklist could be developed to review the key points for patients taking oral chemotherapeutic medications. Some additional issues to include would be physical descriptions of the pills, reminders to take medications (e.g., pill boxes, daily diaries), importance of taking medications at the same time each day, and whether medications should be taken with or without food. The Oncology Nursing Society (2006) offers patient education sheets on many oral chemotherapy treatments. They can be helpful handouts for patients.

Name: ____________________________ Date: ________________

Treatment regimen and drugs: ____________________________

• Assess patient’s venous access.
• Chemotherapy routine
  – Physician visit, draw blood, check complete blood count, premedications and chemotherapy infusion, length of treatment
  – Days and cycles; postchemotherapy blood tests and injections
  – Have driver if necessary; review appropriate food to bring.
  – Tour infusion room; review visitor policy.
• Specific chemotherapy drugs to be used; sheets or booklets on specific agents given to patient
• Eating Hints booklet given to patients; dietary needs discussed
• General side effects and medications to control them; Chemotherapy and You booklet given to patients
  – Hair loss: wig referral sheet and booklets
  – Low white blood cell count
    • Call if you experience fever higher than 100.5°F, dysuria, cough, diarrhea, sore throat, or redness or pain at surgical or catheter site.
  – White blood cell growth factors
  – Avoid crowds, sushi, and raw meat.
  – Low platelets: bleeding, bruising, etc.
  – Anemia and fatigue; progressive nature
  – Red blood cell growth factors
  – Nausea and vomiting
    • Preventable
    • Medications: antiemetics, proton pump inhibitors, etc.
    • Side effects of antiemetics: constipation, blurred vision, and headache
    • Use of laxatives and acetaminophen
    • Small, frequent meals; ginger; cool foods; Eating Hints booklet
  – Sleep disturbances
    • Sleeping pills
    • Warm baths and relaxation techniques
• Sexual relations and contraception
• Avoid alcoholic beverages.
• Dental visits: Elective dental work should be completed prior to the beginning of therapy.
• Any procedure (dental, dermatologic, or other) must have approval from treating oncologist and a complete blood count prior to procedure.
• The clinic’s voice mail system and how and when to contact the clinic.

Comments and additional information: ____________________________

Signature: ____________________________

Figure 1. Chemotherapy Education Checklist
Note. Checklist courtesy of Santa Monica Hematology-Oncology Consultants. Used with permission.
Additionally, the checklist does not overtly address the emotional needs of patients and caregivers dealing with the chemotherapy experience. Although references are made to community resources that can be supportive, more could be done to address such needs in future versions.

Implications for Research

The checklist was reviewed by the clinical team prior to implementation. However, patients were not evaluated prior to and after implementation of the checklist. If the process is repeated in another setting, evaluating patients before and after initiation of the checklist could be valuable to observe any impact on patient retention of material, adherence to recommendations and medication schedules, or other patient outcomes. Additionally, research could focus on comparing a practice prior to and after initiating formal chemotherapy education sessions, to measure any differences in time to teach, patient retention, and adherence to teaching. Although no formal evaluation occurred, informal feedback from nurses was extremely favorable and reinforced the concept that the checklist provided organization and consistency in teaching sessions regardless of which nurse was providing the important intervention.

Conclusion

The community oncology practice found that the checklist was very helpful to oncology nurses preparing patients prior to chemotherapy. Checklists can ensure completeness and consistency and provide a means of documenting that education was conducted, in addition to what was reviewed and discussed. They also can be used to facilitate adult learning principles. Although this article centered on what one practice does, the checklist easily can be adapted to other practices by including areas that a specific organization would like to address. By customizing the checklist based on patients’ learning needs, nurses can provide effective teaching using the adult-learning principles as discussed earlier and shown in Table 1. Patients will know why they need to learn the prechemotherapy information and will have resources to be self-directed in continuing their learning. Nurses cannot motivate patients to learn because patients are driven by their own internal pressures, but nurses can provide an organized framework using the checklist, which outlines the important components of prechemotherapy education.

If you have a chemotherapy education checklist that you would like to share with other oncology nurses, please send it to the author via e-mail to peggysuemueller@aol.com. The Oncology Nursing Society Chemotherapy Special Interest Group (SIG) is interested in posting chemotherapy education checklists on its Web site (http://chemotherapy.org). Any checklists that are sent to the author will be forwarded to the Chemotherapy SIG.

Author Contact: Peggy S. Mueller, MS, RN, OCN®, can be reached at peggysuemueller@aol.com, with copy to editor at CJONEditor@ons.org.

References


Receive continuing nursing education credit for reading this article and taking a brief quiz. See the Continuing Nursing Education in this issue for more information.