High levels of anxiety negatively affect how education is received by newly diagnosed patients with cancer by decreasing comprehension, retention, and patient satisfaction. Research has repeatedly shown that, after a careful assessment of individual needs, effective patient education delivered during the initial phase of diagnosis and treatment can improve symptoms of anxiety and fear, improve self-care decisions, decrease side effects of treatment, and enhance quality of life. The educational intervention presented in this article aims to improve the current system of providing education for newly diagnosed patients with cancer by assessing each patient and presenting an individualized information program in a controlled environment prior to chemotherapy.

More than 1.5 million people in the United States were diagnosed with cancer in 2010 (American Cancer Society, 2010). No other disease state evokes such a life-threatening reaction to immediately hinder quality of life. Receiving effective information regarding diagnosis and treatment during this stressful time period is very beneficial in reducing anxiety, regaining a sense of control, and creating realistic expectations (Hinds, Streater, & Mood, 1995; Ream & Richardson, 1996; Wells, McQuellon, Hinke, & Cruz, 1995). Appropriate educational interventions also have been noted to support patients in coping with a newly diagnosed cancer (Mueller & Glennon, 2007). Oncology nurses frequently shoulder the responsibility of educating patients about their disease and the recommended therapy, potential side effects, and other vital information (Brant & Wickman, 2004; Luker et al., 1995). Oncology nurses also should be aware of the importance of providing timely, individualized instruction to patients newly diagnosed with cancer after assessing each patient’s needs and preferences (McPherson, Higginson, & Hearn, 2001; Stephens, Osowski, Fidale, & Spagnoli, 2008). Consequently, an educational presentation tailored to each individual and delivered prior to chemotherapy may help ensure better patient satisfaction and positive outcomes.

The purpose of this quality improvement project was to enhance the current system of providing information to patients newly diagnosed with cancer and their families. The delivery of individualized content prior to chemotherapy was evaluated in a controlled learning environment to accomplish this task.

At a Glance

- Before planning an education presentation for newly diagnosed patients with cancer, an assessment of needs should be completed.
- Literacy level, reading skills, personal preference for learning, cultural or religious aspects, pain level, and amount of anxiety should be determined by the oncology nurse using an effective assessment tool.
- Patient satisfaction and quality of life during the initial phase of cancer treatment are increased when effective education is presented prior to chemotherapy treatment.

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The oncology nurses were expected to present generic data in a meaningful way and to meet the patient’s need for knowledge without knowing any specific personal information. Factors, in addition to their ability to learn (Mills & Sullivan, 1999). The literature notes that many other factors must be considered when evaluating a patient for education, such as literacy level, personal preference of learning methods, spiritual and cultural beliefs, available support systems, pain level, and present amount of anxiety (Bilodeau & Degner, 1996; Chelf et al., 2001). Newly diagnosed patients with cancer desire timely education presented in a format they can comprehend (Skalla, Bakitas, Furstenberg, Ahles, & Henderson, 2004). By learning about an individual before attempting to provide education, valuable insight is gained in selecting the best method and content in accordance with individual needs and past experiences.

Prior to implementation of the quality improvement project outlined in this article, the educational policy in the author’s outpatient clinic consisted of patients being given brief drug information in the infusion clinic moments before chemotherapy was initiated. Starting treatment and being in an unfamiliar environment was particularly distressing to new patients with cancer (Deshler et al., 2006). The oncology nurses were expected to present generic data in a meaningful way and to meet the patient’s need for knowledge without knowing any specific personal information to help build the instructional foundation. Overall, comprehension and retention rates were low, as demonstrated by misinformation, frequent telephone calls, and unnecessary emergency room visits. Therefore, the purpose of this quality improvement project was to develop and implement a protocol to improve education in an outpatient setting for patients newly diagnosed with cancer.

Conceptual Framework

The models used to guide this project were based on a theoretical framework on adult learning and goal attainment by King (1981, 1992), and the Outcomes-Focused Knowledge Translational Intervention Framework (OFKTIF) (Doran & Sidani, 2007). King’s (1981, 1992) framework provided the foundation for the quality improvement project using the three domains of learning—affective, cognitive, and psychomotor. Written material and didactic content addressed the cognitive domain, hands-on demonstrations met psychomotor aspects through tactile sources of teaching, and affective domains were influenced through developing attitudes necessary for learning (Hessig, Arcand, & Frost, 2004). Based on this model, the nurse and patient relationship was viewed as one of mutual trust with patient values and wants and needs given high priority. Goals were jointly determined by the patient and nurse, and the means to achieve goals were openly discussed. Communication was important and verbal and nonverbal methods were continuously evaluated as the relationship developed into one of understanding and trust.

The OFKTIF provided direction for the project because emphasis was placed on improving the current system of education in an attempt to identify deficits within the information process (Doran & Sidani, 2007). The four areas of concentration included facilitation, content, patient preference, and sources of evidence. Facilitation occurs as nurses help patients adjust to a cancer diagnosis by providing valuable information in relation to personal preferences. For example, some patients referred to as monitors by Miller and Mangan (1983) seek information as a way to regain control over their lives and reduce anxiety. Others assume a more passive role by not requesting information and are classified as bluntners (Miller & Mangan, 1983), allowing others to make important decisions. Positive coping skills were encouraged along with self-care, therapeutic actions, and functional abilities in the model, and individual needs were identified. Patient preference of learning materials is important for the oncology nurse to determine to achieve the best possible outcome. Some patients may prefer written materials, whereas others may benefit from audiotapes or Web sites for information. Although content of new patient education varies greatly from center to center, common areas usually are addressed, such as chemotherapy drugs and associated side effects, treatment schedule, care of venous access device, nutrition, routine laboratory tests, and clinic regulations regarding telephone calls and emergencies. Sources of evidence should be closely evaluated and used to provide the most accurate up-to-date information to the patient. Using reputable Web sites and quality educational material will prevent confusion and misinformation.

Intervention Development Guidelines

When making improvements to existing patient care practices, guidelines such as those from the Institute of Medicine (IOM, 2001) should be closely followed. Patient care should always be safe, putting the well-being of an individual first. Examples include the following.

• Safety: Decrease risks and increase awareness of potential side effects.
• Timeliness: Decrease anxiety and fear during the period from diagnosis to treatment.
• Efficiency: Patient knowledge to make informed decisions decreases unnecessary telephone calls and hospitalizations.
• Effectiveness: Individualized education allows each patient to learn, to the best of his or her ability, information that will be beneficial during the treatment process.
• Patient centered: Plan education around each individual’s needs and preferences.

Patient Education

Incorporating evidence-based practice into the clinical setting is necessary if maximum patient outcomes are to be achieved. Even with the best intentions, implementing a quality educational program into a busy oncology center is a monumental challenge
(Kuhrik, Kuhrik, McCarthy, & Grabowski, 2010). Healthcare providers should use evidence-based practice as a problem-solving approach that combines the best evidence from reputable studies along with clinical excellence and patient preference (Melnyk, Fineout-Overholt, Stillwell, & Williamson, 2010). New methods of education for patients with cancer have been widely researched with benefits thoroughly documented in numerous studies.

Oncology nurses need to know not only what to teach their patients, but also how adults learn new material. Padberg and Padberg (1990) examined Knowles’ (1980) principles of adult learning and found that adults (a) use past experiences as learning resources, (b) need to be self-directed, (c) need to know why they need to learn, (d) have a readiness to learn that comes from developmental stages, (e) see learning as task or problem-oriented, and (f) are motivated by internal pressures. Incorporating these concepts will help ensure a successful outcome as oncology nurses realize that all patients are at different stages of life with various expectations for the information session. Building on past experiences, encouraging independence to complete the current task, and relaying knowledge will assist patients through the treatment phase and result in improved learning.

**Literacy**

Prior to developing an educational intervention, literacy levels should be assessed because many patients have difficulty reading and comprehending written materials. An IOM (2004) report described health literacy as “the degree to which people can obtain, process, and understand basic health information and services they need to make health decisions appropriately.” Unfortunately, many patient materials are written on higher grade levels that are too difficult for the general population. Singh (2003) conducted a quantitative review of 10 cancer brochures published by various cancer centers and found that the average grade level required to understand materials ranged from 9–15, with a mean of 12. Contrary to popular belief, most adults with low literacy levels are Caucasian, native-born Americans (Parker, Ratzan, & Lurie, 2003), and not children, those who use English as a second language, or the uneducated (Karten, 2007). Nurses must evaluate each individual for literacy needs regardless of appearance, race, age, or income prior to selecting appropriate learning materials.

**Patient Preference**

Patient preference also plays a tremendous role in being successful when presenting new information. Inquiring about the amount of information desired by a patient is important, as stated previously, because some patients want detailed presentations whereas others request only pertinent facts pertaining to their disease and treatment. Many patients who avoid information may see themselves as dying from the disease, whereas others who aggressively seek information may view themselves as living with cancer (Van der Molen, 2007). The type of information desired also is important because some patients are computer savvy and will benefit from reputable Web sites (Balmer, 2005), whereas others can barely read and may learn more effectively from audiotapes or active discussions. Effective educational tools can reinforce vital information and improve comprehension and patient satisfaction while decreasing anxiety and depression related to cancer treatment (Johnson, 1982; Thomas, Thornton, & Mackay, 1999).

**Assessment**

When performing the initial assessment, determining the patient’s support system is necessary because close family or friends can play a major role throughout the cancer treatment process (Nikoletti, Kristjanson, Tataryn, McPhee, & Burt, 2003). In many circumstances, a caregiver may be a link in providing information, such as dietary patterns, medication compliance, and side effects of treatment. If a new patient lacks an active support system, other options may be explored such as home health or community services to provide food or transportation. If patients lack support at home, an ongoing relationship with a nurse or health provider may increase adherence to therapy (Moore, 2010). Caregivers should always be included in the educational sessions because they are active participants in the treatment process and should feel comfortable in relaying information concerning the patient’s condition.

Assessment of cultural and religious issues directly influencing treatment regimens are vital and should be planned for accordingly as they may have a direct effect on patients’ perceptions regarding themselves, their health, cancer, and participation in treatments (Dodd, Chen, Lindsey, & Piper, 1985; Facione & Katapodi, 2000). In a multicultural environment, individuals can present with beliefs or traditions that may affect their cancer treatment (i.e., in some religions the use of blood products is strictly prohibited, which may limit particular treatments or dosage options); however, cultural differences must be respected. The avoidance of certain foods or medications should be known early in the treatment process and necessary allowances made to accommodate the patient. Language barriers make communication and informed consent very difficult, and interventions should be planned well in advance of the educational presentation to effectively relay treatment information.

**Barriers to Treatment**

When performing patient assessments, the oncology nurse must be aware of barriers to learning. Pain can affect learning because attention is directed toward a distressing symptom and not the verbal exchange of information. All attempts should be made before attempting to educate to effectively control a patient’s discomfort. Older adults are particularly at risk for

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<th>Table 1. Evaluation of Educational Process by Patients With Cancer</th>
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<tr>
<td><strong>SURVEY STATEMENT</strong></td>
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<td><strong>GROUP A</strong> (N = 32)</td>
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<td><strong>GROUP B</strong> (N = 40)</td>
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<td>n %</td>
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<tr>
<td>Anxiety reduced by education</td>
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<td>Conductive area and appropriate time allotted</td>
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<td>Quality of life improved</td>
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misinterpreting information, particularly if they are experiencing visual or hearing difficulties. A responsible adult should be present when new material is offered so he or she can support the older adult patient and reinforce education pertaining to treatment-related problems and side effects at home (Jansen, van Weert, van Delmen, Heeren, & Bensing, 2007). Cognitive deficits in memory are more common in older adults and need to be taken into account when preparing instructional sessions (Fitch, Gray, & Franssen, 2001; Green & Adelman, 2003). Data may need to be repeated or written, and verbal reinforcements given often throughout the treatment process. Anxiety is a barrier to learning and should be addressed prior to providing education (Stephenson, 2006). Cancer is a real threat to life and well-being, resulting in increased anxiety (National Coalition for Cancer Survivorship, 2006). Devine and Westlake (1995) viewed anxiety as resulting from a lack of understanding, and education was one effective means of managing anxiety. Debilitating anxiety can occur in the early stages of a cancer diagnosis and may require medication. Addressing existing barriers to learning is necessary before attempting to educate new patients with cancer to achieve the best outcome.

Methods

After institutional review board approval was received from the University of South Alabama in September 2009, the quality improvement project was implemented. The project goal was to improve the existing system of providing new patient education; therefore, it was a quality improvement intervention rather than a research project. Two groups were identified: newly diagnosed patients (group A) and former treatment patients (group B). Newly diagnosed patients with cancer were determined by the participating oncologist and referred to the project manager for voluntary enrollment into the educational intervention project. The program was fully explained to the patient and family and permission to participate requested. Eligible participants were older than age 18, had a new cancer diagnosis (in approximately the past two weeks), and were recommended to have chemotherapy as part of their treatment regimen. An initial assessment of specific needs and personal preferences was completed using the assessment tool designed by the project manager. This tool is consistent with the theoretical underpinnings of the project and integrates the three domains of learning—cognitive, psychomotor, and affective—in the assessment. The focus areas of the tool were literacy, education level, preferred amount and type of information, cultural and religious influence, pain level, and present anxiety. The oncology nurse responsible for new patient education used this data to compile an individual education intervention designed to meet specific patient needs and preferences. Material was selected from a library of teaching material organized in the facility, including tapes, booklets, chemotherapy information sheets, and a new patient brochure. Included in the brochure were areas for documenting current treatment regimens and medications, calendar pages for scheduling appointments, basic facility information, and other vital facts such as local and national support groups, home health agencies, hospices, and pharmacies. The information presentation was scheduled prior to chemotherapy, allowing an hour of instruction for the patient and family in an environment conducive to learning. The instruction was provided on a one-on-one basis, not in a group setting. The one-hour time factor allotted for education remained the same as the previous method, but the time of presentation and environment was altered. Communication was enhanced between the oncology nurse and patient as a trusting relationship began to evolve. If at all possible, the new patient was assigned to the same nurse for the first chemotherapy session to encourage continuity of care and decrease anxiety from encountering unfamiliar staff. After about two weeks of chemotherapy, patients in group A were evaluated using a six-question evaluation form developed and administered by the project manager. The form rated patients’ feelings of satisfaction about the education experience, including timing, environment, and content. In addition, questions concerning anxiety and quality of life also were included in the questionnaire.

For patients in group B, information was collected during follow-up visits to the clinic when possible. Telephone calls were made to other former patients meeting the guidelines if they were not scheduled for a clinic visit within the appropriate timeline. A limit of two years from the time of chemotherapy completion was set to provide additional consistency and accuracy regarding recalled feelings and information received during an educational experience. The patients in group B received no information prior to the first day of chemotherapy; instead they were given all prechemotherapy information in the infusion area just prior to treatment. These patients were then asked to respond to the same brief evaluation that was given to patients in group A to record their experience.

Using the OFKTIF as a foundation, the educational intervention changed the practice environment as timing, content, personalization, and delivery were improved. The oncology nurses were informed and educated about the new process and the various expected benefits to the patient and family members. Nurses rotated weeks in which they performed assessments...
of newly diagnosed patients and provided education prior to chemotherapy. They were encouraged by the positive results in decreased patient anxiety and improved patient comprehension and retention.

**Findings**

Group A originally enrolled 40 participants but lost eight during the educational process, three to transfers, two to hospice, and three to death. The remaining 32 patients completed the evaluation along with 40 participants from group B. Demographic data included 16 women and 16 men in group A and 26 women and 14 men in group B. Ages ranged from 22–83 years in group A, with a mean age of 64. Group B ages ranged from 41–81, with a mean age of 63 years. The findings on rating questions are shown in Table 1.

When asked how oncology nurses could improve the educational program, patients in group A were overwhelmingly satisfied, voicing few suggestions for improvement, whereas patients in group B offered numerous suggestions with the most common response being to give more information sooner than day one of treatment. Other responses were to use fewer confusing words in the booklet, list more possible side effects of chemotherapy, and to offer a tour of the clinic before starting treatment. Both groups rated the patient booklet and talking with the nurses as the most helpful aspect of the educational process. Written information and talking with other patients receiving chemotherapy also were viewed as helpful.

**Discussion**

The results of this quality improvement project indicate that education for patients newly diagnosed with cancer should be individualized to address specific needs and preferences. Even considering the effect of patient recall in group B, patient satisfaction was greatly increased using the new intervention while anxiety was lessened. The results are consistent with prior research indicating various benefits from effective patient education, adding to the evidence base for effective education (see Table 2). The findings can easily be replicated in other oncology clinics when educating new patients with cancer and can lead to improved quality of care. Figure 1 illustrates the educational process from initiation through completion.

**Future Research**

Additional research is needed to evaluate the important phase between cancer diagnosis and treatment regarding patient education. During this time, information is desperately needed by new patients to support effective coping and adjustment to cancer. Many variations exist regarding patient preferences, experiences, and learning styles; therefore, additional attention to patient assessment would be beneficial. Education should be ongoing throughout the cancer experience and additional research addressing specific requirements at certain periods during the treatment and recovery phases would help ensure effective nursing interventions.

**Conclusion**

Patients newly diagnosed with cancer receive many benefits from education that are timely and tailored to individual needs. Anxiety, which is common in the initial phase of cancer diagnosis and treatment, is decreased with effective education while comprehension, retention, and quality of life are increased. Education for new patients with cancer should occur prior to chemotherapy in an environment situated to enhance learning. Quality of life during the brief period from diagnosis to treatment is improved when anxiety is lessened, coping is enhanced, and needs are met during education. In conclusion, getting to
know patients more thoroughly before attempting to provide them with education ensures a more positive experience and results in improved patient satisfaction.

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