Patient Education: A Mandate for Health Care in the 21st Century

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Objective: This first article, of a two-part series, presents the foundation for patient education in the nuclear medicine department. The need for patient education through mandates, such as the JCAHO, is discussed and the relevant literature surrounding the delivery of patient education is reviewed. The emphasis is on proper learning by patients, including the means of maximizing the facilitators to learning and minimizing barriers that limit patient learning in the clinical setting. After completing the article, the reader should be able to: (a) describe the mandates for patient education; (b) discuss the current practice of patient education in health care; (c) describe the effective implementation of learning; (d) list barriers and facilitators to patient learning; and (e) give examples of how barriers to learning can be minimized and facilitators can be maximized. Practical applications will be discussed in the second article.

Key Words: patient education

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Patient education is well accepted as an essential component of clinical practice for health care professionals who work with patients. While patient education has long been considered important to competent care, including patient education as a core requirement in a technologist's education is a relatively recent phenomenon. The American Hospital Association did not pass the *Patients' Bill of Rights* mandating patient education until 1992. Two years later the Joint Commission on Accreditation of Health Care Organizations (JCAHO) incorporated patient and family education as required standards for all accredited facilities. These standards focused on ensuring that patients and their significant others were knowledgeable, competent and active participants in care practice (*1*). The *Accreditation Manual for Hospitals* (*2*) requires that patients and their family members be provided with appropriate education and training about the illness and its treatment needs, skills and behavior to promote recovery, and improvement of function and discharge instructions necessary to ensure continuity of care. The emphasis on patient education has been strengthened significantly in the most recent JCAHO standards (*3*) which state patient education should:

1. Facilitate the patient's and/or, when appropriate, family's understanding of the patient's health status, health care options and consequences of options selected;
2. Encourage patient and/or family participation in decision making about health care options;
3. Increase the patient's and/or, when appropriate, family's potential to follow the therapeutic health care plan;
4. Maximize patient and/or family care skills;
5. Increase the patient's and/or, when appropriate, family's ability to cope with patient's health status, prognosis, outcomes;
6. Enhance the patient's and/or, when appropriate, family's role in continuing care; and
7. Promote a healthy patient life-style.

The addition of patient education to the JCAHO standards has taken on increased importance to hospitals since accreditation is vital for hospitals to remain financially solvent and competitive (*4*). Thus, the purpose of this first of a two-part series is to address the essential components of patient education for nuclear medicine technologists. These components include: (a) practice and delivery of patient education; (b) facilitating patient learning; (c) reducing barriers to patient learning; and (d) learning the elements of the teaching-learning environment. The second article will discuss the application of patient education in the practice of nuclear medicine technology.

PRACTICE AND DELIVERY OF PATIENT EDUCATION

A review of the health science literature suggests limited information is available concerning patient education and health promotion services (*5,6*). While some information is available on services provided by hospitals, less information is available on services provided by other facets of the health care

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industry, particularly individual health care providers. Information derived from hospital educational programs suggests patient education may be much less comprehensive than desirable. The American Hospital Association reports that 86% of U.S. hospitals provide formal patient education services (*5*). This statistic suggests that informal teaching is provided in the other 14% of hospitals and is construed as part of the health professional-patient interaction.

A report by Dorresteyn-Stevens (*6*) on rural and urban hospitals in North Carolina noted that both types of hospitals were equally likely to offer health promotion programs. The most common programs were those related to cardiopulmonary resuscitation (CPR) and acquired immunodeficiency syndrome (AIDS). A small fee to participants often was used to help defray costs. Hendryx (*7*) reported 99% of rural hospitals in Iowa regularly offered an average of 7.5 health promotion programs to individuals residing in the community. These programs included topics on blood pressure and cholesterol screening, safety and protection, diet/nutrition, prenatal/maternal health, and breast cancer screening. In addition to the group education programs available in many agencies, group classes are often available related to problems treated at the agency (*8*).

Patient education requirements often are related to state regulations. Keleher and Stanton (*9*) reported New York State hospital-reimbursement laws required all voluntary, nonprofit hospitals to develop community service plans. In many cases, a needs assessment of the community resulted in education for family caregivers.

Some education programs have been developed as incentives to draw patients in for other services. Greico (*10*) reported the Cooperative Care Unit at New York University Hospital is designed for patients who face changes in life-style. Patients are admitted from home or hospital for a presurgical procedure (cardiac catheterization) or medical treatment (e.g., radiation therapy). The unit has a homelike atmosphere, with privacy for the patient and partner, and emergency care is readily available. Education is central to the services received. This program has been evaluated positively for helping the patient/family cope with life-style changes and has decreased costs.

The Planetree model (*11*) also emphasizes education as an incentive to attract patients. This model uses a philosophy of compassion, dignity, shared knowledge and the freedom of informed choice. Presently four units are in place across the nation. A homelike, healing environment is present with each patient having an individualized schedule based on need. Patients are assisted to optimal functioning through an extensive library of printed and videotaped educational materials (*12*).

Many hospitals distribute patient education materials throughout the community. In addition, special services offered by the hospital are described and public educational offerings are made available. For example, Memorial Health System in South Bend, Indiana publishes a biannual magazine, *Pulse*; Lindenview Regional Behavioral Center in Fort Wayne, Indiana publishes a quarterly pamphlet, *Helpline*; and Oaklawn Psychiatric Hospital in Goshen, Indiana, publishes a quarterly pamphlet, *Oakleaves*. The publication of the Memorial Health Systems provides an outline of community services available through their integrated delivery system and provides access information for prospective patients (*13*).

Clinical pathways are another current care delivery concept that uses patient education as a central aspect of the treatment process. The pathway serves as an organizing framework for the interdisciplinary delivery of care and incorporates patient and family education to ensure meeting both time-based process standards and outcome standards (*14*). A clinical pathway typically is implemented by an interdisciplinary treatment team and outlines the predictable course of recovery for an expensive surgical procedure, such as a total hip replacement. Variances in patient progress can be identified easily through these pathways and subsequent trends and problems can be addressed by staff either through patient education programs or changes in institutional policies and procedures (*15*).

The federal government also is involved in patient education programs. For example, the National Eye Health Education Program, established by the National Eye Institute, addresses eye disease and vision loss, particularly among individuals with diabetes (*16*). In 1990 federal law requiring pharmacists to counsel patients on Medicaid prescriptions was enacted (*17*). Subsequently, many states adopted laws requiring pharmacists to counsel patients on their medications. Today pharmacy benefit managers not only purchase and dispense pharmaceuticals, but monitor drug use and practice disease management. If the medical treatment plan suggests a patient's illness is not being adequately controlled, special educational services are provided by the health maintenance organization. This process may result in the pharmacist being notified that a patient needs counseling on the correct use of treatment modalities, such as a bronchodilator (*18*).

Technical professions may have difficulty with what they see as affective components of patient care, and the link between nuclear medicine technology and patient education may seem to be diffuse. But technologists often function in roles similar to pharmacists; they administer agents to patients based on the prescription of a physician. Although these agents are more often diagnostic than therapeutic, the goal of high-level patient health is the same.

Throughout the 1990s, alternative health care, self-care and a philosophy of the patient's "right to know" has permeated the U.S. health care system. Today patient access to medical information has significantly increased in local libraries, hospitals and bookstores. In *Women's Health Center Management*, Beers (*19*) outlined the answer to the reader question, "Where can I go for free or low-cost patient education material?" Many voluntary health agencies, government agencies, consumer organizations and directories are available with a wide range of information and available resources. The U.S. Department of Health and Human Services distributes *Prescription medicines and you: a consumer guide* (*20*) which is available to the general public and provides specific instructions for patients. This publication was funded by Ciba pharmaceuticals and encourages patients to be active advocates in their own care.

As computer technology develops, patient education is increasingly delivered through electronic communication. Hospitals may provide computerized patient education documents or patients may purchase computer education programs to use on their home computers. Internet access to the National Library of Medicine and specific web sites for different diseases provides unlimited information on an almost unlimited array of health topics (*21,22*). In a study by Tetzlaff (*23*), while live interaction for delivering patient education was preferred, consumers expressed interest in on-line patient education.

WHAT IS LEARNING?

Learning can be seen in terms of four commonplaces: *someone* (the teacher) is teaching *someone else* (the learner) about *something* (the curriculum) in *someplace* (the classroom or environment) (*24*). A deficit in any of these four areas will compromise the teaching/learning situation. Anyone who teaches, including nuclear medicine technologists who teach patients, must ensure that they maximize those aspects of learning that facilitate learning and minimize those that serve as barriers to learning. This means providing an effective curriculum (the organization of information) by an individual qualified and willing to do so in a place that is as conducive to learning as possible.

THE TEACHER

The professional providing patient education must be a skilled facilitator of knowledge and a human relations expert. Some people have better skills than others in reaching people and creating an environment that facilitates learning. Nurse practitioners or radiology nurses are often used as patient educators in the radiology and nuclear medicine departments (*25–27*). Perhaps this occurs because it is assumed that nurses are better at providing patient education than technologists. This assumption may be based on professional curriculum differences. However, it makes sense that the most available educators regarding nuclear medicine preparation, procedures and follow-ups would be those individuals with the most patient contact during the procedure, the technologists. Nuclear medicine technologists themselves must resist notions of nurses being better able than them and assume their full responsibility in educating the patient.

FACILITATING PATIENT LEARNING

The nuclear medicine technologist is frequently involved in educational instructions with the patient both before and during a procedure. Often this education is designed to assist the patient, family or significant others in knowing what to expect and how to best cooperate during and after the procedure. In other cases, patients are provided information about a procedure as part of the informed consent process. Whether the education is formal or informal, in a group or individual setting, planned in advance or done while a procedure is under way, it is important for the nuclear medicine technologist to know the components that facilitate the learning process.

Motivation to learn often explains differences in the responsiveness of an individual to adapt and integrate new behaviors (*4,28*). The degree of motivation is influenced by the willingness of the individual to become involved in the learning process and to initiate, direct and maintain the newly acquired behavior. Motivation generally is greatest when the individual recognizes a need and believes the need will be fulfilled through obtaining new information. Thus, it is not enough for the learning need to be identified by the nuclear medicine technologist. The learning need also must be experienced by the individual involved, whether that is the patient, family member or significant other. A variety of factors are known to affect motivation to learn and subsequent retention of knowledge and include: (a) feelings of control; (b) readiness to learn; (c) personal involvement and commitment; and (d) organization of the presentation.

Feelings of Control

In many cases involving patient teaching, the initial step is to help the individual recognize that learning will be beneficial in some way. In addition, the technologist must help the learner understand the worth of the information being presented.

Attribution theory provides one model for explaining events through the concept of locus of control. Persons with an internal locus of control generally attribute success or failure to their own efforts or abilities. Those with an external locus of control generally believe that success or failure depends on luck, task difficulty or the actions of other people (*29*). For example, an individual who has an external locus of control may see no need to learn about preventive health care actions. They may perceive their health situation as "whatever will be, will be." Thus, it is important to establish that personal control over health is both possible and desirable. If the nuclear medicine technologist ascertains a patient has an external locus of control, the first goal of teaching may be to demonstrate how easily one can control health outcomes and the benefits of such positive thoughts and actions.

Readiness to Learn

Readiness to learn is the receptiveness of an individual to acquire new knowledge. This influences whether behaviors or attitudes ultimately change (*28*). Factors that may affect readiness to learn include feelings of personal control over health status, psychological state, perceptions about the future, personality style, physical state, feelings of support from others, personal goals and timing.

If an individual is depressed or feels hopeless toward the future, receptiveness to learning is likely to be minimal. The individual may be distracted and may not be able to hear the information being presented. Thus, it is important to initially assess the psychological state to determine if the learner is ready and willing to acquire the information. If the patient's attitude is such that learning is unlikely to occur, it may be more appropriate to provide the educational information to a family member or significant other.

The physical state of an individual also influences readiness to learn. The technologist should ascertain if the learner is in

pain or has just received medication that may adversely affect cognition and assimilation of knowledge. The technologist may want to tailor their mode of teaching to include the patient's ability to comprehend both visual and auditory content. It is essential to optimize presented information. The comfort level also should be ascertained. For example, the learner can attend to the education better if they are in a comfortable position where the technologist can be seen and heard clearly. Readiness to learn also is influenced by the support of family and significant others. If the family is optimistic and hopeful, eager to be involved in the learning process, and encourages the patient to do everything possible to control their health, this will positively influence the patient's learning ability. The technologist can positively reinforce this support with comments such as, "I can see your family is really rooting for you and is eager for you to get home."

Timing of patient education is an important aspect of the learning process. If the patient has a fluctuating psychological and physical state, timing can be critical to receptivity. When the patient has received a poor prognosis, it may be helpful to discuss with the patient and family the most appropriate time for patient education to occur. Some individuals want to know all there is to know in one setting, while others need time to adjust to the stress before being ready to receive information.

Personal Involvement and Commitment

Active involvement of the learner in the educational process makes learning more meaningful for most adult learners. If the learner can participate in planning, discussion and hands-on practice, retention of the new information will be enhanced. Passive learning occurs when the learner simply listens or watches a video and generally is considered far less effective.

Once learning has occurred, the self-confidence of the learner increases. Anxiety about failure is reduced and motivation for further learning is increased. Thus, when the learner can be involved actively and learning has occurred, techniques of positive reinforcement will facilitate the process and should be used. The technologist might say, "You really are catching on and understanding this process." Providing positive feedback is a powerful reinforcer of learning and has a positive effect on retention.

Organizing the Presentation

Generally learning by adults is facilitated when information is organized in a logical manner that proceeds from simple to complex. The organization of information is curriculum; that term has meaning in informal and patient education settings just as it does in formal settings such as college courses.

Such organization enables the learner to comprehend new information in a stepwise fashion while also assimilating new knowledge with previously learned knowledge. The nuclear medicine technologist initially should evaluate the level of understanding of the patient. The patient only may be able to understand at a simple level while more complex information should be provided to the family. In a group learning situation, different family members may comprehend different aspects of what is said and thus support each other in the overall learning process.

Repetition is an important teaching concept when presenting information at both a simple and a complex level. Learning is facilitated when the technologist emphasizes important points by repeating them or by saying the same point in a slightly different manner.

Reinforcement of information by use of various media can be an effective teaching-learning technique. The use of audiovisual aids, charts and posters, pamphlets, demonstration, videos, computerized materials, and other supporting media also should be considered when teaching strategies are designed (*30–32*). Special teaching materials may need to be developed if the patient is a child or a person who does not understand English (*33*).

BARRIERS TO PATIENT LEARNING

Just as a variety of factors is important in facilitating patient education and learning, there are factors that can inhibit learning significantly (Table 1). Essential factors include emotion, physiologic status and cultural considerations, with secondary items such as literacy and environment often overlooked.

Emotion

A high anxiety level can significantly impede learning as well as contribute to the psychological stress of the patient. The learner's anxiety should be assessed by the nuclear medicine technologist before initiating the teaching-learning process. When excessive anxiety and other detrimental emotions are present, techniques to promote feelings of well being and to ease the stress within the situation should be used. It has been well demonstrated that what patients usually want to know before undergoing a procedure (regardless of the questions actually asked) is whether the test will be painful or stressful and whether the radiologic technologist is competent to perform the procedure (*34*).

Phillips and Deary (*35*) reported that anxiety-related reactions are not uncommon among patients undergoing MRI. The authors noted that patient education, environmental factors, psychological preparation and administration of sedatives have all been found to reduce anxiety and claustrophobic reactions during MRI scans. Patients and families who are worried and anxious may not hear spoken words or comprehend new information. Thus, learners may retain only part of the information provided and it becomes critical to frequently repeat the information while simultaneously offering reassurance.

Providing information about what is happening is vital to effective reassurance. Extreme anxiety sometimes can be reduced by medications, although medications should constitute a last resort and, perhaps, reflect a failure of the patient education process. If the patient has had a good night's sleep before arriving for a procedure, this also may facilitate understanding and cooperation. If it is impossible to complete a procedure, it may be useful to talk to the family and other health providers about using one or more of these methods to prepare the patient.

TABLE 1
Items to Assess for Effective Patient Education

Factor	Considerations
Health beliefs: determine the patient's response to illness	Patients need to feel like partners and that their actions will influence the outcome.
Sociocultural background	Patients from some cultures expect to be told what to do; others react stoically, etc. A Japanese patient from Hiroshima and one from the Utah Testing Grounds may have a quite different views of radiation than the average patient.
Physical illness	Illness changes the individual's view of self; even threatened disease (undiagnosed symptoms) may cause patients to react differently than normal. Many times disease threatens factors seen as peripheral to the exam, such as socioeconomic status. A patient who feels their illness may bankrupt them may react irrationally to treatment.
Mental illness	All mental illnesses are not the same. Some patients may be able to understand; as humans, patients deserve the right to participate to the best of their abilities.
Age, youth	When younger patients are not able to understand, parents may receive the most education. However, adolescents are a mix of child and adult, making education of both parent and child extremely important.
Age, old age	Many older people are stereotyped as senile. In reality, most older patients have small changes that only slightly change their ability to learn and most can adapt to those small changes.
Preferred learning style	Some patients like to learn by seeing or reading (visual); some by listening; some by doing (tactile/psychomotor). Many people learn by combinations of these. For example, many radiography students like to learn by seeing and doing.
Environment	Many environments are not conducive to learning. A good example is the often cold and dark radiology room. Mammography rooms are often designed in the opposite manner—open, bright, comfortable—and are conducive to learning.
Literacy	Often overlooked, for example, a patient may read a consent form and sign it but not really understand the information. Most people who are marginally literate or illiterate will state they do understand, even when they don't, due to a fear of appearing stupid.

Procedures may need to be rescheduled if the patient has just received disturbing information about the prognosis of their illness or other distressing information such as a tragedy in the family. A patient who is emotionally distraught will not be able to assist the nuclear medicine technologist in the successful completion of a procedure. Appropriate judgment by the nuclear medicine technologist is necessary in providing professional care. A review of the role of fear and anxiety has been published (*36*).

Physiologic Status

The nuclear medicine technologist should assess the patient's level of pain and physiologic distress before a procedure is initiated. Pain medication and antianxiety agents may need to be administered before the procedure can be accomplished effectively. Assessing for impairments, such as hearing and visual loss or motor dysfunction, will optimize the procedure while also supporting the patient. Acknowledging physical and psychosocial limitations with the patient tends to enhance communication patterns while facilitating cooperation.

Cultural Considerations

When the patient is from a culture different from that of the nuclear medicine technologist, cultural differences may hinder effective patient education. Initial assessment is necessary to determine if the patient understands the language being spoken. If the patient cannot understand instructions due to language differences, an interpreter should be obtained. When a hospital staff interpreter is not available, a family member may be used although consideration of the patient's age and what information is to be translated should always be made.

While it is typical and easy to assume that certain groups are homogeneous, there are significant differences within specific groups. For example, there are 10 Hispanic/Latino groups, over 40 Asian American/Pacific Islander groups, and some 500 Native American tribal groups. There are significant differences within the African-American culture and a variety of languages and dialects that may be present.

Assessment of essential elements of communication when a minority patient is being treated includes: dialect; style

(language and social situations); volume (silence); use of touch; context of speech (emotional tone); and kinetics (gesture, stance and eye behavior). Each of these factors may vary among and between persons of different cultural groups. For example, certain cultural groups may amplify the volume of their voice while talking while others tend to lower their voice. In some cultures there is a tendency for individuals to speak softly. In contrast, other cultures have a tendency to amplify the volume of their speech. If a nuclear medicine technologist erroneously correlates loudness with anger, misinterpretation of the behavior may occur. When the technologist correlates softness of voice with timidity, indecisiveness, lack of assertiveness and incompetence, an opportunity may be missed to not only understand the client, but to delegate undue importance to such behavior as well.

A technologist seeking to teach must remember that although people may speak the same language (i.e., English), establishing communication may be difficult. The meanings of words and how facts are presented for both the sender and receiver may vary based on life experiences and learning. This is particularly true for those who speak English as a second language.

Spatial requirements vary among individuals of different cultures. Physical touching is acceptable in some groups while taboo in others. For example, Orthodox Jewish men will not shake hands with women and, in that subculture, a woman never touches another man, even to shake hands. In some Asian groups touching the head, eye-to-eye contact, waving arms and palms upward and pointing at things with one's toe are considered rude, disrespectful or contemptuous (*37*). For some African-Americans 2 or 3 ft is considered distant and generally unacceptable in social conversations. Anglo-Saxon American health professionals or patients may become uncomfortable when others invade their personal space. Most licensure laws (i.e., for nurses, physicians and other health personnel) are designed to provide health care professionals reasonable license to touch a patient without having to worry about charges of battery (*38*). Nevertheless, patients may be uncomfortable when their personal space is invaded and may become anxious (*39*). In some cultures too much space or not enough space can be considered an insult and inappropriate for communication.

Gender role issues significantly influence attitudes about health and health education. For example, Amish, Hispanic and many Asian-American families are male-dominated but have differing patterns of behavior. In the Amish society, taboos related to sexual behavior have special implications for patient education (*40*). In Hispanic cultures, gender role differences are pronounced. Women are expected to be modest and submissive whereas men are dominant. Thus, educational interventions related to sexual matters should take into consideration those present during the procedure and who is the decision-maker within the family.

Gender role differences are rarely simplistic. For example, in many Irish and Irish-American families, women are seen externally as modest and submissive but often have much power within the family. The husband may have the external appearance of family head but the wife may actually be in charge of family affairs, including health care decisions.

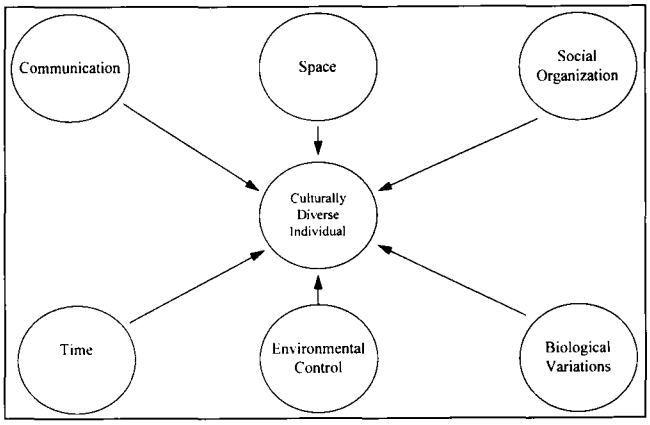

FIGURE 1. Abridged transcultural assessment model by Newman-Giger and Davidhizar (*37*).

Giger and Davidhizar (*37,38*) outlined an assessment model for the health professional when relating to the patient from another culture (Fig. 1). In this model, communication, space and social organization should be considered as factors that interface with time, environmental control and biological variations. For the nuclear medicine technologist, sensitivity to cultural differences is important if culturally appropriate care is to be delivered.

Literacy

Much written patient education material and many informed consent forms are useless for anywhere from 20%–40% of the population due to illiteracy (*41*). Unfortunately, there often is an assumption that patients who cannot understand do not need to understand. This would not hold up in a court of law should a patient decide to sue for lack of informed consent and it is not in the best interest of patient care. It also should be noted that most patients who cannot read or who read poorly will signify that they understand even when they do not, due to shame over not being able to read (*42*). In such cases, they never really did understand the information and, as the JCAHO accreditation manual states, health care instruction must be provided "specific to the patient's assessed needs, abilities, and readiness" (*3*).

Numeracy is another problem that will be discussed in greater detail in the second part of the series, specifically in relation to communicating radiation risk (a primary patient education responsibility of the nuclear medicine technologist). It has been noted in a classic study by Miller (*43*) that most people can comprehend up to the number seven in concrete terms. Very often abstractions such as "a one in one million risk" have little meaning to patients, and one study found that even experienced health physicists had difficulty quantifying the abstractions inherent in radiation risk (*44*).

Environment

The role of the environment is often ignored in patient teaching. However, experienced teachers in other settings can

vouch for the fact that it is of at least equal importance to other factors, such as the skills of the presenter (*24*). As students, we have all endured rooms that were too hot or too cold and learned less because of the environmental constraints. It is no different for patients. Patient education will be less effective when the patient is in a cold, dark department in the basement of the hospital, wearing only the flimsiest of gowns. In many cases, hospitals and other facilities are developing environments more conducive to care and education, such as the women's centers that are decorated well and bright, yet usually provide at least a modicum of privacy. If possible it is best to use a private room and not the examination room with its foreboding equipment.

SUMMARY

Patient education is a vital aspect of health care for all professionals providing patient care. However, patient education is not easy, and technical health care workers do not always realize the importance of their role in providing affective care such as patient education. In the second article of this series, specific patient care strategies will be discussed with reference to the role of the nuclear medicine technologist.

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