Downloaded from tech.snmjournals.org by on March 12, 2017. For personal use only.

Assessment of Whether Patients' Knowledge, Satisfaction, and Experience Regarding Their ^{18}F-Fluoride PET/CT Examination Affects Image Quality

Camilla Andersson[1], Birgitta Johansson[2], Cecilia Wassberg[1], Silvia Johansson[2], Anders Sundin[1], and Håkan Ahlström[1]

[1]Section of Radiology, Department of Surgical Sciences, Uppsala University, Uppsala, Sweden; and [2]Section of Oncology, Department of Immunology, Genetics, and Pathology, Uppsala University, Uppsala, Sweden

The aim of this study was to investigate patients' previous knowledge, satisfaction, and experience regarding an ^{18}F-fluoride PET/CT examination and to explore whether any discomfort or pain during the examination was associated with reduced image quality. A further aim was to explore whether patients' health-related quality of life (HRQoL) was associated with their satisfaction and experience regarding the examination. **Methods:** Between November 2011 and April 2013, 50 consecutive patients with a histopathologic diagnosis of prostate cancer who were scheduled for ^{18}F-fluoride PET/CT were asked to participate in the study. A questionnaire was used to collect information on the patients' previous knowledge and experience regarding the examination. Image quality was assessed according to an arbitrary scale. The European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire (QLQ-C30) and the prostate cancer–specific module (QLQ-PR25) were used to assess HRQoL. **Results:** Forty-six patients (96%) completed the questionnaire. Twenty-six percent did not at all know what a ^{18}F-fluoride PET/CT examination was. Most (52%–70%) were satisfied to a very high degree with the care provided by the nursing staff but were less satisfied with the information given before the examination. Image quality was similar between patients who were exhausted or claustrophobic during the examination and those who were not. No correlations between HRQoL and the patients' experience regarding ^{18}F-fluoride PET/CT were found. **Conclusion:** Most patients were satisfied with the care provided by the nursing staff, but there is still room for improvement, especially regarding the information provided before the examination. A long examination time may be strenuous for the patient, but there was no difference in image quality between patients who felt discomfort or pain during the examination and those who did not.

Key Words: fluoride PET/CT; prostate cancer; patient satisfaction; experience; image quality

J Nucl Med Technol 2016; 44:21–25
DOI: 10.2967/jnmt.115.167536

Imaging with PET/CT demands a well-trained nursing staff along with well-prepared patients who adhere to the nurse's instructions in order to secure a successful examination that produces high-quality images. However, a recent survey on patients' understanding of radiologic imaging revealed that the level of understanding was the lowest among patients who were scheduled for nuclear medicine examinations (*1*).

Patients undergoing examinations in a nuclear medicine department may experience anxiety and fear—for example, fear of injections or fear of being trapped in the scanner (*2*). Receiving information on the examination procedure and experiencing calming interactions with the nursing staff may reduce the fear of patients, increase their ability to cooperate during the examination, and thereby reduce motion artifacts and improve image quality (*2–5*). Acuff et al. found that improved communication between patients and staff may reduce patient anxiety during a PET/CT examination but concluded that further research is needed to investigate whether reduced anxiety has an impact on image quality (*6*).

PET/CT with the bone-seeking tracer ^{18}F-fluoride provides both morphologic and anatomic information and has in the last few years been increasingly applied for the diagnosis of bone metastases, especially in prostate cancer patients (*7*). ^{18}F-fluoride is an old tracer that has found new clinical use because of the increasing number of PET/CT scanners and the consequently increased availability of the technique. ^{18}F-fluoride PET/CT has shown better sensitivity and specificity than traditional bone scintigraphy (*8*).

Prostate cancer patients with metastatic disease may experience uncomfortable symptoms and decreased physical functioning (*9,10*), thus increasing the risk for significant discomfort during the PET/CT examination. In our study on patients' experience regarding ^{18}F-FDG PET/CT, several correlations were found between this experience and health-related quality of life (HRQoL), such as a correlation between high satisfaction and better physical functioning. High discomfort was shown to correlate with more pain, fatigue, and dyspnea (*11*). However, the impact of discomfort on image quality was not evaluated.

Patients' satisfaction and experience regarding imaging procedures consequently need to be considered, and improvements to reduce patient discomfort are of great importance. To our knowledge, there have been no studies on patients' experience regarding ^{18}F-fluoride PET/CT examinations and any association with image quality. A poor patient experience

Received Sep. 28, 2015; revision accepted Nov. 18, 2015.
For correspondence or reprints contact: Camilla Andersson, Department of Nuclear Medicine, Uppsala University Hospital, SE 751 85 Uppsala, Sweden.
E-mail: Camilla.Andersson@radiol.uu.se
Published online Jan. 14, 2016.
COPYRIGHT © 2016 by the Society of Nuclear Medicine and Molecular Imaging, Inc.

Downloaded from tech.snmjournals.org by on March 12, 2017. For personal use only.

may result in poor image quality, delayed diagnosis and treatment, and—thereby, in the wider-perspective result—low confidence in the health-care system.

The primary aim of this study was to investigate patients' previous knowledge, satisfaction, and experience regarding an ^{18}F-fluoride PET/CT examination and to explore whether discomfort or pain during the examination negatively affects image quality. A secondary aim was to explore whether patients' HRQoL is associated with their satisfaction and experience regarding the examination.

MATERIALS AND METHODS

Patients

From November 2011 to April 2013, 50 consecutive patients with a histopathologic diagnosis of prostate cancer and apparent or suspected bone metastases who were scheduled for ^{18}F-fluoride PET/CT were asked to participate in the study. The exclusion criterion was inability to communicate in Swedish. The study was approved by the regional ethics review board in Uppsala, Sweden (approval 2011/277). All participants signed a written informed consent form.

PET/CT Scanner

The ^{18}F-fluoride PET/CT examination was performed on a Discovery ST PET/CT Scanner (GE Healthcare (*12*)) 1 h after an intravenous injection of 3 MBq of ^{18}F-fluoride per kilogram of body weight. The PET component of the scanner had a field of view of 15.7 cm in the axial direction and 70 cm in the transaxial direction. The scanner consisted of 24 detector rings, resulting in 47 image planes with a slice thickness of 3.27 mm. After a low-dose CT scan for attenuation correction had been obtained, a whole-body scan was acquired by moving the patient through the field of view of the scanner in steps, acquiring one axial field of view at a time. The scan was acquired from the middle of the patient's thigh to the top of the skull. The acquisition time was 2 min per bed position in 3-dimensional mode, totaling approximately 20 min.

Procedure

After completion of the ^{18}F-fluoride PET/CT examination, the patients were asked to participate in the study. They received oral and written information from the nursing staff who performed the examination or from the first author. Patients who agreed to participate received a questionnaire either to complete while still in the department or to mail back in a stamped self-addressed envelope within 1 mo. A reminder and a copy of the questionnaire were mailed to patients who had failed to reply after 3 wk.

Data Collection

Data on age, sex, marital status, level of education, and monthly income were collected with study-specific questions.

Previous Knowledge, Satisfaction, and Experience. Study-specific questions were used to investigate patients' previous knowledge about the ^{18}F-fluoride PET/CT examination (0 = "not at all" to 3 = "quite a lot"), their satisfaction with information provided about the examination procedure and their interaction with nursing staff (0 = "not at all" to 4 = "to a very high degree"), and their discomfort during the procedure—that is, how exhausting the examination was (0 = "not at all exhausting" to 3 = "very much exhausting"); the extent to which the examination corresponded to the patient's expectations (0 = "much easier" to 4 = "much worse"); and the extent to which the patient felt trapped (claustrophobia) (0 = "not at all trapped" to 3 = "very much trapped). Five questions from the Patient Experiences Questionnaire (*13*) were used to investigate interaction with the nursing staff, the staff's level of communication, the staff's professional skills, and the patient's overall impression of the hospital (0 = "not at all" to 4 = "to a very high degree"). The questionnaire also allowed the patient to add free-text comments.

HRQoL. The European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire (QLQ-C30) and prostate cancer–specific module (QLQ-PR25) were used to assess HRQoL. QLQ-C30 was transformed to 5 function scales, 9 symptom scales, and a global quality-of-life scale, and QLQ-PR25 was transformed to 1 function scale and 5 symptom scales. All scales were linearly transformed into a scale of 0–100, with higher scores reflecting more symptoms, higher levels of functioning, and better global health status/quality of life (*14,15*).

Image Quality Assessment. Image quality was assessed by a senior radiologist, who used a project-specific form with an arbitrary 3-point scale to rate image artifacts, lesion conspicuity, extent of image impairment, overall diagnostic accuracy, and number of pathologic findings (suspected bone metastases).

Data Analysis

Data were analyzed using the Statistical Package for Social Sciences, version 20.0 (IBM). Descriptive statistics were used for analyses of the demographic data and the patients' responses to questions on their previous knowledge, satisfaction, and experience regarding the ^{18}F-fluoride PET/CT examination. Patients' free-text comments were categorized. The Mann–Whitney *U* test was used to analyze differences between patients who had undergone the examination previously and those who were undergoing the examination for the first time. The Spearman correlation coefficient was used to investigate how previous knowledge, satisfaction, and experience regarding the examination correlated with HRQoL and how previous knowledge correlated with satisfaction and experience regarding the examination. Correlations with HRQoL were restricted to scales/items that were most likely to be influenced by the examination experience—that is, the function scales, dyspnea, fatigue, and pain. The level for statistical significance was set at a 2-tailed *P* value of less than 0.01 because of the large amount of correlation analysis. The relation between image quality and previous knowledge regarding the examination, and between image quality and an exhausting or claustrophobic experience or pain, were analyzed descriptively.

RESULTS

Patients

Forty-eight of the 50 patients agreed to participate in the study, and 46 of the 48 (96%) completed the questionnaire. Most (40) completed the questionnaire at home. All participants were outpatients. Their mean age was 69 y (range, 59–83 y; Table 1). According to the referral form, 10 patients were previously diagnosed with bone metastasis, 9 had suspected bone metastasis based on other imaging examinations (CT or MRI), and 27 were without bone metastasis. Six patients had previously undergone ^{18}F-fluoride PET/CT, and 19 patients had undergone PET/CT with another tracer such as ^{18}F-FDG or ^{11}C-acetate.

Previous Knowledge, Experience, and Satisfaction

None of the patients knew "very much" about ^{18}F-fluoride PET/CT before the examination, and only 2 knew "very

Downloaded from tech.snmjournals.org by on March 12, 2017. For personal use only.

TABLE 1
Characteristics of the 46 Patients

Characteristic	*n*	%
Marital status		
Married/cohabitant	37	80
Single	7	15
Widow/widower	2	4
Education		
Compulsory school	16	36
Upper secondary school	13	29
University 0–4 y	5	11
University > 4 y	11	24
Occupation		
Working	15	33
Sick leave	1	2
Studies	0	0
Home work	0	0
Unemployed	0	0
Other	29	64
Monthly income (Swedish Krona)		
0–4,999	1	2
5,000–9,999	0	0
10,000–14,999	6	14
15,000–19,999	8	19
20,000–24,999	8	19
25,000–29,999	7	17
30,000–34,999	5	12
35,000	7	17

Mean age was 69 y; range was 59–83 y.

much" about how the examination was conducted (Table 2). Most were satisfied with the information they received about the examination (to a "high" or a "very high degree"; Table 3). However, 20% (9/46) were satisfied only to "some degree" with the information they received before the examination. Most patients, 65%–70% (30–32), were satisfied to a "very high degree" with their interaction with the nursing staff, the staff's communication abilities, and the staff's professional skills.

Patient Discomfort

Most patients did not experience claustrophobia during the examination, although 27% (12/45) did feel "some" claustrophobia (Table 2). Most patients did not think that the examination was at all exhausting, although 27% (12/45) gave a response of "some" or "much" regarding exhaustion. Eleven patients commented on what caused the exhaustion: physical factors such as the arms-up position ($n = 5$) or the uncomfortable scanner bed ($n = 4$) and emotional factors such as distress and claustrophobia ($n = 2$). All patients but one found the examination as easy to undergo as expected or easier (Table 2).

Image Quality Assessment

There was no correlation between differences in image quality and previous knowledge about the examination, discomfort, or pain. There were small artifacts in one patient's images. All other images were without artifacts. Lesion conspicuity was excellent, all anatomic regions were fully diagnostic, and the images overall were fully diagnostic. Nineteen patients showed no bone metastases on the ^{18}F-fluoride PET/CT images, 21 patients showed occasional bone metastases (1–5 metastases), and 6 patients showed many bone metastases (≥6 metastases; Table 4).

HRQoL

Global health status was relatively high (mean, 74; Table 5). Mean function-scale scores ranged between 87 and 92. Role functioning was the best (mean, 92), and emotional functioning the worst (mean, 87). Nausea and vomiting were the mildest symptoms (mean, 1), and insomnia the worst (mean, 21). There were no statistically significant correlations between HRQoL and the patients' experience or satisfaction regarding the examination.

DISCUSSION

To our knowledge, this was the first study correlating prostate cancer patients' experience regarding an ^{18}F-fluoride PET/CT examination with associated image quality and other factors. Satisfaction was lowest regarding the information imparted by the nursing staff before and during the ^{18}F-fluoride PET/CT examination. Twenty-six percent of the patients did not at all know what a ^{18}F-fluoride PET/CT examination was. Most of the patients felt no discomfort during the ^{18}F-fluoride PET/CT procedure, similar to what has previously been

TABLE 2
Patients' Previous Knowledge About and Discomfort During ^{18}F-Fluoride PET/CT

Question	*n*
Did you know before the examination what a PET-fluoride examination was?	
Not at all	12 (26%)
Some	16 (35%)
Quite a lot	18 (39%)
I knew very much	0
Did you know before the procedure how a PET-fluoride examination was conducted?	
Not at all	11 (24%)
Some	18 (39%)
Quite a lot	15 (33%)
I knew very much	2 (4%)
Did you feel trapped during the examination?	
Not at all	33 (73%)
Some	12 (27%)
Much	0
Very much	0
How exhausting was the examination?	
Not at all	33 (73%)
Some	9 (20%)
Much	3 (7%)
Very much	0
Was the examination as you had expected it to be?	
Much easier	10 (22%)
A bit easier	10 (22%)
Just as I expected	24 (53%)
A bit worse	1 (2%)
Much worse	0

Downloaded from tech.snmjournals.org by on March 12, 2017. For personal use only.

TABLE 3
Patient Satisfaction with the ^{18}F-Fluoride PET/CT Examination

Question	Not at all	To low degree	To some degree	To high degree	To very high degree
Are you satisfied with the information you received before the examination?	0	1 (2%)	9 (20%)	18 (39%)	18 (39%)
Are you satisfied with the information you received when you came to the examination?	0	0	3 (7%)	19 (41%)	24 (52%)
Are you satisfied with the interaction with the nursing staff during the examination?	0	0	1 (2%)	13 (28%)	32 (70%)
Did the nursing staff communicate in an understandable way?	0	0	0	16 (35%)	30 (65%)
Did the nursing staff convey a caring attitude?	0	0	0	15 (33%)	31 (67%)
Did you feel confident in the professional skills of the nursing staff?	0	0	0	15 (33%)	31 (67%)
Did the nursing staff have adequate time for you when you needed them?	0	0	0	17 (37%)	29 (63%)
Did you get the impression that the work of the hospital was well organized?	0	0	5 (11%)	20 (46%)	19 (43%)

Data are from Patient Experiences Questionnaire and from questions designed for this study.

reported by patients undergoing ^{18}F-FDG PET/CT (*11*). The image-quality assessment revealed an overall high image quality that was not affected negatively by patients' previous knowledge or by discomfort or pain during the examination.

The fact that discomfort did not affect image quality indicates that patients could adhere to the nurse's instructions even during an uncomfortable examination. Studies on MRI suggest that to reduce discomfort-related motion artifacts and thereby improve image quality, patients need to be informed by the nursing staff about what to expect during the examination (*3,5*). Thus, our findings indicate that ^{18}F-fluoride PET/CT may be less sensitive to motion artifacts than MRI. However, the present study was performed on a fairly small group of patients, only a few of whom felt discomfort during the examination. Also, the results in patients with more disseminated bone metastases may be different from the results in our patients, who had only occasional metastatic lesions. Thus, further investigations in larger groups of patients that include those with more advanced disease are warranted.

Patients considered the most strenuous part of the PET/CT examination to be keeping their arms positioned over their head. Apart from using physical devices to support the arms and

TABLE 4
Relation Between Imaging Results, Previous Knowledge and Discomfort, and Pain During Procedure

	Claustrophobia		Exhaustion		Pain		Knowledge	
Category	Some too much (n = 12)	Not at all (n = 33)	Some too much (n = 12)	Not at all (n = 33)	Any level of pain (n = 17)	Not at all (n = 29)	Some to very much (n = 34)	Not at all (n = 12)
Artifacts								
No	12	32	11	33	16	29	33	12
Minor	0	1	1	0	1	0	1	0
Major	0	0	0	0	0	0	0	0
Lesion conspicuity								
Excellent	12	33	12	33	17	29	34	12
Intermediate	0	0	0	0	0	0	0	0
Poor	0	0	0	0	0	0	0	0
Extent of image impairment								
All anatomic regions fully diagnostic	12	33	12	33	17	29	34	12
Occasional regions impaired	0	0	0	0	0	0	0	0
Several regions impaired	0	0	0	0	0	0	0	0
Overall diagnostic accuracy								
Fully diagnostic	12	33	12	33	17	29	34	12
Minor impairment	0	0	0	0	0	0	0	0
Major impairment	0	0	0	0	0	0	0	0
Image findings								
No metastases	4	15	4	15	6	13	13	6
Occasional (1–5)	7	14	6	15	8	13	15	6
Many (≥6)	1	4	2	3	3	3	6	0

Downloaded from tech.snmjournals.org by on March 12, 2017. For personal use only.

TABLE 5
HRQoL of Patients Scheduled for ^{18}F-Fluoride PET/CT

EORTC-QLQ type	*n*	Mean	SD
EORTC-QLQ-C30			
Global health status	45	74	22
Function scales			
Physical functioning	45	91	15
Role functioning	45	92	18
Emotional functioning	46	87	17
Cognitive functioning	46	90	15
Social functioning	46	90	16
Symptom scales/items			
Fatigue	45	16	18
Nausea and vomiting	45	1	6
Pain	46	13	20
Dyspnea	45	13	19
Insomnia	45	21	28
Appetite loss	45	2	8
Constipation	45	7	18
Diarrhea	46	7	17
Financial difficulties	46	8	26
EORTC-QLQ-PR25			
Urinary symptoms	45	20	15
Incontinence aid	8	8	15
Bowel symptoms	43	5	7
Treatment-related symptoms	46	16	16
Sexual activity	46	24	27
Sexual functioning	17	56	31

a call device to reduce anxiety (*6*), the nursing staff may also help the patient cope with the discomfort by, for example, providing environmental distractions such as music (*2*). There was no difference in discomfort between patients who had previously undergone a PET/CT examination and those who had not.

HRQoL was relatively high. Global health status was 74, which is similar to the findings of two other studies regarding prostate cancer patient HRQoL (*10,16*). There was no correlation between HRQoL and patient experience or satisfaction regarding the examination. One possible explanation for this result could be the low number of metastases in our patients.

The present study had several limitations. Some of the questions were not evaluated for validity and reliability. However, they had been used in a previous study on patient experience regarding an ^{18}F-FDG PET/CT examination. The high response rate and low number of unanswered questions indicate that the patients found the questionnaire relevant and easy to understand. The validity of the study results may be limited by the small number of patients. However, because this area of research has previously been virtually unexplored, the findings still constitute a relevant contribution. Also, some patients were informed about and asked to participate in the study by the nurse who had performed the examination, bringing about potential false-positive answers from patients who did not want to hurt the nurse. Some questions were answered by less than 92% of the patients. Questions on the use of incontinence aids and on sexual function had the lowest response rates, probably because they were considered too personally intrusive. This factor, however, is not considered to have had a major impact on the study outcome.

CONCLUSION

Most patients were satisfied with the care provided by the nursing staff, but there is still room for improvement, especially regarding the information imparted to patients before the examination. The time spent in the PET/CT scanner, especially with arms positioned over head, may be strenuous for patients, but image quality did not differ between patients who felt discomfort and those who did not. The occurrence of bone metastases appeared not to affect image quality negatively. Future studies on larger populations with more advanced disease are suggested to more fully investigate patient experience regarding ^{18}F-fluoride PET/CT and factors associated with image quality.

DISCLOSURE

No potential conflict of interest relevant to this article was reported.

ACKNOWLEDGMENTS

We thank the patients for participating in the study and the staff of the PET Centre of Uppsala University Hospital for providing valuable help and support.

REFERENCES

1. Rosenkrantz AB, Flagg ER. Survey-based assessment of patients' understanding of their own imaging examinations. *J Am Coll Radiol.* 2015;12:549–555.
2. Nightingale JM, Murphy FJ, Blakeley C. 'I thought it was just an x-ray': a qualitative investigation of patient experiences in cardiac SPECT-CT imaging. *Nucl Med Commun.* 2012;33:246–254.
3. Törnqvist E, Mansson A, Larsson EM, Hallstrom I. Impact of extended written information on patient anxiety and image motion artifacts during magnetic resonance imaging. *Acta Radiol.* 2006;47:474–480.
4. Törnqvist E, Månsson Å, Larsson E-M, Hallström I. It's like being in another world: patients' lived experience of magnetic resonance imaging. *J Clin Nurs.* 2006;15:954–961.
5. Ali SH, Modic ME, Mahmoud SY, Jones SE. Reducing clinical MRI motion degradation using a prescan patient information pamphlet. *AJR.* 2013;200:630–634.
6. Acuff SN, Bradley YC, Barlow P, Osborne DR. Reduction of patient anxiety in PET/CT imaging by improving communication between patient and technologist. *J Nucl Med Technol.* 2014;42:211–217.
7. Segall G, Delbeke D, Stabin MG, et al. SNM practice guideline for sodium ^{18}F-fluoride PET/CT bone scans 1.0. *J Nucl Med.* 2010;51:1813–1820.
8. Bastawrous S, Bhargava P, Behnia F, Djang DS, Haseley DR. Newer PET application with an old tracer: role of ^{18}F-NaF skeletal PET/CT in oncologic practice. *Radiographics.* 2014;34:1295–1316.
9. Northouse LL, Mood DW, Montie JE, et al. Living with prostate cancer: patients' and spouses' psychosocial status and quality of life. *J Clin Oncol.* 2007;25:4171–4177.
10. Torvinen S, Farkkila N, Sintonen H, Saarto T, Roine RP, Taari K. Health-related quality of life in prostate cancer. *Acta Oncol.* 2013;52:1094–1101.
11. Andersson C, Johansson B, Wassberg C, et al. Patient experience of an ^{18}F-FDG-PET/CT examination: need for improvements in patient care. *J Radiol Nurs.* 2015;34:100–108.
12. Bettinardi V, Danna M, Savi A, et al. Performance evaluation of the new whole-body PET/CT scanner: Discovery ST. *Eur J Nucl Med Mol Imaging.* 2004;31:867–881.
13. Pettersen KI, Veenstra M, Guldvog B, Kolstad A. The Patient Experiences Questionnaire: development, validity and reliability. *Int J Qual Health Care.* 2004;16:453–463.
14. Fayers PM, Aaronson NK, Bjordal K, et al. *The EORTC QLQ-C30 Scoring Manual.* 3rd ed. Brussels, Belgium: European Organisation for Research and Treatment of Cancer; 2001.
15. van Andel G, Bottomley A, Fossa SD, et al. An international field study of the EORTC QLQ-PR25: a questionnaire for assessing the health-related quality of life of patients with prostate cancer. *Eur J Cancer.* 2008;44:2418–2424.
16. Lintz K, Moynihan C, Steginga S, et al. Prostate cancer patients' support and psychological care needs: survey from a non-surgical oncology clinic. *Psychooncology.* 2003;12:769–783.

Downloaded from tech.snmjournals.org by on March 12, 2017. For personal use only.

JNMT Journal of NUCLEAR MEDICINE TECHNOLOGY

Assessment of Whether Patients' Knowledge, Satisfaction, and Experience Regarding Their ^{18}F-Fluoride PET/CT Examination Affects Image Quality

Camilla Andersson, Birgitta Johansson, Cecilia Wassberg, Silvia Johansson, Anders Sundin and Håkan Ahlström

J. Nucl. Med. Technol. 2016;44:21-25.
Published online: January 14, 2016.
Doi: 10.2967/jnmt.115.167536

This article and updated information are available at:
http://tech.snmjournals.org/content/44/1/21

Information about reproducing figures, tables, or other portions of this article can be found online at:
http://tech.snmjournals.org/site/misc/permission.xhtml

Information about subscriptions to JNMT can be found at:
http://tech.snmjournals.org/site/subscriptions/online.xhtml

Journal of Nuclear Medicine Technology is published quarterly.
SNMMI | Society of Nuclear Medicine and Molecular Imaging
1850 Samuel Morse Drive, Reston, VA 20190.
(Print ISSN: 0091-4916, Online ISSN: 1535-5675)

© Copyright 2016 SNMMI; all rights reserved.

SNMMI SOCIETY OF NUCLEAR MEDICINE AND MOLECULAR IMAGING