

As of: 2/5/16 3:54 PM
Received: February 04, 2016
Status: Pending_Post
Tracking No. 1k0-8nrw-udor
Comments Due: February 16, 2016
Submission Type: Web

PUBLIC SUBMISSION

Docket: NRC-2015-0020
Nuclear Request for Sodium Iodide I-131 Treatment and Patient Release Information

Comment On: NRC-2015-0020-0014
Sodium Iodide I-131 Patient Release Information Collection; Request for Information

Document: NRC-2015-0020-DRAFT-0023
Comment on FR Doc # 2015-29027

Submitter Information

Name: D. Hamilton
Address: United States,
Email: daniel.s.hamilton.civ@mail.mil

RECEIVED

2016 FEB -5 PM 3:56

RULES AND DIRECTIVES
FEDERAL
ENERGY
COMMISSION

General Comment

I am a Health Physicist working at a large medical center in the Washington DC area. Attached are examples of two documents we use regularly for radioiodine therapies at our facility. I have not included the name of the hospital in the documents so as to expedite the submission of the materials by your request deadline.

Attachments

Radioiodine Therapy Patient Information Guide 12Jan16 example
RP#9 00 Release of I131 Therapy Patients_example

11/16/2015

80 FR 70843

12

SUNSI Review Complete
Template = ADM - 013
E-RIDS= ADM-03
Add= D-B Howe (dbh)

Radioiodine Therapy Patient Information Guide

This guide provides information and instructions for you and our hospital staff to follow during your Radioiodine therapy treatment here at (Name) Medical Center.

(These instructions primarily address the radiation safety aspects of your inpatient care. You are encouraged to talk with your Doctor if you have specific questions about your medical treatment and care.)

What is radioiodine?

Radioiodine (sodium I-131) is a short-lived radioactive form of the element iodine that is found in table salt and other foods. Iodine is absorbed in the thyroid tissue. Unlike stable iodine, radioactive iodine gives off energy as it decays and destroys unhealthy tissue. Radioiodine has little effect on non-thyroid tissues and excess Radioiodine is rapidly eliminated by the body. This form of radiation therapy has been used for many years to treat thyroid conditions. It is a safe and effective treatment, but it requires you to observe certain precautions to decrease the amount of radiation exposure to other people around you for the next several days.

What can I expect during my stay in the hospital for the radioiodine therapy?

You will be given a dedicated hospital room designed for a patient who has been administered a therapy dose of radioiodine. After you have taken the radioiodine capsule(s) you will not be allowed to leave the therapy room at any time during the inpatient treatment. A Radiation Safety technician will immediately start monitoring your radiation levels using a hand-held radiation meter. Radiation measurements will be taken twice a day, in the morning and in the afternoon. The length of your stay in the hospital will be determined by how much radioiodine you receive and by how long it takes for your radiation level to reach the releasable limit.

Can I bring anything with me into the radioiodine therapy room?

You are asked NOT to bring anything with you into the therapy room. All jewelry, valuables, cell phones and personal electronics must be left at home or given to a trusted family member before you enter the therapy room. There is a telephone, a cable-enabled television and some reading materials in the therapy room for your use. Any required medications will be allowed into the room, but only in the amounts necessary for the duration of the therapy. In the room there is a small refrigerator for use in storing drinking water and a microwave oven for reheating food ordered from the Dining Room. You will be changing into hospital pajamas and slip resistant socks prior to treatment. All of your personal clothing will be placed into a patient belongings bag and will be held in a storage drawer just outside your treatment room until your final release from the radioiodine room. If you drove yourself to the hospital, your car keys and identification will need to be kept with your belongings until you are released.

Why is the therapy room covered in paper and plastic wrap?

The room was prepared this way to help Radiation Safety do an easy clean-up of the room after you are released. After you receive your dose, your body will eliminate some of the radioiodine through your perspiration, skin follicles and other bodily fluids, some of which you may transfer onto items you touch or come into contact with. Having this barrier of paper and plastic wrap will help us to quickly clean/ decontaminate the room and prepare it for the next patient that needs a radioiodine treatment.

Can I have visitors?

You will not be allowed Visitors during your hospital stay. This is one of the primary reasons for having you stay in the dedicated hospital therapy room. Although the radiation you receive is medically beneficial to you, it is not considered to be beneficial to your friends and family. The hospital is required to keep radiation doses to our staff and to members of the general public as low as possible.

What should I do if I feel sick or hurt?

Most patients do fine during their treatment stay. However, if you have an urgent medical need, please use the Nurse Call Button located near your bed or the one in the bathroom, whichever is closer. You can also telephone the 5 West nurse's station (XXX-XXXX) and ask for immediate medical assistance. An emesis basin will be provided and we ask that you use it, if you need it. When caring for you, members of our health care team will be required to wear disposable gloves, shoe covers, and a protective gown to prevent the spread of radioactive contamination. In the event of a medical emergency please know that your patient needs are the highest priority and will always supersede any radiation safety concerns.

How do I get my meals?

You can order your first meal to be delivered to your room two hours after your dosing. Until then you may only drink some distilled water. Meals can be ordered by dialing 328 on your telephone. You have been placed on a low iodine diet and a copy of the dining menu is available in your room. Your meals will be delivered to your room on disposable trays and utensils. Your meal tray will be placed on the table stand just inside the therapy room door. You are asked to stay near your hospital bed until the attendant leaves and then retrieve your meal. Please do not move the table stand away from the door, as this is where all items you request (towels, pajamas, etc.) will be placed when delivered to your room. You have another bed stand in the room for use in eating meals near your hospital bed. If you are unable to finish your meals, we ask your assistance in flushing all uneaten "soft" foods and liquids down the commode before you dispose of the cardboard tray and disposable utensils into the trash container. You are encouraged to drink plenty of distilled water during your therapy stay. This will help facilitate a quicker elimination of the iodine from your system and lower your radiation levels.

Why is the room temperature not the way I like it?

The therapy room may seem slightly on the warm side. The temperature setting helps you to further eliminate radioiodine from your body via perspiration. Please Do Not prop-open the door to your room to increase airflow. You are asked to take at least two showers a day, one in the morning when you first wake up and another in the late afternoon prior to your second radiation measurement of the day. You will need to change into a fresh set of pajamas each time you shower. Place all linen and towels into the designated linen container.

How will I know when medical staff needs to come to my room?

Before any of our medical staff comes to your therapy room, you will receive a phone call notifying you of an expected arrival of a healthcare provider. If you are in the restroom, you do not need to answer the phone. Just call the nurse's station when you are finished and our medical staff will be waiting there until you call back. If you need anything replaced or restocked (towels, toiletries, etc.), just call the nurse's station and they will bring them to you.

What else do I need to know?

- When using the toilet, please flush 2 to 3 times. Men must sit on the toilet when urinating to prevent splash contamination in the bathroom.
- Practice good hygiene by washing hands (15 sec). Dry hands using a cloth towel.
- After brushing your teeth or gargling, please empty your saliva close to the inside of the sink basin, rinsing the sink basin when finished.
- If you do not have a daily bowel movement, you should be prescribed for a mild laxative that can be taken in the evening. Please check with your assigned nurse or by calling the nurse station.
- If you start to feel nauseous you can request an anti-nausea pill. Please keep the emesis basin close by and near your bed in the event you happen to spit up or regurgitate.
NOTE: If you miss the emesis basin and any area of the room becomes contaminated, the Radiation Safety Office must be contacted.
- Always wear your slippers/slip resistant socks when you are out of your bed.

What happens when I reach the radiation release limit?

After you have reached the release limit (meaning Radiation Safety has verified that you are below a specified radiation level) the process of discharging you from the hospital will begin. Your physician will promptly be notified and asked to enter the discharge orders into the system and any prescribed medications will then be filled and brought to your room. This may take a few hours. When discharge orders have been completed, you will be taking one final shower, where you will be given your civilian clothes and shoes to change into. Radiation Safety will provide you with some additional instructions that you must follow when traveling, and while at home. Radiation Safety will then escort you to your preferred exit area of the hospital.

Who should I call if I have questions?

Your Endocrinology doctor is _____ phone: (Contact Nurse Station)

Nuclear Medicine physician is _____ phone: (xxx) xxx-xxxx

Radiation Safety specialist is _____ phone: (xxx) xxx-xxxx

Contact **5-West Nursing Station** at xxx-xxxx to request replacement towels, linens, pajamas, and sundry care items.

KEY PHONE NUMBERS:

Nurse Station 5 West	xxx-xxxx
Nutrition / meal order	Dial 328 on your phone
Nuclear Medicine	xxx-xxxx
Radiation Safety	xxx-xxxx
Rad Safety On-Call	(xxx) xxx-xxxx
Pastoral Care	xxx-xxxx

Telephone Instructions:

Local calls: Dial the seven digit phone number 123-1234

Long distance =

Examples:

Local call for 301 Maryland:

Long distance for another State/area:

(NAME) MEDICAL CENTER
NUCLEAR MEDICINE SERVICE
STANDARD OPERATING PROCEDURES FOR I-131 THERAPY PATIENTS

SOP RP#9.00

RELEASE OF I¹³¹ THERAPY PATIENTS

1. To remain IAW Title 10 CFR Part 35.75 patients administered radiopharmaceuticals are authorized for release if the dose is less than or equal to 33 millicuries (mCi) or total effective dose equivalent to any other individual from exposure to the released individual is not likely to exceed 0.5 rem.
2. Patients will **NOT** be released **without** consulting the Radiation Safety Office when the administered activity is above 33 millicuries of I¹³¹. (For other radionuclides, see NUREG-1556, Vol 9, Rev 2 for common radionuclides used in Nuclear Medicine.)
3. Using the following enclosures to this SOP, the Radiation Safety Office will determine when patients can be released according to NUREG-1556, Vol 9, Rev 2. Patients receiving 210 millicuries or less may be scheduled to be outpatients; however, the release of these patients will not be allowed until Radiation Safety has determined their eligibility.
4. The Referring Endocrinologist identifies the patient as a candidate for either hyperthyroidism or thyroid cancer radionuclide therapy.
5. The patient completes the I-131 THERAPY PATIENT QUESTIONNAIRE (encl 1)
6. For dosages >150 (+10%) millicuries (mCi) or if the patient is unable to receive the I-131 as an outpatient:
 - a. The Referring Endocrinologist completes the I-131 THERAPY REQUEST document (attachment 2), indicating the I-131 dose to be administered. The Endocrinologist will give this form along with I-131 THERAPY PATIENT QUESTIONNAIRE (encl 1), to the Nuclear Medicine physician at the Thursday afternoon Endocrinology conference or in the General Nuclear Medicine Reading Room (BLDG 9A, room 1304). Alternatively, the Referring Endocrinologist may fax the form along with I-131 THERAPY PATIENT QUESTIONNAIRE (encl 1) to (XXX)XXX-XXXX. If these forms are faxed, then a phone call to discuss the case with a Nuclear Medicine Physician must be performed (XXX)XXX-XXXX or (XXX)XXX-XXXX.
 - b. The Nuclear Medicine physician reviews patient questionnaire and verifies that patient is candidate for treatment as an inpatient. The Nuclear Medicine Physician completes I-131 THERAPY REQUEST document (encl 2).
 - c. The Referring Endocrinologist notifies Radiation Safety of intent to treat.
 - d. The Referring Endocrinologist arranges to have patient admitted as an inpatient.
 - e. The Referring Endocrinologist insures that the patient has completed the required procedures prior to treatment such as:
 - 1.) I-131 or I-123 Neck and Chest imaging
 - 2.) Thyrogen injections
 - 3.) Dosimetry
 - 4.) Laboratory tests as applicable: thyroid function tests, thyroglobulin levels, urine iodine collection...etc)
 - 5.) Order for the treatment and 10 day post ablation scan orders are in CHCS I
 - f. Once the date and the dose for the treatment have been agreed upon:

- 1.) The Nuclear Medicine Physician will schedule the patient for the dose and 10 day post ablation scan in conjunction with the Nuclear Medicine Scheduler.
- 2.) The Referring Endocrinologist will notify the patient of the date and time of the treatment. If any changes are necessary due to patient or radiation safety issues, then the Referring Endocrinologist will notify Nuclear Medicine about these discrepancies and therefore facilitate the patient's treatment.

7. Patient Instructions

- a. To remain IAW Title 10 CFR Part 35.75 released individuals must be provided with written instructions on how to maintain doses to other individuals as low as is reasonably achievable (ALARA) if the total effective dose equivalent to any other individual is likely to exceed 0.1 rem.
- b. Instructions will be provided including written instructions to released patients when the administered activity is above the activity listed in enclosure 3 (for a more complete listing of radionuclides, see NUREG-1556, Vol 9, Rev 2) for common radionuclides used in Nuclear Medicine.
- c. For example of instructions see enclosure 4.

8. Instructions to Patients who could be Breast-Feeding

- a. To remain IAW Title 10 CFR Part 35.75 if the dose to a breast-feeding infant or child could exceed 0.1 rem, instructions on guidance on interruption or discontinuation of breast-feeding and information on the consequences of failure to follow the guidance.
- b. Instructions will be provided including written instructions to patients who could be breast-feeding when the administered activity is above the activity listed in enclosure 5 (for a more complete listing of radionuclides, see NUREG-1556, Vol 9, Rev 2 for common radionuclides used in Nuclear Medicine.
- c. See enclosure 6 for an example of instructions to breast-feeding patients.

9. Records of release

- a. If the patient release is based on a dose calculation that considered retained activity, and occupancy factor less than 7 mR/hr @ 1 meter, effective half-life, or shielding by tissue, a record of the basis for the release is required by 10CFR 35.75(c). Consultation with the HPO is required prior to releasing any patients based on these factors.

10. Records of instruction for breast-feeding patients

- a. If failure to interrupt or discontinue breast-feeding could result in a dose to the infant or child in excess of 0.1 rem, a record that instructions were provided is required by 10 CFR 35.75(d).
- b. Record information should include: the patient's identifier (in a way that ensures that confidential patient information is not traceable or attributable to a specific patient), the radiopharmaceutical administered, the activity, date of administration, and whether instructions were provided to the patient

**(NAME) MEDICAL CENTER
NUCLEAR MEDICINE SERVICE
I-131 THERAPY PATIENT QUESTIONNAIRE**

Patient Name: _____ Identification Number: _____
Height: _____ Weight: _____

Estimated activity to be administered: _____ millicuries (mCi)

1. Number of individuals living in home: less than 2 years of age: _____
2 to 12 years of age: _____ greater than 12 years of age: _____
2. If there are children less than 12 years of age at home, can arrangements be made for them to stay with another family member or friend for 3 days (4 days for greater than 200 mCi) following administration? **YES NO NA**
3. Are there any pregnant individuals living in your home? **YES NO NA**
4. Can the pregnant individual arrange to stay with another family member or friend for 3-4 days following the administration of the radiopharmaceutical? **YES NO NA**
5. Do you have a separate bathroom that could be used exclusively by you for 3 - 4 days following administration of the radiopharmaceutical? **YES NO NA**
6. Can you arrange to sleep in a separate room from your spouse or loved one for 3 - 4 days (4 days for greater than 200 mCi) following administration? **YES NO NA**
7. Do you have any problems with bladder control that require you to wear a shield (e.g., Depends®)?
YES NO NA
8. Do you have any physical problems that require extensive care by others? **YES NO NA**
9. Describe your work: _____ . If "Not Employed", skip to next question
9a. About how many hours per day do you spend within 3 feet of a co-worker: _____ ?
9b. Can you arrange to be off work for at least 3 days following the administration? **YES NO**
10. How will you return home following administration?
Private auto Taxi Bus Airplane Other (please describe):
How long will it take for you to get home? _____ minutes/hours?
11. Are there any reasons you may need to spend time close to other people following administration? **YES NO**
If yes, describe reason:
12. Do you have any special equipment (medical or non medical) that you must use during and immediately after your treatment?
YES NO

**** Any items (except eyeglasses) that enter the treatment room cannot be removed upon discharge.*****

I have completed this form to the best of my knowledge; I agree to have my medical information (which may include HIPAA data) either faxed (or scanned and emailed) to Nuclear Medicine to facilitate my medical care:

(Patient signature and Date)

NUCLEAR MEDICINE SERVICE
(NAME) MEDICAL CENTER
I-131 THERAPY REQUEST

PATIENT: _____ DOB _____ TEL _____

THERAPY FOR: THYROID CANCER/ABLATION OR HYPERTHYROIDISM (CIRCLE ONE)

1. HISTORY: _____

2. PREVIOUS THERAPY (PLUS DATES):

3. TUMOR TYPE, METS, STAGE...ETC: _____

4. OTHER PERTINENT HISTORY & MEDICATION(S):

DOSE (IF > 30 MILLICURIES TREATMENT NEEDS TO BE COORDINATED WITH RADIATION SAFETY;
IF > 150 MILLICURIES OR THE PATIENT IS UNABLE TO BE DOSED AS AN OUTPATIENT THEN
INPATIENT ADMISSION WILL BE REQUIRED).

_____ MILLICURIES (NUCLEAR MEDICINE: (XXX)XXX-XXXX FAX:
(XXX)XXX-XXXX)

THERAPY DATE _____

- ___ I-131 THERAPY QUESTIONNAIRE COMPLETED
- ___ ORDERS IN CHCS (THERAPY, LABS, AND NECK AND CHEST (PRE AND/OR POST AS NECESSARY)
- ___ COORDINATION FOR ADMISSION (INPATIENT SERVICE, RADIATION SAFETY)
- (RADIATION SAFETY: (XXX)XXX-XXXX)

REFERRING PHYSICIAN'S NAME _____

*****FOR NUCLEAR MEDICINE*****

NUCLEAR MEDICINE PHYSICIAN: _____

TODAY'S DATE: _____

- ___ I-131 DOSE ORDERED WITH THE NUCLEAR PHARMACY
- ___ DOSE APPOINTMENT SCHEDULED
- ___ COORDINATION WITH RADIATION SAFETY MADE
- ___ POST TREATMENT NECK AND WHOLE BODY EXAMINATION ORDERED

ACTIVITIES WHEN INSTRUCTIONS ARE NEEDED UPON RELEASE

(ref. NUREG-1556, Vol 9)

<u>Radionuclide</u>	<u>Activity (mCi)</u>
⁵¹ Cr	26
⁶⁷ Ga	47
¹²⁵ I	1
¹²³ I	33
¹³¹ I	7
¹¹¹ In	
³² P	N/A
¹⁵³ Sm	140
⁸⁹ Sr	N/A
^{99m} Tc	150
⁹⁰ Y	N/A

**Nuclear Medicine Service
(Name) Medical Center
INSTRUCTIONS UPON RELEASE
IODINE-131 TREATMENT**

Hyperthyroidism OR Thyroid CA Treatment/Ablation (Physician circle one)

There are three basic principles to remember:

1. **DISTANCE** – the greater the distance you are from others, the less radiation they will receive. Even an increase in distance of a few feet will greatly reduce the exposure. So try not to remain in close contact with others for longer than is necessary.
2. **TIME** – radiation exposure to others depends on how long you remain close to them. You should try to minimize the time spent in close contact with others. Time also is important in decay considerations. The longer the time from the actual dosing, the lower the exposure to others.
3. **HYGIENE** – good hygiene minimizes the possibility that other people will be contaminated with the radioiodine that leaves your body. Since most of the radioiodine leaves your body in your urine, good toilet hygiene and careful and thorough washing of your hands will reduce the possibility of contamination.

IMPORTANT GUIDELINES TO HELP YOU APPLY THESE BASIC PRINCIPLES:

1. Travel to home after treatment administered: preferably drive alone. If using a private car with a driver, taxi or car service, sit alone in a back seat >3 feet from the driver.
2. Post-therapy living situations: It is not recommended to stay in a hotel or motel for the periods of daytime restrictions. If you have young children and it is difficult for them to follow distance and time restrictions, special arrangements should be made for children to stay with relatives or friends, or alternatively, you may stay with relatives or friends where children and pregnant women are absent.
3. The following guidelines must be followed to minimize radiation exposure to other individuals for a period of **no less than 72 hours (3 days)**:
 - Avoid all contact with pregnant women or young children.
 - For all household members, you must be able to stay >6 feet away most of the time. If necessary, caregivers and adult family members may approach 3 feet up to 6 hours per day.
 - If possible, use a separate bathroom
 - Use good hygiene habits. Thoroughly wash your hands after toilet use.
 - Take a minimum of two (2) showers daily to include washing your hair.
 - Flush toilet two (2) times after use.
 - Men **must sit** to urinate.
 - Thoroughly rinse bathroom sink and tub/shower after use.
 - Use separate bath linens. Wash linens and underclothing separately from normal wash.
 - Do not cook for other people. If cooking is necessary, use plastic gloves and dispose of in the specified trash bag.
 - For a phone you share with others, after use, wipe off the mouthpiece, or while using, cover the phone with a plastic bag that after use, needs to be placed in a specified trash bag.
 - Wipe exercise equipment and similar instruments used by others with flushable wipes. Non-flushable disposable clean-up material should be disposed of in the specified trash bag.

- Try to flush any tissues or any other items that contain anything from your body, such as blood, and nasal mucus down the toilet. Items that cannot be flushed, such as bandages, menstrual pads, paper towels etc should be placed in a specified trash bag.
- Adjust fluid intake to enable voiding every hour, while awake for the first day after treatment and continue to void often for the next several days. This will help the radioiodine to leave your body more rapidly, thus lowering the amount in your body.
- A daily bowel movement is recommended to reduce radiation to you and individuals nearby. A laxative may be used to ensure this occurs.

4. **In addition you should observe the following:**

- Sleep in separate beds from your spouse and other persons for ___ days after your treatment. During this period avoid kissing, sexual intercourse, intimate contact.
 - Sleep in a separate bed from infants/children and pregnant women for ___ days.
 - Use separate eating utensils for **the period in which sleeping with others is restricted**, and wash them in a dishwasher or by hand. The dishes may be washed with those of the family. It is better not to use disposable dishes/utensils, which must be put into a specified trash bag. This will reduce the chance of contaminating other family members with the radioiodine in your saliva.
 - Work/School: You may return to work/school in ___ days. If you need to return to work/school sooner than recommended, you must be able to maintain at least 6 feet distance at all times except for momentary encounters.
 - Avoid extended time in public places for ___ days
5. Trash recommendations: Keep the specified plastic trash bag separate from other trash; they must be leak proof and tightly secured. Keep the bags away from children and animals and place in a secure area at least 6 feet away from people and animals. After 80 days (the time at which radiation detection should not produce alarms), the bag may be removed as other trash bags. Another option is to return waste bag(s) to Nuclear Medicine after 1-2 weeks.
6. You should limit the time you spend on public transportation to the number of hours per day listed below:
- Treatment day: _____ hours
 - Day 1: _____ hours
 - Day 2: _____ hours
 - Day 3: _____ hours
7. If you have been breast feeding your baby you **MUST STOP** six weeks prior to therapy and for the entire duration of the pregnancy, because radioiodine is secreted in breast milk. Do not resume breast feeding or pumping, **unless** you become pregnant at a later day (**1 year**).
8. Suck on sour candy/hard candy, such as lemon drops, to stimulate saliva production starting 24 hours after your dose is given to help prevent salivary gland dysfunction.
9. You may set off radiation detection alarms. These are located in some DC Metro stations, airports, and tourist sites (e.g., the White House). Please avoid these locations for the **first week** after treatment/discharge from hospital.

10. If you follow the above advice, the radiation from you to others is likely to be less than what they receive from radiation in nature over a year time.

Recommendations adapted from the publication, "Radiation Safety in the Treatment of Patients with Thyroid Diseases by Radioiodine I131: Practice Recommendations of the American Thyroid Association." By The American Thyroid Association Taskforce on Radioiodine Safety. 2011.

I understand all of the instructions given to me detailed in the information provided above and during my education and consent regarding my I-131 treatment.

(Printed Name, Signature)

(Date)

Contact information:

(Name)

Nuclear Medicine Service

(Address)

(XXX)XXX-XXXX

Hyperthyroidism:

2A. Restricted Periods

2A-1. Hyperthyroidism [Assumes 50% uptake by thyroid, with effective $T_{1/2}$ of about 5 days (12)]

	mCi (MBq) administered			
	10 (370)	15 (555)	20 (740)	30 (1110)
Nighttime restrictions	Days/24-h cycles			
Sleep in a separate (6-foot separation) bed from adults for days shown.	3	6	8	11
Sleep in a separate bed from pregnant partners, infant, or child for days shown.	15	18	20	23
Daytime restrictions				
You may return to work after days shown.	1	1	2	5
Maximize your distance (6 feet) from children and pregnant women for days shown.	1	1	2	5
Avoid extended time in public places for days shown.	1	1	1	3

2B. Duration of Safe Travel by Public Transportation (Bus, Air, etc.) [Assumes 100 mrem limit and 0.3 m distance. Other assumptions are as in Table 2A-1 and 2A-2]

2B-1. Hyperthyroidism

	mCi (MBq) administered			
	10 (370)	15 (555)	20 (740)	30 (1110)
Travel time (hours) without exceeding regulatory dose limit				
Day (24-h cycles) 0 (beginning with treatment)	5.9	3.9	2.9	2.0
Day (24-h cycles) 1	9.2	6.1	4.6	3.1
Day (24-h cycles) 2	13.0	8.7	6.5	4.3
Day (24-h cycles) 3	-	10.6	8.0	5.3

Thyroid Cancer:

2A. Restricted Periods

2A-2. Thyroid carcinoma/remnant ablation [Assumes that disappearance of ^{131}I is biexponential with early effective $T_{1/2}$ of about 0.76 days, and 2% uptake in remnant with effective $T_{1/2}$ of about 7.3 days (7). Consider formal dosimetry (18) for larger administered doses given to patients with functioning carcinoma. ^{131}I kinetics in euthyroid patients stimulated by recombinant human thyrotropin may differ from those used here (11)]

	mCi (MBq) administered			
	50 (1850)	100 (3700)	150 (5550)	200 (7400)
Nighttime restrictions	Days/24-h cycles			
Sleep in a separate (6-foot separation) bed from adults for days shown.	1	1	2	4
Sleep in a separate bed from pregnant partners, infant, or child for days shown.	6	13	18	21
Daytime restrictions				
You may return to work after days shown.	1	1	1	1
Maximize your distance (6 feet) from children and pregnant women for days shown.	1	1	1	1
Avoid extended time in public places for days shown.	1	1	1	1

2B. Duration of Safe Travel by Public Transportation (Bus, Air, etc.) [Assumes 100 mrem limit and 0.3 m distance. Other assumptions are as in Table 2A-1 and 2A-2]

2B-2. Thyroid carcinoma/remnant ablation

	mCi (MBq) administered			
	50 (1850)	100 (3700)	150 (5550)	200 (7400)
Travel time (hours) without exceeding regulatory dose limit				
Day (24-h cycles) 0 (beginning with treatment)	1.2	0.6	0.4	0.3
Day (24-h cycles) 1	3.0	1.5	1.0	0.8
Day (24-h cycles) 2	7.2	3.8	2.5	1.9
Day (24-h cycles) 3	15.0	7.5	5.0	3.8
Day (24-h cycles) 4	-	15.0	10.0	7.5

Examples should be modified to meet local and specific patient needs. These examples are based on dose rate of $0.17 \text{ mrem h}^{-1} \text{ mCi}^{-1}$ at 1 m (16,17), 500 mrem per year for family member and caregiver, 100 mrem for pregnant women, children, and the public, and Occupancy Factors for adults of 0.25 except for sleeping 0.33. Resumption of sleeping with a partner assumes a distance of 0.3 m (7).

ACTIVITIES WHEN INSTRUCTIONS ARE NEEDED FOR BREAST-FEEDING FEMALES
(ref. NUREG-1556, Vol 9)

Radiopharmaceutical	Activity (mCi) above which instructions are needed	Activity (mCi) above which a record is required	Examples of Recommended Duration of Interruption
I-131 NaI	0.0004	0.002	Complete cessation (for this infant or child)
¹²³ NaI	0.5	3	
¹²³ MIBG	2	10	24 hrs for 4mCi 12 hrs for 4 mCi
⁶⁷ Ga Citrate	0.04	0.2	1 month for 30mCi 2 wks for 1.3 mCi 1 wk for 0.2mCi
¹¹¹ In-WBC	0.2	1	1 week for 0.5mCi
²⁰¹ TlCl	1	5	2weeks for 3 mCi
^{99m} Tc	3	15	24 hrs for 30mCi 12 hrs for 12 mCi
^{99m} Tc-DISIDA	30	150	
^{99m} Tc-DTPA	30	150	
^{99m} Tc-DTPA aerosol	30	150	
^{99m} Tc-Gluco	30	170	
^{99m} Tc-MAA	1.3	6.5	12.6 hrs for 4 mCi
^{99m} Tc-MAG3	30	150	
^{99m} Tc-MIBI	30	150	
^{99m} Tc-MDP	30	150	
^{99m} Tc-PYP	25	120	
^{99m} Tc-RBC in vivo	10	50	6 hrs for 20 mCi
^{99m} Tc-RBC in vitro	30	150	
^{99m} Tc-SC	7	35	6 hrs for 12 mCi
^{99m} Tc-WBC (HMPAO)	4	15	24 hrs for 30mCi 12 hrs for 12 mCi

INSTRUCTIONS TO BREAST-FEEDING PATIENTS

Patient label

1. You have been given a radiopharmaceutical. Breast-feeding after an administration of certain radionuclides should be discontinued for _____ hours. This will avoid any unnecessary radiation exposure to the infant or child from breast-feeding.
2. If you decide to continue to breast-feed there are various consequences which may result from the unnecessary radiation exposure to the infant or child from breast-feeding.

Certification

I have read the above restrictions and understand that in order to have a nuclear medicine study performed I must interrupt breast-feeding. I agree to follow these instructions and I have received counseling on interruption of breast-feeding.

Patient signature: _____

Physician: _____