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U.S. Radiologic Technologists Study
Fourth Survey

A collaborative effort between the University of Minnesota School of Public Health, National Cancer Institute, and American Registry of Radiologic Technologists

NUCLEAR MEDICINE MODULE

INSTRUCTIONS:

- USE BLUE OR BLACK INK
- PRINT LEGIBLE NUMBERS AND CAPITAL BLOCK LETTERS IN THE BOXES:

1	2	3		A	B	C	D

- MARK CHECK BOXES: RIGHT ☒ WRONG ☑ ❑

PRIVACY ACT NOTIFCATION STATEMENT
Collection of this information is authorized by The Public Health Service Act, Section 411 (42 USC 285a). Rights of study participants are protected by The Privacy Act of 1974. Please be assured that all information you provide will be kept private under the Privacy Act and will not be disclosed to anyone but the researchers conducting this study, except as otherwise required by law. Any published results from this survey will be reported in statistical summaries only and will never include a participant's name. Your participation in this study is completely voluntary and failure to answer any particular question or the information collection as a whole will not affect your future contacts with the University of Minnesota, the American Registry of Radiologic Technologists, or the National Institutes of Health.

Please fill out this module if you have ever performed radioisotope procedures to diagnose or treat diseases REGULARLY, that is, <u>at least once a month for a year or more</u>.

1. **What year did you begin performing radioisotope procedures REGULARLY?** ☐☐☐☐ FIRST YEAR

2. **What year did you last perform radioisotope procedures REGULARLY?** ☐☐☐☐ LAST YEAR

CONTINUE →

DIAGNOSTIC RADIOISOTOPE PROCEDURES

3. During each time period, how many YEARS did you perform DIAGNOSTIC RADIOISOTOPE procedures at least once a month?

Number of Years			
1965-1979	1980-1989	1990-1999	2000-2009
☐☐	☐☐	☐☐	☐☐

4. For the following DIAGNOSTIC radioisotope procedures, please provide your best estimate of how many times per week you performed these procedures during each time period. If you used more than one radionuclide for a given procedure, please answer separately for each radionuclide.

NOTE: If you mark "never done" or "less than once in 6 months," leave the rest of the columns blank for that procedure and radionuclide.

DIAGNOSTIC PROCEDURE	RADIONUCLIDE	Never done	Less than once in 6 months	How many TIMES per WEEK did you perform these procedures in each time period?				
				1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
Thyroid scan	^{131}I	❑	❑	☐☐	☐☐	☐☐	☐☐	☐☐
	^{123}I	❑	❑		☐☐	☐☐	☐☐	☐☐
	^{99m}Tc	❑	❑		☐☐	☐☐	☐☐	☐☐
Thyroid uptake	^{131}I	❑	❑	☐☐	☐☐	☐☐	☐☐	☐☐
	^{123}I	❑	❑		☐☐	☐☐	☐☐	☐☐
Liver scan	^{198}Au-Colloid.....	❑	❑	☐☐	☐☐			
Liver/spleen scan	^{99m}Tc-SC	❑	❑		☐☐	☐☐	☐☐	☐☐
Brain scan	^{131}ISHA.....	❑	❑	☐☐				
	^{203}Hg.....	❑	❑	☐☐	☐☐			
	^{197}Hg.....	❑	❑	☐☐	☐☐			
	^{99m}Tc	❑	❑		☐☐	☐☐	☐☐	☐☐
Renogram	^{131}I-OIH.....	❑	❑	☐☐	☐☐	☐☐	☐☐	☐☐
	^{123}I-OIH.....	❑	❑		☐☐	☐☐	☐☐	☐☐
	^{99m}Tc	❑	❑		☐☐	☐☐	☐☐	☐☐
Renal scan	^{203}Hg.....	❑	❑	☐☐	☐☐			
	^{197}Hg.....	❑	❑	☐☐	☐☐			
	^{99m}Tc	❑	❑		☐☐	☐☐	☐☐	☐☐
Bone scan	^{85}Sr.....	❑	❑	☐☐	☐☐			
	^{99m}Tc	❑	❑		☐☐	☐☐	☐☐	☐☐

Attachment 1B

DIAGNOSTIC PROCEDURE, cont.	RADIONUCLIDE	Never done	Less than once in 6 months	How many TIMES per WEEK did you perform these procedures in each time period? 1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
Lung perfusion scan	^{131}I-MAA	❑	❑					
	^{99m}Tc-MAA	❑	❑					
Lung ventilation	^{133}Xe	❑	❑					
	^{127}Xe	❑	❑					
Bone marrow scan	^{198}Au-Colloid	❑	❑					
	^{99m}Tc-SC	❑	❑					
	^{111}In-chloride	❑	❑					
Gallbladder scan	^{99m}Tc	❑	❑					
Gastrointestinal	^{99m}Tc in solid meal	❑	❑					
Cardiac scan	^{201}Tl-chloride	❑	❑					
	^{99m}Tc (1d)	❑	❑					
	^{99m}Tc (2d)	❑	❑					
Abscess scintigraphy	^{67}Ga-citrate	❑	❑					
	^{111}In-leukocytes	❑	❑					
	^{99m}Tc	❑	❑					
Tumor localization	^{67}Ga-citrate	❑	❑					
	^{111}In-octreotide	❑	❑					
PET scan (brain)	^{18}F-FDG	❑	❑					
PET scan (except brain)	^{18}F-FDG	❑	❑					
	^{82}Rb-chloride	❑	❑					
	^{13}N-ammonia	❑	❑					
Iron metabolism	^{59}Fe	❑	❑					

Please list other diagnostic procedures below:

	DIAGNOSTIC PROCEDURE	RADIONUCLIDE					
1.							
2.							
3.							

Attachment 1B

The following questions are about your work patterns and practices while performing DIAGNOSTIC RADIOISOTOPE procedures. Please complete all questions for each time period.

	Never	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
5a. Did you ever prepare radiopharmaceuticals for DIAGNOSTIC procedures? If NEVER, go to Question 6a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
5b. How many TIMES per WEEK did you prepare radiopharmaceuticals?						
5c. When you prepared radiopharmaceuticals, did you use any protection? If NEVER, go to Question 6a.	Never ❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
5d. Check all of the following that you typically used more than 50% of the time:						
lead shielded vial		❑	❑	❑	❑	❑
plastic shielded syringe		❑	❑	❑	❑	❑
lead shielded syringe		❑	❑	❑	❑	❑
non-lead gloves		❑	❑	❑	❑	❑
lead apron		❑	❑	❑	❑	❑
fume hood		❑	❑	❑	❑	❑
L-Block		❑	❑	❑	❑	❑
other (specify) _____		❑	❑	❑	❑	❑

	Never	1965-1979	1980-1989	1990-1999	2000-2009
6a. Did you ever elute the Tc generator? If NEVER, go to Question 7a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
6b. How many TIMES per WEEK did you elute the Tc generator?					
6c. When you eluted the ^{99m}Tc generator, did you use any protection? If NEVER, go to Question 7a.	Never ❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
6d. Check all of the following that you typically used more than 50% of the time:					
lead shielded vial		❑	❑	❑	❑
non-lead gloves		❑	❑	❑	❑
lead apron		❑	❑	❑	❑
glove boxes		❑	❑	❑	❑
fume hood		❑	❑	❑	❑
other (specify) _____		❑	❑	❑	❑

	Never	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
7a. Did you ever inject the patient? If NEVER, go to Question 8a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
7b. How many TIMES per WEEK did you inject patients?		☐☐	☐☐	☐☐	☐☐	☐☐

7c. When you injected the patient, which hand did you use to hold the syringe?

❑ Right ❑ Left ❑ It depends

	Never	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
7d. When you injected the patient, did you use any protection? If NEVER, go to Question 8a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
7e. Check all of the following that you typically used more than 50% of the time:						
lead shielded vial		❑	❑	❑	❑	❑
plastic shielded syringe		❑	❑	❑	❑	❑
lead shielded syringe		❑	❑	❑	❑	❑
non-lead gloves		❑	❑	❑	❑	❑
lead apron		❑	❑	❑	❑	❑
fume hood		❑	❑	❑	❑	❑
L-Block		❑	❑	❑	❑	❑
other (specify) _____		❑	❑	❑	❑	❑

	Never	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
8a. When you handled the patients, did you use any protection? If NEVER, go to Question 9a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
8b. Check all of the following that you typically used more than 50% of the time:						
lead apron		❑	❑	❑	❑	❑
other (specify) _____		❑	❑	❑	❑	❑

	Never	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
9a. When you imaged patients, did you use any protection? If NEVER, go to Question 10.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
9b. Check all of the following that you typically used more than 50% of the time:						
lead apron		❑	❑	❑	❑	❑
other (specify) _____		❑	❑	❑	❑	❑

THERAPEUTIC RADIOISOTOPE PROCEDURES

10. During each time period, how many YEARS did you perform THERAPEUTIC RADIOISOTOPE procedures at least once a month?

1945-1964	1965-1979	1980-1989	1990-1999	2000-2009

11. For the following THERAPEUTIC RADIOISOTOPE procedures, please provide your best estimate of how many <u>times per week</u> you performed these procedures during each time period. If you used more than one radionuclide for a given procedure, please answer separately for each radionuclide.

NOTE: If you mark "never done" or "less than once in 6 months," leave the rest of the columns blank for that procedure and radionuclide.

THERAPEUTIC PROCEDURE OR DISEASE	RADIONUCLIDE	Never done	Less than once in 6 months	How many TIMES per WEEK did you perform these procedures in each time period? 1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
Hyperthyroidism.....	^{131}I	❑	❑					
Thyroid ablation	^{131}I	❑	❑					
Follow up after thyroid cancer	^{131}I	❑	❑					
Malignant effusion	^{198}Au-Colloid.....	❑	❑					
Bone metastases.....	^{153}Sm.....	❑	❑					
NHL, liver tumor.....	^{90}Y	❑	❑					

Please list other therapeutic procedures below:

	THERAPEUTIC PROCEDURE	RADIONUCLIDE					
1.							
2.							
3.							

Attachment 1B

The following questions are about your work patterns and practices while performing THERAPEUTIC RADIOISOTOPE procedures. Please complete all questions for each time period.

	Never	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
12a. Did you ever prepare radiopharmaceuticals for THERAPEUTIC procedures? If NEVER, go to Question 13a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
12b. How many TIMES per WEEK did you prepare radiopharmaceuticals?		☐☐	☐☐	☐☐	☐☐	☐☐
12c. When you prepared radiopharmaceuticals, did you use any protection? If NEVER, go to Question 13a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
12d. Check all of the following that you typically used more than 50% of the time:						
lead shielded vial		❑	❑	❑	❑	❑
plastic shielded syringe		❑	❑	❑	❑	❑
lead shielded syringe		❑	❑	❑	❑	❑
non-lead gloves		❑	❑	❑	❑	❑
lead apron		❑	❑	❑	❑	❑
fume hood		❑	❑	❑	❑	❑
L-Block		❑	❑	❑	❑	❑
other (specify) _____		❑	❑	❑	❑	❑

	Never	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
13a. Did you ever administer liquid ^{131}I? If NEVER, go to Question 14a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
13b. How many TIMES per WEEK did you administer liquid ^{131}I?		☐☐	☐☐	☐☐	☐☐	☐☐
13c. When you administered liquid ^{131}I, did you use any protection? If NEVER, go to Question 14a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
13d. Check all of the following that you typically used more than 50% of the time:						
lead apron		❑	❑	❑	❑	❑
other (specify) _____		❑	❑	❑	❑	❑

	Never	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
14a. Did you ever inject the patient? If NEVER, go to Question 16a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
14b. How many TIMES per WEEK did you inject patients?		☐☐	☐☐	☐☐	☐☐	☐☐
14c. When you injected the patient, which hand did you use to hold the syringe? ❑ Right ❑ Left ❑ It depends						
14d. When you injected the patient, did you use any protection? If NEVER, go to Question 16a.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
14e. Check all of the following that you typically used more than 50% of the time:						
non-lead gloves		❑	❑	❑	❑	❑
lead apron		❑	❑	❑	❑	❑
plastic shielded syringe		❑	❑	❑	❑	❑
lead shielded syringe		❑	❑	❑	❑	❑
other (specify) _____		❑	❑	❑	❑	❑

	Never	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
15a. When you handled the patient, did you use any protection? If NEVER, go to Question 16.	❑	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes
15b. Check all of the following that you typically used more than 50% of the time:						
lead apron		❑	❑	❑	❑	❑
other (specify) _____		❑	❑	❑	❑	❑

When performing DIAGNOSTIC or THERAPEUTIC radioisotope procedures. . .

	1945-1964	1965-1979	1980-1989	1990-1999	2000-2009
16. What percentage of the time did you wear a finger badge in each time period?	❑ Zero ❑ 1-25% ❑ 25-74 ❑ 75-99 ❑ 100	❑ Zero ❑ 1-25% ❑ 25-74 ❑ 75-99 ❑ 100	❑ Zero ❑ 1-25% ❑ 25-74 ❑ 75-99 ❑ 100	❑ Zero ❑ 1-25% ❑ 25-74 ❑ 75-99 ❑ 100	❑ Zero ❑ 1-25% ❑ 25-74 ❑ 75-99 ❑ 100
17. Did you usually wear the badge under leaded gloves?	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes	❑ No ❑ Yes