

INTRODUCTION

The NMTCB examination is criterion referenced and relies upon the periodic validation of a task inventory. The last task analysis was undertaken in 1991 and appeared in the September 1992 *JNMT*. To produce an updated report on trends in nuclear medicine technology, the board distributed a practice trends analysis survey in 1994. The outstanding response rate was a factor in the board's decision to present the data in its entirety. This requires breaking the report into two parts. This is part one and it reports the survey demographics. Part two will report on procedure and equipment trends.

DEMOGRAPHICS OF SURVEY RESPONDENTS

The 1994 practice trends analysis survey was distributed to 1,200 NMTCB certificants from the database and sorted according to certification date. The number of responses to the survey was 869 for a return rate of 72.4%. Of the respondents: 36% graduated from a nuclear medicine technology program within the last 5 years; 45% graduated more than 5 years ago; 17% did not attend a program (i.e., learned from

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NMTCB PRACTICE TRENDS ANALYSIS REPORT, PART 1: DEMOGRAPHICS

on-the-job training).

Surveying certified nuclear medicine technologists (CNMTs) regarding the work they do on the job is critical to keeping the task list and examination items up-to-date with current practice. The NMTCB exam is oriented to entry-level technology. Therefore, data from the group with 5 years or less experience is of great value.

This article presents the demographic information including general questions such as years of experience, practice setting, education level, etc. There are also answers to questions that provide a benchmark to trend other very important areas: how long

NMTs plan to remain in the field; duties performed other than imaging; and modalities performed other than nuclear medicine technology. Several questions relate to nuclear cardiology, interventional studies, SPECT and radionuclide therapy.

Please note that all 869 respondents did not answer every question. Many questions could be answered with more than one response. The following results show all the questions asked and the possible responses.

Respondent CNMTs are divided into three groups based on their years of work experience: less than 3 yr, 3 to 10 yr and more than 10 yr experience. The fourth category summarizes all responses and includes respondents who no longer work in the field. Table columns show the count for each group of CNMTs who responded.

ACKNOWLEDGMENTS

The authors wish to thank the 869 certified nuclear medicine technologists who participated in this valuable survey. Special thanks to Michael Yester, PhD, for inspiring this project and to the NMTCB office staff who provided assistance in drafting and distributing the instrument and collating the data.

DEMOGRAPHIC DATA

1. When did you graduate from an NMT program?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Less than 1 yr ago	35	2	0	37
b. 1 - 3 yr ago	165	3	2	172
c. 3 - 5 yr ago	1	101	4	106
d. > 5 yr ago	2	112	274	392
e. I did not attend an NMT program (OJT)	1	26	128	155

2. What certification do you have (please check all that apply)?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. NMTCB	206	242	405	859
b. ARRT (N)	130	144	276	554
c. ARRT (R)	35	61	168	267
d. ARRT (T)	2	1	0	3
e. RDMS	1	5	11	19
f. RN	0	0	0	0
g. Other	0	13	60	90

3. How long have you worked as a nuclear medicine technologist?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
	207	244	408	865

4. How long do you think you may continue working as a nuclear medicine technologist?

	3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. 1 - 5 yr	39	49	55	143
b. 6 - 10 yr	57	53	71	181
c. 11 - 15 yr	34	46	98	179
d. 16 - 20 yr	30	46	112	189
e. More than 20 yr	46	46	67	160

5. What is your highest educational level?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. High school diploma or GED	7	15	87	112
b. Associate's degree	66	77	119	262
c. Bachelor's degree	120	131	150	403
d. Master's degree	4	7	27	39
e. Doctorate (PhD, EdD, etc.)	2	1	1	5
f. Other professional degree	12	9	20	36

6. Your gender is:

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Female	118	155	198	473
b. Male	88	85	200	378

7. Your racial/ethnic group is:

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. American Indian or Alaskan Native	0	2	5	7
b. Asian or Pacific Islander	14	13	22	50
c. African American	10	11	16	38
d. Hispanic	7	10	11	28
e. White	175	192	341	713
f. Other	1	5	5	11

8. RESPONSES FROM THE VARIOUS STATES

State	<3 yr	3-10 yr	>10 yr	Total responses	State	<3 yr	3-10 yr	>10 yr	Total responses
AL	6	4	12	22	MT	0	1	1	2
AK	0	0	0	0	NE	2	0	1	3
AZ	3	0	2	5	NV	1	2	3	6
AR	1	0	3	4	NH	0	2	3	5
CA	6	14	33	53	NJ	2	9	15	27
CO	1	1	5	7	NM	0	1	2	3
CT	5	3	4	12	NY	19	17	32	68
DE	3	1	1	5	NC	3	7	13	23
DC	0	0	1	1	ND	0	2	1	3
FL	17	5	23	45	OH	17	12	23	53
GA	1	7	4	12	OK	2	3	2	7
HI	1	1	3	5	OR	1	0	1	2
ID	0	0	0	0	PA	14	24	35	73
IL	11	10	13	34	PR	3	1	3	7
IN	10	5	6	21	RI	1	0	0	1
IA	2	0	6	8	SC	0	4	7	11
KS	1	2	4	7	SD	2	0	3	5
KY	1	1	8	10	TN	2	6	10	18
LA	8	7	7	22	TX	12	9	24	45
ME	1	3	6	10	UT	0	1	0	1
MD	7	11	9	27	VT	0	0	3	3
MA	11	10	10	31	VA	5	15	6	26
MI	14	14	13	41	WA	0	4	8	12
MN	1	2	4	7	WV	2	7	3	12
MS	0	3	3	6	WI	4	8	11	23
MO	7	4	11	22	WY	0	08	1	1

PRACTICE SETTING

9. How much time do you spend performing nuclear medicine patient studies?

	<3 yr experience	3-10 yr experience	> 10 yr experience	Total responses
a. Part-time, single employer	3	11	18	33
b. Full-time, no overtime, single employer	22	37	62	122
c. Full-time, plus overtime, single employer	176	185	268	630
d. Full-time, variable schedule (temporary placement, multiple employers)	6	7	20	33
e. I do not perform patient studies	0	3	37	44

10. Do you take call?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Single employer		163	161	222
b. Multiple employers		15	11	32
c. No call-work		28	71	151
				255

11. How many technologists, including yourself, work in nuclear medicine at your place of employment?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. I am the only NMT	17	33	59	109
b. 2 - 5	110	140	213	468
c. 6 - 10	54	44	92	191
d. 11 - 15	18	17	24	59
e. 15 - 20	5	5	8	18
f. More than 20	3	3	1	7

12. What is your primary job title?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Staff technologist, no supervisory duties	149	102	98	349
b. Staff tech, some supervisory duties	47	88	116	251
c. Senior tech, limited clinical duties	1	13	36	50
d. Administrator with clinical duties	5	16	92	117
e. Administrator with no clinical duties	0	1	13	14
f. Educator (director, coordinator, instructor)	0	5	10	15
g. Other	5	18	42	68

13. Which one of the following is the best description of your primary job?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. General imaging, no cardiology	8	16	14	40
b. General imaging, including cardiology	179	185	289	654
c. Nuclear cardiology, only	9	27	35	71
d. Computer processing, only	0	0	2	2
e. Other	10	13	67	94

14. What other duties do you perform (check all that apply)?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Mo-99m/Tc-99m generator elution	82	76	136	294
b. Radiopharmaceutical kit prep/kit QC	167	168	265	603
c. Radioassay	72	82	111	266
d. Nonisotopic assays	10	12	21	43
e. Nonimaging (Schilling, ERPF, RBC mass, etc.)	93	100	164	358
f. PET imaging	3	4	9	16
g. Radionuclide therapy	134	141	228	505
h. Radiation safety officer	4	31	78	116
i. Other	17	20	64	105

NMTCB

15. What other modalities do you perform in addition to nuclear medicine (check all that apply)?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Sonography	1	13	23	38
b. Mammography	0	3	7	10
c. MRI	4	8	11	23
d. CT	6	11	17	35
e. Diagnostic radiography	18	25	36	81
f. Echocardiography	3	6	7	16
g. Professional nurse (RN)	0	0	0	0
h. Clinical lab procedures	8	8	14	30
i. Other	27	25	55	109

16. Where do you work?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Varies, depending upon assignment (e.g., temporary staffing)	4	6	15	25
b. Out-patient cardiology clinic, only	8	23	23	54
c. Out patient general diagnostic clinic	6	15	26	47
d. Hospital only	4	8	7	19
1. < 150 beds	20	31	45	98
2. 151 - 250 beds	31	41	78	150
3. 251 - 500 beds	73	64	124	261
4. 501 - 750 beds	36	27	50	113
5. 751 - 1000 beds	15	25	17	59
6. > 1000 beds	9	2	9	20

17. Which one best describes the area where you work?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Urban	116	125	207	453
b. Suburban	71	75	120	268
c. Rural	17	38	61	116
d. Varies, depending upon assignment	2	5	10	17

INVOLVEMENT IN NUCLEAR CARDIOLOGY

18. How many exercise (treadmill) myocardial perfusion studies are done per week in your dept.?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. 0 - Done in another department	13	23	32	72
b. < 10	37	52	102	193
c. 11 - 20	60	73	135	268
d. 21 - 50	76	74	102	252
e. > 50	21	22	23	66

19. How many interventional myocardial perfusion studies are done per week in your department?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. 0 - Done in another department	21	50	80	155
b. < 10	107	127	219	455
c. 11 - 20	56	49	81	186
d. 21 - 50	19	11	9	39
e. > 50	4	3	6	13

20. If stress (exercise or interventional myocardial perfusion) studies are done in your department, who places the ECG leads on the patient?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. NMT	25	29	49	103
b. ECG technologist	121	117	200	440
c. RN	14	22	35	71
d. Other	11	2	23	44

21. If stress (exercise or interventional myocardial perfusion) studies are done in your department, who monitors the patient?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Physician only	20	21	50	92
b. Physician and NMT	74	84	103	262
c. Physician and other	98	116	208	406

FILM PROCESSOR AND CAMERA QUALITY CONTROL AND SPECT IMAGING

22. Is film processor maintenance (cleaning and chemical replenishment) part of your duties?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Yes	37	57	66	160
b. No	168	187	333	645

23. Is film processor quality control part of your duties?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Yes	32	39	81	155
b. No	174	205	318	701

24. Is camera quality control part of your duties?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Yes	204	243	384	835
b. No	3	1	15	22

25. Are SPECT imaging procedures part of your duties?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. Yes	199	222	361	785
b. No	8	19	36	67

26. If you do SPECT imaging, please check all of the following procedures that apply:

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. SPECT QC	179	209	349	740
b. Cardiac	189	212	348	751
c. Skeletal	172	177	304	655
d. Oncology (non-bone)	105	107	173	387
e. Brain	126	122	185	435
f. Liver	165	166	267	600
g. Renal	48	40	78	167
h. Other	27	16	34	77

RADIONUCLIDE THERAPY

27. What radionuclide therapy procedures are done in your department (check all that apply)?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. None	34	56	92	183
b. Thyroid (hyperthyroidism)	162	180	292	637
c. Thyroid (cancer treatment)	124	134	210	471
d. Bone	94	100	166	361
e. ³² P (Intracavity)	54	44	109	208
f. Other	17	31	49	97

PROCEDURES REQUIRING INTERVENTIONAL PHARMACEUTICALS

28. If interventional pharmaceuticals are used in conjunction with nuclear medicine procedures in your practice, check all of those used:

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. TSH	9	16	37	62
b. Perchlorate	47	51	69	167
c. Morphine	107	85	152	345
d. Cholecystokinin	167	160	271	601
e. Dipyridamole	149	176	279	605
f. Dobutamine	86	84	119	290
g. Adenosine	72	62	94	229
h. Lasix	176	191	321	691
i. Captopril	157	168	282	610
j. Other	34	19	42	95

29. Which interventional pharmaceuticals are within *your* scope of practice to administer *with* physician supervision.

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. TSH	2	9	27	38
b. Perchlorate	23	40	77	140
c. Morphine	41	24	57	122
d. Cholecystokinin	83	103	181	369
e. Dipyridamole	92	110	161	364
f. Dobutamine	41	36	61	138
g. Adenosine	38	37	61	136
h. Lasix	92	120	205	419
i. Captopril	78	100	179	359
j. None	53	43	85	183
k. Other	24	16	28	68

NMTCB

30. Which interventional pharmaceuticals are within *your* scope of practice to administer *without* physician supervision.

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. TSH	0	3	10	13
b. Perchlorate	25	29	53	107
c. Morphine	11	4	10	25
d. Cholecystokinin	64	59	95	218
e. Dipyridamole	11	15	17	43
f. Dobutamine	6	4	2	12
g. Adenosine	6	6	4	16
h. Lasix	78	79	104	261
i. Captopril	65	68	71	204
j. None	84	106	197	391
k. Other	8	13	14	35

INVOLVEMENT WITH PEDIATRIC PATIENTS

31. What percentage of the patients in your department are children?

	<3 yr experience	3 - 10 yr experience	> 10 yr experience	Total responses
a. 0 %	22	51	86	161
b. 1 - 5 %	134	156	248	538
c. 6 - 10 %	26	22	39	89
d. 11 - 25 %	19	11	11	41
e. 26 - 50 %	1	2	5	8
f. 50 - 75 %	0	0	0	0
g. > 75 %	5	2	2	9