

**Karen L. Blondeau, CNMT, and  
Mark H. Crosthwaite, CNMT**

**INTRODUCTION**

This article is part two of the report of the 1994 Practice Trends Analysis survey conducted by the NMTCB. The first part presented the demographic data for the 869 respondents. The results are available in the December 1995 *JNMT*. This report presents the frequency of use of equipment and performance of procedures associated with nuclear medicine.

**NMTCB EXAMINATION BLUEPRINT**

Periodic sampling of equipment and procedures in use in nuclear medicine is necessary to maintain a current and relevant item bank for the NMTCB examination. The current NMTCB Examination Blueprint is based on the 1991 Task Analysis which appeared in the September 1992 *JNMT*. Data from the current survey will help update examination questions within the current blueprint. Since substantial health care changes occurred in the U.S. in the time interval since the last NMTCB Task Analysis in 1991, this interim survey assessed the impact of these changes on nuclear medicine technology.

**NMTCB  
PRACTICE TRENDS  
ANALYSIS REPORT,  
PART 2:  
EQUIPMENT AND  
PROCEDURES**

As stated in Part One of this report, 1,200 individuals chosen from the NMTCB certificant database received Practice Trends Analysis Survey instruments. The actual number completed and returned was 869 for a 72.4% response rate. Any trends judged, by both the NMTCB psychometric consultants and the Exam Committee of the NMTCB, to significantly change the examination blueprint will appear in a future *JNMT* report.

The following results reflect all ques-

tions asked and the number of corresponding answers. The column titles represent the years of experience as a nuclear medicine technologist. Under each column title heading there are three subdivisions. For each of the items the respondent answered questions about the frequency of use for equipment or the frequency of performance of a procedure. These provided guidelines for response:

Frequently (F) = daily, weekly or more than five times per month

Seldom (S) = less than five times per month on average

Never (N) = not performed.

The last columns are for all responses, including those who no longer work in the field, whether the question of experience was answered or not.

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**1. Equipment Use. For each of the following, the response was frequently (F), seldom (S) or never (N).**

Equipment	<3 yr experience			3-10 yr experience			>10 yr experience			Total responses		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Dose calibrator	206	1	0	240	0	2	395	2	2	845	4	7
b. <sup>99</sup> Mo/ <sup>99m</sup> Tc generator	77	5	121	74	7	155	144	13	237	296	25	519
c. Bone densitometer	18	8	174	26	4	206	35	9	339	79	21	726
d. Cam., multicrystal	72	8	117	79	6	141	121	7	254	273	22	517
e. Cam., single-head (planar)	188	5	11	204	13	22	335	15	46	730	35	81
f. Cam., single-head (SPECT)	174	15	17	206	11	23	325	19	51	707	46	95
g. Cam., dual-head (planar)	83	4	109	72	1	155	110	9	255	265	15	525
h. Cam., dual-head (SPECT)	82	6	109	74	5	154	108	11	253	266	23	520
i. Cam., multihead (3-4)	42	2	150	33	3	192	60	5	298	136	11	645
j. Formatter, multi-imager												
1. Video system	102	11	78	104	19	94	192	30	150	398	62	327
2. Laser printer	90	22	81	94	18	108	142	27	199	326	67	394
3. Wet film	82	3	103	86	12	120	167	19	172	338	34	398
4. Dry film	97	8	79	113	16	94	162	18	176	373	42	353
k. Teleradiography (modem)	54	39	10	54	48	124	114	87	174	222	176	404
l. Well counter	128	30	44	154	26	58	231	63	96	515	121	201
m. Uptake probe	139	25	39	151	20	67	239	44	108	531	91	217
n. Intravenous infusion pump	93	49	61	94	50	90	142	86	158	331	185	314
o. Other	5	2	8	3	4	4	13	6	18	21	12	30

**2. Procedure List. For each of the following, the response was frequently (F), seldom (S) or never (N).**

Bone/Musculoskeletal	<3 yr experience			3-10 yr experience			>10 yr experience			Total responses		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Bone scan, limited (planar)	152	29	25	160	45	35	265	77	50	579	154	113
b. Bone scan, whole-body (planar)	188	4	15	208	7	26	349	11	33	749	23	77
c. Bone scan, 2-phase	86	37	81	90	42	104	125	80	171	302	159	362
d. Bone scan, 3-phase	173	19	15	185	30	26	307	48	36	668	98	81
e. Bone scan, limited, SPECT	109	63	34	85	104	52	153	170	67	348	340	157
f. Bone absorptiometry, dual-photon	10	7	189	17	7	216	17	5	366	44	19	779
g. Bone absorptiometry, x-ray	12	2	191	17	3	218	23	6	359	52	11	776

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<b>Cardio-Respiratory</b>	<b>&lt;3 yr experience</b>			<b>3-10 yr experience</b>			<b>&gt;10 yr experience</b>			<b>Total responses</b>		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Lung scan, radioaerosol	71	24	108	89	25	126	150	38	207	311	87	448
b. Lung scan, perfusion	189	6	12	200	13	30	338	19	41	731	39	86
c. Lung scan, ventilation	162	10	34	153	14	72	252	27	117	570	49	227
d. Lung scan, differential	33	108	63	30	121	89	78	197	116	141	429	273
e. Venogram	12	79	113	15	77	149	25	151	218	52	310	485
f. Cardiac, myocardial infarct	62	100	44	51	131	57	94	228	73	208	461	179
g. Cardiac, myocardial perfusion (planar)	71	83	50	80	86	73	114	186	94	266	357	222
h. Cardiac, myocardial perf. SPECT <sup>201</sup> Tl	153	30	24	167	39	34	281	50	63	604	119	126
i. Cardiac, myocardial perf. SPECT <sup>99m</sup> Tc agents	103	41	63	110	57	74	189	93	113	404	192	255
j. Cardiac, myocardial perf. gated SPECT	43	49	114	44	57	139	81	85	228	169	191	488
k. Cardiac first pass	49	74	82	63	85	93	82	152	156	194	312	338
l. Cardiac gated blood pool (rest)	49	74	82	165	45	30	254	104	37	570	189	91
m. Cardiac gated blood pool (stress)	23	80	102	36	71	132	42	143	209	101	295	450
n. Cardiac gated blood pool (SPECT)	23	29	165	15	25	200	24	74	294	50	129	666
o. Pulmonary aspiration	5	43	156	10	31	196	12	74	306	27	148	666
<b>Gastrointestinal</b>												
	<b>&lt;3 yr experience</b>			<b>3-10 yr experience</b>			<b>&gt;10 yr experience</b>			<b>Total responses</b>		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Esophageal motility	13	66	127	7	73	159	25	137	224	46	278	515
b. Gastric emptying	84	95	27	78	108	55	127	177	87	291	382	173
c. Gastroesophageal reflux	34	102	69	28	109	104	50	192	146	113	406	323
d. Gastrointestinal bleeding	114	76	17	117	89	34	191	151	52	425	317	107
e. Hepatobiliary	182	12	13	192	25	24	327	32	34	705	70	74
f. LeVeen shunt patency	5	104	96	8	116	117	14	204	171	27	426	390
g. Liver-spleen scan (planar)	135	58	13	134	76	31	189	162	43	460	298	91
h. Liver-spleen scan (SPECT)	67	99	40	53	120	68	98	208	87	220	429	199
i. Meckel's diverticulum	20	156	30	27	170	44	65	276	52	113	604	131
j. Salivary (parotid)	3	77	127	5	77	159	9	167	215	18	322	507
k. Schilling determination	46	53	108	58	51	131	95	85	211	200	190	456
l. Other	1	4	34	2	4	48	7	19	79	10	27	161
<b>Renal/Genitourinary</b>												
	<b>&lt;3 yr experience</b>			<b>3-10 yr experience</b>			<b>&gt;10 yr experience</b>			<b>Total responses</b>		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Cystogram, direct	39	73	93	24	76	134	40	113	232	105	263	464
b. Cystogram, indirect	9	46	148	5	34	196	7	95	308	21	146	659
c. Renal, ERPF	66	56	80	61	50	122	104	86	193	232	192	402
d. Renal, GFR	93	64	50	77	76	87	125	117	144	297	257	287
e. Renal (SPECT)	13	38	156	12	41	184	17	94	266	42	175	612
f. Renal structure scan planar	71	77	56	76	82	76	167	133	87	314	296	223
g. Renogram (no interventional)	125	48	32	131	56	52	225	88	73	483	194	161
h. Renogram (with interventional)	108	57	39	108	69	59	185	109	90	403	237	192
i. Renal transplant rejection	43	54	109	31	50	151	52	96	236	134	201	502
j. Testicular imaging	36	142	28	51	139	50	99	231	61	187	515	143
k. Urinary bladder, residual volume	14	44	114	21	44	174	36	69	274	71	157	600
<b>Central nervous system</b>												
	<b>&lt;3 yr experience</b>			<b>3-10 yr experience</b>			<b>&gt;10 yr experience</b>			<b>Total responses</b>		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Brain flow study	20	123	64	24	107	108	29	212	153	73	447	328
b. Static brain imag. (planar)	15	99	91	15	95	125	16	191	184	46	388	405
c. Regional cerebral perfusion (rCBF with SPECT)	47	79	80	38	78	120	63	135	196	149	293	402
d. Cisternography	11	140	56	12	148	81	25	261	110	48	554	250
e. CSF leak	4	130	73	5	126	110	12	234	148	21	495	334
f. CSF shunt patency	7	119	79	5	120	115	15	219	159	27	463	356

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Endocrine	<3 yr experience			3-10 yr experience			>10 yr experience			Total responses		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Adrenal imaging	11	56	136	4	50	186	6	85	293	21	192	622
b. Parathyroid imaging	21	143	40	19	147	72	48	229	115	89	521	232
c. Thyroid scan	182	13	12	191	24	27	318	38	40	694	77	82
d. Thyroid uptake	178	10	19	178	26	38	311	32	54	670	70	114
e. Thyroid whole-body <sup>201</sup> Tl	15	42	146	9	43	187	18	95	277	42	181	617
f. Thyroid whole-body <sup>131</sup> I	67	85	53	53	104	85	99	181	115	221	370	259

Oncology/Infection/Miscellaneous	<3 yr experience			3-10 yr experience			>10 yr experience			Total responses		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Gallium scan (planar)	117	72	17	123	80	37	183	166	45	426	319	103
b. Gallium scan (SPECT)	62	74	71	47	85	108	72	154	165	182	315	349
c. WBC scan	97	73	37	96	80	63	152	153	89	347	307	194
d. Monoclonal antibody imag.	20	97	90	25	96	119	26	157	209	72	351	424
e. Dacryoscintigraphy	3	18	185	1	27	212	1	54	334	5	101	737
f. Lymphoscintigraphy	8	42	155	6	44	190	13	84	293	27	171	645
g. Platelet imaging	4	20	182	4	17	219	7	42	343	15	80	751

Hematopoietic	<3 yr experience			3-10 yr experience			>10 yr experience			Total responses		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Bone marrow scan	7	44	154	6	42	193	3	113	275	16	200	629
b. Plasma volume, RISA	15	36	155	13	38	190	22	82	287	51	156	639
c. Red cell mass, <sup>51</sup> Cr	18	47	141	14	52	174	27	103	262	60	202	584
d. Red cell sequestration	8	49	148	5	44	192	6	79	307	19	173	654
e. Red cell survival	10	48	148	4	46	190	5	84	303	19	179	648
f. Spleen scan (labeled RBCs)	16	75	115	13	74	154	14	130	248	43	280	524

### 3. Radionuclide Therapy. For each of the following, the response was frequently (F), seldom (S) or never (N).

Radionuclide therapy	<3 yr experience			3-10 yr experience			>10 yr experience			Total responses		
	F	S	N	F	S	N	F	S	N	F	S	N
a. <sup>32</sup> P colloidal	1	37	164	1	28	201	4	77	299	6	143	671
b. <sup>32</sup> P-sodium phosphate	4	52	147	4	48	180	4	104	275	12	205	609
c. <sup>90</sup> Sr bone pain palliation	28	87	90	26	87	123	39	158	191	94	333	110
d. <sup>131</sup> I-sodium iodine	103	62	41	88	179	73	160	113	119	354	255	237

### 4. Other. For each of the following, the response was frequently (F), seldom (S) or never (N).

Other	<3 yr experience			3-10 yr experience			>10 yr experience			Total responses		
	F	S	N	F	S	N	F	S	N	F	S	N
a. Take vital signs	60	92	51	95	93	52	129	173	90	284	360	199
b. Administer nonradioactive drugs	78	70	58	87	95	61	140	148	104	305	317	227
c. Establish IV lines	143	29	34	173	39	30	239	77	76	557	146	145
d. Administer sedation	1	18	187	8	28	206	9	35	348	18	81	749
e. Insert urinary catheters	7	11	188	8	27	207	7	26	358	22	64	761
f. Operate treadmill	26	35	145	46	47	148	64	67	261	136	149	562
g. Operate ECG machine	40	45	120	63	47	130	94	85	211	197	177	469
h. Other	2	6	31	10	1	49	14	14	74	26	21	154