SNM Staff Utilization Survey Report

This section of the report provides a description of the research methods used as well as highlights of the results of this survey.

**Research Method**

- The population of interest for this study is facilities that practiced nuclear medicine in 2002 across the United States. The Society of Nuclear Medicine (SNM) supplied a list of these facilities, with a chief technologist as the contact name, to Anderson, Niebuhr & Associates, Inc. To maximize the number of responses, no sample was drawn; instead, all facilities were included in the study. For main data collection, 4,425 facilities were mailed a survey.

- Anderson-Niebuhr developed the questionnaire in close consultation with SNM representatives. The questionnaire was pretested twice because the results of the first pretest indicated a need for significant revisions. The results of the second pretest were incorporated into a finalized version of the questionnaire.

- The questionnaire was administered using Anderson-Niebuhr's established mail survey methodology from July 25 through September 9, 2003. A preletter from SNM preceded the first survey mailing to introduce the study and purpose of the research, and to encourage participation. Following the preletter, the initial mailing included the questionnaire, a cover letter, and a pre-addressed, postage-paid return envelope. For those members who did not respond to the initial mailing, a reminder postcard was sent. For those not responding to the postcard, a second mailing was sent, complete with another copy of the questionnaire. At the end of data collection, a total of 916 surveys had been received, yielding an overall response rate of 21 percent.

- An additional 67 surveys were received after the initial analysis by Anderson Niebuhr. Sage Computing included these 67 surveys in the analysis, increasing the response rate for the survey to 22%. The responses were further divided into “Hospitals” and Non Hospitals” for analysis. More than half (58%) of the facilities surveyed were hospital based facilities. The hospital data were further sorted by bed size and the non hospital facility data by specialty. For non hospital respondents, only those who offered General Nuclear Medicine, PET or Cardiology as part (or all) of their practice were included in the analysis.

- Sage staff defined analyses to be performed in consultation with SNM representatives. SAS© was used to conduct the analyses. Complete descriptive statistics are provided for each survey item and results are displayed in tables. Data is presented separately for hospital and non-hospital based facilities.
HOSPITAL BASED FACILITIES

The hospital data was further categorized into the following categories:

- 0-125 beds
- 126-300 beds
- 301-499 beds
- 500 or more beds.

The number of licensed hospital beds in these facilities ranged from 15 to 1,100 with an average of about 212 beds.

Hospital Based Facility Demographics

- On the whole, 67% of the hospitals were Community hospitals, 23% were Private, 8% were Government, and 2% were University hospitals. In the range “0-125 beds”, 68% were Community hospitals and none were University hospitals. In the range “More than 500 beds”, 47% were Community hospitals and 12% were Government hospitals.

- Most (94%) of the hospitals responding to the survey have JCAHO accreditation. All the hospitals with “More than 500 beds” were JCAHO accredited. In addition, 42% of the hospitals with more than 500 beds had accreditation by ACR and only 14% by ICANL.

- Use of phantoms to test proficiency was most common in larger hospitals. Overall, 43% of the hospitals reported using phantoms to test proficiency. Of those hospitals which reported using phantoms, half the respondents reported using the SNM Quality Assurance phantom program. Again, use of the SNM Quality Assurance phantom program was more for the larger hospitals.

- 66% of the hospitals offer routine nuclear medicine procedures 5 days a week, while another 29% of the hospitals offered services 6-7 days per week. Of the smaller hospitals (0 to 125 beds) 74% of the hospitals offered NM patients services 5 days a week. More than half of the hospitals with more than 300 beds offered services 6-7 days every week.

- 45% of the hospitals surveyed are open 45 hours or less per week for routine nuclear medicine patient services. Smaller hospitals were more likely to be open for fewer hours than larger hospitals. 65% of the hospitals in the “0-125 beds” category were open 45 hours or less for routine nuclear medicine services, while 30% of the hospitals with more than 500 beds were open 80 hours per week or more.

Hospital Based Facility Staffing Information

- 87% of the NM hospital facilities require certification or licensure for NM technologists.

- 71% of the hospitals reported that they had a NM Chief Technologist/Supervisor. On average, each hospital had 1 Chief Technologist. Only 5% of the hospitals employ a NM Administrator, with 24% of hospitals with more than 500 beds employing a Nuclear Medicine Administrator compared to only 5% of hospitals with 0 to 125 beds.

- Overall, for all hospitals that employ technologists, 34% of the technologists were those with 1-5 years of experience, while 19% were new graduates. Larger hospitals had a
larger share of new graduate technologists with over one-third of their technologist workforce being new graduates. Of those employing new graduates, the average number of new graduate technologists for all hospitals was 4. The average in hospitals for technologists with 1-5 years of experience was 1 with a minimum of 0.5 technologists and a maximum of 2. The percentage of technologists with more than 10 years of experience was highest in smaller hospitals. 44% of the technologists in hospitals with 0 to 125 beds were those with over 10 years of experience, compared to 19% in hospitals with over 500 beds and 8% in hospitals with 301 to 499 beds.

- The average hourly rate of a NM Chief Technologist/Supervisor ranged from $28.10 for hospitals with “0-125 beds” to $33.20 for hospitals with more than 500 beds. The average hourly rate for a NM Administrator was $33.20 with a minimum of $18.6 and a maximum of $50.0 for all hospitals irrespective of size. For New Graduates, the pay differential between hospitals was very little and ranged from $20.20 for smaller hospitals (less than 125 beds) to $23.80 for hospitals with more than 500 beds. The hourly rate for technologists with 1 to 5 years of experience ranged from $13.00 to $45.00 for all hospitals. Again, the average rate increased with increase in the size of the hospital.

- 45% of the hospitals surveyed do not use any special incentives to recruit NM technologists. Use of special incentives was 28% for hospitals with less than 125 beds and 52% for hospitals with more than 500 beds.

- About three quarters (76%) of the hospitals surveyed do not use any special incentives to retain NM technologists. This number did not change significantly between hospitals of different sizes.

- On average, there were more technologists with a four-year degree (mean=1.4) or a two-year degree (mean=1.1) per hospital facility than other levels of education. In addition, more technologists per facility are NMTCB (mean=2.5) certified than ARRT (N) (mean=1.6) certified per facility. Hospitals with more than 300 beds have a higher average of NMTCB certified and ARRT(N) certified technologists than the total average.

- Overall, 18% of the hospitals reported employing a nurse; 1% employed Physician Assistant, and 15% employed Nurse Assistants. The percent of hospitals employing these personnel increased with an increase in size of the hospital. 6% of the hospitals with less than 125 beds employed a nurse compared to 48% of hospitals with more than 500 beds. For those facilities employing a nurse, the average number of FTE nurses employed was 2.6.

- 63% of the hospital based facilities do not have a NM Medical director. The percentage of facilities with a NM Director increased with an increase in the size of the hospital. 90% of the hospitals with more than 500 beds employed one, compared to 27% of hospitals with less than 125 beds. If they employed a NM Director, most spend their time on clinical activities; an average of 56.1% was spent on clinical activities.

- 77% of the hospital facilities have a nuclear medicine technologist on-call in the area of general nuclear medicine though 57% of the facilities with hospitals with less than 125 beds had one. For nuclear cardiology, 6% had nuclear medicine technologists on-call.
Only 1% of the respondents had a PET technologist on call with 42% indicating that PET was not applicable to them.

- When asked if their facility had open technologist positions, 20% of facilities said “yes” with regard to general nuclear medicine. Though 11% of the facilities with less than 125 beds had open positions in General Nuclear Medicine, 45% of the hospitals with more than 500 beds had open positions. For those hospital based facilities with open positions, the average number of General Nuclear Medicine positions open was 2.

- 6% of hospital based facilities had nuclear cardiology technologist openings and the average number of open FTE positions was 1.1. 1% of facilities had PET technologist position openings, but hospitals with “0-125 beds” had none (0%).

- When asked about open physician positions in various areas, 4% of hospital based facilities mentioned openings in nuclear cardiology. The average number of open NM Technologists in Nuclear Cardiology was 1.4. 6% of hospital facilities had physician openings in general nuclear medicine and the average number of open FTEs was 1.8.

- ABR certification was the most common certification (77%). 60% of physicians were board certified in one area.

- 6% of respondents indicated that physicians were considering obtaining additional credentials at their hospital facility within the next two years.

**Hospital Based Facility Operation/Utilization**

- When asked about the average wait time for non-urgent nuclear medicine procedures, 58% of the hospital based facilities reported an average of two days or less for nuclear cardiology procedures. 16% reported a wait time of 3-4 days for these procedures, while 12% said it was one week or more. For PET procedures, 14% of the hospital based respondents indicated that the wait time for PET procedures was 1 week. For all other NM procedures, 64% reported an average wait time of 2 days or less. None of the hospital based facilities had a wait time of more than 3 weeks.

- 68% of the hospital facilities surveyed had a computerized radiology information system (RIS) with the percent increasing with increase in hospital size. Among those who had one, 79% use it for registration, 74% for scheduling, 67% for film-tracking and 22% for transportation.

- 38% of respondents indicated that they have an image archiving system at their hospital facility. Of who have such a system, 79% said that it was operational in nuclear medicine. When this is the case, 75% reported that the nuclear medicine images were readable by referring physicians.

- Approximately 42% of the hospital based facilities indicated that their facility was planning on upgrading or purchasing nuclear medicine equipment in the next year. 80% of these upgrades or purchases were for SPECT equipment.

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• On average, 76% of the hospital based facilities said that their radiopharmaceuticals were commercially prepared Unit Dose. In-house preparation of radiopharmaceuticals was reported by 21% and commercially prepared multi dose by 4%.

• 96% of the hospital based facilities reported performing cardiac nuclear medicine procedures. Of the cardiac nuclear medicine procedures performed in 2002, procedure code 78465 was performed most followed by the code 78480. For each CPT code, the number of procedures performed increased with the hospital size.

• 64% of the hospital based facilities performed therapeutic nuclear medicine procedures. Thyroid non-cancer was the most performed procedure (average of 36) followed by Thyroid carcinoma (average of 12 performed by all hospital based facilities).

• 18% of the hospital based facilities performed PET nuclear medicine procedures while 93% performed other procedures. Bone Scan was the most commonly performed procedure in 2002 with an average of 567 and the least performed procedure was 78760-78761 Testicular Imaging.

• Of the radiopharmaceuticals used in Nuclear Medicine for Cardiac, Therapeutic and PET procedures, the Cardiac Nuclear Medicine radiopharmaceuticals were the most commonly used (90%).

• Among hospital NM facilities that perform in-patient procedures, there was an average of 1,253 performed per facility in 2002. 83% of all hospital based facilities responded to the question on total number of in-patient NM procedures performed in 2002.

• Hospital based facilities averaged 2,318 out-patient nuclear medicine procedures in 2002 with a minimum of 5 and a maximum of 25,075. The number of respondents to this question was 418 (83%).

NON–HOSPITAL BASED FACILITIES
Non hospital based facilities were sorted into the following categories for analysis:
• General Nuclear Medicine only
• Cardiac only
• General Nuclear Medicine and Cardiology
• Others

Non-Hospital Facility Demographics
• 42% of the facilities surveyed were non-hospitals. Of these, 36% offered cardiac only, 13% offered general NM only, 25% offered both while 26% offered all other specialties.

• Approximately 23% were multi-specialty physician offices and 45% single specialty offices.

• 23% of all non-hospital facilities surveyed have ICANL accreditation followed closely by JCAHO accreditation (20%). In addition, 13% were accredited by ACR. For the non-hospital based facilities 36% with only cardiac specialty had ICANL accreditation compared to 4% with general nuclear medicine only specialization.

• 33% of the non hospital based facilities used phantoms to test proficiency. Of these, 37%
used the SNM quality assurance program and 39% used the ACR program.

- 86% of non-hospital facilities offered routine nuclear medicine procedures five days a week; another 10% offered 3-4 days per week. 90% of the Hospitals specializing in Cardiac Only offered NM services 5 days a week and only 8% for 3-4 days per week.

- 64% of non-hospital facilities were open 45 hours or less per week for routine nuclear medicine patient services. Of which facilities specializing in General NM Only had the highest percentage (80%). 24% of the non-hospital facilities were open 46-55 hours per week.

Non-Hospital Facility Staffing Information

- 95% of nuclear medicine non-hospital facilities require certification or licensure for nuclear medicine technologists. 98% of the facilities specializing in both General NM and Cardiology and 97% of Cardiac Only facilities required certification.

- On average, there were more technologists with a two-year degree (1.2) and four year degree (mean=1.1). In addition, more technologists per facility were NMTCB (mean=1.7) certified than ARRT(N) (mean=1.2) certified per facility.

- 59% of all non-hospital facilities employed a Nuclear Medicine Chief Technologist/Supervisor. For those employing a NM Chief, the average number of FTE employee was 1. For non hospitals, facilities specializing in Cardiac Only were more likely to employ a Chief (68%).

- 49% of the non-hospital facilities reported employing an FTE nurse with an average number of 3.5 nurses employed. The highest percent of non hospital facilities reporting employing a nurse were Cardiac only facilities.

- Physician Assistants were employed by 21% of the facilities and Nurse Assistants by 27%.

- 6% of the total technologist workforce in non hospitals was new graduates and their number, for non hospitals, was the highest for facilities specializing in nuclear medicine and cardiology (8%). Technologists with more than 10 years constituted the highest percent (43%) of the total technologist workforce in non hospitals.

- The average hourly rate of a NM Chief Technologist/Supervisor was $31.60. Facilities specializing in both General NM and Cardiology pay a higher average salary of $32.90 to Chief Technologist/Supervisor. The average hourly rate of a nuclear medicine administrator was $32.80. Facilities specializing in Cardiac Only pay a higher average salary of $36.70. The average hourly rate for new Graduates ranged from a minimum of $19.0 to a maximum of $34.0.

- 88% of the non-hospital facilities do not use special incentives to recruit NM technologists. 67% do not use special incentives to retain NM technologists.

- 41% of the facilities reported that they have a nuclear medicine medical director at their facility. Of those that do, respondents reported that, on average, more of the director’s time is spent on clinical activities (mean=70.0) than on administrative duties/research (mean=15.4).
1% of the non-hospital facilities have a nuclear medicine technologist on-call in the area of general nuclear medicine. 1% of non-hospital based facilities have nuclear medicine technologists on-call in nuclear cardiology, where as no facility had a PET technologist on call.

4% of the non-hospital based facilities had open technologist positions in general nuclear medicine, 10% in nuclear cardiology, and 1% in PET. On average, there was 1 open position in general nuclear medicine, 1.3 in nuclear cardiology, and 0.8 in PET.

When asked about open NM physician positions in various areas, 2% reported openings in general NM (on average, 1 position was open); 9% had openings in the areas of nuclear cardiology, and none in PET. For those who said yes in the areas of general nuclear medicine, the average number of open NM physician positions was 1.0; in nuclear cardiology, the average number of open NM physician positions was 1.4, and in PET, the average number of open FTE positions was 1.0.

19% of respondents from non-hospital facilities indicated that there were physicians considering obtaining additional credentials at their facility within the next two years.

Non-Hospital Facility Operation/Utilization

When asked about the average wait time for non-urgent nuclear medicine procedures, in nuclear cardiology procedures, 44% of the non-hospital facilities reported an average wait time of two days or less. For all other NM procedures, 23% reported a wait time of 2 days or less.

28% of the non-hospital facilities surveyed have a computerized radiology information system (RIS) with 46% of facilities specializing in general nuclear medicine only reporting one. Among those who have one, 90% use it for scheduling and 77% for registration and another 33% for film-tracking.

41% of respondents indicated that they have an image archiving system at their facility. For 88% of these respondents who have an image archiving system, the system is operational in nuclear medicine, while for 45% of the respondents owning such a system, the images were readable by referring physicians.

27% of the NM facilities plan on upgrading or purchasing NM equipment next year. 31% of the cardiac only facilities planned on upgrading. For those who were planning an upgrade, 91% were upgrading SPECT equipment, and 4% PET/CT.

On average, 98% of facilities said that their radiopharmaceuticals were commercially prepared Unit Dose.

90% of facilities performed cardiac nuclear medicine procedures in 2002. For facilities that did perform cardiac nuclear medicine, an average of 1,279 SPECT myocardial perfusion imaging multiple procedures were performed.

12% of facilities performed therapeutic nuclear medicine procedures in 2002; while 7% of the facilities performed PET procedures.
• 7% of the non hospital facilities performed PET nuclear medicine procedures in 2002 but facilities specializing in Cardiac Only and facilities specializing in both General NM and Cardiology performed none. It was mostly done by facilities specializing in non-nuclear medicine and cardiology.

• 31% of the non hospital facilities performed other nuclear medicine procedures. Of the number of other NM procedures performed by non-hospitals, bone scan was the most commonly performed (mean = 436) and Testicular Imaging was the least commonly performed (mean = 0.2).

• The total average out-patient NM procedures performed in non-hospital facilities was 2,093.
### Profile of Respondents to 2003 SNM Staff Utilization Survey

#### Type of Facility

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<th>Type of Facility</th>
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#### Hospital Based Facilities

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<th>126 to 300</th>
<th>301 to 499</th>
<th>More than 500</th>
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<table>
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#### Non-Hospital Based Facilities

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