

The Impact of the Prospective Payment System on the Delivery of Nuclear Medicine Services

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The Society of Nuclear Medicine—Technologist Section conducted this study to evaluate the effect of the Medicare Prospective Payment System (PPS) on nuclear medicine technologists and services. Since 80% of nuclear medicine technologists work in hospitals, a large segment of these professionals would be affected by this new system (1). The survey was designed to assess the effect of PPS on nuclear medicine departments at the early implementation stage. Follow-up surveys to obtain additional information and to develop trend data are planned. The following questions guided the design of the project:

How has PPS affected the delivery of nuclear medicine in the hospital setting?

What changes in nuclear medicine do technologists attribute to PPS including changes in the following: number of studies, number of staff and staff benefits, effect on budget, effects on patients and patient referrals?

SURVEY METHODS

The questionnaire was mailed to a specialized mailing list constructed by the Technologist Section to generate the highest amount of feedback. Our mailing list (Table 1), obtained for use in a detailed manpower survey during 1985 and recently updated, included a contact person (either a Chief Technologist/Administrator or Physician Director) in all nuclear medicine departments in the United States (Table 2), including mobile units which have nuclear medicine personnel. The survey instrument and cover letter, with a self-addressed stamped envelope, were mailed to 3,590 departments on September 3, 1985. Those that did not respond to the first mailing were sent a second mailing on October 25, 1985.

A total of 1,816 questions were returned, a 51% response rate. Results were not tabulated for three states: Massachusetts (44 responses), Maryland (26 responses), and New York (91 responses) because they were not yet under the PPS system at the time the survey was mailed. Fifty-seven questionnaires/responses were not tabulated because they: (a) were from a VA hospital; (b) no longer had a nuclear medicine department; (c) did not fill in the survey correctly; or (d) left it blank. A total of 1,598 questionnaires were entered into the computer for analysis. The response to the 26 survey questions are summarized in Tables 3 through 8. These items requested the respondents to describe changes in their nuclear medicine department that they would attribute to the influence of PPS. In reviewing the results, however, for some questions it seems clear that the respondents believed that other factors were considered attributable to

current changes. These factors are mentioned for those specific questions in the Tabular Analysis section. Respondents were asked to check the one category that best reflects what has happened since the advent of PPS.

TABULAR ANALYSIS

In Table 3, the effect of PPS on the volume of nuclear medicine services and the scheduled hours of the department are assessed. As expected, inpatient services decreased, outpatient services increased, and evening and on-call services had not changed significantly. (The "not applicable" response was interpreted as service not provided and, therefore, could be combined with the no change responses). The decreased inpatient workload was probably the result of lower patient admission rates as well as physicians ordering fewer diagnostic tests. In addition, routine testing that was performed in the inpatient environment was now being performed on an outpatient basis in a pre-admission testing package. That 23% of the respondents perceived an increase in on-call services due to PPS is puzzling. It is uncertain whether this increase is the hospital's attempt to expand services. It may not be consistent with the normal hospital cost-saving program.

The effects of PPS on personnel are assessed in Table 4. The majority of the respondents reported no change in the personnel-related items. However, several significant trends were noted. They are as follows:

1. Twenty percent of the respondents reported a decrease in the number of nuclear medicine technologists employed. Is the decrease in the number of NMTs employed related to attrition without replacement or are there lay-offs occurring? Is this decrease related to PPS or other factors? The recent Human Resource Survey (1) showed that 87% of the respondents perceived the supply of NMTs not changing and only 8% and 5% percent, respectively, perceived it was increasing and decreasing. This seems to indicate that more than half of those reporting a decrease in NMT staff were actually attributing the decrease to PPS.
2. Does the 19% that reported an increase in costs of benefits represent a normal increase in technologist benefits or is it really related to PPS? Are more technologists being asked to share the cost of health care benefits?
3. It is unfortunate to see that 38% reported a decrease in funding for continuing education. This is a line item that hospital administrators may perceive as a "benefit" and not a "necessity." What effect will this have on the professional society? As funds for continuing education dwindle, will there be a shift in emphasis from the national to the local or regional

meetings? This is already manifested by a recent questionnaire on the viability of the Technologist Section Midwinter Meeting and subsequent cancellation of the educational portion of the meeting. With this change in funding, should the leadership begin to formulate plans that will meet these changing needs? Questions that have been asked in the past such as: Should we consider coordinating our national meetings with regional and chapter meetings, suddenly become meaningful and appropriate.

4. The 37% "not applicable" response to hiring non-certified versus certified technologists was significant. A few of these hospitals were contacted. They reported that they did not have this practice and therefore were included in the "no change" category (92%).
5. Twenty-four percent of the respondents have indicated that salaries for nuclear medicine technologists are increasing. Does this represent a normal increase in salaries each year or is it really related to PPS?

Table 5 assesses the effect of PPS on department budgets. Although slightly more than half of the respondents reported no change in the department's expenses (excluding salaries) due to PPS, a significant number reported either increases (18%) or decreases (20%). It is significant to note that most of the respondents reported either an increase (36%) or no change (35%) in the overall department income. Answers to questions on departmental capital budget and length of time for acquisition of new equipment are not surprising with the majority stating either a decrease (30%) or no change (48%) in department capital budget and a significant portion stating an increase in length of time to acquire new equipment (32%). In view of the current health care financial picture, these numbers are not surprising. This may also reflect a "slump" or "softness" of the hospital industry. Another factor which may be significant and was one of the most common reasons stated in the comments section of this survey for the decrease in volume of nuclear medicine studies (other than PPS) was competing modalities such as CT, ultrasound, and MRI, and the emergence of new outpatient facilities.

In Table 6, the effect of PPS on patient care is assessed. At least half or a majority of respondents stated no change for these survey items with the exception of "average length of hospital stay." As expected, the majority of respondents (81%) stated the average length of stay had decreased. This has been reported in most articles on the subject. This was also responsible for the dramatic reductions in the average length of stay since Medicare shifted to prospective pricing. The average length of patient stay, another key indicator of hospital utilization, also shrank. In 1982, according to last year's

survey, the average length of stay was 7.5 days; for 1985 to date, it was down to just 6 days. Large hospitals continued to keep patients longer than small hospitals, but they too have cut the average patient stay by almost two full days since the pre-DRG era, from about 9 days in 1982 to about 7 days this year. Small hospitals shave the average stay from 6.4 days in 1982 to 5.5 days in 1985 to date (2). One major contributing factor for the reduction is pre-admission testing. Previously, this testing was performed after admission. In the same study, there were no conclusions about the impact of the reduction on length of stay or health care quality. This is one sensitive area in which all agencies, such as ProPac, are reviewing because a commonly heard reverberation is "discharged quicker and sicker."

Of significance are the 29% who stated a decrease in the number of patient referrals. This declining referral base may be caused by increased outpatient testing in nonhospital outpatient facilities and other influences of PPS algorithms. In addition, the frequency of some procedures has been decreased because the information to be gained from other modalities is significantly greater. Consequently, marketing efforts and referring physician education should be "active" areas of the nuclear medicine service. These steps should help insure a healthy referral base. More than one fourth of the respondents (26%) reported a decrease related to PPS in the willingness of physicians to refer. The referring physician's willingness to use the nuclear medicine service, however, is now affected by many factors other than PPS (e.g., competing modalities and lower cost of other modalities for complete workup). Hopefully, these factors will be identified in a future survey.

Increases in the demand for patient education (27%) and the patient's role in the delivery of service (31%) is also of interest. The results of a recent marketing survey of physician's office managers showed that requests are increasing for patient information brochures (Crucitti T, personal communication). Because patients want to know what is being done to them, they are taking

a more active involvement in their medical workups. The days of initially having a test performed because, "my doctor told me," are becoming fewer and fewer.

One of the major anticipations of the PPS was the need for stricter productivity standards and greater documentation. The data in Table 7 support that this is happening with 51% of the hospitals reporting an increase in productivity standards and 43% reporting an increase in scrutiny of documentation procedures. It is important to note that productivity statistics are being compiled in all areas of hospital operations. With the increasing use of management information systems (MIS) by radiology departments, information is available at your fingertips. In addition, Third Party Payers are increasing their auditing activity, and reimbursement dollars now directly reflect the accuracy of testing procedures and their appropriate indications. These measures are further manifested in the Joint Commission for Accreditation of Hospital's recent shift of focus to the "appropriateness" of the service and the documentation of its monitoring (3).

Table 8 assesses the types of activities designed to decrease costs. These activities are increasing because of the significant financial or economic impact that PPS is having on hospital operations.

In summary, the survey data indicate that technologists believe that changes in nuclear medicine delivery are related to the implementation of PPS. These data also suggest that technologists feel that other factors (e.g., competing modalities and the emergence of outpatient facilities) are also related to changes in nuclear medicine delivery. The effect of these other factors will be presented in future surveys.

ACKNOWLEDGMENT

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REFERENCES

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3. Joint Commission for Accreditation of Hospitals. *Accreditation Manual*.

TABLE 1. Types of Facilities Surveyed

Community	64%
University	3%
Government	7%
Private	24%
Other	2%
Profit	16%
Nonprofit	84%

TABLE 2. Departmental Contact

Director	22%
Administrative Technologist	29%
Chief Technologist	49%

TABLE 3. Effect of PPS on the Volume of Nuclear Medicine Services

Survey Questions	Increase	Decrease	No Change	Unknown	Not Applicable
Volume of inpatient nuclear medicine services rendered (studies)	9%	65%	25%	–	1%
Volume of outpatient nuclear medicine services rendered (studies)	58%	13%	28%	–	1%
Weekend services scheduled (number of days or hours)	13%	6%	58%	1%	26%
Evening services scheduled (number of days or hours)	8%	4%	54%	–	34%
On-call services rendered	23%	6%	58%	–	13%

TABLE 4. Effect of PPS on the Volume of Nuclear Medicine Personnel

Survey Questions	Increase	Decrease	No Change	Unknown	Not Applicable
Number of nuclear medicine technologists employed by your department	6%	20%	71%	1%	2%
Cost of benefits to individual employees	19%	9%	64%	5%	3%
Funding for continuing education and seminars for nuclear medicine staff	5%	38%	53%	1%	3%
Hiring noncertified nuclear medicine technicians instead of certified nuclear medicine technologists for departmental staffing	5%	2%	55%	1%	37%
Nuclear medicine technologist's salaries	24%	4%	69%	1%	2%

TABLE 5. Effect of PPS on Departmental Budgets

Survey Questions	Increase	Decrease	No Change	Unknown	Not Applicable
Departmental nonsalary expense budget	18%	20%	57%	3%	2%
Departmental income budget (dollars)	23%	36%	35%	4%	2%
Departmental capital expense budget	15%	30%	48%	4%	3%
Length of time for acquisition of new equipment	32%	6%	44%	9%	9%

TABLE 6. Effect of PPS on Patient Care

Survey Questions	Increase	Decrease	No Change	Unknown	Not Applicable
Percentage of medicare patients admitted to hospital	15%	20%	50%	13%	2%
Average length of hospital stay of patients	2%	81%	10%	6%	1%
Quantity of patient referral base for nuclear medicine	13%	29%	50%	6%	2%
Willingness of physicians to refer patients for nuclear medicine studies	11%	26%	57%	5%	1%
Demand for patient education	27%	3%	59%	7%	4%
Patient/consumer role in delivery of services (interaction)	31%	2%	53%	9%	5%

TABLE 7. Effect of PPS on Productivity and Documentation of Standards and Procedures

Survey Questions	Increase	Decrease	No Change	Unknown	Not Applicable
Hospital demand for nuclear medicine productivity standards	51%	2%	42%	4%	3%
Scrutiny of nuclear medicine documentation procedures	43%	1%	50%	5%	1%

TABLE 8. Effect of PPS on Various Activities Designed to Decrease Costs*

Item	Response	
	Yes	No
Marketing effort	67%	33%
Reorganization of institution	53%	47%
Employee performance evaluation project	84%	16%
Cost accounting effort	84%	16%

*Respondents answered the following question: Have any of the following activities occurred in your facility?