QUALITY OF NURSING CARE: HOW IT IS AFFECTED BY PUBLIC HEALTH CARE DELIVERY SYSTEMS

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As a result of the increased emphasis placed upon the responsibility of nursing professionals for their practice, or professional nursing accountability, the need to monitor the quality of nursing care has become an issue of importance.

According to Hegyvary and Haussmann (1976), while there has been investigation into the influence of a number of variables upon work performance, very little research has been undertaken into factors that specifically affect the quality of nursing care. These two authors studied 33 different variables that could affect the quality of nursing care. The unit organizational structure, or the system used to deliver nursing care, showed the greatest significance for influencing the quality of nursing care.

The methods of organizing nursing care delivery within institutional or hospital settings have been well documented over the past twenty or thirty years. This is particularly evident in articles pertaining to the two main methods of organization; namely, team and primary nursing (Kron, 1976; Manthey, Ciske, Robertson, & Harris, 1970; Marram, Barrett, & Bevis, 1979; Williams, 1964).

Literature Review

The organization of nursing care delivery in public health agencies has not been well documented. In fact, in comparison to the hospital setting, there is a definite paucity of research articles on this topic. A review of the pertinent literature revealed only five articles pertaining to the delivery of public health nursing service (Beardmore & Cunningham, 1971; Bergman, 1964; Grimm, 1965; Parramore, 1968; Phillips, 1965). Of these five articles, only the study by Beardmore and Cunningham (1971) focused on Canadian public health nursing and Ontario in particular.

Because of this lack of documentation regarding the methods for delivery of public health nursing care, it was necessary, first, to identify the various nursing care delivery systems, and then to describe the characteristics of the systems in general use at the present time. The research was confined to the investigation of Ontario Public Health Agencies.

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The study by Beardmore and Cunningham (1971) used the quantity and quality of nursing care as the measure of the effectiveness of the introduction of the team approach to public health nursing service. However, since no measure of "quality of nursing care" existed at the time of the study, the investigators devised their own (p.541).

The Audit Tool

Since the time of the research by Beardmore and Cunningham (1971), a nursing audit tool has been developed by Craig (1978) for use with discharged public health nursing records. The audit instrument is based on the **Standards of Practice for Registered Nurses and Registered Nursing Assistants of Ontario** and uses the standards that are relevant to the appraisal of the nursing process (College of Nurses of Ontario, 1982, pp.7-9). The audit tool measures the care provided through appraisal of the four phases of the nursing process: assessment, planning, implementation, and evaluation. The audit tool makes the assumption that the nursing care provided has been documented, and that the tool is able to discriminate between levels of nursing care, from poor to excellent.

The audit tool appraises the documented nursing care on the discharged record as being excellent, good, fair, deficient, or poor, with a corresponding numerical score to provide a five point ordinal scale, where excellent=4 and poor=0. The numerical score can be tallied for each phase of the nursing process and an overall percentage score determined for each record.

Craig tested the audit tool for content validity and between-rater reliability. The conclusion reached, after some revision of the tool, was that it was both valid and reliable (Craig, 1978, p.57). Because the scoring of the nursing record using the Craig Audit Tool is liable to a degree of subjectivity, the inter-rater reliability is not well established. To overcome this problem, the researcher personally audited all the records, to maintain a standard level of scoring.

Appraisal of the Craig Audit Tool led to the conclusion that the tool was able to provide a measure of the quality of nursing care, within the limitations imposed by this study.

The Study

The research study was undertaken to investigate factors affecting the quality of nursing care in public health agencies in Ontario (Cradduck, 1984). Specifically, the research investigated the effect of the nursing care delivery system on the quality of the nursing care provided by the agency as a whole. The quality of the nursing care provided was measured by means of a retrospective nursing audit, using the Craig Audit Tool (Craig, 1978).

Hypothesis

Official Public Health Agencies in Ontario will demonstrate no significant difference in the quality of nursing care, as measured by the Craig Audit Tool, regardless of the organizational system for nursing care delivery and the size of the agency.

Since the size of the agencies varied markedly, from those serving populations of 41,000 to those serving 629,000, with from 13 to 154 staff members, it was felt necessary to control for the size factor. Agencies were categorized according to the population served: small - 99,999 or less; medium - 100,000 to 199,000; or large - 200,000 or more.

Definition of terms

Nursing audit: the nursing audit is a method for evaluating quality of care through appraisal of the nursing process as it is reflected in the patient care records for discharged patients (Phaneuf, 1976, p.31).

Quality of care: the assessment of the components of nursing care with respect to optimum rather than minimum standards. Using the Craig Audit Tool, the care is rated excellent to poor when the nursing care is assessed according to specific components related to each phase of the nursing process (Craig, 1978, p.4).

Task/Functional nursing: tasks are assigned to the individual staff member according to the complexity of the task and the educational preparation of the staff member.

Team/Group nursing: a group of nurses working together co-operatively towards a common goal of providing client-centred care.

Individual/District nursing: an individual nurse is given responsibility for assessing, planning, implementing, and evaluating the nursing care of a specific number of clients or a geographic area.

Methods

The investigation was conducted in two phases. First, the systems by which nursing care is delivered within Official Public Health Agencies in Ontario were identified. Secondly, by the use of a nursing audit tool, the quality of nursing care provided by a sample of Official Public Health Agencies was measured in order to study the relationship between the system of nursing care delivery and the quality of the care provided.

In the first phase of the research a 31 item questionnaire was sent to Directors of Nursing of all 43 Official Public Health

Agencies in Ontario. There was an 84% response rate. From the questionnaire responses, the major organizational systems for nursing care delivery and the main characteristics of these systems were identified. The two major nursing care delivery systems identified were: "Team/Group" and "Individual/District". From these data a sample of seven agencies, categorized as small, medium, or large, according to the total population of the area they served, with either a "Team/Group" or an "Individual/District" nursing care delivery system was selected for the second phase of the study.

For the second phase of the study the seven agencies forming the sample were requested to retain the records of discharged clients for one month, in order to allow the researcher to select a random sample of twenty records for audit purposes. In consultation with Miss Craig, the originator of the audit tool, 20 records was deemed an adequate sample to provide a measure of the quality of care provided by each agency as a whole. On completion of the audit, a score was calculated for each phase of the nursing process, and an overall percentage score determined for each record. From the 20 overall percentage scores obtained, a range and mean score was calculated for all seven agencies.

Results

The results of the first phase of the research identified the systems of nursing care delivery in use in Ontario Official Public Health Agencies and described the characteristics of those systems.

Table 1 displays the distribution of the responding agencies by the systems of nursing care delivery and by the size of the agency. The total number of responding agencies in each cateogry of nursing care delivery is also shown.

As can be seen, no agency responded positively to the "Functional/Task-oriented" system of nursing care delivery, although several respondents commented that some aspects of their nursing care delivery could be categorized in this way. They gave the immunization, vision, and hearing screening programs of the agency as examples.

Of the 24 agencies which used "Team/Group" as the system of nursing care delivery, 96% reported that the staff had an independent case load. In approximately half of the agencies staff also had an independent work area, while the remaining 39% shared an area. Only one agency reported that the staff in a "Team/Group" also shared a caseload.

The major differences in the organizational characteristics of agencies were found among the "Team/Group" respondents. Although a majority of these agencies had similar attributes, there were wide variations in utilization of the concepts of team nursing.

Table 1

Nursing Care Delivery System by Size of Agency and Total Percentage of Agencies in Each Category of Nursing Care Delivery.

	Nursing Care Delivery System			
Size	Functional/ Task-Oriented n=0	Team/ Group n=24	Individual/ District n=9	Other n=2
Small	0%	8%	89%	50%
Medium	0%	46%	11%	50%
Large	0%	46%	0%	0%
Total Respondents n=35	0%	68%	26%	6%

All the agencies utilizing an "Individual/District" nursing care delivery system stated that their staff had an independent caseload and area, and worked independently. However, 88% reported that there were small group organizations within the agency for nursing staff. These small groups were reported to have similar functions to those identified for Teams/Groups. Since 89% of agencies responding positively to the "Individual/District" category were also categorized as small agencies, it was possible that the total staff of these agencies functioned in a similar manner to a single "Team/Group".

The research hypothesis stated that there would be no difference between the seven agencies sampled, regardless of the system for nursing care delivery or the size of the agency. Table 2 summarized the means and standard deviations, using the Craig Audit Tool, for the sample of audited records from each of the agencies making up the sample. As can be seen from Table 2, there are differences among the means. In order to ascertain whether or not these observed differences were significant, a statistical analysis was undertaken.

Table 2

The Mean and Standard Deviation of the Audit Scores for All the Agencies Sampled.

GROUPS	SAMPLE SIZE	MEAN SCORE	STD. DEV.
1 - Large (LT) Team	20	58.05	7.94
2 - Medium (MT) Team	20	52.85	14.29
3 - Medium (MT) Team	20	40.60	13.22
4 - Small (ST) Team	20	37.95	14.36
5 - Medium (MI) Individual	20	33.30	8.69
6 - Medium (MT) Team	20	56.25	12.62
7 - Small (SI) Individual	20	49.10	15.23
TOTAL	140	46.87	15.25

A one-way analysis of variance demonstrated that there was a significant difference among the mean audit scores from all seven agencies sampled at the p= .00001 level. While this analysis of variance demonstrated that a difference existed among the means of the agencies sampled, and therefore that the hypothesis should be rejected, it did not pin-point where the difference actually existed.

Further multiple comparison tests were performed to determine which means were different from each other. Tukey's Honestly Significant Difference procedure showed which groups were different, but did not demonstrate which of the two factors examined, nursing care delivery and/or size, affected the observed differences. To examine the interaction of these factors a two-way analysis of variance procedure was carried out. However, rather than use all seven groups, only those of interest were examined. Thus, Group 1 (LT) was discarded as there was no other large group for comparison. Group 6 (MT) was not used as this

agency answered positively to "Individual/District", but in fact used the "Team/Group" system for nursing care delivery. The two small groups, 4 (ST) and 7 (SI), where retained as well as Group 5 (MI) which was different from most other groups. It then became necessary to choose between Group 2 (MT) and 3 (MT). Group 3 (MT) was selected because it most closely matched Group 5 (MI) in size, geographical characteristics, lack of sub-offices, education, experience of staff, and lack of administrative changes.

The two-way analysis of variance for the factors size by nursing delivery system showed a significant interaction for these two factors at the F=.002 level of significance. By graphically plotting the means of these four groups it was possible to understand the interaction. For medium sized agencies the nursing care system of "Team/Group" showed a higher quality of nursing care score while with small agencies the relationship was reversed. Therefore it was not possible to discuss the effect of the nursing care delivery system on the quality of care without taking into account the size of the agency. This seems to indicate that as the size, and therefore complexity, of an agency increases the system of nursing care delivery used by the agency becomes an important factor.

Limitations

Many variables impinge on the quality of nursing care provided by a public health agency. Those factors not selected for examination or controlled by the research protocol present limitations to the research findings. While the following is not an exhaustive list, they are the main influential variables: supervisory methods, leadership and/or management styles, staff development and inservice programs, the job satisfaction of staff and supervisors, and the clinical role expectations of staff (Hegyvary & Haussmann, 1976).

The subjective nature of the audit process and the arbitrary categorization of the agencies by size may be considered limitations. The sampling techniques used in the second phase of the study also limited the generalization of the research findings and the conclusions reached.

Conclusions

The research study specifically set out to investigate the effect of the nursing care delivery system on the quality of nursing care provided in Official Ontario Public Health Agencies. Partially because of the small size of the sample used, no conclusive results could be demonstrated. However, some interesting points were identified and differences were apparent in the quality of the nursing care provided by the seven agencies sampled.

It was not possible to prove that any one system of nursing care delivery produced a significantly higher quality of nursing care, although the statistical analysis showed a trend in the direction of the "Team/Group" category.

It would appear that there is not a great deal of difference in the two main systems of nursing care delivery, given that staff in the small agencies are part of small group organizations. Nurses in the "Team/Group" system also tend to function independently and the "Team/Group" acts for support and administrative functions. This similarity of action between the small agencies categorized as "Individual/District" and as "Team/Group", regardless of size, may account in part for the inconclusiveness of the statistical analysis.

Given the above observation, it would appear that the type of system of nursing care delivery is not a major factor affecting the quality of nursing care. However, since the measurement of quality of nursing care differed among the seven agencies sampled, it would seem that other variables may have stronger influence. Further research is required to examine the effects of some of the variables, identified in the limitations, on the quality of nursing care provided in public health agencies.

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RÉSUMÉ

Soins infirmiers: Influence du système de prestation des soins infirmiers en santé publique

L'élaboration et la mise en place de programmes d'assurance de la qualité a fait couler beaucoup d'encre, mais n'a suscité que très peu de recherche visant à identifier ces variables susceptibles d'affecter spécifiquement la qualité des soins infirmiers.

La première phase de la présente étude a été d'identifier les principaux systèmes de prestation de soins infirmiers dans les organismes officiels de santé publique de l'Ontario.

La deuxième phase de l'étude a utilisé une vérification rétrospective des soins infirmiers dans le but de mesurer la qualité des soins offerts par un échantillon d'organismes de différentes tailles faisant appel à deux principaux systèmes de prestation de soins infirmiers identifiés dans la première phase de l'étude. Étant donné la petite taille de l'échantillon, on n'a pu faire apparaître de résultats concluants. Toutefois, l'analyse des données a démontré que la prestation de soins infirmiers par équipe tendait à produire des soins de meilleure qualité.

Il faudra pousser les recherches pour étudier l'effet d'autres variables sur la qualité des soins infirmiers dans les organismes de santé publique.