

THE IDENTIFICATION OF LEARNING NEEDS BY MEANS OF CRITICAL EVENTS

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WITH the implementation of the revised curriculum of the Basic Degree Course(1), the month of March each year is used by students in the Fourth Year for independent experience in the practice of nursing. The purpose of this experience is "to give the student an opportunity to integrate and apply all or several aspects of the year's work or to further study and practise one aspect of nursing"(2). In what is intended as a highly individualized experience, each student develops objectives and plans in consultation with a faculty adviser; students are independent in the sense that they are not directly supervised by school staff.

Eleven students in the Fourth Year in 1972-73 requested placement with family physicians for their independent experience in March, 1973. To meet these requests, preliminary discussions were held with the Department of Family and Community Medicine, University of Toronto, and the City of Toronto Department of Public Health which seconds nursing staff to a number of private medical practices. From these discussions was developed a list of potential settings from which the assignments were arranged; these were negotiated directly with the doctors by the Faculty of Nursing, as are all clinical practice arrangements. Students then followed up the initial contact by making detailed arrangements with and interpreting their objectives to the doctors concerned(3).

This development was seen by faculty as one which might provide information regarding the effective preparation of graduates to practise in one type of primary health care(4) setting. Two of the expectations of the graduate of the Basic Course upon which the curriculum is built are that she "has an educational base from which she may develop further as a practitioner..." and that she "collaborates with others on the health team to plan and deliver health care to patients, families and the community"(5). Since in the March inde-

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pendent experience students are presumably practising very nearly at the graduate nurse level, this seemed to offer an opportunity to evaluate the effectiveness of the curriculum, at least in this area of functioning. Further reasons for undertaking this project were:

1. this was the first year in which so many Fourth-Year students had requested independent experience in physicians' offices;(6).
2. current widespread interest in increasing the nursing component in ambulatory patient care services has raised the question as to whether baccalaureate nurses are prepared to function as co-practitioners with physicians in these settings.

The students involved agreed to participate in the identification of gaps in the knowledge required to function in primary medical care settings. A plan was developed based on the recording by students of the situation surrounding each incident in which their knowledge or skill was inadequate. This was a modification of the methods used by Lewis, Resnik, *et al*(7) and that described by White(8).

The proposed plan was outlined to the group of eleven students a month prior to the experience and all volunteered to participate. Instructions, critical event cards and questionnaires were distributed to all participating students in late February.

The purpose of this investigation was to identify gaps in knowledge and skills required for practice in primary care settings.

METHOD

SAMPLE

The sample consisted of eleven Fourth-Year Basic Course students who requested family practice units or private physicians' offices as the setting for their independent practice in March, 1973.

SETTING

Eleven settings were involved: three family practice units and eight private physicians' offices, ranging from solo practitioners to large multi-specialty clinics. Nine of these practices are in or adjacent to Metropolitan Toronto; two are 40-75 miles from Toronto. Eight of the practices are designated teaching practices for the Department of Family and Community Medicine, University of Toronto.

PROCEDURE

Students were asked to complete a critical event record card (Figure 1) each time a situation arose in which they considered their

CRITICAL EVENT RECORD CARD

Student —

Health Prob:

Diagnosis —

Phase of patient care —

Nature of decision-making situation —

Category of learning need — Cognitive _____ or
Psychomotor _____

Identify preparation needed —

How was the situation disposed of:

- (a) Were the needed skills acquired at the time?
- (b) If acquired at the time — How? (e.g. teaching from doctor)
- (c) Was other help sought? (e.g. literature)

Your interpretation —

Figure 1

performance ineffective because of lack of knowledge or skill. Situations occurring in any phase of patient care (assessing, planning, giving or evaluating) were to be included. Collection of this data took place during the second and third week of the March experience.

Students were also asked to complete a brief questionnaire at the end of the experience to identify situational factors which may have affected performance.

TOOLS

A critical event record card was devised for the purpose of identifying learning objectives which were considered by students as critical to effective performance in these settings. Use of the critical event records was based on three assumptions:

1. That the student had had sufficient practice in self-evaluations to perceive her own gaps in knowledge.
2. That reporting would be accurate.
3. That gaps in knowledge identified were due to lacks in the curriculum.

To underline the necessity for accuracy and completeness, students were given the following instructions:

1. Describe the incident as soon as possible after it occurs.
2. Include only those situations in which performance is considered ineffective because of lack of knowledge or skills due to deficiencies in the curriculum.
3. Record completely all information requested.
4. Do not record events in which performance is ineffective because of situational factors or factors such as "lack of retention".

The questionnaire was designed to elicit information regarding the role which students were expected to fill. Its purpose was to provide information which is the reverse of that provided by the cards, that is, the extent of use of knowledge and skills. In addition, the information would be used in assessing the data obtained from the critical event record cards.

ANALYSIS OF DATA

Data from the critical event record cards were sorted into the four categories corresponding to the phases of the nursing process: assessing, planning, giving, evaluating.

In order to further group data as a basis for later definition of educational objectives, for each of these categories, learning needs were to be further subdivided into cognitive and psychomotor domains(9). Since in many instances respondents checked both categories for a particular event, a third category was added in analyzing the data. This category is simply referred to as 'both'.

Percentages of the total of critical events were derived for each category. Ten per cent was arbitrarily determined as the indication that the knowledge or skill should be included in the curriculum. The recorded descriptions of the nature of the situations and preparation needed were then grouped and tabulated by frequency.

Responses to other questions on the critical event record card were tabulated by hand, as were the responses to the questionnaire.

FINDINGS

Of the eleven students who initially volunteered, ten responded to the questionnaire and submitted critical event records; one student decided not to participate and therefore did not contribute to the data. A total of 63 critical event record cards were returned; of these, one was discarded as incomplete, leaving a total of 62 usable cards.

TABLE 1
ROLE DESCRIPTIONS

Descriptive Term	Number
Public Health Nurse	2
Patient assessor/home visitor	1
Office Nurse/Nurse Practitioner	1
Office Nurse/Receptionist	1
Nurse Practitioner	1
Family Practice Nurse/Nurse Practitioner	1
Extended Role of a nurse	1
Knowledgeable Nurse	1
Receptionist/File clerk	1
Total	10

PERCEPTION OF ROLES AND FUNCTIONS

From the responses to the question "How would you describe your role?" the descriptive phrase was extracted; these are displayed in Table 1.

No clear relationship emerged between the students' perceptions of role/level of skill utilization and the types of setting in which they were practising. The students who described their role as that of a public health nurse (two) and a patient assessor/home visitor (one), (See Table 1) were working in non-teaching practices.

Three students thought that their nursing knowledge and skills were fully utilized; two of these students were assigned to teaching practices, one to non-teaching. Seven thought their skills had not been fully utilized; of these, three indicated that they could have done more history-taking and assessment; typical of these responses was the following comment from one student, "I could have been more involved in history taking and assessment of individual and family health needs and actual planning of the care." In addition, three students indicated that they could have done more teaching and counselling.

The obstacle to fuller use of skills most frequently mentioned was insufficient office space and time (by four students). For example one student reported that "I feel I could have done more in the areas of interviewing, counselling and history-taking, but this was not really possible due to physical set-up and busyness of practice." Limited perception by the doctor of nursing functions was also reported by two students as an obstacle to fuller use of nursing skills:

TABLE 2
NUMBER OF CARDS COMPLETED

No. of Cards	No. of Students	Total
14	1	14
12	1	12
11	1	11
6	1	6
5	2	10
3	3	9
1*	1*	
Total	10	62 X=62

*one card from one student discarded as incomplete

"much time was spent defining and making known skills of professional nurse, also explaining role she can take in family practice," and "doctors are very established in routines and delegate little responsibility to nurses, *except* PHN whom they've begun to accept as a colleague health worker."

CRITICAL EVENTS

The number of critical events encountered by students during the two-week period under study (as indicated by completed cards) ranged from three to fourteen (see Table 2) and averaged about six per student.

The critical events reported by students were in three of the four phases of care: assessment, planning and giving; there were no responses in the evaluation phase. As shown in Table 3, the assessment phase presented the highest proportion of critical events — almost 60 per cent of the total; and of these more than one-third revealed both cognitive and psychomotor learning needs.

LEARNING NEEDS

Further understanding of these critical events is gained through examination of the descriptions of the nature of the decision-making situations and the students' perceptions of the preparation needed to deal with them. The tables resulting from this examination are characterized by lengthy lists of descriptive terms, reflecting the variety of situations reported and the resulting difficulty of developing meaningful categories.* The result of the classification process

* Tables are available from the authors.

TABLE 3
CRITICAL EVENTS, BY PHASE OF CARE
AND CATEGORY OF LEARNING NEED

Phase of Care	Cognitive		Psychomotor		Both		Total	
	No.	%	No.	%	No.	%	No.	%
Assessment	12	19.35	11	17.74	13	20.97	36	58.06
Planning	2	3.23	—	—	1	1.61	3	4.84
Giving	12	19.35	6	9.68	5	8.07	23	37.10
Evaluation	—	—	—	—	—	—	—	—
Total	26	41.93	17	27.42	19	30.65	62	100

was that no category reached the level of ten per cent of the total of situations described. However, three categories reached eight per cent: preparation of slides, use of microscope, etc; immunization dosage, schedule and administration; pelvic examination, etc.

Tables 4 and 5 summarize the responses to the questions about how the needed skills were acquired in order to deal with the presenting situation. In 75 per cent of the incidents the needed skills were reported to be partially or fully acquired at the time (see Table 4); and, as Table 5 shows, the doctor was most frequently the source of teaching, with literature being the most frequent supplementary source.

Table 4 shows seven responses indicating that needed skills were not acquired at the time of the incident. Further examination reveals that these responses came from five students who identified the preparation needed as follows: more practice in interviewing (2 from 1 student), technique of giving injections to infants, knowledge of developmental level of infants, knowledge re normal ECG reading,

TABLE 4
NEEDED SKILLS ACQUIRED
AT THE TIME

Yes	39	62.90%
Partially	14	22.58%
No	7	11.29%
No Response	2	3.23%
Total	62	100.00%

TABLE 5
SOURCE OF SKILL ACQUISITION

Initial Source of Teaching	No. of Responses	Additional Source	No. of Responses
Doctor	33	Literature:	
Nurse	11	Unspecified	22
Doctor and Nurse	8	Texts	8
Community Nurse	2	Accompanying Instructions	4
Technician	1	Other Reference Material	4
Medical Student	1	Welfare Office	1
Common Sense	1	Visiting Homemakers Ass.	1
No response	5	None	20
		No Response	2
Total	62	Total	62

knowledge of when a woman is ready to deliver and knowledge re "Parent-adult-child" concept. A review of all additional recorded comments suggests that the situations were dealt with in a satisfactory manner, i.e. no untoward effects of gaps in preparation were recorded.

DISCUSSION

A number of points are worthy of note. The variety in the reported perceptions of the roles, in Table 1, is of interest. This likely results partly from the variation in the objectives defined by students and partly from the variation in the settings. No relationship can be seen between the stated role perception and the type of medical practice; nor can any relationship be seen between reported level of utilization of knowledge/skills and frequency of critical events. It is quite possible that the presently evolving nature of nursing in physicians' offices leads to this variety of perceptions and descriptions of roles and level of functioning.

The number of critical events reported, 62, was somewhat surprising. It was not possible to predict the frequency with which such events would be encountered; however, each student was supplied with 50 cards and returns were much less than this — an average of little more than six per student, representing an average of less than one per study day. Assuming that this is a reliable indicator of critical events actually encountered, this should be seen as reassuring. Coupled with the finding that in 75 per cent of the reported incidents

required skills were fully or partially acquired through consultation with team members and recourse to literature (Table 4, 5), this finding suggests that for these students the educational base was laid for practice in these settings (10). Fifty-eight per cent of critical events were reported to be encountered in the assessment phase, while none were reported in the evaluation phase. The latter finding is not unexpected; a practice period of four weeks in a non-acute setting is not long enough to provide much opportunity for evaluating the results of nursing care. The high proportion of critical events in the assessment phase of care suggests that this area in the curriculum needs strengthening. The view which this finding supports had, in fact, already been expressed by faculty, and as a result, a staff committee has devised a tool which can be used in the development of students' assessment skills.

The preparation judged by respondents to be necessary for each critical event was so varied that classification was very difficult; no category reached the level of ten per cent of the total of critical events required by the study design as indication that the knowledge or skill should be included in the curriculum. Despite this fact, the information provided in these responses will be of assistance in defining behavioural objectives related to the content of the critical events encountered. A larger sample would provide data which might be more reliable. It has therefore been recommended that this project be repeated when possible in order to increase the data base. Meanwhile, the leading categories of identified learning needs should be reviewed by the appropriate committee to consider possible inclusion in the curriculum. In addition, these findings should be shared with those responsible for teaching as it seems likely that some categories are thought to be already included.

References

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10. This observation receives some support from returns of comments from doctors involved in this experience.

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