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RELATIONS BETWEEN NURSING DATA COLLECTION, DIAGNOSES AND PRESCRIPTIONS FOR ADULT PATIENTS AT AN INTENSIVE CARE UNIT[1]

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This descriptive, retrospective study aimed to analyze the relation between nursing data collection, diagnoses and prescriptions for 26 adult patients who were hospitalized at the intense care unit of a large teaching hospital for at least 24 hours. Through the analysis of medical records, 135 diagnoses and 421 nursing prescriptions were established, and 24 different diagnosis categories and 20 different items for prescriptions were identified. The most frequent diagnosis risk was that for infection, present in the medical records of 22 (84.60%) patients, with 175 prescriptions (42%) related to this diagnosis. The data the nurses collected were sufficient to establish the nursing diagnoses, and the majority of prescriptions (87.9%) were related to the diagnoses.

DESCRIPTORS: nursing process; nursing diagnosis; intensive care unit

RELACIONES ENTRE LA RECOLECCIÓN DE DATOS, DIAGNÓSTICOS Y PRESCRIPCIONES DE ENFERMERÍA A PACIENTES ADULTOS EN UNA UNIDAD DE TERAPIA INTENSIVA

La finalidad de este estudio descriptivo y retrospectivo fue analizar la relación entre la recolección de datos, diagnósticos y prescripciones de enfermería para 26 pacientes adultos que estuvieron hospitalizados en una unidad de terapia intensiva en un hospital de enseñanza de gran porte, con permanencia mínima de 24 horas. Mediante el análisis de los archivos se establecieron 135 diagnósticos y 421 prescripciones de enfermería, siendo identificados 24 categorías de diagnóstico y 20 diferentes ítems de prescripción. El diagnóstico de riesgo para la infección fue el más frecuente, que estuvo presente en el registro de 22 (84,60%) pacientes. De las prescripciones, 175 (42%) se refirieron a este diagnóstico. Se observa que los datos registrados por los enfermeros en la recolección de datos fueron suficientes para establecer los diagnósticos de enfermería y que la mayoría de las prescripciones (87,9%) estuvieron relacionadas con los diagnósticos.

DESCRIPTORES: procesos de enfermería; diagnóstico de enfermería; unidades de terapia intensiva

RELAÇÕES ENTRE A COLETA DE DADOS, DIAGNÓSTICOS E PRESCRIÇÕES DE ENFERMAGEM A PACIENTES ADULTOS DE UMA UNIDADE DE TERAPIA INTENSIVA

Trabalho descritivo, retrospectivo, que teve como objetivo analisar a relação entre a coleta de dados, diagnósticos e prescrições de enfermagem estabelecidas por enfermeiros para 26 pacientes adultos que estiveram internados numa unidade de terapia intensiva de um hospital de ensino de grande porte, com permanência mínima de 24 horas. Por meio da análise dos prontuários, foram estabelecidos 135 diagnósticos e 421 prescrições de enfermagem, sendo identificadas 24 diferentes categorias diagnósticas e 20 diferentes itens para prescrição. O diagnóstico de risco para infecção foi o de maior freqüência, presente no prontuário de 22 (84,60%) pacientes. Das prescrições, 175 (42%) relacionaram-se a esse diagnóstico. Observa-se que os dados registrados pelos enfermeiros na coleta de dados foram suficientes para o estabelecimento dos diagnósticos de enfermagem e a maioria das prescrições (87,9%) apresentou relação com os diagnósticos.

DESCRITORES: processos de enfermagem; diagnóstico de enfermagem; unidades de terapia intensiva

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INTRODUCTION

Nursing practice, supported by an intuitive basis, has been structuring itself through scientific principles, using models and theoretical approaches. It is characterized by systematically deliberated activities, logics and rationales, thus supporting the evaluation of clients' health condition.

The nursing process, as a health care methodology, provides the structure required for nursing care. This methodology comprises five interrelated components: data collection, nursing diagnosis, planning, implementation, and evaluation[1-2].

Several review studies have looked at the effects of this methodology on clinical practice, mainly using the classifications for diagnoses[3], intervention[4], and results[5]. Among other findings, these studies have showed that data collection and reaching a diagnosis are factors that positively contribute to nursing documentation[6].

The development of each stage in the nursing process is directly related with the nursing team's competence, service philosophy and resources available. Studies have shown that nurses' continuing education on this methodology significantly improves the use of its stages. However, the accuracy of nursing diagnoses dos not always meet the quality criteria for the defining characteristics, and even less for the associated factors. It is also recommended to establish diagnoses, interventions and results together rather than separately[6]. The set of nursing diagnoses for one patient (or a certain clientele) evidences the complexity of the clinical condition and, consequently, the type of interventions required to solve those issues, as well as the respective group of activities needed, all of which are expressed in nursing prescriptions[7].

The number and type of nursing interventions the patient receives has been considered a care indicator[8-10]. Nevertheless, the effect the diagnosis and interventions have on patient results has not shown satisfactory evidence; on the other hand, there has been an increase in the quantity and quality of medical records[11-13].

In addition, this form of organizing nursing work is considered an important care management tool[14] and allows for providing patients with tailored quality care[15]. To reach all these possibilities, the stages of this work instrument should be appropriately recorded.

In this sense, the analysis of nursing notes in medical records can contribute to identify the needs and results of permanent health education processes[16-17], help to identify nursing's participation in the health results patients achieve[6], as well as to generate data for sector managers and the institution administrator.

A review of Brazilian nursing literature showed there are no studies that look at the effects of medical record quality and the use of diagnosis and intervention taxonomies on patient results. Similarly, there are no analyses on the pertinence of the collected data for the established diagnoses, or about the correspondence of these data with the associated factors or defining characteristics, and the identification of these elements as determinants of the prescriptions.

These aspects were objects of interest in the present study. In this sense, the general objective was to analyze the relations between data collection, establishing diagnoses and nursing prescriptions for adults hospitalized in an intensive care unit.

The following specific objectives were established:

- to analyze nursing records focused on the indentified diagnosis profile;
- to analyze the relation between nursing prescriptions and the constructive elements of the identified diagnoses;
- to analyze the most common nursing diagnosis in terms of its sustainability in patient assessment data and pertinence of the established prescriptions for that patient.

MATERIAL AND METHODS

This descriptive, retrospective study was based on information about nursing data collection, diagnoses and prescriptions recorded in the medical records of an Intensive Care Unit (ICU) at a large-scale teaching hospital located in the interior of São Paulo State. This study was approved by the Research Ethics Committee of the study institution.

The medical records of patients aged 18 year or older were analyzed, men and women, who were hospitalized for at least 24 hours at the ICU between August and November 2004. This setting was selected based on the fact that it is one of the first places

where the nursing process was implemented at the place of study. In the study period, 65 patients met the inclusion criteria. The sample consisted of 26 (40%) medical records that were available at the Medical and Statistical File Service of the institution.

The medical record contained a standardized instrument, specifically designed for use by the nursing team. The instrument consisted of four parts: data collection categorized by basic human necessities, list of nursing diagnoses, nursing prescription, and nursing evolution sheet (which corresponds to the evaluation).

Data regarding admission, as well as the records containing the diagnoses for each client and the proposed prescriptions were transcribed from the sheet used at the institution to a form similar to that used by the nursing team. One instrument was used to record the data collection and another for the diagnoses and nursing prescription. A nurse experienced in nursing process practice and theory performed data collection. The patients and professionals involved in the study were assured that their identity would be preserved.

The data collected from the medical records were analyzed by five researchers, who were specialists in the theme. In each case, the records were examined with a view to identifying the accuracy of the given nursing diagnoses, as proposed in literature[18]. As to the records regarding the nursing diagnoses, it was observed that their components were present (title/diagnosis characteristic, defining characteristics, and related factors/risk factors) and pertinent for the collected data. The nursing prescriptions were analyzed with a focus on their relation with the components described in each of the established nursing diagnoses. The authors analyzed each prescription and identified if it resulted from the diagnosis category, the related factors or defining characteristics for the real diagnoses or the diagnosis category or risk factors for the risk diagnoses.

After assessing each patient record, a deeper analysis was carried out; for example, of the diagnosis *risk for infection*, since it occurred more often.

RESULTS AND DISCUSSIONS

Studies that looked at medical records show that nursing diagnoses and interventions vary depending on the purpose of the health care delivered to the patient admitted to the health service[19]. Similarly, the number of diagnoses is also associated with the specific characteristics of patients from the different sectors[6]. The intensive care unit setting and the purpose of this health care service contribute to the profile of the diagnoses and prescriptions, as described below. It is observed that the diagnosis titles are presented according to the instructions by Carpenito, a reference adopted by the nurses in the studied sector[2].

For the 26 sample patients, the nurses attributed 24 different diagnosis categories (diagnosis titles), 15 of which are real diagnoses (62.5%) and 9 are risk diagnoses (37.5%) (Table 1).

These diagnoses belong to the domains nutrition (2), elimination (2), activity/rest (6), and safety/protection (10) proposed by the North American Nursing Diagnosis Association[3]. There are four other domains specific to critical patients and, though not included in this taxonomy, they are related with the domains safety/protection (1), activity/rest (2) and comfort (1). The other nine domains and their respective classes[3] are not looked at in the nurses' clinical judgment, but include feasible diagnoses for the subjects observed. In the study location, the professionals mainly focus on the most immediate aspects of health care.

Each patient received four to nine diagnoses, which corresponded to an average of five real or risk diagnoses per patient, totaling 135 diagnoses for this clientele; 57 (42%) real and 78 (58%) risk diagnoses.

The most common diagnoses were: risk for infection (84.6%); impaired physical mobility (69.2%); risk for aspiration (65.3%); and risk for injury (61.5%). The following eight diagnoses ranged in frequency between 38.4% and 15.3%. The other 14 categories occurred in 7.6% or less of cases.

A study performed with patients in intensive care units[20] showed the following nursing diagnoses as the most frequent: pain, risk for injury, anxiety, decreased cardiac output, risk for infection and knowledge deficit.

In the present study, some diagnoses were observed in most medical records, suggesting a characteristic profile for the ICU population, while others are specific for each individual. This aspect suggests that, even in a context of working within a specialty, the nurses do not lose track of the individualized approach.

Table 1 – Distribution of the Diagnosis Categories according to nursing notes in medical records examined at a teaching hospital in the interior of São Paulo State, 2004

Diagnoses	N	%
Risk for infection	22	84.6
Impaired physical mobility	18	69.2
Risk for aspiration	17	65.3
Risk for injury	16	61.5
Risk for impaired skin integrity.	10	38.4
Ineffective breathing pattern	09	34.6
Impaired skin integrity	08	30.7
Inability to sustain spontaneous ventilation	05	19.2
Impaired tissue integrity	04	15.3
Altered peripheral tissue perfusion	04	15.4
Ineffective airway clearance	03	11.5
Risk for infection transmission	02	7.6
Impaired gas exchange	02	7.6
Altered protection	02	7.6
Altered nutrition, less than body requirements	02	7.6
Dysfunctional ventilatory weaning response	01	3.8
Risk for inability to sustain spontaneous ventilation	01	3.8
Altered cardiac tissue perfusion	01	3.8
Risk for peripheral neurovascular dysfunction	01	3.8
Altered cerebral tissue perfusion	01	3.8
Fluid volume excess	01	3.8
Altered urinary elimination	01	3.8
Altered comfort	01	3.8
Risk for altered body temperature	01	3.8

While examining the elements constituting the diagnoses, it is observed that the 135 diagnoses (real and of risk) presented a diagnosis category (100%) founded on the taxonomy adopted by the service[2]; however, they were incompletely formulated, since the related or risk factors were present in 133 (98.5%) and 39 (28.8%) stated their defining characteristics incompletely; for about 14% of the subjects, no defining characteristic was considered; it is worth remembering that 42% of the observed diagnoses were real, i.e., they should also present defining characteristics. These data suggest that nurses are not valuing, in their notes concerning nursing diagnoses, the clinical evidences (defining characteristics) that patients show. In this sense, it is unknown if professionals do or do not include certain evidences in their clinical judgment process, though the data was available in the patients' health assessment record.

The accuracy in reaching a diagnosis has been reported as a relevant difficulty[6,18]; and has varied considerably[21]. A study reported that 30% of the analyzed nursing diagnoses presented poor accuracy, according to the specialists' evaluation[22].

In the present study, *risk for infection* was chosen for the analysis because it was the most frequent diagnosis in this study. The data, collected and recorded by the nurses, showed that 100% of patients presented relevant, specific, and coherent clues regarding the diagnosis. However, the nurses were unable to reach a diagnosis for four patients. Hence, it is understood that accuracy was not reached for 15.3% of subjects. This rate is lower than that observed in literature, though it was considered for a single diagnosis. On the other hand, it should be highlighted that, in both situations, the nurses stated the real diagnosis category as *altered protection*, instead of *risk for infection*.

Nurses' judgment and decision-making in a certain situation can reflect, besides specific knowledge in their work field, knowledge of the choices and limitations inherent to the diagnosis classifications. The professional's technical and interpersonal relationship skills when reaching a diagnosis, besides their critical thinking and knowledge, as well as the context of the situation affect the nurse's interpretation of the data, which, in turn, affects the accuracy of their diagnoses[22-23].

Further studies should look at the rationale of the professional's diagnosis, which shows a tendency to select more specific rather than broader diagnoses.

By observing all medical records, 421 prescriptions could be identified for the obtained nursing diagnoses, ranging between 11 and 22 per patient, with an average of 16 prescriptions per patient. It is worth highlighting that the prescribed activities are directed by the result expected for the patient.

Knowledge about nursing interventions regarding a certain patient group can identify both knowledge gaps in the observed practice and new problem-solving approaches of a diagnosis. In this sense, the Nursing Intervention Classification[4] as well as the taxonomy adopted in the sector[2] have helped to disseminate interventions and activities/actions for nursing diagnoses and for the nurses' decisions.

A previously mentioned study, with patients from an ICU, reported that the most used activities/ actions were directed to interventions to monitor vital parameters, provide emotional support, teaching and coordination[20].

The prescriptions' specificity, i.e., how appropriate they are for the components of a particular diagnosis, was also analyzed (objective 2). Among

the 379 prescriptions pertinent to the recorded diagnoses, 32.4% were related with the diagnostic categories, 90% to the related or risk factors, and 19.5% to the defining characteristics. Most prescriptions (87.9%) have some relation with the diagnoses reached, but 52 (12.1%) did not, which evidences the use of prescriptions regardless of the patients' recorded condition.

This is perhaps due to the fact that, in order to prescribe nursing actions, the professional might have considered the medical diagnosis as the focus; in this sense, the study shows that nurses identify more issues related to the medical than to the nursing diagnosis[24]. It may also be related with difficulties to identify, in the adopted taxonomy, the human response to the situation, despite clarity about what activity would be necessary. The literature shows that, in certain situations, reaching a nursing diagnosis becomes unfeasible or that problems go by unidentified. In these cases, permanent education of the nursing staff can contribute to an appropriate use of nursing diagnoses and corresponding interventions[24].

Risk for Infection: relation with patient assessment data and pertinence for the prescriptions

Analyzing the most frequent diagnosis, in terms of its sustainability in patient assessment data and pertinence for the prescriptions (objective 3), it was considered important to clarify that *risk for infection* is considered[2] "*a condition in which the individual is at risk of being invaded by an opportunist or pathogenic agent (virus, fungus, bacteria, protozoa, or any other parasite) from endogenous or exogenous sources"*. This diagnosis is grouped in the NANDA Taxonomy II in Domain 11[3], which addresses Safety/ Protection, which means "being free from danger, physical injuries, or harms to the immunologic system; prescription against losses; and protection of safety and security" and in Class 1 infection "which are the host's responses after the pathogenic invasion".

The concept of a diagnosis, its domain and class are the main element to effectively state a problem identified by the nurse. In this case, the diagnosis was constructed based on the patient's vulnerability to exposure.

The presence of this diagnosis in 84.6% of the medical records shows that the professionals consider the risk factors present in the ICU hospitalization context, in which patients are usually submitted to at least one invasive procedure. Since nurses, after reaching a diagnosis and its elements, obtain the means to select the interventions they will prescribe, it is expected that, based on that diagnosis, the necessary protection measures are prescribed and implemented.

When examining the elements constituting the diagnosis *risk for infection*, it was observed that, in the 22 medical records, at least one risk factor was identified (Table 2).

Table 2 – Distribution of risk factors for the diagnosis risk for infection attributed in the observed medical records (n=22) at a teaching hospital in the interior of São Paulo State, 2004

Risk factor	Frequency	Percentage (%)
Invasive procedures	22	100
Tissue destruction	04	18.1
Chronic disease	03	13.6
Pharmaceutical agent	01	4.5
Environmental exposure to pathogens	01	4.5
Inadequate primary defense	02	9.0
Inadequate secondary defense	01	4.5

The difficulty to stop basing nursing diagnosis on etiologic factors has been reported in literature[25]. In the present study, there were records referring to seven different risk factors. All records report the risk factor invasive procedures. In some records, the means of invasion are not specified whereas, in others, they were stated as, for instance, venous punctures, catheters, ventilation system and others.

These data reinforce the existence of a behavior pattern among nurses regarding the way they reach this diagnosis for the studied clientele, and in terms of the risk factors and terms adopted, which allows for the characterization of one of the patients' marking features.

Regarding the prescriptions, some were directed to the diagnosis title (diagnosis category), while others to the risk factors.

For that diagnosis, 175 prescriptions were established, ranging from six to 11, with an average eight prescriptions per patient. Twenty different prescription items were observed, mainly regarding body hygiene, oral hygiene, personal hygiene, dressings, cleaning the urine bag, and changing catheters and cannulae.

It is noticed that approximately 42% of the prescriptions are associated to the diagnosis risk for infection. The characteristics of the observed unit and the strong institution policy regarding the control of indicators in this sector, such as infection rates and other institutional guidelines, may be related to these results.

It cannot be affirmed that the prescriptions related to the diagnosis risk for infection are exclusive to this diagnosis, since some interventions can be recommended for different human responses. However, it was observed that, in the present study, these items were associated with the elements of that diagnosis: 42% were pertinent to the diagnosis title (n=73), implying infection control actions; and 58% of the prescriptions (n=102) were directly related with risk factors, denoting infection prevention actions.

CONCLUSIONS

Using medical records for retrospective studies of the nursing process can have some limitations in terms of the content of the information included in the records. This has been previously reported in literature, which can be related to the lack of information, the quality of the records, having divergences, the coverage or representativeness of the patients' real condition, as well as possible information duplicity or discontinuity.

However, despite the bias, the analysis of this information remains positive. These aspects were considered when proposing the present study.

According to the examined records regarding the service to adult patients hospitalized in ICU, the nurses:

- established 24 different types of diagnosis categories (diagnosis titles), 15 concerning real diagnoses (62.5%) and 9 risk diagnoses (37.5%), mainly in the domains activity/rest (6), and safety/protection (10);
- identified, most frequently, the diagnoses: risk for infection (84.6%); impaired physical mobility (69.2%); risk for aspiration (65.3%), and risk for injury (61.5%);
- made incomplete records of the diagnoses, i.e., of the 135 diagnoses (real and risk), 133 (98.5%) presented related or risk factors, and only 39 (28.8%) presented the defining characteristics. It should be stated that 42% were real, i.e., they should present the defining characteristics;
- established most prescriptions (87.9%) pertinent to the identified nursing diagnoses, leaving 12.1% without any relation;
- established prescriptions focused on nursing diagnosis mostly (90%) based on related or risk factors, while only 19.5% were based on defining characteristics;
- determined the diagnosis risk for infection based on the information obtained at the moment of data collection, evidencing an accuracy level superior to literature reports for diagnoses in general;
- established nursing prescriptions for this diagnoses consistently with the title (42%) or with the risk factors (58%).

The use of different nursing process phases and taxonomies to name the diagnoses and interventions portray the nurses' search for foundations to base their health care on. However, this process is not always free from difficulties. One of these difficulties is recording these stages, which is an indispensible step for developing and controlling the health care process. This record also permits a continuous follow-up to implement this methodology effectively, which should be done at the study location, according to the obtained data.

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