ACTIVITIES OF THE NURSE INVOLVED IN TRIAGE/RISK CLASSIFICATION ASSESSMENT IN EMERGENCY SERVICES: AN INTEGRATIVE REVIEW

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ABSTRACT

This present study aimed at identifying and assessing available literature regarding the activities of the nurse involved in assessing risk classification in emergency services. The integrative review carried out searches in the following databases: Science Direct, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medical Literature Analysis and Retrieval System Online (MEDLINE), Latin-American and Caribbean Health Sciences Database (LILACS), and Scientific Electronic Library Online (SCIELO). Twenty-two articles that met inclusion criteria were selected. Results indicated that the major attributions of this professional are the assessment of the patient's health-care status and decision-making, a process that demands clinical knowledge and experience. The nurse is capable of organizing the workflow of patients according to the priority of the rendered care and service demands, and stands out as a professional of excellence in the development of triage/risk classification practices in emergency services.

Descriptors: Emergency nursing. Emergency service, hospital. Triage.

RESUMO

Objetivou-se identificar e avaliar as evidências disponíveis na literatura sobre as atividades do enfermeiro na classificação de risco nos serviços de urgência. Realizou-se uma revisão integrativa, com busca nas bases de dados Science Direct, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medical Literature Analysis and Retrievel System Online (MEDLINE), Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS) e Scientific Electronic Library Online (SCIELO). Foram selecionados 22 artigos que atenderam aos critérios de inclusão. Os resultados evidenciaram que as principais atribuições deste profissional são a avaliação do estado de saúde do usuário e a tomada de decisão, processo que necessita de conhecimento clínico e de tempo de experiência. O enfermeiro tem a capacidade de organizar o fluxo dos usuários conforme a prioridade do atendimento e a demanda dos serviços, sendo um profissional de excelência na execução da triagem/classificação de risco nos serviços de urgência.

Descritores: *Enfermagem em emergência. Serviço hospitalar de emergência. Triagem.*
Título: *Atividades do enfermeiro nos sistemas de triagem/classificação de risco nos serviços de urgência: revisão integrativa.*

RESUMEN

Se objetivó identificar y evaluar la evidencia disponible en la literatura sobre las actividades de enfermeros en sistemas de clasificación de riesgo en servicios de urgencia. Se realizó revisión integradora, con búsqueda en las bases Science Direct, Cumulative Índex to Nursing and Allied Health Literature (CINAHL), Medical Literature Analysis and Retrievel Sistem Online (MEDLINE), Literatura Latinoamericana y del Caribe en Ciencias de la Salud (LILACS) y Scientific Electronic Library Online (SCIELO). Se seleccionaron 22 artículos que cumplieron los criterios de inclusión. Los resultados evidenciaron que las principales atribuciones del profesional son la evaluación del estado de salud del paciente y la toma de decisiones, proceso que necesita conocimiento clínico y tiempo de experiencia. El enfermero tiene la capacidad de organizar el flujo de usuarios de acuerdo con la atención prioritaria y la demanda de servicios, siendo un profesional de excelencia en la ejecución de la clasificación de riesgo en servicios de urgencia.

Descriptores: *Enfermería de urgencia. Servicio de urgencia en hospital. Clasificación.*
Título: *Revisión integrativa sobre las actividades del enfermero en los sistemas de clasificación de riesgo en servicios de urgencia.*

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INTRODUCTION

All around the globe, the search for emergency services has skyrocketed in recent decades, urging the transformation of emergency care organization and practice. Hence, triage systems were created in order to identify the clinical priority of each patient awaiting assistance, aiming at promoting equality of access [1].

The purpose of triage systems is to organize the demands of incoming patients seeking hospital and pre-hospital emergency care, identifying those who need immediate assistance and recognizing those who can safely wait for assistance, prior to a complete diagnostic and therapeutic assessment[1].

A structured triage process refers to a valid and reproducible classification protocol that allows for the classification of patients based on different emergency levels, aiming at prioritizing care, in addition to ensuring the availability of adequate physical space and professional-technological organization[1-2].

Triage systems can differ depending on the professional that carries out the activity, the existence of triage algorithms (decisional trees), the existence of associated operation protocols, the number of emergency categories, the environment and the context in which they are applied, as well as the resources, equipments and means involved in the activity[2]. In present days, the four most commonly used structured triage systems are: Australia's National Triage Scale (NTS), Canadian Emergency Department Triage and Acuity Scale (CTAS), United Kingdom's Manchester Triage System (MTS), and the US Emergency Severity Index (ESI)[2-3].

In Brazil, structured triage embodies the assignments of assessing and classifying risks; associated with the process of embracement and based on patient-centered care, it is aimed at identifying the patients who need immediate treatment in accordance with risk potentials, thus preventing practices of exclusion. Standing out as an operational guideline of the Ministry of Health's National Humanization Policy (NHP) and associated with risk classification processes, embracement is aimed at guaranteeing the humanization of health care services, broadening access and offering a warmer and more resolute care[4].

Risk classification assessment is generally carried out by nurses. Some authors affirm that the nurses gather all necessary information - having the knowledge of clinical language oriented towards translating signals and symptoms - to develop assessment scales and risk classifications[1-3].

In addition to broadening discussions about the work of the nurse in triage/risk classification practices, this present study also aimed to identify and assess all evidence available in the literature regarding the risk classification activities of nurses in emergency services.

METHODOLOGY

The integrative review carried out in this study allowed for the analysis of studies utilizing different methodologies (quantitative and qualitative) and enables the synthesis of available evidence on a given matter[5].

Evidence can be hierarchically classified in compliance with the methodological approach of the study. In this review, the following evidence level classification was used: 1 – evidence derived from a systematic review, a meta-analysis of controlled randomized clinical essays, or clinical guidelines based on systematic reviews of controlled randomized clinical essays; 2 – evidence derived from at least one well-designed controlled randomized clinical essay; 3 – evidence derived from well-designed non-randomized clinical essays; 4 – evidence derived from well-designed cohort and case-control studies; 5 – evidence derived from the systematic review of descriptive and qualitative studies; 6 – evidence derived from a single descriptive or qualitative study; and 7 – evidence derived from opinions issued by authorities and/or reports of specialists committees[6].

This integrative review used five phases, namely: identification of the problem, literature search, data assessment, data analysis, and presentation of the synthesis of the knowledge[5].

In order to respond to the guiding question, "What are the nurse's risk classification activities in emergency services?", the study sought materials in the month of February 2011 published in the following databases: Science Direct, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medical Literature Analysis and Retrieval System Online (MEDLINE), Latin-American and Caribbean Health Sciences Literature Database (LILACS), and Scientific Electronic Library Online (Scielo).

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The following keywords were used in the Health Science Descriptors (DeCS): "Emergency Nursing", "Emergency Hospital Service", "Emergency Medical Services", and "Triage". The keywords in the Medical Subject Headings (MeSH) were: "Decision-Making", "Emergency Nursing", "Emergency Hospital Service", "Emergency Medical Services" and "Triage". The literature search was independently carried out by two specialists in the issue.

Inclusion criteria were as follows: online full texts (research, theoretical or reflexive articles, reviews and experience reports that responded to the study's guiding question) in the English, Spanish and Portuguese languages, published between 2000 and 2010.

Initially, the title and abstract of the found material was read. This process pointed out 34 articles that met the inclusion criteria. After the detailed reading of the texts, 12 publications were excluded as they were not directly connected with the issue. Hence, the final sample was composed of 22 scientific articles.

In order to assess the data, a specific instrument that analyzes information on authors, title, journal, keywords, study objective, type of study, sample, place, data collection technique, results and conclusions was applied.

Data analysis was carried out in two phases. The first described the characterization of the found articles and carried out simple and relative frequency calculations regarding the year of publication, country and publication journal. The second phase was dedicated to the thorough reading of all 22 selected articles. Information was systematized and categorized by content similarity, generating three thematic categories: assignments of the nurse in triage/risk classification practices; necessary knowledge and abilities; and advantages/disadvantages in carrying out the activity.

Taking all ethical aspects into account, this integrative review ensured the authorship of all researched articles, in such a way that the used studies were referenced. As the study did not deal with human beings, the approval of the project by the Research Ethics Committee was not necessary.

RESULTS AND DISCUSSION

The final sample was comprised of the 22 articles related to the focus of this study; nine articles were found in the Science Direct database, five in PUBMED, five in CINAHL and three in LILACS. The articles included in this review were referenced under numbers 7 through 28 and are displayed in Box 1.

The outlines of the studies included in the integrative review are as follows: eight quantitative researches (36.4%), six qualitative researches (27.3%), four theoretical articles from specialists (18.2%), two reviews (9.1%), one mixed-method research (4.54%), and one experience report (4.54%). The strength of the evidence pointed out one article (4.5%) with an evidence level of 4; 14 articles (63.6%) with an evidence level of 6; and seven articles (31.8%) with an evidence level of 7.

The analysis of the characteristics of the articles related to year of publication showed that 45.4% of the total number of publications were produced between 2007 and 2010[12-15,21-25,28], thus indicating an increase in the number of studies on this issue in recent years. Table 1 depicts these results.

The works were published in 14 journals (Table 2). The major highlight can be observed in the Australian Emergency Nursing Journal – totaling four articles (18.2%)[9,17,26-27]. The study also concluded that the majority of the articles were published in nursing-related journals[7-15,17-20,23-24,26-28]. This can be explained by the fact that in the 1970's, emergency nurses in the US began participating in triage practices[17]; thus, the articles were, in the vast majority, written by nurses.

As for the geographic location, the study shows that the Australasian region has submitted the highest number of publications regarding the nurse's triage/risk classification activities. Australia leads the ranking with nine articles (41%) [7-9,11,15,17,21,23,26]. This high number of publications can be related to the fact that this country was a pioneer in the insertion of triage protocols into emergency services[17]. Sweden[13,20,28], China[18,26], Iran[27], Colombia[17], Canada[22] and Great Britain[12] also produced several publications, as shown in Table 3. The study found two (9.1%) works in Brazil: one originated in Belo Horizonte[14] and the other in Ribeirão Preto[10].

Research on the participation of the nurse in risk classification activities is still an incipient practice in Brazil. The risk classification manual edited by the Ministry of Health in 2004 highlights the need for a multidisciplinary team for the develop-

Issue	Year	Author	Evidence level[6]	Journal	Database
Assignments of the triage nurse	2000	Consodine, Ung, Thomas[7]	6	Accid Emerg Nurs	PUBMED
	2000	Gerdtz, Bucknall[8]	6	Aust J Adv Nurs	PUBMED
	2002	Fry[9]	6	Austr Emerg Nurs J	Science Direct
	2004	Pinto, Rodolpho, Oliveira[10]	6	Rev Gaúcha Enferm	LILACS
	2005	Fry, Stainton[11]	6	Accid Emerg Nurs	Science Direct
	2008	Edwards, Sines[12]	6	J Clin Nurs	CINAHL
	2008	Goransson, Ehnfors, Fonteyn, Ehrenberg[13]	6	J Adv Nurs	CINAHL
	2008	Souza, Bastos[14]	7	Rev Min Enferm	LILACS
	2009	Curtis, Murphy, Hoy, Lewis[15]	7	Australas Emerg Nurs J	Science Direct
Triage/risk classification knowledge and abilities	2001	Kelly, Richardson[16]	6	Emerg Med	PUBMED
	2002	Fry, Burr[17]	7	Austr Emerg Nurs J	Science Direct
	2005	Chung[18]	6	Accid Emerg Nurs	Science Direct
	2005	Murillo[19]	7	Av Enferm	LILACS
	2006	Andersson, Omberg, Svedlund[20]	6	Nurs Crit Care	CINAHL
	2007	Consodine, Botti, Thomas[21]	7	Acad Emerg Med	PUBMED
	2007	Dong, Bullard, Meurer, Blitz, Holroyd, Rowe[22]	4	CJEM	CINAHL
	2007	Gerdtz, Bucknall[23]	6	J Adv Nurs	CINAHL
	2007	Pardey[24]	7	Australas Emerg Nurs J	Science Direct
	2010	Chen, Chen, Ng, Chen, Lee, Chang[25]	6	Emerg Med J	PUBMED
Advantages/ disadvantages to carrying out triage/risk classification	2001	Jones, Lyneham[26]	7	Austr Emerg Nurs J	Science Direct
	2002	Adeb-Saeedi[27]	6	Austr Emerg Nurs J	Science Direct
	2009	Forsgren, Forsman, Carlstrom[28]	6	Int Emerg Nurs	Science Direct

Box 1 – Articles regarding the participation of nurses in triage/risk classification practices according to the issue, year of publication, author, evidence level, journal of publication, and database - Porto Alegre, RS, 2011.

Source: Science Direct, CINAHL, MEDLINE, LILACS and Scielo, Jan 2000/Dec 2010.

Table 1 – Frequency and percentage of the distribution of articles according to year of publication - Porto Alegre, RS, 2011.

Year	Amount (n)	Percentage (%)
2000	2	9.1
2001	2	9.1
2002	3	13.6
2003	0	0
2004	1	4.5
2005	3	13.6
2006	1	4.5
2007	4	18.2
2008	3	13.6
2009	2	9.1
2010	1	4.5
Total	22	100

Source: Science Direct, CINAHL, MEDLINE, LILACS and Scielo, Jan 2000/Dec 2010.

Table 2 – Frequency and percentage of articles according to publication journal - Porto Alegre, RS, 2011.

Journal	Amount (n)	Percentage (%)
Academy of Emergency Medicine	1	4.5
Accident and Emergency Nursing	3	13.6
Australasian Emergency Nursing Journal	2	9.1
Australian Emergency Nursing Journal	4	18.2
Australian Journal of Advanced Nursing	1	4.5
Avances en Enfermeria	1	4.5
Canadian Journal of Emergency Medical Care	1	4.5
Emergency Medicine (Fremantle)	1	4.5
Emergency Medicine Journal	1	4.5
International Emergency Nursing	1	4.5
Journal of Advanced Nursing	2	9.1
Journal of Clinical Nursing	1	4.5
Nursing in Critical Care	1	4.5
Revista Gaúcha de Enfermagem	1	4.5
Revista Mineira de Enfermagem	1	4.5
Total	22	100

Source: Science Direct, CINAHL, MEDLINE, LILACS and Scielo, Jan 2000/Dec 2010.

ment of this task[4]. It was not until recently that we recognized the need to increase our adequacy in terms of adherence to international protocols (United Kingdom, United States and Canada), and that care prioritization according to the severity of the patient became centered on the work of the nurse. This process was standardized due to initiatives such as the Odilon Behrens Hospital's, in Belo

Table 3 – Frequency and percentage of articles according to country of origin of the research - Porto Alegre, RS, 2011.

Country	Amount (n)	Percentage (%)
Australasia (with no specification of country)	2	9.1
Australia	9	40.9
Brazil	2	9.1
Canada	1	4.5
China	2	9.1
Colombia	1	4.5
Great Britain	1	4.5
Iran	1	4.5
Sweden	3	13.6
Total	22	100

Source: Science Direct, CINAHL, MEDLINE, LILACS and Scielo, Jan 2000/Dec 2010.

Horizonte, where risk classification is carried out by nursing professionals [14].

As for the language in which the articles were published, the great majority was produced in English (86.3%)[7-9,11-13,15-18,20-28]. The Portuguese language was found in two works (9.1%)[10,14] and the Spanish language in only one (4.5%) article[19].

Regarding the contents of the articles, the production of knowledge on the activities of the nurse in triage/risk classification systems generally addresses three thematic categories: triage/risk classification assignments of the nurse; necessary knowledge and abilities; and advantages/disadvantages while carrying out the activity.

Nine articles were found regarding the necessary attributes of nurses while developing risk classification activities; seven of them were classified with an evidence level of 6[7-13] and two with an evidence level of 7[14-15].

In order to assess the patients' health status, the nurse collects information, mainly by listening to their previous history and eliciting the major complaint; only then is a physical exam performed, aiming to identify signs and symptoms[12,14-15], enabling the recognition of normal or altered standards, as well as enabling risk probability judgments[11].

The nurse interprets the patient's psychological, interpersonal and verbal/non-verbal communicative signals[14,18] in order to process and verify the credibility of clinical information[12]. In this sense, the work of the nurse in risk classification activities is also influenced by social aspects and life contexts experienced by patients. Hence, the nurse also makes use of intuition in order to carry out the classification, based on the patient's physical appearance and on the way in which the patient presents their problem[12].

In Belo Horizonte, Brazil, the assessment of the patient's healthcare status is carried out by a multidisciplinary team. Initially, the care form is filled in at the front desk, where the patient is informed about the expected waiting time according to the risk classification. Later, a nursing assistant/technician checks the patient's vital signals and forwards him to the nurse's examination room. This professional performs what is left of the data collection process, focusing on the major complaint and associating their related previous morbid medical history with their present signs and symptoms[14].

The patient's data collection and the results of the physical exam lead the nurse to make a decision[10] based on qualified listening, as well as on the clinical-critical judgment of the complaints, leading him to a logical rationale that will determine the prioritization of the care[8,10-12,14]. For the decision-making process, the nurse can make use of manuals and protocols that will support and aid him in classifying the patient's risk[7,12,17-18,23]. Studies show how critical it is for nurses that work in risk assessment and classification to make accurate decisions, as this process actually identifies and distinguishes those patients who cannot wait for medical assistance

from those who can afford to wait, thus influencing the emergency service dynamics[11,18].

The nurse must be prepared to classify and, whenever necessary, reclassify the priority of the patient's care throughout the waiting time. For that to happen, the nurse has to cyclically reassess the patient and be prepared to change the patient's classification should his/her condition warrant it[15].

In some countries, emergency services allow nurses to provide therapeutic procedures during the risk classification process. In Australia, the nurse can administer oral and inhalant medications, oxygen inhalation therapy, serotherapy, and perform electrocardiograms. Another of the nurse's assignments is to refer patients presenting with complaints classified as non-urgent to health outpatient services[15]. He/she can also order laboratory and radiologic exams[8-9,15,21].

The study identified 10 articles regarding the necessary triage/risk classification knowledge and skills category, one having an evidence level of 4[22], five with an evidence level of 6[16,18,20,23,25], and four with an evidence level of 7[17, 19, 21,24].

Theoretical knowledge is presented as being crucial to the development of risk classification activities. The nurse needs to have an extensive knowledge of the clinical, surgical and psychosocial conditions of the population due to the diversity of problems present in the context of emergency services[17,19]. The professional must be knowledgeable regarding the epidemiologic profile of patients who seek out emergency services, as well as the physiology and pathology of the most frequent alterations in order to establish the most accurate priority[19]. It was verified in Sweden that a nurse with less knowledge in a given area may establish a priority that is not aligned with the patient's actual health problem[20].

Additionally, some publications[11,17] highlight the relevance of the professional's skills in matching theoretical knowledge with the patient's assessment. In order to achieve this purpose, the nurse needs to be able to count on clinical education and support in order to properly determine the risk classification[24]. In the Australasian region, most of the emergency services require nurses to have a twelve to eighteen month training program prior to working in triage areas[16]. A specific background in triage processes enhances the consistency of decisions made by nurses toward patient prioritization practices, showing that theoretical knowledge is a vital key in decision-making processes[21,25].

On the other hand, knowledge of the organization and the operation of the service are also essential elements for nurses who work in risk assessment and classification. The professional must have a broad knowledge of the physical area of the service, as well as of existing human and material resources in order to be able to harmonize the flow of patients within the available space, as well as manage the care waiting times [19]. An integrative review on the organization of a hospital emergency service showed that the risk classification process involves the organization of the physical space, material resources and, most importantly, competent and adequately qualified personnel[29].

Some studies discuss the relevance of the experience of nurses in the determination of a proper definition of risk classification, as priority decisions can either be simple or complex and may be directly dependent on the experience of the professional[11,17]. A study carried out in Taiwan identified that the number of years spent working in emergency units stands out as one of the factors that most significantly affect the accuracy of nurses in risk classification processes[25]. In the same way, Hong Kong nurses reported that similar and expressive previous experiences made them more alert during decision-making processes[18]. Experienced nurses convey a sense of security to risk classification teams, as less experienced professionals lean on them for aid and support whenever any doubt arises[20].

However, authors affirm that there are other critical factors involved in the process and that clinical experience alone cannot account for the decisions made by the nurses who carry out this activity[30]. One of the analyzed articles did not show any significant correlation between the professional's experience and the decision-making process in triage/risk classification practices[21].

Intuition is another ability used in some priority-settling situations when there are no easily identifiable signs or symptoms[18]. The intuitive assessment is a subjective immediate impression centered on manifestations that point out a high level of stress[12]. Moreover, rationality, trust and courage, especially related to the nurse's decision-making process toward prioritizing care, are part of the skills needed in triage/risk classification activities[20].

In this sense, the nurse who carries out the activity is often the first healthcare professional approached by families and patients seeking emergency services. Therefore, it is necessary that he/she possess excellent communication abilities in order to help these people in such a vulnerable moment[12] and even to orient the individual and his family on the type of care required, as well as the potential waiting period[14, 19].

This professional must be ready to start a conversation and establish a dialogue, allowing for the understanding of the health needs displayed by the patient, thus seeking to solve the problem and create opportunities to strengthen the care network while referring each presented situation to other more appropriate healthcare services. Additionally, nurses realize that the development of risk classification activities is a moment in which patients are to be embraced and have their complaints heard, a time when their questions deserve specific answers[14,31]. Hence, the nurse establishes an empathic relationship with the individual, often minimizing feelings such as anxiety, aggressiveness or impatience that may arise throughout the development of the care service[12,18].

The advantages/disadvantages thematic category of the triage/risk classification practice was comprised of three articles, two having an evidence level of 6[27-28] and one with an evidence level of 7[26].

Nurses deem this to be an interesting, rewarding job and report on the freedom and autonomy in taking the lead and making decisions[28]. A study on the opinions of nurses concerning this activity showed that 88% of these professionals claimed to be satisfied with their triage/risk classification work[28].

Notwithstanding, these professionals point out as a disadvantage the stress they undergo whenever the patient's health status is altered during a long waiting time. Thus, feelings of insecurity and frustration may turn the decision-making process into a stressful moment for the professional[18]. Violence stands out as another source of stress for triage nurses[26-27]. In addition to suffering either verbal or physical violence from patients and family members, these professionals may also be hostile and negative in their relationship with patients and colleagues[26].

FINAL CONSIDERATIONS

The articles analyzed by this review allowed for the identification and assessment of evidence available in the literature between the years 2000 and 2010 related to the activities of the nurse in triage/risk classification practices in emergency services. Despite the scarce production of strong evidence in this knowledge area, results show distinct approach focuses regarding the issue and existing gaps in this state of the art.

As for the activities developed by the nurse in triage/risk classification practices, the studies highlight the nurse's assessment and decision-making activities toward the determination of the classification and prioritization of care provision in emergency services care, according to the severity of the problem. The nurse gathers specific knowledge and skills toward the definition of care priorities, ranging from an administrative knowledge, including a clinical perspective toward the patient, and utilizing intuitive and communicative abilities. The nurse, therefore, manages the supply and demand flow of patients in emergency services and contributes to the reduction of morbidity-mortality rates.

A few difficulties identified in the execution of this activity were associated with feelings of insecurity related to alterations in the clinical status of patients waiting for care, as well as the tensions stemming from hostile attitudes from patients when they disagree with the nurse's established risk classification.

The study verified that the vast majority of articles related to this research's guiding question are foreign productions, mainly from Australia. In Brazil, research on the work of the nurse in risk classification activities is quite incipient. Hence, we recommend that new studies be carried out in the national scenario, aiming to promote advanced knowledge on the work of the nurse in emergency and assessment/risk classification practices.

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