

# Risk classification and screening protocols for adults and elderly in emergency: Integrative review

Protocolos de classificação de risco e triagem para adultos e idosos nas urgências: Revisão integrativa

Clasificación de riesgo y protocolos de tamizaje para adultos y ancianos en emergencia: Revisión integrativa

## RESUMO

Objetivo: identificar na literatura científica os protocolos de classificação de risco e triagem para adultos e idosos nas urgências. Métodos: trata-se de revisão integrativa. Foram incluídos artigos primários que utilizaram os protocolos de classificação de risco e triagem nas urgências, sem limite de tempo e publicados em qualquer idioma. A questão norteadora foi elaborada com base no acrônimo PICO: População, Interesse e Contexto. Utilizaram-se para a coleta as seguintes bases de dados: CINAHL; MEDLINE via portal PubMed; LILACS via BVS e Web of Science. A seleção dos dados foi realizada mediante leitura dos títulos, resumos e texto na íntegra. Resultados: foram selecionados 11 artigos nos quais identificou-se protocolos de gravidade de emergência, triagem hospitalares, neurológicos e trauma. Conclusão: os protocolos de classificação de risco e triagem encontrados na literatura científica foram heterogêneos, apresentaram-se efetivos e realizáveis para serem utilizados de acordo com as necessidades do país a que se destina.

**DESCRIPTORIOS:** Emergências; Serviços Médicos de Emergência; Identificação da Emergência; Triagem; Protocolos.

## ABSTRACT

Objective: to identify in the scientific literature the risk classification and screening protocols for adults and the elderly in emergencies. Methods: this is an integrative review. Primary articles that used risk classification and triage protocols in emergencies, without time limit and published in any language, were included. The guiding question was based on the acronym PICO: Population, Interest and Context. The following databases were used for collection: CINAHL; MEDLINE via the PubMed portal; LILACS via VHL and Web of Science. Data selection was performed by reading the titles, abstracts and full text. Results: 11 articles were selected in which emergency severity, hospital triage, neurological and trauma protocols were identified. Conclusion: the risk classification and screening protocols found in the scientific literature were heterogeneous, they were effective and feasible to be used according to the needs of the country for which it is intended.

**DESCRIPTORS:** Emergencies; Emergency Medical Services; Emergency Identification; Triage; Protocols.

## RESUMEN

Objetivo: identificar en la literatura científica la clasificación de riesgo y protocolos de tamizaje para adultos y ancianos en emergencias. Métodos: se trata de una revisión integradora. Se incluyeron artículos primarios que utilizaron protocolos de clasificación y triaje de riesgo en emergencias, sin límite de tiempo y publicados en cualquier idioma. La pregunta orientadora se basó en las siglas PICO: Población, Interés y Contexto. Para la recolección se utilizaron las siguientes bases de datos: CINAHL; MEDLINE a través del portal PubMed; LILACS vía BVS y Web of Science, sin restricciones de idioma y tiempo. La selección de datos se realizó mediante la lectura de los títulos, resúmenes y texto completo. Resultados: Se seleccionaron 11 artículos en los que se identificaron protocolos de gravedad de emergencia, triaje hospitalario, neurológico y traumatológico. Conclusión: los protocolos de clasificación y tamizaje de riesgo encontrados en la literatura científica fueron heterogéneos, efectivos y factibles de ser utilizados de acuerdo con las necesidades del país al que se destina.

**DESCRIPTORIOS:** Urgencias Médicas; Servicios Médicos de Urgencia; Identificación de la Emergencia; triaje; Protocolos.

RECEBIDO EM: 17/04/2022 APROVADO EM: 27/06/2022

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**INTRODUÇÃO**

**A** superlotação nos departamentos de urgência consiste em fenômeno comum, de abrangência mundial e amplamente divulgado. É notória a relevância da adoção de estratégias para solucionar essa situação, em caráter de urgência, tanto para pacientes quanto para profissionais da saúde e administradores hospitalares<sup>1</sup>.

O crescimento da demanda por atendimento de urgência exigiu o desenvolvimento de escalas de triagem, que consistem no primeiro processo de classificação utilizado com o objetivo de priorizar os pacientes que buscam atendimento em departamentos de urgência<sup>2</sup>.

Mundialmente, o número de pacientes que buscam o serviço de urgência com diversas condições clínicas, apresenta aumento constante<sup>3</sup>. Para tanto, tornou-se rotina nesses serviços a adoção de protocolos para classificação de risco e triagem como: National Triage Scale (NTS) da Austrália, Canadian Emergency Department Triage and Acuity Scale (CTAS) do Canadá, Manchester Triage System (MTS) do Reino Unido e Emergency Severity Index (ESI) dos Estados Unidos<sup>2</sup>.

Na Espanha, no ano de 1999, desenvolveu-se o Protocolo de Adecuación de Urgencias Hospitalarias (PAUH), instrumento que permitiu caracterizar o uso do serviço de urgência como apropriado ou inapropriado, com objetivo de direcionar melhor esse cuidado<sup>4</sup>.

Estudo evidenciou que a implantação do Sistema de Classificação de Risco de

Manchester na rede de urgência e emergência em um município de São Paulo proporcionou benefícios à reorganização dos fluxos e dos processos de trabalho das portas de entrada dos Serviços de Urgência e Emergência<sup>3</sup>.

Pesquisa que objetivou validar o conteúdo da Pré Consulta do instrumento utilizado na Triagem e Classificação de Risco da Unidade de Pronto Atendimento de João Pessoa-PB, difere de outros estudos, no qual evidenciou que o conteúdo do instrumento utilizado na UPA não é suficiente para atender aos pressupostos que sustentam perspectiva a classificação de risco e triagem<sup>5</sup>.

Diante desse cenário, no Brasil, em 2004, o Ministério da Saúde implementou o programa Humaniza SUS em que propõe a reestruturação dos Serviços de Urgência e Emergência, com a implantação do Acolhimento com Classificação e Avaliação de Risco<sup>6,7</sup>. Ademais, evidenciou-se o acolhimento com avaliação, classificação de risco e triagem, como ferramenta de transformação do trabalho na atenção e produção da saúde, em particular, nos serviços de urgência.

A avaliação da classificação de risco e triagem é comumente realizada por enfermeiros, em virtude de agregar as condições necessárias, as quais incluem linguagem clínica orientada para os sinais e sintomas e realização das escalas de avaliação<sup>8</sup>. Diante da temática, o presente estudo contribuirá com a Prática Baseada em Evidências, permitindo que profissionais da saúde, em especial, enfermeiros identifiquem os protocolos de classificação de risco e triagem dos pa-

cientes em serviços de urgência. Assim, este estudo objetivou identificar na literatura científica os protocolos de classificação de risco e triagem para adultos e idosos nas urgências.

**MÉTODOS**

This is an integrative review, structured in six steps: I) identification of the theme and selection of the guiding question; II) establishment of inclusion and exclusion criteria for studies; III) search in the literature; IV) definition of information to be extracted from the selected studies; V) evaluation of the studies included in the review; VI) interpretation of results and synthesis of knowledge. 9 The research question “What is the scientific evidence available in the literature about risk classification and screening protocols for adults and the elderly in emergency rooms?”, elaborated from the acronym “Population, Interest and Context” (PICO) was chosen. 10 It was then considered P – Adult and Elderly; I - Protocol; Co – Risk Rating.

The bibliographic survey took place in March 2021 in the following databases: CINAHL; MEDLINE through the PubMed portal; LILACS via Virtual Health Library and Web of Science. For the selection of studies, these databases were consulted through the Portal of Periodicals of the Coordination for the Improvement of Higher Education Personnel (CAPES), via remote access from the Federated Academic Community (CAFe) to the Federal University of Piauí (UFPI).

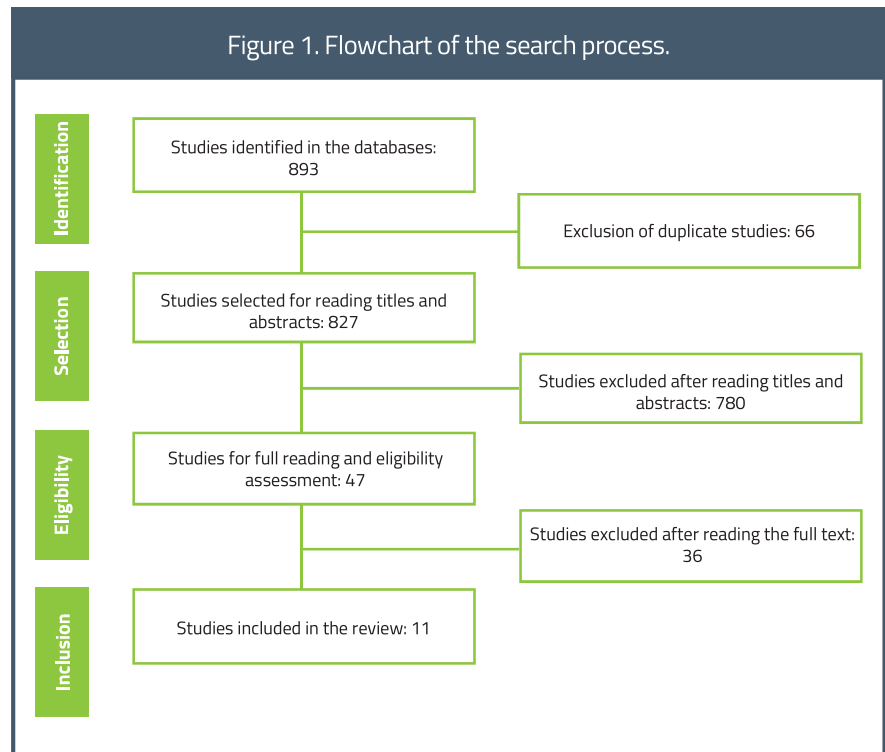
The search in each base was performed by combining the descriptors with the Boolean connector OR, within each set of terms of the PICO strategy and, later, crossed with the Boolean connector “AND”. Furthermore, the Boolean operator “NOT” was used to exclude articles that addressed protocols for children.

Primary articles that used risk classification and triage protocols in emergencies, without time limit and published in any language, were included. And, publications in the form of theses, dissertations, review articles, as well as duplicate publications in the databases that did not answer the research question were excluded.

The search and selection of articles were performed independently by two reviewers. The studies were imported into the Endnote Web bibliographic reference management software, available on the Web of Science database. The selection was performed by reading the titles and abstracts based on the inclusion criteria. From this selection, the other articles were read in full. For the extraction and synthesis of information, an instrument adapted from the form of the Red de Enfermería en Salud Ocupacional (RedENSO Internacional) was used.<sup>11</sup> Regarding the level of evidence, it was classified as: level I-systematic review or meta-analysis; level II- well-designed randomized controlled clinical trial; level III- well-designed clinical trials without randomization; level IV- well-designed cohort and case-control studies; level V- systematic review of descriptive and qualitative studies; level VI- a single descriptive or qualitative study; level VII- report of expert committees.<sup>12</sup>

**RESULTS**

The search totaled 893 publications, after applying the inclusion and exclusion criteria, reading titles and abstracts and reading the full text, the sample totaled 11 articles. To present the study selection flow, the recommendations of



Source: Authors, 2020.

**Table 1. Characterization of the articles that make up the sample (n=11).**

Year/ Country	Journal	Methodological design/ Level of evidence
2000/ United States of America (USA) <sup>14</sup>	Academic Emergency Medicine	Prospective cohort (IV)
2011/ USA <sup>15</sup>	BMC Neurology	Prospective cohort (IV)
2018/ Brazil <sup>16</sup>	Rev. Latino-Am. Enfermagem	Confiabilidade (VI)
2012/ Brazil <sup>17</sup>	Rev enferm UFPE on line.	Qualitative (VI)
2016/ USA <sup>18</sup>	J Trauma Acute Care Surg	Retrospective (IV)
2017/ Africa <sup>19</sup>	African Health Sciences	Cross-sectional (VI)
2017/ Brazil <sup>20</sup>	Rev. Latino-Am. Enfermagem	Epidemiologic (VI)
2018/ Saudi Arabia <sup>21</sup>	Western Journal of Emergency Medicine	Prospective (IV)
2011/ Brazil <sup>22</sup>	Rev. Latino-Am. Enfermagem	Comparative (VII)
2018/ Thailand <sup>23</sup>	Therapeutics and Clinical Risk Management	Prospective cohort (IV)
2019/ Deutschland <sup>24</sup>	JAMA Surgery	Coorte multicêntrico (IV)

Source: Authors, 2020.

the Preferred Reporting Items for Systematic (PRISMA) were followed (Figure 1).<sup>13</sup>

Eleven articles were included, of which five (45.4%) were found in CINAHL, two (18.2%) in MEDLINE/Pubmed, and four (36.3%) in the Web of Science. Of these, four (36.4%) were from nursing journals, five (45.4%) were from the medical field and two (18.2%) were published in a clinical therapy journal.

Of the selected articles, seven (63.6%) were written in English and four (36.4%) in Portuguese. As for the professional category of the authors, seven were written by doctors (63.6%) and four by nurses (36.4%) and at the level of evidence, six articles (54.5%) were at level IV, and five (45.5%) at level VI (Table 1).

In this study, 11 protocols were identified, nine of which were different and two similar, which sought to characterize urgent and non-urgent patients (Chart 2).

## DISCUSSION

The analyzed articles presented different risk classification and screening protocols between countries. In Brazil, the Manchester protocol for welcoming practices and risk classification stands out. It was noted that the early identification of the patient's health problems leads to a decrease in the imminent risk of death.

It was identified that there are nine different patient screening protocols, distributed in six countries: Brazil, Saudi Arabia, United States, Uganda, Holland and Thailand, so that productions from six continents were observed, with the exception of Oceania.<sup>14-24</sup> The protocols serve to organize care and improve the prognosis and survival of users.<sup>17-20</sup>

There are countries that seek improvements in collective screening systems, with the creation and testing of protocols to be used in large regions, not just in specific health institutions.<sup>14-24</sup> Medicine and nursing journals were predominant in disseminating knowledge about

**Table 2. Characterization of the articles that make up the sample (n= 11).**

Risk Classification Protocol	Outcome
Emergency Severity Index (ESI) <sup>12</sup>	The screening instrument is effective and reliable for use in hospital units.
Cincinnati Stroke Scale (CSS) <sup>15</sup>	The screening system has improved the diagnostic accuracy of screening for CVA detection.
Manchester Triage System <sup>16</sup>	The use of the screening protocol regarding the level of agreement is average between the institutional protocol and the Manchester protocol.
Risk Classification Protocol <sup>17</sup>	The nurses' perception about the reception and risk classification was seen by the category as effective for bringing agility during the service to users.
National Trauma Triage Protocol (NTTP) <sup>18</sup>	It reduced the impact of blood pressure and complications for patients at risk of shock.
Hospital triage protocol <sup>19</sup>	There was little adherence by health professionals to the hospital triage system.
Risk classification protocol <sup>20</sup>	It showed good sensitivity to predict serious situations that can lead to death or hospitalization.
Point-of-care testing (POCT) <sup>21</sup>	Triage using the POCT protocol was appropriate to select non-urgent and emergent patients.
Manchester Triage System (MTS) <sup>22</sup>	The Manchester protocol is reliable for determining priorities in emergencies.
National Early Warning Score (NEWS) <sup>23</sup>	NEWS implementation is useful for detecting mild and severe health cases.
Hospital screening <sup>24</sup>	Decreased waiting time and redirection to adequate medical care.

Source: Authors, 2020.

screening and risk classification protocols.

It should be noted that the lack of standardization of protocols at the local, regional or even national level can weaken patient care. In Uganda, Africa, only one hospital used a screening protocol, in which respiratory, circulatory and neurological patterns were evaluated. In other hospitals, the patient's prior assessment system consisted of observing the general state of health.<sup>19</sup>

There are different designs among the articles and most were classified as evidence level IV and VI. Such facts make it difficult to analyze the effect that these productions have. However, there was a prospective cohort design, which allows greater support for the results presented.<sup>25</sup>

The MTS protocol was cited in four of the eleven productions found. In some places, the protocol is not known by that

name, however, it is possible to identify it by observing the characteristics that involve the classification.<sup>16-17,20,22</sup> It is noteworthy that this system of reception, screening, risk classification, gave agility to urgency and emergency services.<sup>17</sup>

The MTS was implemented in urgent care and emergencies in Brazil, and thus contributed to the improvement of the service. This system is an example of a protocol that is implemented in almost the entire country, and brings standardization to services, demonstrating organization and efficiency.<sup>8,26-27</sup>

In the Netherlands, another screening and mobile classification protocol was found that evaluated age, physiological characteristics of the affected person, presence of injuries and location of the trauma.<sup>24</sup> When there is an integrated national triage and risk classification system, greater agility in care is expected, as well as the resolution of emergencies in

a shorter period of time, while articulation was observed through the standardization of existing protocols.

In Bangkok, Thailand, there is a risk classification and test screening protocol. NEWS analyzes the parameters of vital signs and showed a positive result in the tests for good detection and distinction of severe and mild cases.<sup>23</sup> There are also situations in which a particular country uses integrated systems from others, whose efficiency and effectiveness has been proven, as is the case of Saudi Arabia. Also, it is possible to find the POCT that helps in the identification of clinically important and abnormal test results in that it reduces the time for detection of critical illnesses.<sup>21</sup>

In the United States, different protocols were found for the same functionality. The CSS, for example, prioritizes the recognition of CVA, the ESI measures

heart rate, respiratory rate, temperature, oxygen saturation and peak respiratory flow of the patient and the NTTP, assesses blood pressure and predicts the patient's risk of shock.<sup>14,18</sup>

The findings revealed that the risk classification and screening protocols are suitable for the country's population. A consensus was evidenced in the studies that a screening system/protocol improves and speeds up care for people with injuries and cannot corroborate the unsatisfactory outcome in the urgency and emergency service.

This study provides advances in knowledge by providing the scientific community with evidence about risk classification and screening protocols. Furthermore, it allows health professionals to identify the different types of protocols existing in Brazil and worldwide.

## CONCLUSION

In this study, it was possible to identify that in the scientific literature, risk classification and triage protocols in emergencies in adults and elderly people differ depending on the country to which they are intended, with emphasis on the Manchester protocol, followed by hospital triage and risk classification protocols, CSS, NTTP, POCT, NEWS. The lack of studies investigating the training of professionals to apply risk classification and screening protocols is pointed out as a knowledge gap. Thus, it is suggested to carry out studies that verify the implantation and implementation of these protocols in the emergency room. Still, it is necessary to investigate the use of protocols aimed at other population strata.

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