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Original Article

Construction and analysis of content validity of a checklist for safe transport of critically patients*

Construção e análise da validade de conteúdo de *checklist* para transporte seguro de pacientes críticos

Construcción y validación de una lista de verificación para el transporte seguro de pacientes críticos

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Abstract

Objective: To develop and analyze the content validity of a checklist for the safe transport of critically ill patients in the emergency services. **Method**: This study was conducted in two stages from July to October 2022. The first stage involved a methodological study to develop the checklist and evaluate it using the Delphi technique with 34 experienced professionals. The checklist was approved with a content validity index (CVI) ≥ 80%. The second stage comprised a cross-sectional study based on data collected from a pilot test in the emergency service. **Results**: The checklist has 6 categories and 58 items. Nine items did not reach the required CVI and were revised, adapted, or excluded. Thirty-four intra-hospital transports were analyzed, and two of them had incidents. **Conclusion**: The checklist for the safe transport of critically ill patients in the emergency services was developed and analyzed by experienced professionals. It addresses essential aspects to be performed before patient transport.

Descriptors: Transportation of Patients; Checklist; Emergency Service, Hospital; Critical Care; Validation Study

Resumo

Objetivo: construir e analisar a validade de conteúdo de *checklist* para transporte seguro de pacientes críticos na emergência. **Método:** duas etapas realizadas de julho a outubro de 2022: a primeira é um estudo metodológico da construção do *checklist* e avaliação por 34 profissionais experientes, utilizando a técnica de Delphi, aprovado com índice de validação de conteúdo (IVC) ≥ 80%; a segunda compreendeu um estudo transversal, a partir de dados coletados do teste piloto no serviço de emergência. **Resultados:** o *checklist* possui 6 categorias, 58 itens no total, 9 itens não atingiram o IVC necessário e foram revisados, adaptados ou excluídos; analisaram-se 34

transportes intra-hospitalar e observou-se que dois deles tiveram intercorrências. **Conclusão:** o *checklist* para transporte seguro de pacientes críticos na emergência foi construído e analisado por profissionais experientes e aborda aspectos que devem ser realizados antes do transporte.
Descritores: Transporte de Pacientes; Lista de Checagem; Serviço Hospitalar de Emergência; Cuidados Críticos; Estudo de Validação

Resumen

Objetivo: Desarrollar y validar una lista de verificación para el transporte seguro de pacientes críticos en el Servicio de Emergencias. **Método**: El estudio se realizó en dos etapas; la primera etapa fue un estudio metodológico que implicó el desarrollo de la lista de verificación y su validación por 34 expertos, considerada válida a través del índice de validez de contenido con más del 80% de acuerdo y prueba binomial; la segunda etapa comprendió un estudio transversal prospectivo analítico-descriptivo, basado en datos recopilados del piloto de prueba. **Resultados**: La lista de verificación contiene 6 categorías pertinentes a los cuidados del transporte intrahospitalario, y solo 9 ítems no alcanzaron el índice de validación, los cuales fueron revisados, adaptados o excluidos; el piloto de prueba analizó 34 transportes intrahospitalarios y encontró que 2 transportes tuvieron incidentes. **Conclusión**: La lista de verificación fue considerada válida y, a través del piloto de prueba, puede ser utilizada para el transporte seguro de pacientes críticos en el Servicio de Emergencias.
Descriptores: Transporte de Pacientes; Lista de Verificación; Servicio de Urgencia en Hospital; Cuidados Críticos; Estudio de Validación

Introduction

Emergency services (ESs) are one of the main entry points to the Brazilian Unified Health System (SUS). However, these services have been impacted by overcrowding, often contributing to unequal care that falls short of patient safety and quality standards, potentially leading to unfavorable outcomes.[1]

Patient care in ESs requires intra-hospital transport (IHT), whether for complementary exams, procedures, or transfers between units within the institution. Referrals aim to improve patient prognosis, reduce morbidity and mortality, and contribute to diagnosis and multi-professional decision-making. Therefore, IHTs should be performed based on the principle of patient safety to prevent errors and adverse events (AEs), ensuring better care conditions for users.[2-3]

The occurrence of AEs during transport is frequent, especially with critically ill patients admitted to the ES. These patients often require ventilatory support and vasoactive drugs, and transport times can exceed 36.5 minutes. Studies have identified that approximately 42.7% of transports have AEs related to patients' clinical conditions, such as hemodynamic instability, psychomotor agitation, and respiratory failure. Non-clinical AEs occurred in 26.4%

of cases, with communication issues during care transfers being the most frequent.[4-5]

To identify the risk of clinical deterioration and promote rapid intervention by the healthcare team, the Modified Early Warning Score (MEWS) is used. This score is based on monitoring five physiological parameters: systolic blood pressure, heart rate, respiratory rate, temperature, and level of consciousness, given that there is evidence that early intervention can improve outcomes and reduce potential AEs related to physiological decompensation during transport.[6-7]

According to the World Health Organization (WHO), hospital services use SBAR for communication between professionals in the pre-transport phase. SBAR comprises: Situation, Background, Assessment, and Recommendation elements. This structured approach standardizes information exchange, promoting patient safety. However, SBAR is a tool used for patient handover and does not aim to prevent unfavorable outcomes during IHT. Therefore, creating manuals for standardizing multi-professional actions, such as protocols and checklists, is necessary for hospital environments, especially ESs.[8]

Critically ill patients tend to be more unstable and require medical equipment. Therefore, AEs related to these devices occur frequently, including equipment malfunction, accidental displacement, empty oxygen cylinders, and accidentally switched-off transport ventilators. Consequently, pre-transport instruments should include items addressing the verification and review of medical equipment accompanying the patient during IHT.[9]

Checklists are tools that can assist in transport planning, preventing and reducing incidents and AEs. A study at an Australian university hospital showed that after introducing a checklist, adherence to guidelines improved communication between the transport team and the patient's final destination from 86.7% to 90%. Therefore, creating a checklist for continuous surveillance is important to identify potential risks, improve communication, and thus minimize AEs. Checklists enable the team to observe and inspect all stages that may compromise patient safety during transport.[9-10]

Developing and validating this checklist aims to improve healthcare team planning for critically ill patient transport, ensure adequate and effective communication among team members, and reduce the incidence of unfavorable clinical outcomes such as clinical deterioration, cardiorespiratory arrest, and ventilatory failure, among other AEs.

Consequently, this may reduce the need for early and unnecessary admission to Intensive Care Units (ICUs).[11-12]

This study is, therefore, relevant as it may systematically ensure proper care by the healthcare team during IHT, using fa tool for safety measures. Hence, this study aims to develop and analyze the content validity of a checklist for the safe transport of critically ill patients in the emergency services.

Method

This study comprised two phases: the first was a methodological research on technological development involving the construction, evaluation, and adaptation of the instrument. The second stage consisted of a pilot test of the checklist's usability. This is a prospective cross-sectional analysis with a quantitative approach to data collected at the emergency services of *Hospital de Clínicas de Porto Alegre* (HCPA) and *Hospital Nossa Senhora da Conceição* (HNSC) from July to October 2022.[13-14]

Initially, the checklist was constructed by the study authors. The construction was based on the guideline conceived by the Intensive Care Society & Faculty of Intensive Care Medicine, which addresses indications and contraindications for patient transfer, recognizes and anticipates the risks involved, and identifies the main steps in organizing and executing safe patient transfers.[15]

Additionally, a non-standardized IHT form used for transporting ICU patients at HCPA was used, including the MEWS score, as it indicates the type of transport the patient needs. Subsequently, the checklist layout was developed. Afterward, an evaluation round was conducted with opinions from professionals considered experienced in the emergency services of HCPA and HNSC.

The opinions of 34 professionals were consulted (10 nurses, 8 nursing technicians, 8 physicians, and 8 physiotherapists). The checklist was evaluated and adapted using the Delphi technique, which allows for consensus among a group of experts in the field. Regarding the number of experienced professionals, there is no consensus in the literature on the ideal number, but a minimum of five is suggested as sufficient for agreement control for each category.[16]

The study's eligibility criteria are described according to inclusion and exclusion criteria. For the first stage, experienced professionals were included, including physicians, nurses, physiotherapists, and nursing technicians with at least 2 years of experience in the ES and who performed critical patient transport. Professionals away from their work activities for health reasons were excluded from the study. The first stage sample was a non-probabilistic convenience sample. The snowball sampling method was used for selection, which uses referral chains where each subject indicates another according to eligibility criteria until the total number of participants is reached.[17]

For the evaluation stage, the checklist was sent via email along with a study invitation and a link to the Google Docs electronic instrument. This instrument presented the Free and Informed Consent Form (FICF), the study objectives, risks, and benefits. It was also shared in WhatsApp groups composed of emergency professionals with expertise in patient transport from both institutions involved in the study.

The form consisted of 58 multiple-choice questions in a Likert scale format. The Likert scale typically has three or more points, where the research evaluator indicates agreement, doubt, or disagreement with the item's statement regarding its ability to measure what the instrument proposes. Additionally, the form had spaces for justifications and comments. To assess the checklist's relevance/representativeness, responses were classified as: 1 = not clear; 2 = slightly clear; 3 = quite clear; and 4 = very clear. These responses were sent to the Statistical Package for the Social Sciences®, version 23.0.[18]

The Content Validity Index (CVI) was then calculated. This index measures the proportion or percentage of experienced professionals who agree on specific aspects of the instrument and its items. The index was calculated by summing the agreement of items marked by experienced professionals on the Likert scale as "3" or "4." Items receiving a score of "1" or "2" were revised or eliminated, according to the sample's suggestions. The formula for evaluating the CVI was "Number of responses 3 or 4 / Total number of responses." Additionally, the binomial test was used to verify agreement, with a value greater than or equal to 80% being defined to consider the item adequate if the test showed no statistical significance ($p > 0.05$). Subsequently, the instrument underwent a round of content analysis.[19]

In the second stage of the study, a pilot test of the checklist was conducted. Each experienced professional accompanied a transport and completed the checklist. Data were collected from 34 adult (>18 years old) clinical patients admitted to the emergency services who were hospitalized in the Red Unit or Stabilization Bay and required IHT for: diagnostic exams, surgical block, hemodynamics, hemodialysis, Coronary Care Unit (CCU), and ICU.

For variables occurring during transport, the checklist developed in the study was filled out to characterize the transports performed on critically ill patients. Missing data during collection were complemented using the patient's electronic medical record. Afterward, these were organized in a spreadsheet using the Statistical Package for the Social Sciences® software.

It is noteworthy that only descriptive-analytical evaluation was performed, and continuous variables were described using their means and standard deviations or median and interquartile range, depending on the variable normality. Categorical variables were described using frequencies and proportions. Qualitative variables, such as sex, were compared using Chi-square and Fisher's exact tests, and continuous variables with Student's T-test and Mann-Whitney (according to variable normality). Finally, statistical tests were defined after performing the Kolmogorov-Smirnov test to verify the normality of the numerical data.

Furthermore, this study is linked to a larger project entitled "Clinical outcomes and management of nursing care for critically ill adult patients: A multicenter study," approved in its ethical and methodological aspects by the institution's Research Ethics Committee under CAAE number: 32560920.0.1001.5327 and opinion number 4.100.693 and 2020-0286. Thus, all research stages followed the recommendations proposed by the National Health Council through Resolutions No. 466/2012, 510/2016, and 580/2018. To ensure the confidentiality of experienced professionals and clarify the research objectives and benefits, the FICF was used. This ensured the anonymity and confidentiality of accessed personal information, in accordance with the General Data Protection Law, in addition to the commitment to use data only for the purposes of the research presented here.[20]

Results

The final version of the safe transport instrument was named "Safe Transport Checklist for Critically Ill Patients - Emergency." It comprises 6 categories related to care, followed by 58 checklist items referring to safety actions to be verified before patient transport. Additionally, there is a space for patient identification, date, and time of transport (Figure 1).

CHECKLIST FOR SAFE TRANSPORT OF CRITICAL PATIENT – EMERGENCY

CHECKLIST☑

TRANSPORTATION RISK ASSESSMENT

Modified Early Warning Scoring (MEWS)							
	3	**2**	**1**	**0**	**1**	**2**	**3**
Heart rate (bpm)		< 40	41-50	51-100	101-110	111-120	> 120
Respiratory rate (lpm)		< 9		0-14	15-20	21-29	> 30
Systolic blood pressure (mmHg)	< 70	71-80	81-100	101-199		> 200	
Level of consciousness				Alert	Confused	Pain response	Unconscious
Temperature (°C)		< 35		35,1-37,8		> 37,8	

LOW RISK → Stable patients, with no clinical changes in the last 48 hours and who are not dependent on oxygen therapy. **MEWS:** 0 to 2 points.
Team: Nursing Technician

MODERATE RISK → Stable patients, without critical changes in the last 24 hours, but with need for hemodynamic monitoring or oxygen therapy. **MEWS:** 3 to 5 points.
Team: Nursing Technician + Nurse or Physician

HIGH RISK → Patients receiving vasoactive drug therapy and/or mechanical ventilation assistance. **MEWS:** ≥ 6 points.
Team: Nurse + Nursing Technician + Physician

TRANSPORT CLASSIFICATION

□ Low Risk □ Moderate Risk □ High Risk

TRANSPORTATION PROFESSIONALS

□ Nurse □ Physician □ Nursing Technician □ Medical Resident

PATIENT

□ Old Unit □ Stabilization Box □ Others:

Identification (patient label):

Date: ____/____/____ Departure: _____:_____

Destination:

- □ Diagnostic tests:
  - □ Tomography
  - □ Echocardiogram
  - □ Magnetic Resonance Imaging
  - □ Radiography
- □ Coronary Care Unit (CCU)
- □ Surgical block
- □ Ambulatory surgical center
- □ Intensive Care Unit (ICU)
- □ Hemodynamics
- □ Hemodialysis
- □ Others

□ Communication with the destination regarding the patient's clinical conditions

□ The elevator was notified

□ The transportation route is safe

CLINICAL EVALUATION/HEMODYNAMIC CARE

Patient's level of consciousness:

- □ Aware/oriented
- □ Hectic
- □ Confused
- □ Comatose
- □ Sedated

□ Large venous access

□ Consent form for contrast examination

□ Drug infusions of vasoactive drugs

RESPIRATORY CARE

O² Support:

- □ Oxygen catheter
- □ Nasal glasses
- □ Venturi mask
- □ O2 mask with reservoir
- □ Non-invasive ventilation (NIV)
- □ Mechanical ventilation

□ Checked cuff pressure

Artificial airway:

- □ Endotracheal tube
- □ Laryngeal mask
- □ Tracheostomy

TUBES AND DRAINS

- □ Indwelling bladder catheter
- □ Nasogastric tube and nasoenteric tube clamped
- □ Enteral nutrition or TPN suspended
- □ Chest drains open in water seal
- □ Checking the fixation of probes and drains

MATERIALS, MEDICATIONS AND EQUIPMENTS

- □ Transport bag (sealed, with medications and materials to handle any eventualities)
- □ Alarms Checked (infusion pump; transport monitor; transport ventilator)
- □ Battery charge checked (infusion pump; transport monitor; transport ventilator)
- □ Defibrillator present if indicated (high risk)
- □ Ambulance with mask and reservoir
- □ O2 torpedo level adequate (minimum 50l)
- □ Transport bed rails elevated
- □ Support for pumps, ventilator and monitors

Figure 1 – Checklist for safe transport of critically ill patients admitted to the emergency services

Of the 34 expert professionals who validated the checklist, 10 were nurses, 8 were nursing technicians, 8 were physicians, and 8 were physiotherapists. Of the total, 23 (67.6%) were female and 11 (32.4%) were male; 25 (73.5%) worked at HCPA and 9 (26.5%) at HNSC.

Table 1 – Content Validity Index of Checklist Items

Items	IVC*	p†	Items	IVC*	p†
Patient			**Materiais e**		
1- Unit	0.88	0.162	**Equipamentos**	0.97	0.133
2- Identification	1	1	1- Transport bag	**0.73**	0.406
3- Date and time	0.91	0.555	2- Alarms checked	0.91	0.554
4- Destination	0.97	0.133	3- Batteries checked	0.97	0.133
5- Communication with	0.94	0.326	4- Defibrillator	0.97	0.133
destination	0.88	0.162	5-Ambulance with mask	0.94	0.326
6- Patient’s level of			6- O2 torpedo level	0.97	0.133
consciousness			7- Bed rails elevated	0.85	0.3
			8- Supports		
Clinical and Hemodynamics	0.82	0.466			
Assessment	**0.67**	0.233	**Risk Assessment**	0.88	0.162
1- Blood pressure (BP)	0.82	0.466	1- MEWS	0.82	0.466
2- Invasive blood pressure (IBP))	0.91	0.554	2- Low risk	0.82	0.466
3- Heart rate (HR))	0.85	0.3	3- Moderate risk	0.82	0.466
4- Vasoactive drug infusions	0.82	0.466	4- High risk	0.97	0.133
5- Peripheral venous access	**0.70**	0.554	5- Transport classification		
6- Presence of central venous					
access			**Transport Professionals**	0.91	0.555
7- Adequate fixation	**0.76**	0.268	6- Nurse	0.91	0.555
	0.91	0.554	7- Physician	0.91	0.555
Ventilatory Assessment	0.94	0.326	8- Nursing technician	**0.76**	0.268
1- Respiratory rate (RR)	**0.61**	0.491	9- Physiotherapist	**0.73**	0.406
2- Oxygen saturation (SpO2)	0.82	0.466	10- Nursing resident	**0.64**	0.354
3- O^2 support requirement			11- Physiotherapy	0.88	0.162
4- Airway suctioning			resident	**0.55**	0.304
5- Artificial airway	0.85	0.3	12- Medical resident		
	0.82	0.466	13- Academic/intern		
Tubes and Drains	0.85	0.3			
1- Indwelling urinary catheter	0.94	0.326			
2- Nasogastric tube	0.91	0.554			
3- Nasoenteric tube	0.85	0.3			
4- Drains					
5- Tubes and drains clamped					
6- Tube and drain securement					

*Item-level Content Validity Index

† binomial test (P> 0.05)

As shown in Table 1, regarding the agreement on the items present in the checklist, only 9 items did not obtain a CVI greater than or equal to 80% and, although, the binomial test was significant (p-value greater than 0.05**)**, the items were revised, adapted, or excluded from the checklist. After expert evaluation, 18 suggestions for adjustments were obtained and duly implemented, as shown in Figure 2.

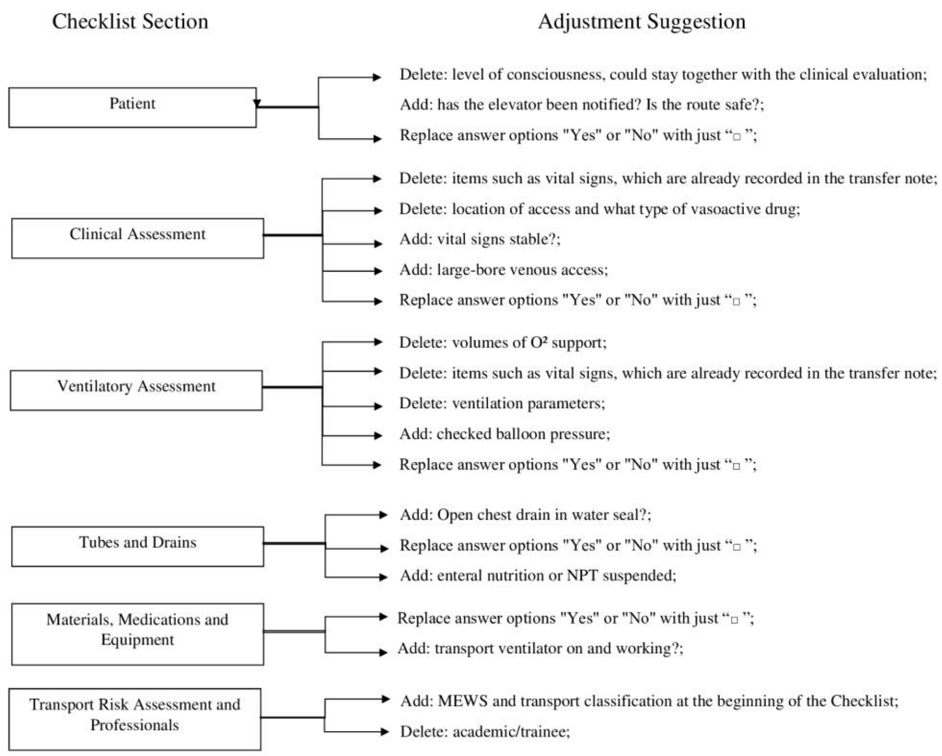

Figure 2 – Suggestions from Judges for Adjustments to Checklist Sections

During the study period, 34 IHTs were analyzed in the studied institutions. Of these, 18 (52.9%) patients were female, and 25 (41.2%) self-declared as White. Regarding education, 18 (42.9%) had 10 to 12 years of education, 24 (70.2%) did not have a partner, and 20 (58.1%) were active. Regarding origin, 16 (47.1%) were from the state's interior. The mean age was 62.2 (± 14.2) years, with a minimum of 30 years and a maximum of 87 years.

Table 2 shows the variables filled in the checklist for critically ill patients who required IHT and were hospitalized in the Stabilization Bay or the Red Unit of the emergency services. It is noteworthy that two patients had incidents during transport, classified as clinical AEs involving the patient, such as: problems with venous access fixation and cardiorespiratory arrest.

Table 2 – Checklist Variables

Checklist Variables		**n= 34**	**100%**
Unit	Red Room	16	47.1
	Stabilization Bay	18	52.9
Destination	Diagnostic exams	17	50
	Coronary Care Unit	1	2.9
	Surgical Block	2	5.9
	Ambulatory Surgery Center	1	2.9
	Intensive Care Unit	5	14.7
	Hemodynamics	5	14.7
	Hemodialysis	3	8.8
Level of consciousness	Conscious	17	50
	Agitated	6	17.6
	Confused	2	5.9
	Comatose	3	8.8
	Sedated	6	17.6
Systolic blood pressure	Mean (SD)/Minimum - Maximum	140 (28.1)/70-191	
Diastolic blood pressure	Mean (SD)/Minimum - Maximum	83.3 (19.4)/30-120	
Heart rate	Mean (SD)/Minimum - Maximum	83.8 (22.4)/44-121	
Invasive blood pressure	No	27	79.4
Vasoactive drugs	No	21	61.8
Peripheral venous access	Yes	32	94.1
Central venous access	Yes	8	23.5
Securement of venous access	Yes	34	100
Respiratory rate	Mean (SD)/Minimum - Maximum	19.4 (5.0)/12-34	
Oxygen saturation	Mean (SD)/Minimum - Maximum	97.1 (1.9)/92-100	
Oxygen support	Yes	9	26.5
Mechanical ventilation	Yes	9	26.5
Airway suctioning	Yes	2	5.9
Tubes	No	22	64.7
Tube management	Yes	12	35.3
Materials	Yes	28	82.4
Medications	Yes	23	67.6
Equipments	Yes	27	79.4
MEWS score	Median (†)	2.5 (1-6)	
Transport classification	Low risk	16	47.1
	Moderate risk	9	26.5
	High risk	9	26.5
Transport professionals	1 Professional	4	11.8
	2 Professionals	14	41.2
	3 Professionals	14	41.2
	4 Professionals	2	5.9
Transport incidents	Yes	2	5.9

†-Interquartile Range

Discussion

Corroborating existing data, the implementation of instruments and protocols was the most frequent strategy used and incorporated into clinical practice by healthcare professionals, as it provides a standardized method for conducting safe IHT, effectively contributing to AE reduction.[21-22]

The checklist construction was based on a previous literature review by the researchers and the adaptation of another instrument, in addition to incorporating the MEWS score. Likewise, expert contributions were fundamental for validating the content and layout. These changes made the instrument objective and facilitated its use by professionals, promoting efficient completion.

In this context, it is important to develop, evaluate, and test an instrument to reduce failures, improve care quality, and minimize harm to critically ill patients. A study reveals aspects to include in an IHT checklist, such as patient identification, hemodynamic and respiratory assessment, and identifying necessary resources for transport.[23] It is noteworthy that identification was the item approved by all expert professionals in this research. Identification errors occur in virtually all phases of care. Therefore, this was the first patient safety goal of the Joint Commission International to prevent AEs. Safe care in transport begins with proper identification.[24]

The scenario of a possible AE occurring during IHT is frequent, as critically ill patients require specific and complex care. An observational study conducted at the University Hospital of Lille, France, shows that during the analysis of 262 transports, AEs occurred in 45.8% of the transports, with 6% being patient-related.[5] In the present study, only 5.9% of AEs occurred in transports; however, the reason was not identified.

To prevent AEs during transport preparation, it is necessary to identify whether the transport is considered "low risk," "moderate risk," or "high risk" to determine the number of professionals involved in the IHT. It was evidenced that 47.1% of the transports were considered "low risk"; therefore, 41.2% were performed by 2 healthcare professionals and 41.2% by 3. Furthermore, literature review data show that at least two trained people are recommended to accompany IHT, and the AE rate during patient transport is lower when more experienced physicians transport critically ill patients.[25]

Developing and analyzing the content of a competent and qualified instrument to record information pertinent to patient safety requires using measurable data.[26] To use measurable data, the checklist used the MEWS score to assess the risks of clinical deterioration in the patient, obtaining a median of 2.5 points. There is a consensus that a MEWS ≥ 5 is associated with imminent clinical instability. However, a historical cohort study conducted at HCPA showed that a cutoff point of 2 presented the best accuracy for this outcome, with moderate discriminatory power, especially for ICU admission.[27-28]

Additionally, the pilot test revealed the patients who most need IHT in the institution 's emergency services: women with a mean age of 62.2 years. However, these results differ from a cross-sectional observational study conducted at the Sultan Abdul Halim Hospital, Malaysia, which shows that in 170 transports, the predominant sex was male (60.6%), with a mean age of 51.9 years.[28] Furthermore, a cohort study conducted at a hospital in Brazil showed that sex, age, and type of admission (clinical or surgical) were not related to AEs, but rather the use of mechanical ventilation, vasoactive drugs, and sedatives.[5]

The pilot test has some limitations, mainly in completing the checklist, as the Red Unit and the Stabilization Bay are ES locations with a high flow of critically ill patients, often demonstrating an overload of healthcare professionals, thus hindering the proper completion of the checklist before the IHT.

With the failures in completing the checklist during the pilot test, there is a need for practical adjustments. It is believed that future studies that continue correcting the checklist and conducting new validity and reliability analyses will contribute to the care process of critically ill patients in IHT, increasing and qualifying the safety of patients and institutions.

Conclusion

The final version of the checklist for safe transport of critically ill patients in the emergency services addresses aspects that must be performed before IHT. Using the Delphi technique, these items were validated with satisfactory indices by professionals experienced in the subject, with a statistically significant agreement equal to or greater than 80% for most items, in addition to presenting a binomial test result of $p < 0.05$. This scientific validation process provides greater credibility regarding its content and the possibility of its use in other institutions. Furthermore, the pilot test highlighted the patients who most require IHT after admission through emergency services.

Finally, developing and validating an instrument to reduce failures and improve care quality, aiming to minimize damage and complications for critically ill patients, is fundamental for healthcare services. It is important to highlight the need to build a care culture focused on co-responsibility and the involvement of the patient and all team members. Therefore, it is recommended that future studies continue the process of adapting and ensuring the instrument's reliability so that it can be employed in care practice.

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