Ciência & Saúde Coletiva
cienciaesaudecoletiva.com.br
ISSN 1413-8123. v.30, n.3
DOI: 10.1590/1413-81232025303.17592024EN

Analysis of the implementation of pre-hospital and hospital care for cases of accidents and violence in Brazil

Adalgisa Peixoto Ribeiro (https://orcid.org/0000-0001-9415-8068) [1]
Graziella Lage Oliveira (https://orcid.org/0000-0002-3387-3583) [1]
Andréa Maria Silveira (https://orcid.org/0000-0002-1180-3875) [1]
Joviana Quintes Avanci (https://orcid.org/0000-0001-7779-3991) [2]

Abstract *The implementation of two guidelines of the National Policy for Reducing Morbidity and Mortality from Accidents and Violence (PNRMAV) regarding pre-hospital care (APH) and hospital care (AH) was analyzed. APH and AH managers from Brazilian municipalities participated in a cross-sectional study (2020-2022), answering a questionnaire via the Redcap platform. Descriptive and comparative analyses were performed. The response rate was 2.3% of the municipalities (n=128), of which 9 were capitals. Capitals presented better results in all items evaluated. In mobile APH, 82.8% of the municipalities and 100% of the capitals use their own transportation for patients. In the capitals, the services receive and refer more cases intersectoral (p-value<0.05). In AH, the capitals make greater use of protocols (p=0.008) and 40% of managers consider the beds adequate for their needs. The implementation of the Systematization of pre-hospital care guideline was good for 59.4% of the municipalities and 77.8% of the capitals, while the Interdisciplinary Assistance to Victims guideline was regular in 45.1% of the municipalities and good in 75% of the capitals. Despite the advances in the implementation of the PNRMAV, it is necessary to strengthen the emergency care networks and optimize the available resources.*
Key words *Accidents, Violence, Health policy*

[1] Departamento de Medicina Preventiva e Social, Faculdade de Medicina, Universidade Federal de Minas Gerais. Av. Prof. Alfredo Balena 190, Santa Efigênia. 30130-100 Belo Horizonte MG Brasil. adalpeixoto@yahoo.com.br
[2] Departamento de Estudos sobre Violência e Saúde Jorge Careli, Escola Nacional de Saúde Pública Sergio Arouca, Fundação Oswaldo Cruz. Rio de Janeiro RJ Brasil.

Introduction

Accidents and violence are essential causes of morbimortality in Brazil and around the world, with significant magnitude and impact on the health of the population in the short and long term.

The absolute number of deaths from external causes (accidents and violence) in the Americas reached 650,000 in 2019, with a higher incidence among men. Interpersonal violence was the leading cause, and road accidents, self-harm, falls, and drowning also stood out[1]. In Brazil, in 2023, 1,468,434 hospital admissions were authorized in the Unified Health System (SUS), classified in the group of injuries and traumas resulting from external causes, representing 11.1% of the total hospitalizations for all causes in the country. Approximately 76% of this total occurred due to accidents (transportation, falls, and others), 3.9% due to violence (abuse, intentionally self-inflicted injuries, and legal interventions), and 4.3% due to sequelae of external causes[2]. Regarding mortality, also in 2023, 152,985 deaths due to external causes were recorded, of which 47% were due to accidents, 39.7% violence, and 0.4% sequelae of external causes[3].

This situation poses unique challenges for the SUS, requiring many outpatient care services, pre-hospital transport, hospitalizations, surgical procedures, intensive care and rehabilitation, with a high economic cost to the system. Besides the measurable cost is the intangible cost resulting from the physical and emotional consequences, which mainly affect young, economically active, Black or brown men[4].

Due to their magnitude and impact, in 2001, these problems were incorporated into the Ministry of Health's agenda by the National Policy for Reducing Morbimortality from Accidents and Violence (PNRMAV)[5], with guidelines ranging from prevention and health promotion to strengthening primary, pre-hospital, and hospital care, and rehabilitation, focusing intersectoral care for victims. Incorporating PNRMAV into the health sector was decisive for planning healthcare for the Brazilian population at different care levels in the SUS, as it requires specialized financial, human, and technological resources for its provision[6].

The most severe cases require pre-hospital (APH) and hospital (AH) care. APH involves the following components: 1) Health Promotion, Prevention, and Surveillance; 2) Primary Health Care; 3) Mobile Emergency Care Service (SAMU) and its Emergency Medical Regulation Centers; 4) Stabilization Room; 5) 24-hour Emergency Care Units (UPA) and the set of 24-hour emergency services[7]. It is crucial to ensure that injuries are treated timely and that sequelae and fatal outcomes are prevented. APH is divided into mobile APH, which aims to reach victims early after an emergency or urgency has occurred, and fixed APH, which is conducted in less complex units such as PHC units and Family Health units, community health workers' teams, specialized outpatient clinics, diagnostic and therapeutic services, but also in hospital emergencies[8].

The AH provides urgent and emergency care and consists of the Hospital Emergency Doors, backup wards, intensive care beds, diagnostic imaging and laboratory services, and priority care lines[9]. Hospital services are responsible for detecting, attending to, recording, and referring safely and protectively accident and violence cases[10].

Even in the face of transformative advances, challenges persist in effectively organizing APH and AH services to address accident and violence cases, with little knowledge about the implementation, quality, and effectiveness of the processes established.

In this sense, service evaluation is a necessary diagnostic and knowledge tool, as it allows analyzing interventions, processes, and results based on legitimate information to enhance management performance and favor change, decision-making, and the pursuit of quality[11]. Thus, this article aims to analyze the implementation of the PNRMAV guidelines on the systematization, expansion, and consolidation of pre-hospital and hospital care for accident and violence cases in Brazilian municipalities.

Methods

This work analyzes part of the quantitative data related to pre-hospital and hospital-level services produced by the national study "Evaluative Research on the Implementation of the National Policy for Reducing Morbimortality due to Accidents and Violence" conducted from 2020 to 2022 based on the evaluative research framework[12-15].

Municipal health managers (or their appointed representatives) from all Brazilian municipalities were invited from July to November 2021 to complete a comprehensive questionnaire evaluating the implementation of the

PNRMAV guidelines[5] through the Redcap platform. This article presents pre-hospital and hospital care data for accident and violence cases.

Regarding the APH, information is analyzed on the nature of service management, availability and sufficient patient transportation and resources/supplies, integration between APH and Primary Care, actions to address accident and violence cases under the APH modality (fixed and mobile), and the type of action of APH services in accident and violence cases. The following were addressed in hospital care: available centers and ICU beds for cases, integration between services, use of protocols and routines for caring for victims, support, and monitoring for violence victims and perpetrators, agreed on flow for coordination between health services in care for cases and referrals to the service network.

Descriptive quantitative data analyses were performed using frequency distribution (crude and relative) per the participating municipalities and capitals, and comparative analyses were performed using Pearson's Chi-square and Fisher's exact test when appropriate. A p-value<0.05 was adopted to verify statistical significance.

Implementation evaluation indicators were constructed from the most representative questions of each guideline and previous studies that assessed the implementation of this Policy[16,17] to evaluate two of the PNRMAV guidelines[5] that concern pre-hospital and hospital care. The levels of implementation of the guidelines were categorized as "poor implementation" when the municipalities had a score in the composite indicator of the guideline at a percentage below 40%; "fair implementation" for those that scored between 40% and 70%; and "good implementation" for those above 70% with minor fluctuations.

A composite indicator was constructed for each guideline evaluated. Regarding the guideline "Systematization, expansion and consolidation of pre-hospital care", the indicator included seven items: (1) The municipality has/performs patient transfer and transportation; (2) Availability of type B, C or D ambulance; (3) Meeting the needs of the level of attention regarding infrastructure and equipment/materials/supplies; (4) Meeting the needs of the municipality in accident and violence cases; (5) Actions for pre-hospital care in accident and violence cases; (6) Care/referral of accident and violence cases by the care network; and (7) Regulatory Center's effectiveness/efficacy for care in accident and violence cases. The composite indicator was constructed from the sum of the scores of the seven items, where yes=2 and no=1, with a total score of 14. Based on the score presented, the performance of each municipality in this guideline was categorized as "Good" for a score ≥10, "Fair" for scores ≥5 and <10, and "Poor" for a score <5.

The guideline "Interdisciplinary and intersectoral assistance to accident and violence victims" provides an assessment of hospital care and its composite indicator was created from the simple sum of 11 items: (1) Care/referral of accident and violence cases by the care level network; (2) Availability of care level network programs that address accident and violence cases in the municipality; (3) Availability of specialized care for violence by the care level for perpetrators, children, adolescents, older adults and women; (4) Actions to prevent and address accidents and violence in the care level services; (5) Frequent adoption of the care line by the care level, as an action strategy, covering promotion, prevention, treatment, and rehabilitation; (6) Intra-sectoral coordination of care for accident and violence victims with services at other care levels; (7) Frequency with which municipal hospital admissions for accident/violence victims have infrastructure, equipment/materials/supplies that meet the needs; (8) Availability of specialized reference centers/services for people in situations of violence and/or who have suffered accidents in the municipal hospital network; (9) Availability of municipal hospital urgent and emergency care services to address accident and violence cases; (10) Availability of specialized outpatient clinics/reference services for the care of people in situations of sexual violence and units that provide for the termination of pregnancy as provided for by law in the municipal hospital care network and; (11) Human resources available in the municipality for the care/hospitalization of accident and violence cases. The scores of the 11 items were added together to build the composite indicator of this guideline, where yes=2 and no=1, with a total score of 22. The categorization of the municipalities' performance in this guideline was classified as follows: "Good" for scores ≥15, "Fair" for scores ≥7 and <15, and "Poor" for scores <7.

The Research Ethics Committee of the National School of Public Health of Fiocruz approved the research with CAAE 27932820.7.0000.5240. All participants signed the Informed Consent Form.

Results

The survey contacted municipal health managers from the country's 5,570 municipalities, of which 128 responded (2.3%), 14 in the North, 46 in the Northeast, 41 in the Southeast, 14 in the South, and 13 in the Midwest. Approximately 18.75% (n=24) of the respondents were from municipalities with up to 99,999 inhabitants, and 81.25% (n=104) were from municipalities with more than 100,000 inhabitants. Nine capitals are included in the latter (Aracaju, Belém, Brasília, Goiânia, Manaus, Porto Alegre, Porto Velho, Rio de Janeiro, and Teresina).

Pre-hospital care

Approximately 78.1% (n=100) of the 128 responding municipalities reported that municipal management prevails among the APH services for accident and violence cases, 18% said they have state management services, 9.4% have services managed by an intermunicipal consortium, 6.2% have a private network associated with the SUS, 5.5% have federal management, and 4.7% have services from the private network. Around 88.9% of the nine responding capitals have municipal management services, 44.0% have state management, and 11.1% are managed by an intermunicipal consortium (data not shown in the table).

We observed that, in fixed APH, among the actions developed for fixed and mobile pre-hospital care for accident and violence cases, the capitals invested more than the municipalities as a whole in creating new services, reorganizing existing ones, expanding bed capacity, and consolidating the care flow, but without significant difference compared to the group of municipalities (Table 1). In mobile APH, the capitals managed to implement more than the municipalities as a whole all the actions researched, but with a significant difference only for reorganizing existing services (p=0.030) and expanding human resources (p=0.010) (Table 1).

Patient transportation using own mechanisms was reported by 82.8% of all municipalities and all participating capitals; 46.9% of the municipalities and 55.6% of capitals work with other services outside municipal management for this patient transportation (data not shown in the table).

Type A ambulances used to transport patients without risk of death, simple removals, and elective procedures are the most common (71.1% of all municipalities and 88.9% of capitals). Type B ambulances, indicated for essential life support, that is, transporting patients with unknown risk of death, are available in more than half of the municipalities participating in the study (66.4% of the total and 77.8% in capitals). Regarding advanced life support, 15.6% of municipalities and 33.3% of capitals had type C ambulances; for type D ambulances, these percentages were 26.6% and 66.7%, respectively. A tiny percentage of the municipalities and capitals reported having type E ambulances, which are aircraft (2.3% of the total and 11.1% of capitals) and type F boats (2.3% of the total and 33.3% of capitals) (data not shown in the table).

Uninterrupted support for radiology laboratories is a reality reported by 49.2% of all municipalities and 88.9% of capitals, as is support for clinical pathology laboratories (38.3% of the total and 55.6% of capitals). Establishing coordination with the hospital network through the Regulatory Center was an action mentioned in the APH by 81.2% of all municipalities and 100% of capitals (data not shown in the table).

We should underscore that the integration of APH and Primary Care services is performed mostly or almost always in 57.8% of all municipalities and 62.5% of the capitals that participated in the study (data not shown in the table).

According to the data in Table 2, the services in the capitals proportionally receive and refer more cases of accidents and violence, intra- and inter-sectorally. We observed statistically significant differences, and capitals referred more cases than the municipalities as a whole to Emergency Care/UPA (p=0.07), specialized outpatient clinics (p=0.042), specialized hospitals (p<0.001), rehabilitation services (p=0.019), rights defense centers (p=0.042), child, adolescent, women and older adult protection police stations (p<0.001), and NGOs (p=0.005).

Hospital care

Most participating municipalities reported that AH services are provided by municipal/district public hospitals (63.2%), followed by private non-profit hospitals that provide services to the SUS (37.6%). Only 20.2% reported having private for-profit hospitals, contrary to what is observed in the capitals (75.0%). All capitals reported having state and municipal public hospitals in their network, and 87.5% reported having private non-profit hospitals affiliated with the SUS (data not shown in the table).

Table 1. Percentage distribution of municipalities and capitals with actions to respond to cases of accidents and violence in Pre-Hospital Care (APH) services by modality. Brazil, 2021.

Modality	Action	Set of Municipalities (n=128)	Capitals (n=9)	p-value
		n (%)	n (%)	
Fixed APH	Creating new services	34 (26.6)	4 (44.4)	0.247
	Reorganizing new services	67 (52.3)	6 (66.7)	0.405
	Expanding beds	38 (29.7)	3 (33.3)	0.817
	Expanding human resources	55 (43.0)	3 (33.3)	0.572
	Expanding supplies	66 (51.6)	4 (44.4)	0.680
	Consolidating care flow	72 (56.2)	6 (66.7)	0.542
	Integrating municipal services	76 (59.4)	5 (55.6)	0.822
	Integrating intermunicipal services	61 (47.7)	3 (33.3)	0.405
Mobile APH	Creating new services	33 (25.8)	5 (55.6)	0.054
	Reorganizing new services	52 (40.6)	7 (77.8)	**0.030**
	Expanding beds	8 (6.2)	2 (22.2)	0.075
	Expanding human resources	34 (26.6)	6 (66.7)	**0.010**
	Expanding supplies	47 (36.7)	6 (66.7)	0.075
	Consolidating care flow	50 (39.1)	6 (66.7)	0.103
	Integrating municipal services	56 (43.8)	6 (66.7)	0.182
	Integrating intermunicipal services	48 (37.5)	4 (44.4)	0.678

Source: Authors.

Table 2. Percentage distribution of Pre-Hospital Care activities in participating municipalities regarding network services addressing accidents and violence. Brazil, 2021.

Services	Receives and refers		p-value
	Set of municipalities (n=128*)	Capitals (n=9)	
	n (%)	n (%)	
PHC Unit/Health Center/Family Health Unit	107 (87.7)	8 (88.9)	0.917
Emergency Care/UPA	66 (54.5)	9 (100.0)	**0.007**
Rescue Service	70 (58.8)	6 (66.7)	0.644
Specialized outpatient clinic for people in situations of violence	31 (25.8)	4 (44.4)	0.226
Other specialized outpatient clinics (mental health, STI/AIDS, and the like)	80 (67.8)	9 (100.0)	**0.042**
General hospital	77 (64.2)	8 (88.9)	0.131
Hospital emergency	94 (77.7)	9 (100.0)	0.111
Specialized hospital	26 (21.5)	7 (77.8)	**<0.001**
Rehabilitation	57 (48.3)	8 (88.9)	**0.019**
Guardianship Council	101 (84.2)	8 (88.9)	0.706
Children and Youth Court	57 (50.0)	6 (66.7)	0.336
Rights Defense Centers	38 (33.0)	6 (66.7)	**0.042**
Educational institutions (early childhood education to higher education)	53 (46.5)	6 (66.7)	0.243
Common Police Station	86 (72.9)	6 (66.7)	0.687
Child and Adolescent Protection Department	21 (18.1)	7 (77.8)	**<0.001**
Women's Police Station	24 (20.5)	7 (77.8)	**<0.001**
Older adult's Police Station	15 (13.0)	6 (66.7)	**<0.001**
Social assistance programs	92 (79.3)	7 (77.8)	0.913
Support groups (community, self-help)	39 (33.6)	5 (55.6)	0.184
Non Governamental Organizations	28 (23.9)	6 (66.7)	**0.005**
Church	51 (43.6)	6 (66.7)	0.180

*The total varied with the responses to the questionnaire items, ranging from 114 to 122. The percentages were calculated regarding this variation in n.

Source: Authors.

Reference services to provide care for accident and violence victims are instead found in the participating capitals than in the municipalities, with a statistically significant difference for reference services to provide care for accident victims (p=0.009), ICU beds for the care of injuries caused by accidents and violence (p<0.001), services that provide legal abortion (p=0.005), and the Toxicological Information and Assistance Center (p=0.016) (Table 3).

All participating capitals and less than half of the municipalities reported effectively using protocols and routines to assist accident and violence victims (p=0.008) (Table 3).

For most respondents, professionals working in hospitalization, outpatient services, and the ICU do not have training or take continuing education courses to address accidents and violence. The situation is similar in the capitals, albeit with slightly higher percentages of those seeking this training to qualify their care. However, only the training of ICU professionals to address accidents was statistically different (p=0.002) (Table 3).

Another aspect assessed was the managers' perception regarding the frequency with which existing hospital beds meet the needs of accident and violence cases. For all municipalities, approximately 40% believe that urgent and emergency care beds, hospital beds in general, beds for adults, and pediatric beds meet the needs most of the time or almost always (data not shown in the table). The municipalities that reported not having backup ICU and pediatric ICU beds accounted for 79.1% of the total, 72.2% did not have adult ICU beds, and 52.2% did not have psychiatric beds. On the other hand, most of the participating capitals (over 70%) assessed that mostly or almost always the available beds meet the needs of accident and violence cases (data not shown in the table).

Integration between services by municipal hospital management is performed mostly or almost always in 60.7% of the participating municipalities and 83.3% of the capitals. Integration between intermunicipal services, in turn, is done mostly in about half of the locations participating in the research (data not shown in the table).

Regarding the support and monitoring provided by hospital services, 48.6% of the municipalities surveyed reported that this support and monitoring is mostly or almost always provided to accident and violence victims, and in 41.1%, to the families of the victims and the teams that provide care (30.2%). The perpetrators of violence are those who receive the least support and monitoring, both for the group of participating municipalities (34%) and the capitals (50%) (Figure 1).

Summary of the evaluation

The composite indicator calculation for the guideline "Systematization, expansion, and consolidation of pre-hospital care" showed that most participating municipalities and capitals reported good implementation, emphasizing the capitals. Meanwhile, the guideline "Interdisciplinary and intersectoral assistance to accident and violence victims" showed fair implementation in all municipalities and good implementation for 75% of the capitals (Figure 2).

Discussion

The results show that implementing the two PNRMAV guidelines that cover pre-hospital and hospital care can be considered "good" for 75% of the participating capitals. However, for all municipalities, performance was different, better in the implementation of the guideline on "Systematization, expansion, and consolidation of pre-hospital care", in which approximately 60% of participants obtained a "good" evaluation, and worse in the guideline on "Interdisciplinary and intersectoral assistance to accident and violence victims", in which 45% received a "fair" evaluation. These results may reflect the difficulties of municipalities in implementing and expanding the service structure and the articulation between the several services comprising the victim care network.

In the previous study conducted in five Brazilian capitals on implementing the PNRMAV guidelines[16], interdisciplinary and intersectoral coordination was already highlighted as a challenge to health services at the APH and AH levels. The authors concluded then that it was necessary to invest in coordination between pre-hospital services, primarily between mobile and fixed units, and primary care, which was invisible in the care provided to victims.

In this study, we observed that care and protection services do not consistently deliver coordinated care actions with established and implemented referral and counter-referral flows. This is evident in the data on the actions performed to assist cases and those that show the coordination for receiving and referring victims. This aspect becomes even more complex for pre-hos-

Table 3. Percentage distribution of available reference centers/services, protocols, routines and training of professionals to address cases of accidents and violence in Hospital Care in participating municipalities and capitals. Brazil, 2021.

Aspects assessed	Set of municipalities (n=128*)	Capitals (n=9**)	p-value
	n (%)	n (%)	
Reference centers/services			
For people in situations of violence	26 (21.8)	4 (50.0)	0.070
For people who have suffered accidents	26 (21.8)	5 (62.5)	**0.009**
ICU beds for treating cases of accidents and violence	15 (12.8)	5 (62.5)	**<0.001**
Units that provide legal abortion	12 (10.9)	3 (50.0)	**0.005**
Toxicology Information and Assistance Centers/CIAtox	24 (21.2)	4 (66.7)	**0.016**
Emergency and urgent care services	99 (85.3)	6 (85.7)	0.978
Bed Regulation Center	60 (54.1)	4 (66.7)	0.545
Protocols and routines			
For assistance in accidents and violence	47 (44.3)	6 (100.0)	**0.008**
Professional training			
From hospital admissions/outpatient services to care for violence	34 (26.6)	4 (44.4)	0.247
From hospital admissions/outpatient services to care for accidents	41 (32.0)	5 (55.6)	0.149
From the ICU to care for violence	9 (7.0)	2 (22.2)	0.105
From the ICU to care for accidents	13 (10.2)	4 (44.4)	**0.002**

*The total varied per response to the questionnaire items, ranging from 106 to 128. The percentages were calculated regarding this "n" variation. **The total varied per response to the questionnaire items, ranging from 6 to 9. The percentages were calculated regarding this "n" variation.

Source: Authors.

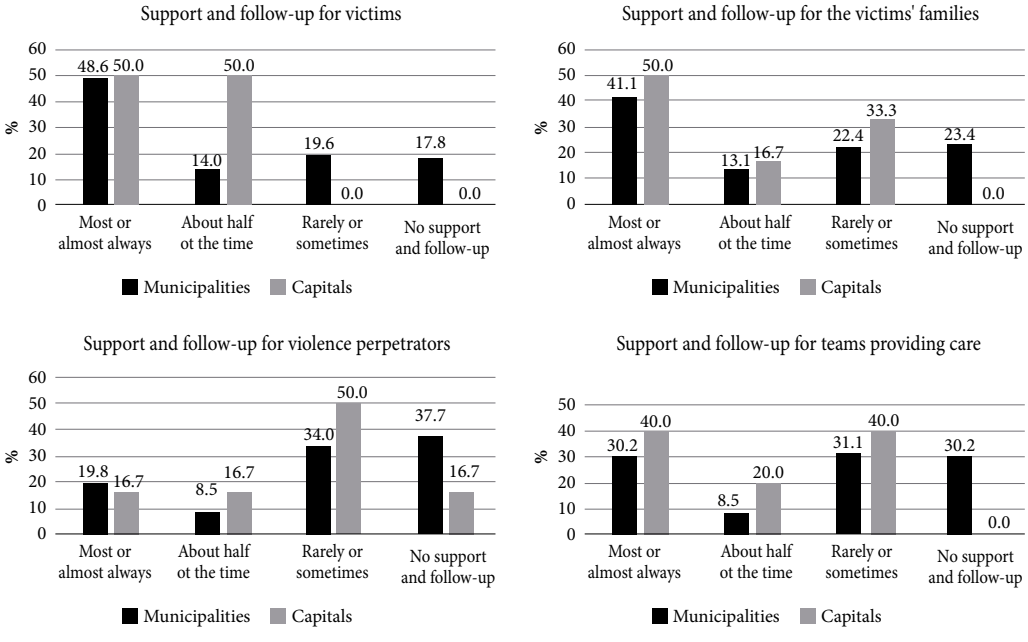

Figure 1. Percentage distribution of the frequency with which the support and monitoring provided meet the needs of accident and violence cases in all participating municipalities and capitals. Brazil, 2021.

Source: Authors.

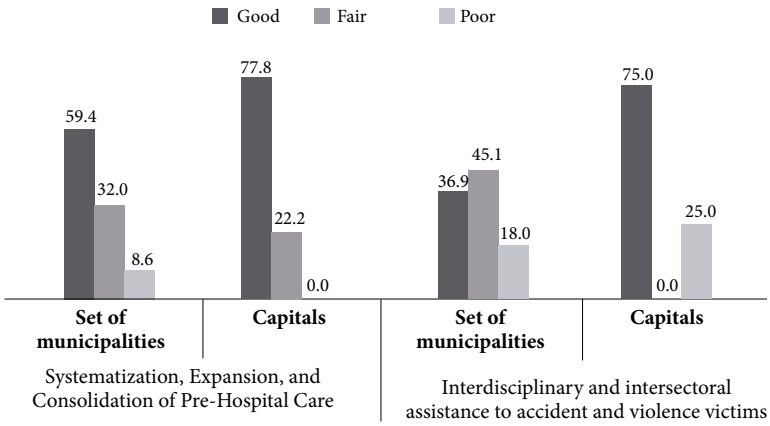

Figure 2. Composite indicator of the Guidelines evaluated, per the set of municipalities and capitals participating in the evaluation.

Source: Authors.

pital and hospital care due to the severe injuries that arrive and the characteristics of the municipalities regarding the installed capacity for care.

Another significant result refers to the predominance of municipal public management in APH and AH services for accident and violence cases. On this point, it is interesting to note what Viana and Iozzi[18] discuss about regionalization in the health system, pointing to a strong concentration of services, resources, and technologies in hub municipalities and those located on the coast of the country, highlighting the immense challenge for comprehensive care in the SUS. This heterogeneous distribution of resources highlights the importance of investing public resources to offer timely and effective services to patients injured by accidents and violence.

Regarding the APH coverage, mainly mobile, we observed a predominance of type A and B ambulances offering essential life support. The lack of advanced support is a concern since most of the municipalities participating in the study are large (over 100 thousand inhabitants). A study on the evolution of mobile APH coverage showed that regardless of the complexity of the support offered, 32.7% of Brazilian municipalities were not covered by this service in 2019, and the North country had the highest percentage of uncovered municipalities[19]. Regarding the support provided by aircraft and vessels, we should underscore that these vehicles are distributed per territorial diversity and demand[20]. Although the high cost of acquiring and maintaining this equipment is recognized, the small percentage of municipalities that reported having aircraft in this study points to a critical gap in hard-to-access areas. Capitals are centers that receive demands from metropolitan regions, indicating the possible insufficiency of transportation for more severe injuries.

Despite having been assessed as having fair implementation in the guideline on interdisciplinary and intersectoral assistance to victims, most municipalities reported receiving and referring patients to services in the health network and other sectors, such as the defense of rights and social assistance, which seems to be an improvement against previous assessments, where the percentage of services that received and referred patients to these areas was around 50%[21,22], lower than that found in the present study.

The lack of specialized beds, such as ICU and psychiatric beds, is a matter of concern in hospital services. The lack of specialized beds limits the capacity to respond to severe cases, aggravated by the assessment that the available resources often do not meet the needs. In this sense, attention is drawn to the fact that the Brazilian hospital network's coverage for care for many health conditions that require highly complex care is considered average for 90.3% of the population and low for 9.7%, with different access levels depending on the region[23]. Regarding psychiatric beds, the Brazilian Mental Health Care Policy is based on the principle of dehospitalization. It advocates the construction and strengthening of a Psychosocial Care Network

(RAPS)[24], which has resulted in a progressive reduction in psychiatric beds. Short hospitalizations in psychiatric beds in general hospitals are recommended where continuous care in a hospital environment is indicated. However, the implementation of these beds is hampered by stigma, lack of adequate structure, and training of managers and clinical care staff[25].

Another challenge concerns regional differences and differences between municipalities within each region. The small proportion of ICU beds in municipalities may be related to not all having hospital units. The Brazilian hospital system mainly consists of units with up to 50 beds, which is inefficient regarding organization and ensuring comprehensive healthcare[26]. As discussed by Santos and Rodrigues[27], most Brazilian municipalities are considered small (more than two-thirds have less than 20,000 inhabitants, and almost 90% have less than 50,000 inhabitants). This population contingent is insufficient to justify the existence of a general hospital that can treat emergency cases and perform surgeries or even a specialty outpatient clinic. Municipalities in this situation can only offer Primary Care services and need to refer their users to larger centers (often distant), making care for victims more challenging and expensive[28]. This fact points to the need to organize emergency care based on the logic of regional networks, which concentrate material and professional resources for emergency care in centers that can provide qualified care to patients from municipalities referred to them. Such networks would have intensive care beds appropriate to the regional size, triage, referral, and counter-referral protocols, the creation of regulatory complexes, diagnostic support services (clinical pathology and imaging), and qualified professionals[29,30].

We should underscore that violence and the care resulting from its occurrence gains visibility in emergency services, requiring greater agility and coordination in the care provided[10]. Shared management and participatory management tools, the creation of reference teams, matrix support, devices such as the expanded and shared clinic, and continuing education are care management tools in the National Hospital Care Policy (PNHOSP). These tools allow for redirecting hospital care practices by strengthening processes that aim at humanization, comprehensive care, and attention, with a broader view of the health concept[31].

Municipalities seem to struggle to use protocols to assist accident and violence victims effectively. Considering that this is a light technology, the low percentage of municipalities that responded having implemented them (44.3%) indicates technical difficulties in organizing services, which may imply a loss of streamlined use of a scarce resource. In the assessment previously conducted in five capitals, most hospital services reported having routines and protocols for providing care to accident and violence victims. However, although these instruments were available to the teams, few professionals used them[32]. This fact indicates that this difficulty persists fifteen years after the first assessment results. Protocols help manage overcrowding in emergency departments and reduce patient length of stay and the time required for medical decision-making and diagnostic tests. They also help avoid analgesia and antibiotic therapy delays, increasing safety, lowering costs, and decreasing mortality[33-35].

As observed for the protocols, little or no assistance to perpetrators of violence was again identified in the present evaluation (37.5% of municipalities do not provide assistance). In the previously performed evaluation for care to older adults, only 13.7% of pre-hospital services provided follow-up to perpetrators of violence[21].

Regarding training professionals in the hospital network to care for victims, a lower percentage of municipalities reported having offered training, which was more frequent regarding care for accident cases. This action was seemingly neglected over time since, in the previous assessment, 82% of the services surveyed reported performing some activity in this regard[22].

Some limitations of this study are: 1) The response of only 2.3% of the Brazilian municipalities invited to participate in the study and 2) The difficulties inherent in a cross-sectional study, which makes it impossible to establish a causal relationship between the events investigated. Regarding the number of municipalities and capitals that participated in the study, the low response rate may reveal a context of significant challenges in responding to accidents and violence in the country. It may also reflect the health context of the period. The research data collection occurred when ties were broken, and services were adapted to meet the demands of a public health emergency, the COVID-19 pandemic. At this time, there were intense difficulties in contacting the municipalities, which included outdated contact information, a lack of willingness on the part of representatives to respond to the survey due to fears and politi-

cal tensions, and a lack of time on the part of respondents, which was scarce due to the demands of attending to COVID-19 cases. These situations contributed to a low response rate. They prevented us from outlining a setting more representative of the country, although the study included the participation of municipalities from all five macro-regions.

Final considerations

The results achieved provide clues about advances and setbacks that need to be addressed in order to improve care for accident and violence victims in the country. The best implementation scenario for all the items evaluated observed for the capitals, compared to the group of municipalities for both APH and AH, indicates that it is essential to strengthen regional arrangements that can provide material and professional resources and coordinate processes in order to better serve victims in regions with a large number of smaller municipalities or that cannot meet the requirements for implementing their structure, especially regarding mobile pre-hospital care and even care at the hospital level.

Besides regional arrangements, the most critical points and those with the lowest level of implementation observed are related to referral and counter-referral and intra- and intersectoral coordination to ensure resolution and comprehensive care for people affected by such relevant causes of morbidity and mortality.

Considering the results observed, we suggest that essential measures should be taken, including streamlining the regionalization of services with well-established referral and counter-referral flows, agreeing on flows with the expanded network of protection for minority groups, increasing the number of services that perform legal abortions in municipalities with hospital capacity to do so, greater emphasis on training ICU professionals address violence and accidents, and support and monitoring for the teams that provide this care.

Collaborations

AP Ribeiro, GL Oliveira and JQ Avanci contributed to the conception, design, analysis, interpretation of data and approval of the final version. AM Silveira contributed to the writing of the article and approval of the final version; all authors performed the critical review and approval of the version to be published.

References

1. Pan American Health Organization (PAHO). *Leading causes of death and disease burden in the Americas: Noncommunicable diseases and external causes*. Washington, D.C.: PAHO; 2024.
2. Brasil. Ministério da Saúde (MS). DATASUS. *Morbidade Hospitalar do SUS* [Internet]. [acessado 2024 set 2]. Disponível em: https://datasus.saude.gov.br/acesso-a-informacao/morbidade-hospitalar-do-sus-sih-sus.
3. Brasil. Ministério da Saúde (MS). *DATASUS. Estatísticas Vitais* [Internet]. [acessado 2024 set 2]. Disponível em: https://datasus.saude.gov.br/mortalidade-desde-1996-pela-cid-10.
4. Instituto de Pesquisa Econômica Aplicada (Ipea) *Atlas da violência 2023*. Brasília: Ipea, FBSP; 2023.
5. Brasil. Ministério da Saúde (MS). Portaria MS/GM nº 737, de 16 de maio de 2001. Institui a Política nacional de redução da morbimortalidade por acidentes e violências (PNRMAV). *Diário Oficial da União* 2001; 18 maio.
6. Minayo MCS, Souza ER, Assis SG. É preciso retomar com força a Política Nacional de Redução da Morbimortalidade por Acidentes e Violência (PNRMAV). *Cien Saude Colet* 2023; 2(6):1598.
7. Brasil. Ministério da Saúde (MS). Portaria nº 1.600, de 7 de julho de 2011. Reformula a Política Nacional de Atenção às Urgências e institui a Rede de Atenção às Urgências no Sistema Único de Saúde (SUS). *Diário Oficial da União* 2011; 8 jul.
8. Brasil. Ministério da Saúde (MS). Portaria GM/MS nº 2048, de 5 de novembro de 2002. Aprova o Regulamento Técnico dos Sistemas Estaduais de Urgência e Emergência. *Diário Oficial da União*; 2002.
9. Brasil. Decreto nº 7.508, de 28 de junho de 2011. Regulamenta a Lei no 8.080, de 19 de setembro de 1990, para dispor sobre a organização do Sistema Único de Saúde - SUS, o planejamento da saúde, a assistência à saúde e a articulação interfederativa, e dá outras providências. *Diário Oficial da União* 2011; 29 jun.
10. Deslandes SF. O atendimento às vítimas de violência na emergência: "prevenção numa hora dessas?". *Cien Saude Colet* 1999; 4(1):81-94.
11. Brousselle A, Champagne F, Contandriopoulos AP, Hartz Z. *Avaliação: conceitos e métodos*. Rio de Janeiro: Editora Fiocruz; 2011.
12. Contandriopoulos AP, Champagne F, Denis JL, Pienault R. A avaliação na área de saúde: Conceitos e métodos. In: Hartz Z, organizador. *Avaliação em Saúde: dos Modelos Conceituais à Prática na Análise da Implantação de Programas*. Rio de Janeiro: Editora Fiocruz; 1997.
13. Worthen BR, Sanders JR, Fitzpatrick JL. *Avaliação de Programas: concepções e práticas*. São Paulo: Editora Gente; 2004.
14. Scriven M. Metaevaluation. In: Mathison S, organizer. *Encyclopedia of evaluation*. Thousand Oaks: Sage; 2005.
15. Contandriopoulos AP. Avaliando a institucionalização da avaliação. *Cien Saude Colet* 2006; 11(3):705-711.
16. Minayo MCS, Deslandes SF. *Análise diagnóstica da política nacional de saúde para redução de acidentes e violências*. Rio de Janeiro: Editora Fiocruz; 2007.

17. Souza ER, Correia BSC. Construção de indicadores avaliativos de políticas de atenção à saúde da pessoa idosa vítima de acidentes e violência. *Cien Saude Colet* 2010; 15(6):2753-2762.
18. Viana ALA, Iozzi FL. Enfrentando desigualdades na saúde: impasses e dilemas do processo de regionalização no Brasil. *Cad Saude Publica* 2019; 35:e00022519.
19. Malvestio MAA, Sousa RMC. Desigualdade na atenção pré-hospitalar no Brasil: análise da eficiência e suficiência da cobertura do SAMU 192. *Cien Saude Colet* 2022; 27(7):2921-2934.
20. O'Dwyer G, Konder MT, Reciputti LP, Macedo C, Lopes MGM. O processo de implantação do Serviço de Atendimento Móvel de Urgência no Brasil: estratégias de ação e dimensões estruturais. *Cad Saude Publica* 2017; 33(7):e00043716.
21. Deslandes SF, Souza ER. Atendimento pré-hospitalar ao idoso vítima de violência em cinco capitais brasileiras. *Cien Saude Colet* 2010; 15(6):2775-2786.
22. Deslandes SF, Souza ER, Minayo MCS, Costa CR-BSF, Krempel M, Cavalcanti ML, Lima MLC, Moysés SJ, Leal ML, Carmo CN. Diagnostic characterization of services providing care to victims of accidents and violence in five Brazilian state capitals. *Cien Saude Colet* 2006; 11(2):385-396.
23. Chaves AC, Andrade EIG, Santos AF. Configuração das Redes de Atenção à Saúde no SUS: análise a partir de componentes da atenção básica e hospitalar. *Cien Saude Colet* 2024; 29(6):e18392022.
24. Brasil. Ministério da Saúde (MS). Portaria GM nº 3.088, de 23 de dezembro de 2011. Institui a Rede de Atenção Psicossocial para pessoas com sofrimento ou transtorno mental e com necessidades decorrentes do uso de crack, álcool e outras drogas. *Diário Oficial da União* 2011; 26 dez.
25. Echebarrena RC, Silva PRF. Leitos de saúde mental em hospitais gerais: o caso do Rio de Janeiro. *Saude Debate* 2020; 44(n. esp. 3):223-234.
26. Carpanez LR, Malik AM. O efeito da municipalização no sistema hospitalar brasileiro: os hospitais de pequeno porte. *Cien Saude Colet* 2021; 26(4):1289-1298.
27. Santos DL, Rodrigues PHA. Política, atenção primária e acesso a serviços de Média e Alta Complexidade em pequenos municípios. *Saude Debate* 2014; 38(103):744-755.
28. Rodrigues PHA, Santos IS. *Gestão Municipal*. Rio de Janeiro: FGV Management; 2011;
29. Torres SFS, Belisário SA, Melo EM. A Rede de Urgência e Emergência da Macrorregião Norte de Minas Gerais: um estudo de caso. *Saude Soc* 2015; 24(1):361-373.
30. Souza FEA, Nune, EFPA, Carvalho BG, Mendonça FF, Lazarini FM. Atuação dos hospitais de pequeno porte de pequenos municípios nas redes de atenção à saúde. *Saude Soc* 2019; 28(3):143-156.
31. Moreira TNC. *A atuação da Atenção Hospitalar como ponto da Rede de Enfrentamento à Violência contra Criança* [dissertação]. Rio de Janeiro: Universidade do Estado do Rio de Janeiro; 2022.
32. Minayo MCS, Deslandes SF. Análise da implantação da rede de atenção às vítimas de acidentes e violências segundo diretrizes da Política Nacional de Redução da Morbimortalidade sobre Violência e Saúde. *Cien Saude Colet* 2009; 14(5):1641-1649.
33. Parenti N, ReggianiI ML, Iannone P, Percudani D, Dowding D. A systematic review on the validity and reliability of an emergency department triage scale, the Manchester Triage System. *Int J Nurs Stud* 2014; 51(7):1062-1069.
34. Jesus APS, Okuno MFP, Campanharo CRV, Lopes MCBT, Batista REA. Manchester Triage System: assessment in an emergency hospital service. *Rev Bras Enferm* 2021; 74(3):e20201361
35. Soster CB, Anschau F, Rodrigues NH, Silva LGA, Klafke A. Protocolos de triagem avançada no serviço de emergência: revisão sistemática e metanálise. *Rev LatinoAm Enferm* 2022; 30:e3511.

Article submitted 15/09/2024
Approved 03/10/2024
Final version submitted 05/10/2024

Chief editors: Maria Cecília de Souza Minayo, Romeu Gomes, Antônio Augusto Moura da Silva