

Evaluation Indicators for the Implementation of the Accident and Violence Prevention Policy Guidelines

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Abstract *Twenty years after the creation of the National Policy for Reducing Morbimortality from Accidents and Violence, these events remain significant causes of morbimortality in the country. This study presents the process of developing a set of evaluative indicators for the implementation of the guidelines of the Policy. Its formulation initially involved the analysis of indicators from a previous study and subsequently employed the nominal group technique. The proposed indicators were then applied to a database containing responses to questionnaires completed by managers and health professionals from municipal SUS services across the three care levels (Primary, Hospital, and Rehabilitation). We found that most municipalities were classified as having a fair level of policy implementation; some guidelines achieved good implementation, while others showed unsatisfactory performance, particularly those related to training and research. The indicators highlighted important issues regarding the policy, its progress, and its weaknesses. Therefore, this proposal would be considered to provide support to municipalities in evaluating the policy as a whole or in specific guidelines.*

Key words *Indicators, Violence, Accidents, Morbidity, Mortality*

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Introduction

Violence in its several manifestations has been recognized as a global public health problem of concern¹, affecting individual and collective health, reducing quality of life, and posing challenges to the health sector².

In Brazil, this perception led to the formulation of the National Policy for Reducing Morbimortality from Accidents and Violence (PNRMAV)³ in 2001, five years after the World Assembly held by the World Health Organization identified it as a priority theme², and one year before the World Report on Violence and Health 2002. This policy was a strategic response by the government to confront and mitigate the impacts of violence and accidents on the health of the Brazilian population.

The PNRMAV was developed with well-defined guidelines and objectives to integrate and coordinate efforts at all government levels for effective action in combating violence. Its guidelines³ include promoting and adopting healthy behaviors and environments; monitoring the occurrence of accidents and violence; systematizing, expanding, and consolidating pre-hospital care; providing interdisciplinary and intersectoral assistance to victims; structuring and consolidating recovery and rehabilitation care; training human resources; and offering support for developing studies and research.

In 2007, a detailed diagnostic analysis was conducted in five Brazilian municipalities (Curitiba, Federal District, Manaus, Recife, and Rio de Janeiro), and its findings were compiled in the book "Diagnostic Analysis of the National Health Policy for Reducing Accidents and Violence"⁴. This analysis used triangulation of quantitative and qualitative methods, including interviews with managers and applying a questionnaire. It covered all the policy guidelines and focused on pre-hospital, hospital, and rehabilitation care. This assessment highlighted significant progress in the PNRMAV implementation but also pointed out important challenges, such as the need for greater intra- and inter-institutional integration and the provision of continued resources to support the actions implemented. One aspect that deserves to be highlighted is the non-inclusion of Primary Care, which did not yet have the importance in the country it has today.

Other studies were conducted to analyze elements that underpin the policy, such as notification and recording of intrafamily violence and sexual exploitation of children and adolescents⁵, evaluation of the mobile pre-hospital emergen-

cy service^{6,7}, diagnostic analysis of rehabilitation services that assist accident and violence victims⁸⁻¹⁰, evaluation of care for children and adolescents in situations of violence¹¹, and studies that analyzed the integration between the health sector and other government sectors within the PNRMAV in the Federal District¹² and specific research on the application of the policy in the state of Amapá¹³.

Twenty-three years of the PNRMAV implementation require evaluating its performance¹⁴. Thus, Brazil, aligned with international recommendations, now faces the challenge of reassessing and strengthening the PNRMAV in the face of social changes and the progressive dismantling of public policies.

This article aims to present the development of a set of indicators to evaluate the implementation of the PNRMAV guidelines, their combination into composite indicators that summarize the guidelines, and another composite indicator that aggregates these guidelines and allows an evaluation by states and municipalities to understand the advances and barriers and propose ways to strengthen prevention actions and improve the public health response to violence and accidents.

The context of elaborating indicators

The proposal presented here was part of the "Evaluative Research of the National Policy for Reducing Morbimortality from Accidents and Violence", a request from the Ministry of Health (MS) to the Jorge Careli Department of Studies on Violence and Health of the National School of Public Health (CLAVES/ENSP) at Fiocruz. This study began in 2020 and aimed to evaluate the PNRMAV implementation process from its enactment in 2001 to 2023, based on its seven Guidelines.

This evaluative research used the triangulation of quantitative and qualitative methods. It involved five stages: (1) Analyzing data on violence and accidents under the national information systems (Mortality Information System-SIM, Hospital Information System-SIH and National System of Notifiable Diseases-SINAN); (2) Developing and applying a questionnaire to collect data in Brazilian municipalities on the implementation of the policy; (3) Developing evaluative indicators; (4) Selecting municipalities to participate in the qualitative stage based on the indicators developed in stage 3; and (5) Conducting interviews with managers and professionals.

The Research Ethics Committee of the National School of Public Health approved the project, respecting the precepts established in Resolutions N° 466/2012 and 510/2016 (N° 4732884, on 05/25/2021). The participants signed the Informed Consent Form.

The construction process of indicators

Developing the indicators was based on two data sources: (1) the indicators originating from previous research carried out by CLAVES and found in the publication “Diagnostic Analysis of the National Health Policy for Reducing Accidents and Violence”⁴; and (2) the questionnaire developed by the research team in collaboration with the Ministry of Health for this study.

The questionnaire included the following blocks of questions: (1) Identification of the service and program; (2) Existing structure for conducting actions guided by the PNRMAV; (3) Organization and coordination in the existing network between services and programs; (4) Training in human resources for addressing cases of victimization by accidents and violence; (5) Monitoring the occurrence of accidents and violence; (6) Actions to prevent accidents and violence and promote healthy environments and a culture of peace.

The nominal group technique¹⁵ was applied based on the two sources mentioned, through which a group of experts, led by the research coordinator, exhaustively discussed the representative elements of each guideline, which, again, were the structuring axes of the evaluation from start to finish. At the end of this process, which mobilized the team from May 2021 to January 2022, 14 simple indicators were built for primary care, 27 for the pre-hospital and hospital care level, and 22 for the rehabilitation care level. These were grouped into five, six, and five composite indicators, respectively, one for each guideline evaluated at each care level (Chart 1).

Chart 2 shows the guidelines, the number of questionnaire questions, and the calculation method. Chart 3 summarizes the procedure for calculating the composite indicators for the healthcare levels. Each was calculated by adding the indicators relevant to each care level. The evaluation scores were categorized as good, fair, or poor per the PNRMAV implementation level at each of these levels (Chart 2).

Applying the evaluative indicators

As mentioned, developing indicators also served as a basis for selecting ten other municipalities that, besides the capitals, would be the target of the qualitative stage of the research. In order to calculate the indicators for selecting municipalities, we adopted the data collected through the questionnaire, which was applied online via the Redcap platform between July and November 2021. The questionnaire access links were sent to the municipal health secretaries of the 5,570 Brazilian municipalities. They were asked to forward them to the municipal officials responsible for the three care levels. Thus, the indicators were analyzed based on the data from the 531 questionnaires answered by 379 municipalities (290 for Primary Care, 128 for Pre-hospital/Hospital Care, and 113 for Recovery/Rehabilitation Care). They were stratified by region and municipality size (large $\geq 100,000$; small $\leq 99,999$). All analysis procedures were performed using the SPSS 24 statistical package (IBM Corp, 2016)¹⁶.

Results

Table 1 shows the classification of the municipalities that participated in the survey regarding the implementation of the PNRMAV guidelines by healthcare level. This table shows the results of the composite indicator that aggregates all the guidelines and the indicators that represent them, and the condition of implementation of the Policy in the responding municipalities. When analyzing the composite indicator, we found that most of these territories were classified as *fair* in implementing the Policy. In Primary Care, we observed a higher proportion of municipalities with *good* implementation (43.4%), while Pre-Hospital/Hospital Care recorded the lowest (18.0%).

The implementation of Guideline 1, measured by a single indicator related to the “mobilization of the media and society regarding accidents and violence”, shows that more than 50% of municipalities performed well at all care levels.

Regarding Guideline 2, assessed using three indicators that encompass “the reporting of cases of violence by services”, “the creation of inter- and intra-sector reporting flows”, and “the improved quality of information”, the municipalities’ performance was also classified as *good*. Primary Care stood out in this guideline with a percentage of 84.7%.

Chart 1. PNRMAV guidelines evaluated and number of indicators per guideline, by care level.

Care level	PNRMAV guidelines evaluated	Number of indicators used to evaluate the Guideline						
		Guideline 1	Guideline 2	Guideline 3	Guideline 4	Guideline 5	Guideline 6	Guideline 7
Primary	1, 2, 4, 6 and 7	1	3	--	6	--	3	1
Pre-hospital and hospital	1, 2, 3, 4, 6 and 7	1	3	7	11	--	4	1
Rehabilitation	1, 2, 5, 6 and 7	1	3	--	--	15	2	1

Source: Authors.

Guideline 3 refers to pre-hospital care and includes seven indicators to assess “infrastructure, equipment, materials/supplies, care/referral of cases and effectiveness of the Regulatory Center”. In its assessment, approximately 60% of the municipalities showed *good* implementation for the Pre-Hospital Care level.

When analyzing “infrastructure, equipment, materials/supplies, human resources, care/referral of cases, prevention actions, use of protocols and care lines, availability of referral centers and specialized services, and intersectoral coordination”, Guideline 4 showed a different pattern from the previous ones. Twelve indicators were selected to evaluate it and most municipalities had a good classification regarding Primary Care (56.9%), while most had *fair* implementation (45.1%) in Hospital Care. Notably, this guideline does not include Recovery/Rehabilitation services.

Guideline 5 precisely concerns Recovery/Rehabilitation Care and covers 15 indicators related to “infrastructure, equipment, materials/inputs, human resources, care/referral of cases, prevention actions, use of routines/protocols and availability of specialized outpatient clinics/services”. In this regard, the most significant portion of services was classified as having *fair* implementation (44.2%).

Guideline 6 refers to “human resource training” and was assessed using four indicators. Most municipalities performed poorly. Once again, Primary Care stood out regarding the other levels, but still with a relatively low percentage of 36.4% of municipalities with *good* implementation.

Finally, the assessment of Guideline 7 involved only one indicator that aimed to verify the “availability of partnerships with universities in developing research, teaching, and extension activities”, which also performed poorly, exceeding 80% of services with this classification, and

highlighting Pre-Hospital and Hospital Care, with 91.4%.

Graph 1a presents the results of the composite indicator for Primary Care per size of the country’s municipalities and regions. The data by size (Brazil) show that the *good* category predominated in large municipalities (68.0%) and the *fair* category in small municipalities (54.6%). In Pre-hospital/Hospital Care, the *fair* classification predominated in evaluating municipalities of any size (Graph 1b), with percentages of 45.8% and 53.8% in small and large municipalities, respectively. Approximately 33.7% of small municipalities showed *poor* implementation at this care level. The *fair* category also predominated in the assessment of Recovery/Rehabilitation Care in more than 50% of municipalities of both sizes (Graph 1c). At this care level, 28.6% of smaller localities had *poor* implementation. Comparing the levels, we observed a more significant disparity between small and large municipalities.

When observing the distribution of municipalities by size and region, we can see that most of the smaller ones had a *fair* assessment of the PNRMAV implementation at all care levels (Graphs 1a to 1c), except for the North, where the *poor* category in Recovery/Rehabilitation Care stood out. The evaluation of *good* performance of Primary Care predominated in all regions among the larger municipalities, except for the South, which was mostly *fair*.

At the pre-hospital/hospital level, respondents from the Northeast and Midwest considered the implementation *good*. This care level was assessed as *fair* in the Southeast and South. In the North, the same percentage of municipalities were classified as *fair* and *poor* (40% each). A similar result was observed for large municipalities regarding the Recovery/Rehabilitation level: the Northeast and Midwest had most municipalities with *good* implementation. At the same time, the *fair* category prevailed in the other regions.

Chart 2. Evaluative indicators of the PNRMAV guidelines (D).

D	Indicator	N° of questions	Categories	Points*	Classification	Care level
1	1: Mobilization of the media and civil society for accidents/violence by municipal management	4	Once or more times a year = 2; every two or more = 1; was never done = 0	0-8	Score ≥ 6 good; Score ≥ 3 and <6 fair; Score < 3 poor	PC, HC, RC
2	1: Reporting of violence (SINAN) in services	1	Yes, most services; = 2; Yes, few services; = 1; They do not report = 0	0 or 2	Score = 2 good; Score = 0 poor	
	2: Agreement on the intra/intersectoral flow of reporting violence in services	2	Yes = 2; No = 0	0-4	Score ≥ 3 good; Score ≥ 1 and <3 fair; Score < 1 poor	
	3: Actions to improve the quality of information in the public network and standardized epidemiological surveillance actions for accidents and violence	2	Once or more times a year = 2; every two or more = 1; was never done = 0	0-4	Score ≥ 3 good; Score ≥ 1 and <3 fair; Score < 1 poor	
Guideline 2 composite indicator		To build the composite indicator related to guideline 2 we added up the scores of the 3 indicators (total score = 6) that make up the guideline and then proceeded to the classification per the: Score ≥ 4 → indicator = 2 (good); Score ≥ 2 and <4 → indicator = 1 (fair); Score < 2 → indicator = 0 (poor)				
3	1: Municipality care has/performs transfer and transport of patients	2	Yes in one of the questions = 2; Yes in none = 0	0 or 2	Score = 2 good; Score = 0 poor	HC
	2: Availability of a type B or C, or D ambulance medical transport vehicle	3	Yes in one of the questions = 2; Yes in none = 0	0 or 2	Score = 2 good; Score = 0 poor	
	3: Meeting the care level's needs regarding infrastructure, equipment/materials/inputs	4	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-8	Score ≥ 6 good; Score ≥ 3 and <6 fair; Score < 3 poor	
	4: Meeting the municipality's needs in accident/violence cases	1	Yes = 2; No = 0	0 or 2	Score = 2 good; Score = 0 poor	
	5: Availability of pre-hospital care actions in accident/violence cases	8	If in each pair (accidents, violence) of variables at least one was equal to “yes” = 2; If in each pair both variables were “no” = 0. 04 new variables based on the evaluation of the pairs.	0-8	Score ≥ 6 good; Score ≥ 3 and <6 fair; Score < 3 poor	
	6: Care/referral of accident/violence cases through the care network	9	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-18	Score ≥ 13 good; Score ≥ 6 and <13 fair; Score < 6 poor	
	7: Regulatory center's effectiveness in addressing accident/violence cases	1	Yes = 2; No = 0	0 or 2	Score = 2 good; Score = 0 poor	
Guideline 3 composite indicator		To build the composite indicator related to guideline 3 we added up the scores of the 7 indicators (total score = 14) that make up the guideline and then proceeded to the classification per the: Score ≥ 10 → indicator = 2 (good); Score ≥ 5 and <10 → indicator = 1 (fair); Score < 5 → indicator = 0 (poor)				

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Chart 2. Evaluative indicators of the PNRMAV guidelines (D).

D	Indicator	N° of questions	Categories	Points*	Classification	Care level
4	1: Care/referral of accident/violence cases through the care level network	4 and 21	Yes = 2; No = 0	8 and 42	PC: Score ≥ 6 good; Score ≥ 3 and <6 fair; Score < 3 poor HC: Score ≥ 28 good; Score ≥ 15 and <28 fair; Score < 15 poor	PC, HC
	2: Availability in the municipality of care level network programs that address accident/violence cases	3	Yes = 2; No = 0	0-6	Score ≥ 4 good; Score ≥ 2 and <4 fair; Score < 2 poor	PC
	3: Availability of specialized care for violence for perpetrators, children, adolescents, older adults, and women	5	Yes = 2; No = 0	0-10	Score ≥ 7 good; Score ≥ 3 and <7 fair; Score < 3 poor	PC, HC
	4: Prevention and care actions for accidents/violence in services	3	Once or more times a year = 2; every two or more = 1; was never done = 0	0-6	Score ≥ 4 good; Score ≥ 2 and <4 fair; Score < 2 poor	PC, HC
	5: Frequency of adoption of the care line as an action strategy, covering promotion, prevention, treatment, and rehabilitation	1	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-2	Score = 2 good; Score = 1 fair Score = 0 poor;	PC, HC
	6: Intrasectoral coordination of care for accident/violence victims with services at other care levels	2 and 1	Yes = 2; No = 0	0-4; 0 or 2	PC: Score ≥ 3 good; Score ≥ 1 and <3 fair; Score < 1 poor HC: Score = 2 good; Score = 0 poor	PC, HC
	7: Frequency with which municipal hospital admissions for accident/violence victims have infrastructure, equipment/materials/inputs that meet the needs	2	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-4	Score ≥ 3 good; Score ≥ 1 and <3 fair; Score < 1 poor	HC
	8: Availability of specialized reference services for people in situations of violence and/or who have suffered accidents in the municipal hospital network	3	Yes = 2; No = 0	0-6	Score ≥ 4 good; Score ≥ 2 and <4 fair; Score < 2 poor	

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Discussion

This article presents the process of developing a set of indicators to assess the implementation of the PNRMAV and its application in a database originating from the “Evaluative Research of the National Policy for Reducing Morbimortality from Accidents and Violence” developed by CLAVES at the request of the Ministry of Health.

The results of the application of the indicators reveal the complexity of implementing the PNRMAV guidelines in the Brazilian munic-

palities studied. Most of them were classified as having *fair* implementation of the policy, with some areas showing *good* performance, such as Primary Care. The most significant shortcomings are in the Pre-Hospital/Hospital Care and Recovery/Rehabilitation Care levels.

We observed that Guideline 2 of the PNRMAV, “Monitoring the occurrence of accidents and violence”, performs best in evaluating most municipalities. At the same time, Guideline 7, “Support for developing studies and research”, had the highest proportion of locations with poor implementation. Likewise, Guideline 6,

Chart 2. Evaluative indicators of the PNRMAV guidelines (D).

D	Indicator	Nº of questions	Categories	Points*	Classification	Care level
4	10: Availability of specialized outpatient clinics/reference services for the care of people in situations of sexual violence and of units that provide for the termination of pregnancy as provided for by law in the municipal hospital network	2	Yes = 2; No = 0	0-4	Score ≥ 3 good; Score ≥ 1 and <3 fair; Score < 1 poor	HC
	11: Human resources available in the municipality for hospital care in accidents/violence cases	6	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-12	Score ≥ 9 good; Score ≥ 4 and <9 fair; Score < 4 poor	
	12: Availability of routines/protocols in municipal hospital care for accident/violence victims	1	Yes = 2; No = 0	0 or 2	Score = 2 good; Score = 0 poor	
	Guideline 4 composite indicator					
To build the composite indicator related to guideline 4 for PRIMARY CARE we added up the scores of the 6 indicators (total score = 12) that make up the guideline and then proceeded to the classification per the: Score $\geq 9 \rightarrow$ indicator = 2 (good); Score ≥ 4 and $<9 \rightarrow$ indicator = 1 (fair); Score $< 4 \rightarrow$ indicator = 0 (poor) To build the composite indicator related to guideline 4 for PRE-HOSPITAL AND HOSPITAL CARE we added up the scores of the 11 indicators (total score = 22) that make up the guideline and then proceeded to the classification per the: Score $\geq 15 \rightarrow$ indicator = 2 (good); Score ≥ 7 and $<15 \rightarrow$ indicator = 1 (fair)						

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“Human resource training”, was critical at all care levels. An important discussion is in order regarding these two issues. The respondents indeed referred to the actions (or lack thereof) in their specific units because, from a broader perspective, there was a considerable investment in the organization of refresher, specialization, master’s, and doctoral courses focused on issues of violence and health by the Ministry of Health, Fiocruz, and several Universities. The latest ten-year review of the country’s academic production showed a flourishing field of knowledge with over 2,500 published articles on the several expressions of violence, many written by researchers and professionals working at several care levels¹⁷. Two hypotheses can be raised on this topic: the first is that the academic community’s connection with services remains deficient. The second is that the frontline professionals who were interviewed complain about the lack of continuing education that cannot be filled by academic material alone. However, it must be said that both complement and feed off each other. The lack of investment in professional training and research on the issues at

hand limits the effectiveness of interventions and the generation of evidence to guide political decision-making. These findings corroborate previous studies highlighting the relevance of ongoing training for health professionals¹⁸ and investment in research as essential components for the success of violence prevention policies¹⁹.

Media and society mobilization (Guideline 1) appears to be an area where notable progress has been made, with more than half of the municipalities showing good implementation. This can be attributed to the growing awareness of the importance of violence prevention, driven by sensitization and advocacy campaigns by civil society organizations and government agencies. In this sense, we observe progress vis-à-vis the previous study^{4,8}, which indicated poor investment in this guideline.

Monitoring accidents and violence (Guideline 2) was considered *good* in most municipalities at all three care levels. We should underscore, however, that despite this performance, we observe a significant percentage of municipalities in which its implementation was *fair* or *poor*. In the diagnostic analysis mentioned above⁴, the

Chart 2. Evaluative indicators of the PNRMAV guidelines (D).

D	Indicator	Nº of questions	Categories	Points*	Classification	Care level
5	1: The municipality's recovery/rehabilitation care has/performs patient transfer and transportation	4	If item 1 was "yes" = 2; if item 0 or 1 was equal to "no" and item 2 or 3 was equal to "yes" = 1; if all items were equal to "no" = 0		Score = 2 good; Score = 1 fair Score = 0 poor	RC
	2: Meeting the municipality's recovery/rehabilitation needs regarding infrastructure	1	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-2	Score = 2 good; Score = 1 fair Score = 0 poor	
	3: Availability of sufficient technological resources for the recovery/rehabilitation of accident/violence victims in the municipality	3	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-6	Score ≥ 4 good; Score ≥ 2 and <4 fair; Score < 2 poor	
	4: Provision of orthoses, prostheses, means of transportation, medicines, supplies and equipment for accident/violence victims by the municipal recovery/rehabilitation management	5	mostly And often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-10	Score ≥ 7 good; Score ≥ 3 and <7 fair; Score < 3 poor	
	5: Care/referral of accident/violence cases by recovery/rehabilitation services to the municipal health network	2	Provides care and refers = 2; Only provides care or only refers = 1; Does not provide care or does not refer OR is not available in the municipality = 0	0-4	Score ≥ 3 good; Score ≥ 1 and <3 fair; Score < 1 poor	
	6: Meeting the municipality's recovery/rehabilitation needs in accident/violence cases	1	Yes = 2; No = 0	0-2	Score = 2 good; Score = 0 poor	
	7: Human resources available in the municipality to assist with recovery/rehabilitation in accident/violence cases	4	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0 a 8	Score ≥ 6 good; Score ≥ 3 and <6 fair; Score < 3 poor	
	8: Actions of the municipality's MANAGEMENT of recovery/rehabilitation care	4	Yes = 2; No = 0	0-8	Score ≥ 6 good; Score ≥ 3 and <6 fair; Score < 3 poor	
	9: Actions of the CONSORTIUM MANAGEMENT of the municipality's recovery/rehabilitation care	8	Yes = 2; No = 0; if both were "no" new variable = 0; if for each pair evaluated at least 1 was 2 → new variable = 2;	0-8	Four new variables were generated with this process. Score ≥ 6 good; Score ≥ 3 and <6 fair; Score < 3 poor	
	10: Availability of specialized care for VIOLENCE through hospital care for adults, children, adolescents, older adults, and women	5	Yes = 2; No = 0	0-10	Score ≥ 7 good; Score ≥ 3 and <7 fair; Score < 3 poor	

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authors highlighted the need to raise awareness among managers and professionals regarding the importance of quality records for adequate monitoring. This challenge persists, especially

in smaller municipalities. Furthermore, there is a lack of a national registry of emergency care for accidents and violence. The VIVA Survey, an initiative in place since 2006 and has had six edi-

Chart 2. Evaluative indicators of the PNRMAV guidelines (D).

D	Indicator	Nº of questions	Categories	Points*	Classification	Care level
5	11: Availability of specialized care for ACCIDENTS through hospital care for adults, children, adolescents, older adults, and women	5	Yes = 2; No = 0	0-10	Score ≥ 7 good; Score ≥ 3 and <7 fair; Score < 3 poor	RC
	12: Prevention and care actions for accidents/violence in the municipality's rehabilitation care services	3	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-6	Score ≥ 4 good; Score ≥ 2 and <4 fair; Score < 2 poor	
	13: Frequency of adoption of the care line by rehabilitation care	1	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-2	Score = 2 good; Score = 1 fair Score = 0 poor	
	14: Availability of routines/protocols in municipal hospital care for accident/violence victims	1	Yes = 2; No = 0	0 or 2	Score = 2 good; Score = 0 poor	
	15: Intrasectoral coordination of rehabilitation care for accident and violence victims with services at other care levels	6	mostly and often = 2; approximately half of the time = 1; almost never and sometimes = 0	0-12	Score ≥ 9 good; Score ≥ 4 and <9 fair; Score < 4 poor	
Guideline 5 composite indicator		To build the composite indicator related to guideline 5 we added up the scores of the 15 indicators (total score = 30) that make up the guideline and then proceeded to the classification per the: Score ≥ 21 → indicator = 2 (good); Score ≥ 10 and <21 → indicator = 1 (fair); Score < 10 → indicator = 0 (poor)				

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tions (2006, 2007, 2009, 2011, 2014, and 2017), aims to fill this gap by providing data on the magnitude of these conditions that reach selected emergency services. Its last edition, however, was in 2017. The seventh edition of the survey was conducted in 2024, which, for the first time, involved a representative sample of emergency services that address accidents and violence. It included Brazilian capitals and municipalities in the metropolitan regions of the capitals and the rural region of the country.

The systematization, expansion, and consolidation of pre-hospital care (Guideline 3) has been well implemented in most municipalities. Notably, the deficiencies highlighted in the previous diagnostic analysis⁴ persist, especially regarding the coordination of the several levels of services. The same result was observed in a study conducted in the state of Santa Catarina⁷, which evaluated the mobile emergency care service (SAMU) in 2013-2014. In this study, besides the lack of coordination and integration between the services that offer rescue and salvage, the authors reported difficulties related

to the information system, which is constantly changing and incapable of offering regular and structured subsidies for management.

Regarding the implementation of interdisciplinary and intersectoral assistance to accident and violence victims, as provided for in Guideline 4, its performance was considered *fair* or *poor* in more than 60% of the municipalities that responded to the questionnaire regarding the hospital level. The assessment also shows deficiencies in the performance of care aimed at recovery and rehabilitation (Guideline 5), classified as *fair* or *poor* in 60% of the municipalities, and this was the weakest point in the provision of services provided by the PNRMAV. Problems highlighted in several assessments persist, such as lack of services, infrastructure, personnel, information, communication, coordination^{4,8}, resources, and access to training and continuing education¹⁰. Therefore, we assessed that this guideline is the least widespread in the country, with professionals still lacking specific training that transcends the biological vision for addressing cases of after-effects resulting from

Chart 2. Evaluative indicators of the PNRMAV guidelines (D).

D	Indicator	N° of questions	Categories	Points*	Classification	Care level
6	1: Availability of continuing education/training for care level professionals on health promotion and prevention of violence/accidents	2	Yes = 2; No = 0	0-4	Score ≥ 3 good; Score ≥ 1 and <3 fair; Score < 1 poor	PC, HC
	2: Conducting ongoing education actions on accidents and violence at the care level for healthcare	2, 2, 1	Once or more times a year = 2; every two or more = 1; was never done = 0	0-4; 0-2	PC and HC: Score ≥ 3 good; Score ≥ 1 and <3 fair; Score < 1 poor RC: Score = 2 good; Score = 1 fair; Score = 0 poor	PC, HC, RC
	3: Availability of ongoing education/training actions to monitor violence cases	2	Once or more times a year = 2; every two or more = 1; was never done = 0	0-4	Score ≥ 3 good; Score ≥ 1 and <3 fair; Score < 1 poor	
	4: Availability of ATLS training for hospital care professionals	1	Yes = 2; No = 0	0 or 2	Score = 2 good; Score = 0 poor	HC
	Guideline 6 composite indicator	To build the composite indicator related to guideline 6 for PRIMARY CARE we added up the scores of the 3 indicators (total score = 6) that make up the guideline and then proceeded to the classification per the: Score $\geq 3 \rightarrow$ indicator = 2 (good); Score ≥ 1 and $<3 \rightarrow$ indicator = 1 (fair); Score $< 1 \rightarrow$ indicator = 0 (poor) To build the composite indicator related to guideline 6 for PRE-HOSPITAL AND HOSPITAL CARE we added up the scores of the 4 indicators (total score = 8) that make up the guideline and then proceeded to the classification per the: Score $\geq 6 \rightarrow$ indicator = 2 (good); Score ≥ 3 and $<6 \rightarrow$ indicator = 1 (fair); Score $< 3 \rightarrow$ indicator = 0 (poor) To build the composite indicator related to guideline 6 for REHABILITATION CARE we added up the scores of the 2 indicators (total score = 4) that make up the guideline and then proceeded to the classification per the: Score $\geq 3 \rightarrow$ indicator = 2 (good); Score ≥ 1 and $<3 \rightarrow$ indicator = 1 (fair); Score $< 1 \rightarrow$ indicator = 0 (poor)				
7	1: Conducting research, teaching, and extension	3	If “yes” for “research” = 2 If “no” for “research” and “yes” for education or university extension = 1; If “no” for the three items = 0		Score = 2 good; Score = 1 fair Score = 0 poor	PC, HC, RC

*The score was obtained by adding up the questions related to the item. In situations where only one question was used, the score could have 3 (0, 1, 2) or 2 (0 or 2) values as a response only, not being the sum of the questions.

Source: Authors.

accidents and violence and with services that are poorly coordinated with the rest of the care and support network for these victims.

We should mention a positive point identified in this research, which was the growth and organization of Primary Care, by far the best performer in implementing the policy according to this research, different from a previous assessment already mentioned⁴.

Analyzing data by size and region of municipalities highlights significant disparities in the

PNRMAV implementation. Small municipalities, especially in the North and Northeast, tend to have fair implementation, while large municipalities, especially in the South and Southeast, display varying implementation levels. These differences can be attributed to several factors, including the availability of infrastructure, technological and human resources, management capacity, and political prioritization. These findings reinforce the difficulties in spreading the PNRMAV throughout Brazil.

Chart 3. Calculation and categorization of composite indicators created to assess the PNRMAV implementation level per care levels.

Primary care	Pre-hospital and hospital care	Rehabilitation care
To construct the composite indicator related to PRIMARY CARE, we added up the scores of the 5 indicators (total score = 10) related to this care level and then the classification was conducted per the: Score $\geq 7 \rightarrow$ indicator = 2 (good) Score ≥ 3 and $<7 \rightarrow$ indicator = 1 (fair) Score $< 3 \rightarrow$ indicator = 0 (poor)	To construct the composite indicator related to PRE-HOSPITAL AND HOSPITAL CARE, we added up the scores of the 6 indicators (total score = 12) related to this care level and then the classification was conducted per the: Score $\geq 9 \rightarrow$ indicator = 2 (good) Score ≥ 4 and $<9 \rightarrow$ indicator = 1 (fair) Score $< 4 \rightarrow$ indicator = 0 (poor)	To construct the composite indicator related to REHABILITATION CARE we added up the scores of the 5 indicators (total score = 10) related to this care level and then the classification was conducted per the: Score $\geq 7 \rightarrow$ indicator = 2 (good) Score ≥ 3 and $<7 \rightarrow$ indicator = 1 (fair) Score $< 3 \rightarrow$ indicator = 0 (poor)

Source: Authors.

Conclusions

Strengthening monitoring and evaluation mechanisms ensures that violence and accident prevention policies are effective and evidence-based. The data generated by applying the indicators is significant and unprecedented in identifying the strengths and critical points related to implementing this policy, whose issues significantly impact the morbidity of the Brazilian population. From a broader perspective, we highlight the progress of this study in constructing evaluation indicators as management tools.

The results of this study provide important insights into the PNRMAV implementation in Brazilian municipalities and highlight areas that require additional attention and investment. Addressing the identified challenges requires a comprehensive and collaborative approach involving the health sector and other relevant areas, such as Education, Justice, and Social Assistance.

Adopting the proposed indicators yielded valuable results, showing that they can be used to guide health managers' and governments' strategic decisions. By identifying areas where the PNRMAV has been successfully implemented and those that need investment, managers can direct resources and interventions more effectively, prioritizing critical areas that deserve more investment in all aspects. Understanding regional specificities and the different health-care levels allows for a more adapted and per-

sonalized approach to address local challenges. These are the areas where the focus should be.

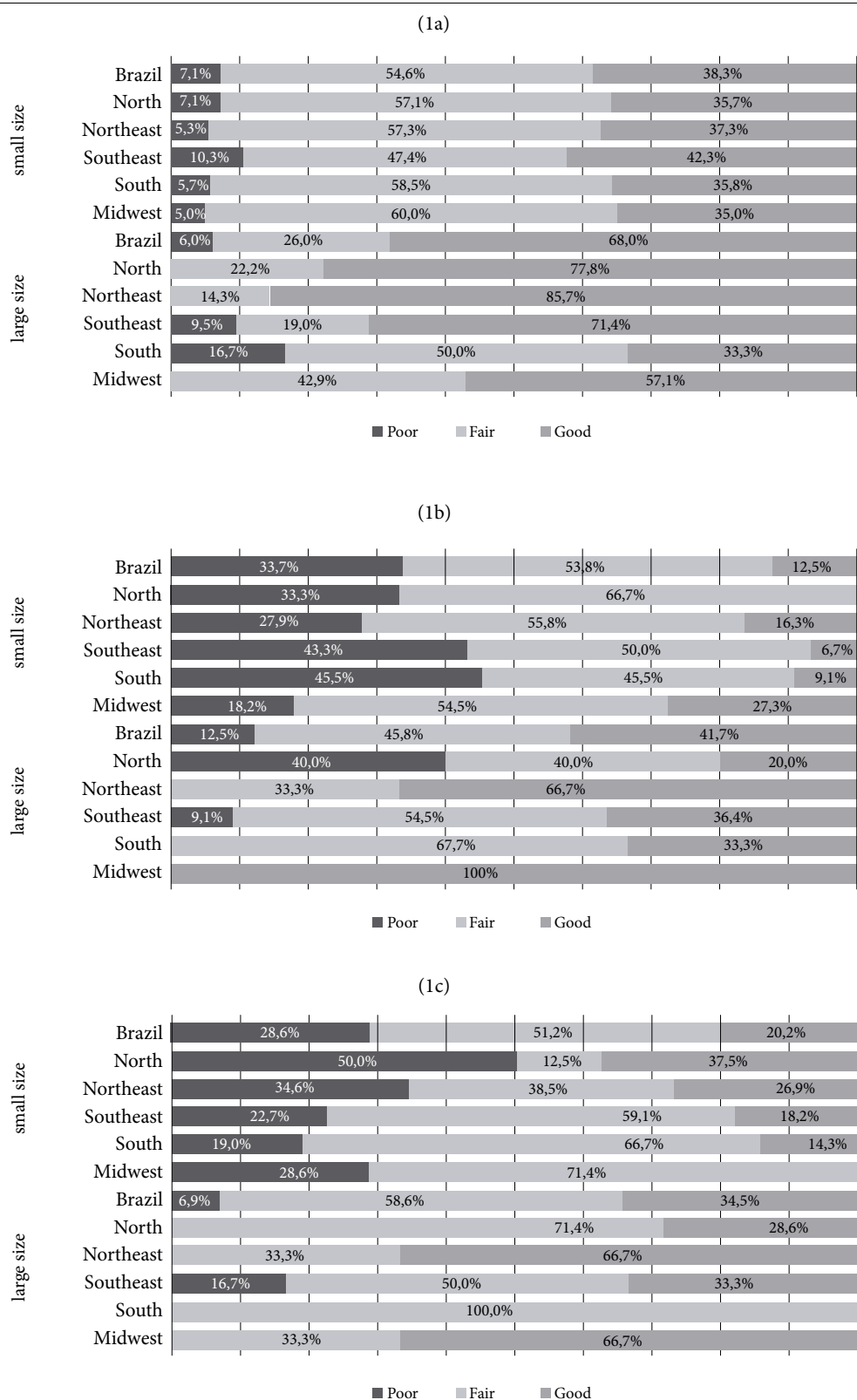
Employing indicators also supports accountability, helping governments monitor progress in implementing the PNRMAV and identify successful and deficient areas, which is essential to promote effective and accountable governance. Thus, we understand that this assessment strengthens the commitment to preventing accidents and violence in the country and improving the quality of health services that serve victims of these events, contributing to societal well-being.

We should underscore a significant limitation of the study. Brazil was experiencing the COVID-19 pandemic when the research was conducted, which greatly hindered the response of professionals and managers to the questionnaire and interview, as they were overwhelmed with providing care to patients. Likewise, there was a lack of political support from the Ministry of Health, which was experiencing hardships, culminating in dismantling the Violence Surveillance and Prevention Technical Area. This disinvestment and lack of technical and financial support were evident in the research findings. The teams that had been trained were demobilized, and several professionals were transferred, leaving only those who individually adopted the issue as a social commitment to continue working, often in silence, keeping the flame of their commitment to the promotion of life and peace.

Table 1. Classification of municipalities regarding the implementation of PNRMAV guidelines, according to indicators and level of care.

PNRMAV guidelines	Primary care				Pre-hospital and hospital care				Rehabilitation care			
	Poor	Fair	Good	Total	Poor	Fair	Good	Total	Poor	Fair	Good	Total
	%	%	%	N	%	%	%	N	%	%	%	N
Composite indicator of the implementation of the PNRMAV guidelines	6.9	49.7	43.4	290	29.7	52.3	18.0	128	23.0	53.1	23.9	113
Guideline 1 - Promoting the adoption of safe and healthy behaviors and environments	17.0	17.3	65.7	289	32.4	12.6	55.0	111	22.3	17.0	60.7	112
Guideline 2 - Monitoring the occurrence of accidents and violence	2.4	12.8	84.7	288	7.8	27.0	65.2	115	23.4	22.4	54.2	107
Guideline 3 - Systematization, expansion and consolidation of pre-hospital care	-	-	-	-	8.6	32.0	59.4	128	-	-	-	-
Guideline 4 - Interdisciplinary and intersectoral assistance to victims of accidents and violence	5.5	37.6	56.9	290	18.0	45.1	36.9	122	-	-	-	-
Guideline 5 - Structuring and consolidation of services focused on recovery and rehabilitation	-	-	-	-	-	-	-	-	17.7	44.2	38.1	113
Guideline 6 - Human resources training	40.0	23.6	36.4	280	55.6	33.3	11.1	108	52.0	29.6	18.4	98
Guideline 7 - Support for the development of studies and research	86.9	4.5	8.6	290	91.4	2.3	6.3	128	83.2	8.8	8.0	113

Source: Authors.



Graph 1. Evaluative indicators of the implementation of the PNRMAV in Primary care (1a), Pre-hospital and Hospital care (1b) and Rehabilitation care (1c), according to region and size of the municipality..

Source: Authors.

Collaborations

LW Pinto: conception, analysis, and writing of the manuscript, review of the final manuscript. CMFP Silva: conception, analysis, and writing of the manuscript. ER Souza: conception, writing of the manuscript, review of the final manuscript.

Data availability statement

The data sources used in the research are indicated in the body of the article.

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