BOCA
BOLETIM DE CONJUNTURA

TRAUMA PREVENTION AND FIRST AID: EDUCATIONAL STRATEGIES FOR RECOGNIZING EMERGENCIES AND PROMOTING SAFE ACTIONS

PREVENÇÃO DE TRAUMAS E PRIMEIROS SOCORROS: ESTRATÉGIAS EDUCATIVAS PARA O RECONHECIMENTO DE EMERGÊNCIAS E A PROMOÇÃO DE AÇÕES SEGURAS

PREVENCIÓN DE TRAUMATISMOS Y PRIMEROS AUXILIOS: ESTRATEGIAS EDUCATIVAS PARA RECONOCER EMERGENCIAS Y FOMENTAR ACCIONES SEGURAS

https://doi.org/10.56238/bocav25n84-009

Data de submissão: 06/10/2026 **Data de publicação:** 06/11/2026

Camila Petersen de Carvalho[1], João Paulo Sanches Bermudes[2], Viviane Canhizares Evangelista de Araújo[3], Aiessa Cristina Pereira[4], Ariádine Augusta Maiante[5], Lorrana de Sousa Landim Xavier[6], Gabriella Bueno Moreira[7], Silvia Helena Soares Gianini[8], Thaís Érika Giaxa Medeiros[9], Maria Fernanda Lomba Corsini[10], Kelly Cristina Encide de Vasconcelos Donadai[11], Rodolfo de Oliveira Medeiros[12]

ABSTRACT

Introduction: Traumatic and unintentional injuries, including road traffic crashes, falls and drowning, remain among the leading causes of death and disability worldwide, particularly among children, adolescents and young adults. Most of these events are foreseeable and preventable, and the interval between the incident and the arrival of professional care is often decisive. In this context, education in injury prevention and first aid turns laypeople into active links in the chain of survival. Objective: To analyze, in light of recent literature, educational strategies for trauma prevention and first aid training, with emphasis on early recognition of emergencies and the adoption of safe actions by the lay public. Methods: Narrative literature review guided by the PICo framework, with searches in PubMed/MEDLINE, SciELO and LILACS (through the Virtual Health Library), complemented by reports from international

[1] E-mail: camilapetersendecarvalho20@gmail.com
[2] E-mail: joaopbermudes@gmail.com
[3] E-mail: vi.evangelista@gmail.com
[4] E-mail: aiepereira.med@gmail.com
[5] E-mail: ariadinemaiante@hotmail.com
[6] E-mail: lorranaslandimxavier@gmail.com
[7] E-mail: gabi.bmoreira10@gmail.com
[8] E-mail: silgianini@hotmail.com
[9] E-mail: thaiserika@hotmail.com
[10] E-mail: m.fcorsini@hotmail.com
[11] E-mail: kelly_encide@yahoo.com.br
[12] E-mail: rodolfomedeiros@unimar.br

agencies and Brazilian legislation, prioritizing publications from 2020 to 2026. Twelve sources were selected and organized in a summary chart. Results: The evidence indicates that structured programs combining brief theoretical content with supervised practice improve knowledge, skills and willingness to act among children, teachers and other laypeople. Schools stand out as a privileged setting, and trained teachers act as multipliers. Bleeding control and basic life support courses show consistent gains, although skills decline within a few months. Technologies such as serious games and digital materials perform comparably to traditional teaching and broaden reach. Conclusion: Education in trauma prevention and first aid should be continuous, practice-based, adapted to age and context, and integrated with public policy. Gaps remain regarding skill retention and impact on real clinical outcomes, which calls for systematic program evaluation.

Keywords: First Aid. Accident Prevention. Wounds and Injuries. Health Education. Teacher Training.

RESUMO

Introdução: Lesões traumáticas e não intencionais — incluindo acidentes de trânsito, quedas e afogamentos — permanecem entre as principais causas de morte e incapacidade em todo o mundo, afetando, de modo particular, crianças, adolescentes e jovens adultos. A maioria desses eventos é previsível e evitável, sendo que o intervalo entre a ocorrência do incidente e a chegada de atendimento profissional é, frequentemente, um fator decisivo. Nesse contexto, a educação em prevenção de lesões e primeiros socorros transforma leigos em elos ativos na "cadeia de sobrevivência". Objetivo: Analisar, à luz da literatura recente, estratégias educativas voltadas à prevenção de traumas e ao treinamento em primeiros socorros, com ênfase no reconhecimento precoce de emergências e na adoção de condutas seguras pelo público leigo. Métodos: Revisão narrativa da literatura, estruturada com base na estratégia PICo, com buscas nas bases de dados PubMed/MEDLINE, SciELO e LILACS (por meio da Biblioteca Virtual em Saúde), complementadas por relatórios de agências internacionais e pela legislação brasileira; priorizaram-se publicações do período entre 2020 e 2026. Doze fontes foram selecionadas e organizadas em um quadro síntese. Resultados: As evidências indicam que programas estruturados, que combinam conteúdos teóricos concisos com prática supervisionada, aprimoram o conhecimento, as habilidades e a disposição para agir entre crianças, professores e outros leigos. As escolas destacam-se como um ambiente privilegiado, no qual professores capacitados atuam como multiplicadores. Cursos sobre controle de hemorragias e suporte básico à vida demonstram ganhos consistentes, embora as habilidades tendam a diminuir após alguns meses. Tecnologias como jogos educativos (*serious games*) e materiais digitais apresentam resultados comparáveis aos métodos de ensino tradicionais, além de ampliarem o alcance. Conclusão: A educação em prevenção de traumas e primeiros socorros deve ser contínua, baseada na prática, adaptada à faixa etária e ao contexto, e integrada a políticas públicas. Ainda existem lacunas no que diz respeito à retenção de habilidades e ao impacto em desfechos clínicos reais, o que reforça a necessidade de uma avaliação sistemática desses programas.

Palavras-chave: Primeiros Socorros. Prevenção de Acidentes. Ferimentos e Lesões. Educação em Saúde. Capacitação de Professores.

RESUMEN

Introducción: Las lesiones traumáticas y no intencionales —incluidos los accidentes de tráfico, las caídas y los ahogamientos— siguen siendo una de las principales causas de muerte y discapacidad en todo el mundo, especialmente entre niños, adolescentes y adultos jóvenes. La mayoría de estos sucesos son previsibles y evitables, y el intervalo entre el incidente y la llegada de atención profesional suele ser decisivo. En este contexto, la formación en prevención de lesiones y primeros auxilios convierte a las personas sin formación sanitaria profesional en eslabones activos de la «cadena de supervivencia». Objetivo: Analizar, a la luz de la literatura reciente, las estrategias educativas para la prevención de traumatismos y la capacitación en primeros auxilios, haciendo hincapié en el reconocimiento temprano de las emergencias y la adopción de medidas seguras por parte de la población general. Métodos: Revisión narrativa de la literatura basada en el marco PICo, con búsquedas en PubMed/MEDLINE, SciELO y LILACS (a través de la Biblioteca Virtual en Salud), complementada con informes de organismos internacionales y legislación brasileña; se priorizaron publicaciones del periodo 2020-2026. Se seleccionaron doce fuentes, que fueron organizadas en un cuadro resumen. Resultados: La evidencia indica que los programas estructurados —que combinan contenidos teóricos breves con práctica supervisada— mejoran los conocimientos, las habilidades y la disposición a actuar entre niños, docentes y otras personas sin formación sanitaria profesional. Las escuelas se perfilan como un entorno privilegiado, donde los docentes capacitados actúan como agentes multiplicadores. Los cursos sobre control de hemorragias y soporte vital básico muestran mejoras consistentes, aunque las habilidades tienden a disminuir al cabo de unos meses. Tecnologías como los «juegos serios» (*serious games*) y los materiales digitales ofrecen resultados comparables a los métodos de enseñanza tradicionales, además de ampliar el alcance. Conclusión: La educación en prevención de traumatismos y primeros auxilios debe ser continua, basada en la práctica, adaptada a la edad y al contexto, e integrada en las políticas públicas. Persisten lagunas en cuanto a la retención de habilidades y el impacto en los resultados clínicos reales, lo que subraya la necesidad de una evaluación sistemática de estos programas.

Palabras clave: Primeros Auxilios. Prevención de Accidentes. Heridas y Lesiones. Educación para la Salud. Formación Docente.

1 INTRODUCTION

Traumatic and unintentional injuries are a public health problem of considerable magnitude. Estimates from the Global Burden of Disease 2021 study, which covered 371 diseases and injuries in 204 countries and territories, confirm the weight of injuries in lost years of healthy life, with effects that fall disproportionately on younger populations and on low- and middle-income countries (GBD 2021 DISEASES AND INJURIES COLLABORATORS, 2024). A dedicated analysis of unintentional injuries showed that the absolute number of new cases rose by about 13.5% between 1990 and 2021, reaching approximately 504 million events, even though the age-standardized mortality rate fell by almost 40% over the same period; falls accounted for the largest burden, and mortality showed a marked peak in children under five years of age (QIN et al., 2025).

Among injury mechanisms, road traffic crashes and drowning deserve particular attention. The World Health Organization global report on road safety recorded about 1.19 million deaths each year and identified road traffic injuries as the leading cause of death among children and young people aged 5 to 29 years, with more than half of all deaths occurring among pedestrians, cyclists and motorcyclists (WORLD HEALTH ORGANIZATION, 2023). Drowning, in turn, caused approximately 300,000 deaths in 2021, over 90% of them in low- and middle-income countries, and ranks as the third leading cause of death among children aged 5 to 14 years and the fourth among those aged 1 to 4 years (WORLD HEALTH ORGANIZATION, 2024).

These figures take on a different meaning once we consider that a large share of preventable trauma deaths occurs within the first minutes or hours after the event, before professional care arrives. During this window, the person on the scene is almost always a layperson. The ability to recognize how serious the situation is, keep oneself safe, call emergency services and carry out simple measures, such as applying direct pressure to a bleeding wound or starting chest compressions, can change the outcome. The first aid guidelines published in 2024 by the American Heart Association and the American Red Cross, the first comprehensive update since 2010, reinforce that first aid providers should act within their skills, protect their own safety and seek professional help, and they highlight the need to adapt educational strategies to local needs and to the diversity of communities (HEWETT BRUMBERG et al., 2024).

In Brazil, Federal Law No. 13,722/2018, known as the Lucas Law, made basic first aid training mandatory for teachers and staff of public and private primary and secondary schools and of children's recreation facilities (BRASIL, 2018). The law recognizes schools as a strategic setting for injury prevention and for the initial response to emergencies, but its effectiveness depends on the quality, frequency and pedagogical suitability of the training actually delivered.

Against this background, this study aims to analyze, based on recent literature, educational strategies for trauma prevention and first aid training, with emphasis on early recognition of emergencies and the promotion of safe actions by the lay public, especially in the school setting.

2 METHODS

This is a narrative literature review, an approach that allows the scientific output on a broad topic to be gathered, described and critically discussed, integrating evidence from different study designs and regulatory documents. The search and selection were guided by the PICo framework, in which P (population) referred to laypeople, including children, adolescents, teachers and community members; I (phenomenon of interest) referred to educational strategies in trauma prevention and first aid; and Co (context) referred to school, community and prehospital settings. On this basis, the following guiding question was formulated: which educational strategies have proven effective in preparing laypeople to recognize emergencies and adopt safe actions in trauma situations?

Searches were conducted in PubMed/MEDLINE, SciELO and LILACS, the latter accessed through the Virtual Health Library, and were complemented by direct consultation of World Health Organization reports, guidelines from scientific societies and relevant Brazilian legislation. Controlled descriptors and free terms in Portuguese and English were combined with Boolean operators, including "first aid", "accident prevention", "wounds and injuries", "health education", "laypersons", "schools" and "Stop the Bleed", together with their Portuguese equivalents.

We included systematic reviews, scoping reviews, meta-analyses, scientific statements, guidelines, technical reports from international agencies and educational intervention studies in Portuguese, English or Spanish, with full text available and relevant to

the guiding question. The priority time frame was 2020 to 2026. Earlier documents were admitted only when they were regulatory instruments or foundational references still in force; in the final corpus, this exception applied solely to Brazilian Law No. 13,722/2018, which constitutes the current legal framework for first aid training in schools. We excluded studies aimed exclusively at health professionals, reports that did not describe the educational intervention and duplicate publications.

Searches were carried out in October 2026, and selection proceeded in two stages. First, titles and abstracts were screened for relevance to the guiding question. Second, the potentially eligible documents were read in full to confirm their fit with the PICo elements and to extract study design, population, focus and main findings. In keeping with the purpose of a narrative review, the final selection was not intended to be exhaustive. Instead, it was guided by four criteria: preference for evidence syntheses and official guidelines over isolated primary studies; preference for the most recent and most comprehensive source when several addressed the same question; coverage of the four thematic axes that structure the discussion (burden of injuries, first aid recommendations, school-based education and teaching methods and technologies); and inclusion of sources relevant to the Brazilian context. The final corpus comprised 12 sources, summarized in Chart 1 and discussed according to these thematic axes.

3 RESULTS

The 12 selected sources include two population-based epidemiological analyses, two World Health Organization technical reports, one clinical guideline, one international scientific statement, two systematic reviews, one scoping review, one systematic review with meta-analysis, one study on the development and evaluation of an educational product and the Brazilian federal law. Table 1 summarizes these sources, with study type, focus and main findings.

Table 1

Summary of the sources included in the narrative review.

AUTHOR (YEAR)	STUDY OR DOCUMENT TYPE	FOCUS	MAIN FINDINGS
GBD 2021 Diseases and Injuries Collaborators (2024)	Systematic analysis from the Global Burden of Disease study	Incidence, prevalence and years of life lost for 371 diseases and injuries in 204 countries	Confirms injuries as a major cause of disability and premature death, with an uneven burden across regions and age groups.
Qin et al. (2025)	Analysis of GBD 2021 data with projections to 2035	Global burden of unintentional injuries	New cases rose by 13.5% between 1990 and 2021; age-standardized mortality fell by about 40%; falls carried the largest burden; deaths peaked in children under five.
World Health Organization (2023)	Global technical report	Road safety	About 1.19 million road traffic deaths per year; leading cause of death at ages 5 to 29; vulnerable road users account for more than half of all deaths.
World Health Organization (2024)	Global technical report	Drowning prevention	About 300,000 deaths in 2021, over 90% in low- and middle-income countries; drowning ranks among the leading causes of death at ages 1 to 14.
Hewett Brumberg et al. (2024)	Clinical guideline (AHA and American Red Cross)	First aid recommendations for medical, traumatic and environmental conditions	First comprehensive update since 2010; act within one's skills and safely; for life-threatening bleeding, direct pressure followed by a tourniquet or wound packing; adapt education to the local context.
Consunji et al. (2024)	Systematic review (35 studies; 15,406 participants)	Stop the Bleed courses for laypeople	Significant gains in knowledge and skills in 26 studies and in willingness and confidence in 22; loss of retention between 1 and 9 months; only one study assessed patient outcomes.
Schroeder et al. (2023)	Narrative review and ILCOR scientific statement	Basic life support education for schoolchildren (KIDS SAVE LIVES)	Schoolchildren are motivated to learn; CHECK-CALL-COMPRESS for all ages; regular training consolidates skills; teachers are effective instructors and pupils act as multipliers.
Tse et al. (2023)	Systematic review (11 studies)	First aid for children aged 6 to 10 years	Trained children outperform untrained peers in knowledge and skills; children under 11 do not reach adequate compression depth, which relates to age and body size.

AUTHOR (YEAR)	STUDY OR DOCUMENT TYPE	FOCUS	MAIN FINDINGS
Silva et al. (2023)	Scoping review	Who teaches first aid in schools and with which methods	Health professionals are the main trainers of teachers, who, once trained, can teach their students.
Cheng et al. (2024)	Systematic review with meta-analysis (9 randomized trials; 791 participants)	Serious games in cardiopulmonary resuscitation training	Serious games produced results comparable to traditional methods and are a viable complementary option.
Damaceno and Cordeiro Júnior (2023)	Development and evaluation of an educational product	Electronic first aid booklet for primary and secondary school teachers	The material improved teachers' basic knowledge and their understanding of the Lucas Law.
Brasil (2018)	Federal law (Law No. 13,722/2018)	Mandatory first aid training in schools	Requires training of teachers and staff in public and private primary and secondary schools and children's recreation facilities.

Source: prepared by the authors (2026).

4 DISCUSSION

4.1 THE SCOPE OF THE PROBLEM AND THE ROLE OF PREVENTION

The epidemiological data reveal a paradox that frames the entire discussion. While age-standardized mortality rates from unintentional injuries have been falling, the absolute number of events keeps rising, driven by population growth and ageing and by changes in daily life (QIN et al., 2025). In practice, more people, in more places, will be exposed to trauma, and the room for primary prevention and for a skilled lay response is likely to grow. According to the same authors, the decline in rates is associated with preventive policies, improved infrastructure and health education, which supports the view that education belongs to the set of interventions that actually work.

For road traffic injuries, the World Health Organization attributes the largest reductions in mortality to countries that adopted the safe system approach, combining legislation, enforcement, infrastructure and education (WORLD HEALTH ORGANIZATION, 2023). For drowning, the 2024 report likewise points to a multisectoral response in which supervision of children, physical barriers to water, swimming and water safety skills, and training in safe rescue and resuscitation complement one another (WORLD HEALTH ORGANIZATION, 2024). In both cases, education does not replace structural measures, but it is a precondition

for those measures to be understood, accepted and built into the everyday routines of families and schools.

4.2 FROM RECOGNIZING THE EMERGENCY TO ACTING SAFELY

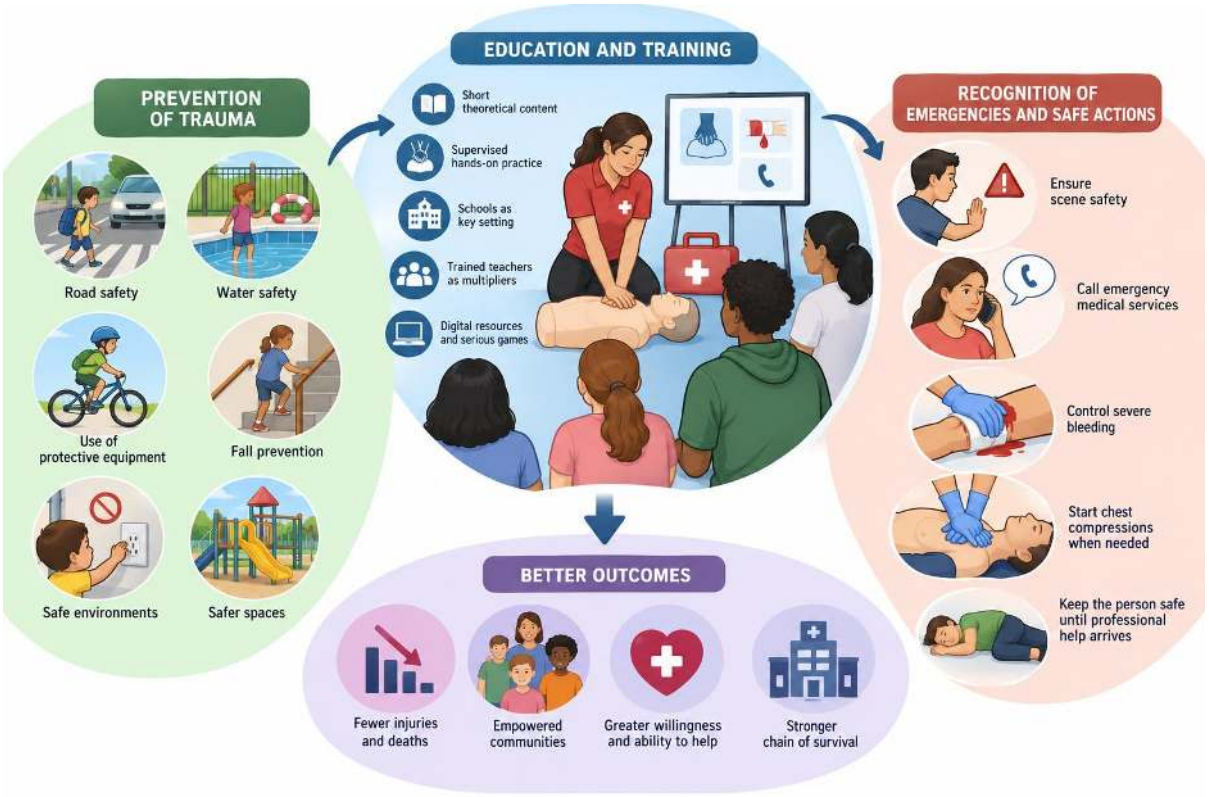
The first educational challenge is perceptual rather than technical. Many people fail to act because they do not recognize how serious the situation is, fear causing harm or do not know whom to call. The 2024 guidelines emphasize a sequence that can be taught simply: assess the scene and ensure one's own safety, recognize life-threatening signs, call emergency services and provide initial care within the limits of one's training (HEWETT BRUMBERG et al., 2024). For life-threatening bleeding, the recommendation is direct pressure followed by a tourniquet or wound packing when the wound location allows, measures that are within reach of a trained layperson.

This logic has been translated into large-scale programs such as Stop the Bleed. The systematic review by Consunji et al. (2024), which pooled 35 studies and more than 15,000 participants, found statistically significant gains in knowledge and in tourniquet application skills in 26 studies, and greater willingness, confidence and comfort to intervene in 22 of them. The most relevant finding from an educational standpoint, however, is the decline in retention between one and nine months after the course, reported in six studies, together with the fact that only one study assessed real patient outcomes. These findings indicate that one-off training is necessary but not sufficient, and that program evaluation should move beyond satisfaction and immediate knowledge toward behavior and clinical results.

In resuscitation, the International Liaison Committee on Resuscitation statement on basic life support education for schoolchildren recommends the CHECK-CALL-COMPRESS sequence for all ages and states that the first links in the chain of survival can be taught to children from four years of age (SCHROEDER et al., 2023). The initial emphasis on recognizing the emergency and calling for help, even before technical performance, reinforces the idea that recognizing an emergency is a competence that can be taught from early childhood. Figure 1 brings these elements together in an integrated model linking prevention, education and training, recognition of the emergency with safe actions, and the expected outcomes.

Figure 1

Integrated model of education for trauma prevention and first aid: primary prevention, education and training, recognition of emergencies and safe actions, and expected outcomes.



Source: prepared by the authors using BioRender (2026).

4.3 SCHOOLS AS A STRATEGIC SETTING AND TEACHERS AS MULTIPLIERS

Schools offer unique conditions for education in injury prevention and first aid: they gather the population most affected by preventable injuries, allow teaching to be repeated over the years and reach families through the students themselves. The systematic review by Tse et al. (2023), which examined programs for children aged 6 to 10 years, showed that trained children have significantly better knowledge and skills than untrained children, in both resuscitation and other forms of initial care. The authors noted, however, that children under 11 usually lack the strength to reach adequate chest compression depth, which is related to age, weight, height and body mass index. The pedagogical implication is clear: in the early years, the curriculum should prioritize recognition, calling for help and protective behaviors, leaving full technical performance for later stages.

The ILCOR statement adds that schoolchildren are highly motivated to learn, that regular training consolidates skills in the long term, that teachers are effective instructors and that pupils act as multipliers by passing the content on to family members and peers (SCHROEDER et al., 2023). The scoping review by Silva et al. (2023) points in the same direction, describing a cascade model in which health professionals train teachers who, once prepared, teach their students. This arrangement speaks directly to the Lucas Law, which places responsibility for staff training on educational institutions (BRASIL, 2018), and suggests a structuring role for nurses, physicians, health sciences faculty and university outreach projects.

For the law to have a real effect, however, training must go beyond formal compliance. Damaceno and Cordeiro Júnior (2023) developed and evaluated an electronic booklet for primary and secondary school teachers and observed improvements in knowledge of initial first aid maneuvers and in understanding of the Lucas Law itself. Materials of this kind are useful as support and as quick reference tools, but given the loss of retention documented in bleeding control courses (CONSUNJI et al., 2024), they should be combined with hands-on sessions and periodic refresher training.

4.4 ACTIVE LEARNING, TECHNOLOGY AND SUSTAINING WHAT IS LEARNED

Taken together, the evidence favors formats that combine brief theoretical input with supervised practice, scenario-based simulation and immediate feedback on performance. This combination appears both in the recommendations for schoolchildren (SCHROEDER et al., 2023) and in bleeding control programs (CONSUNJI et al., 2024). Simulation in particular allows learners to train not only the technique but also decision-making under stress and scene safety assessment, which are central to acting safely.

Digital technologies expand reach and offer opportunities for reinforcement. The meta-analysis by Cheng et al. (2024), including nine randomized controlled trials and 791 participants, concluded that serious games used to teach cardiopulmonary resuscitation produce results comparable to traditional methods. These resources do not replace hands-on practice with a manikin and an instructor, but they can serve as a preparatory step, as reinforcement between refresher courses and as a way to engage children and adolescents.

The ILCOR statement also recognizes age-appropriate social media tools as a promising approach for teaching across all age groups (SCHROEDER et al., 2023).

A recurring point across all of these themes is the need to fit the context. The 2024 guidelines stress that educational strategies should reflect local needs and the diversity of communities (HEWETT BRUMBERG et al., 2024). In a country of continental size marked by inequality, this means selecting content according to the predominant risks in each territory, such as drowning in riverside and coastal regions, motorcycle crashes in urban and rural areas, and falls and choking in early childhood, while using accessible language and low-cost resources.

4.5 GAPS AND FUTURE DIRECTIONS

Despite the consensus on the immediate benefits of first aid education, important gaps remain. Most studies measure knowledge, confidence and simulated performance shortly after the intervention, with few data on long-term retention and almost none on effects on victim survival and sequelae (CONSUNJI et al., 2024). Moreover, scientific output is concentrated in high-income countries, whereas the greatest injury burden falls on low- and middle-income countries (WORLD HEALTH ORGANIZATION, 2024; QIN et al., 2025). In Brazil, implementation of the Lucas Law still lacks systematic monitoring of coverage, workload, content and frequency of training.

Future directions include incorporating trauma prevention and first aid as cross-cutting and progressive content in school curricula, defining evidence-based refresher intervals, building partnerships among higher education institutions, prehospital emergency services and school systems, and adopting indicators that capture not only learning but also behavior change and the population-level impact of these initiatives.

5 FINAL CONSIDERATIONS

Trauma prevention and first aid education are complementary strategies of high social value. Recent literature shows that laypeople of different ages, including children, can learn to recognize emergencies, call for help and act safely, provided that teaching is structured, practice-based and suited to their developmental stage and to the context in which they live.

Schools are confirmed as a privileged setting for this training, and trained teachers play the role of multipliers. For a legal mandate to translate into real protection, training must be continuous, evaluated and supported by partnerships with health services and institutions. Digital resources and active learning methods broaden reach and help sustain learning, but they do not replace supervised practice.

Finally, the decline in skills over time and the scarcity of studies on clinical outcomes indicate that the research agenda should prioritize long-term retention, effectiveness in real-world settings and the adaptation of interventions to the most vulnerable contexts, so that health education can make a measurable contribution to reducing preventable deaths and disability.

REFERENCES

BRASIL. Lei nº 13.722, de 4 de outubro de 2018. Torna obrigatória a capacitação em noções básicas de primeiros socorros de professores e funcionários de estabelecimentos de ensino públicos e privados de educação básica e de estabelecimentos de recreação infantil. **Diário Oficial da União**: seção 1, Brasília, DF, 5 out. 2018. Available at: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13722.htm. Accessed on: Oct. 7, 2026.

CHENG, P. et al. The effects of serious games on cardiopulmonary resuscitation training and education: systematic review with meta-analysis of randomized controlled trials. **JMIR Serious Games**, v. 12, e52990, 2024. DOI: 10.2196/52990. Available at: https://doi.org/10.2196/52990. Accessed on: Oct. 8, 2026.

CONSUNJI, R. et al. Can "Stop The Bleed" training courses for laypersons improve hemorrhage control knowledge, skills, and attitudes? A systematic review. **European Journal of Trauma and Emergency Surgery**, v. 50, n. 6, p. 2775-2798, 2024. DOI: 10.1007/s00068-023-02422-6. Available at: https://doi.org/10.1007/s00068-023-02422-6. Accessed on: Oct. 8, 2026.

DAMACENO, G. A.; CORDEIRO JÚNIOR, D. A. Manobras iniciais de primeiros socorros: produto educacional para professores da Educação Básica. **Revista Tempos e Espaços em Educação**, v. 16, n. 35, e19152, 2023. DOI: 10.20952/revtee.v16i35.19152. Available at: http://dx.doi.org/10.20952/revtee.v16i35.19152. Accessed on: Oct. 6, 2026.

GBD 2021 DISEASES AND INJURIES COLLABORATORS. Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990-2021: a systematic analysis for the Global Burden of Disease Study 2021. **The Lancet**, v. 403, n. 10440, p. 2133-2161, 2024. DOI: 10.1016/S0140-6736(24)00757-8. Available at: https://doi.org/10.1016/S0140-6736(24)00757-8. Accessed on: Oct. 6, 2026.

HEWETT BRUMBERG, E. K. et al. 2024 American Heart Association and American Red Cross guidelines for first aid. **Circulation**, v. 150, n. 24, p. e519-e579, 2024. DOI: 10.1161/CIR.0000000000001281. Available at: https://doi.org/10.1161/CIR.0000000000001281. Accessed on: Oct. 8, 2026.

QIN, W. et al. Global, regional, national burden and trends of unintentional injuries from 1990 to 2021 and projections to 2035: a systematic analysis of the Global Burden of Disease study 2021. **Frontiers in Public Health**, v. 13, 1653491, 2025. DOI: 10.3389/fpubh.2025.1653491. Available at: https://doi.org/10.3389/fpubh.2025.1653491. Accessed on: Oct. 5, 2026.

SCHROEDER, D. C. et al. KIDS SAVE LIVES: basic life support education for schoolchildren: a narrative review and scientific statement from the International Liaison Committee on Resuscitation. **Circulation**, v. 147, n. 24, p. 1854-1868, 2023. DOI: 10.1161/CIR.0000000000001128. Available at: https://doi.org/10.1161/CIR.0000000000001128. Accessed on: Oct. 5, 2026.

SILVA, L. C. M. A. et al. First aid teaching for schoolchildren: scoping review. **International Journal of Educational Research Open**, v. 5, 100305, 2023. DOI: 10.1016/j.ijedro.2023.100305. Available at: https://doi.org/10.1016/j.ijedro.2023.100305. Accessed on: Oct. 4, 2026.

TSE, E. et al. The role of a first aid training program for young children: a systematic review. **Children**, v. 10, n. 3, 431, 2023. DOI: 10.3390/children10030431. Available at: https://doi.org/10.3390/children10030431. Accessed on: Oct. 4, 2026.

WORLD HEALTH ORGANIZATION. **Global status report on road safety 2023**. Geneva: WHO, 2023. Available at: https://www.who.int/publications/i/item/9789240086517. Accessed on: Oct. 5, 2026.

WORLD HEALTH ORGANIZATION. **Global status report on drowning prevention 2024**. Geneva: WHO, 2024. Available at: https://www.who.int/publications/i/item/9789240103962. Accessed on: Oct. 3, 2026.