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A1

Public AED accessibility in urban Piedmont: a hidden weakness in the chain of survival

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Background

Early defibrillation is crucial in improving survival from out-of-hospital cardiac arrest (OHCA). The presence and accessibility of automated external defibrillators (AEDs) are essential to community response to OHCA, yet their actual accessibility in real-world settings is often limited or poorly documented.

Aim

This study investigates AED placement and accessibility in the in the most populated urban areas of the Piedmont region, northern Italy.

Materials and methods

Publicly available data from the Piedmont Region's AED portal were analysed, focusing on the 20 most populous urban areas, including key districts of Turin. The total population assessed was 1,409,955, representing 33.1% of the region's population. For each AED, we examined the location type (indoor/outdoor) and accessibility characteristics: 24/7 availability, and availability during evenings, weekends, and public holidays.

Results

A total of 594 AEDs were identified. 8.2% of AEDs were located in public outdoor spaces. The majority (83.8%) were installed inside buildings, with 16.2% available 24/7. Moreover, 71.2% were not accessible after 8:00 p.m., 55.1% were unavailable on Saturdays, and 66.3% were inaccessible on Sundays and public holidays.

Conclusion

Despite a relatively high number of AEDs, their limited accessibility—particularly during evenings and weekends— poses a significant barrier to timely bystander defibrillation OHCA cases. These findings highlight the urgent need for policy and infrastructure changes to prioritise outdoor and 24/7-accessible AED placements in urban areas to strengthen the chain of survival.

A2

Hyperkalaemia in Emergency Settings: Guideline Adherence and Patient Outcomes

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A2

Background

Hyperkalaemia is a potentially life-threatening electrolyte disturbance commonly encountered in emergency settings. This study aims to describe the clinical characteristics, management, and outcomes of hyperkaliaemic patients presenting to the emergency department (ED), and to evaluate adherence to international treatment guidelines.

Materials and Methods

We analysed adult patients presenting with hyperkalaemia (serum potassium $\geq$5.5 mmol/L) to the ED of Santa Croce e Carle Hospital in Cuneo, Italy, during 2023–2024. Patients in terminal condition or receiving palliative care were excluded. Adherence to European Resuscitation Council guidelines was evaluated based on appropriate administration of calcium and insulin/salbutamol.

Results

215 patients were included (median age 81 [74–87] years; median Charlson index 6 [5;8]). Potassium levels $\geq$6.5 mmol/L were observed in 43.7% of cases. Acute kidney injury was present in 74.4% of patients. ECG abnormalities occurred in 46.5%, mainly bradycardia (18.6%) and

peaked T waves (12.6%). Calcium and insulin/salbutamol were appropriately administered in 73.5% and 72.1% of cases, respectively. Overall guideline adherence was 49.8%. Thirty-day mortality was 15.8%, and was associated with older age (p=0.011), lower eGFR (p<0.001), and lower bicarbonate levels (p=0.001). No significant mortality difference was found based on adherence to treatment guidelines (p=0.27).

Conclusions

Hyperkalaemia in the ED commonly affects elderly, multimorbid patients. Despite frequent ECG changes and severe biochemical abnormalities, adherence to treatment guidelines remains suboptimal; however mortality was not clearly associated with adherence to treatment guidelines. The suboptimal appropriateness of treatment may reflect the clinical complexity and frailty of this population, in whom standard interventions may be deferred or modified due to comorbidities, risks of overtreatment, or limited physiological reserve.

A3

Out-of-hospital management of post-traumatic external hemorrhage: an observational survey among emergency nurses

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Background

Post-traumatic external hemorrhage is one of the leading preventable causes of death in emergency settings. The team's ability to recognize and manage massive hemorrhage, using lifesaving devices such as tourniquets or hemostatic dressings, is crucial to ensuring patient survival. Protocols such as "Stop the Bleed" promote a structured and effective response.

Objective

Evaluate the level of diffusion of the "Stop the Bleed" protocol, investigate the level of training in the use of the tourniquet, and identify any training issues that limit timely response in emergency situations.

Methods

A cross-sectional, quantitative observational study was conducted. A validated questionnaire (Ramacciani C., 2023) was administered to nurses at the Piceno Soccorso 118 emergency medical service. The questionnaire was structured into sections regarding theoretical knowledge, practical experience, use of hemostatic devices, and participation in specific courses (BLS, PTC, PHTC). The collected data were processed using descriptive statistical analysis.

Results

93% of the sample stated that practical training in the management of traumatic hemorrhages is essential, and only 47% of the sample had received specific training in the use of various hemostatic devices, such as tourniquets. Only 42% of the sample knew the "Stop the Bleed" protocol, while approximately 84% of those interviewed considered the provision of a hemorrhage management kit useful, but its effectiveness depends on adequate training.

Conclusions

The study demonstrates that structured theoretical and practical training is essential for the effective management of out-of-hospital hemorrhages. The systematic adoption of protocols such as "Stop the Bleed" and training in the use of hemostatic devices must become an integral part of corporate training programs.

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A4

The role of the nurse in training lay personnel for the management of massive hemorrhage: a literature review

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Background

Massive hemorrhage is one of the leading causes of death in polytrauma patients. However, timely intervention can significantly improve prognosis. Investing in the training of laypeople creates a network of first responders capable of acting quickly to stabilize patients until emergency services arrive.

Objective

To investigate the effectiveness of layperson training in the use of tourniquets in reducing mortality in individuals experiencing massive hemorrhage while awaiting emergency services, and to highlight the role of nurses as promoters and educators in preventive and community settings.

Methods

A literature review was conducted using PubMed and Web of Science. The research question was formulated according to the PICO framework, and inclusion and exclusion criteria were established. Both primary and secondary studies were included in the analysis. The selection process was illustrated using the PRISMA flow diagram.

Results

Thirteen studies were included: four literature reviews, four observational studies, and five experimental studies. Three main themes emerged: the effectiveness of health education on tourniquet use, the impact of different teaching methods on participants' skills, and the willingness to intervene in out-of-hospital settings after training. Additionally, the role and characteristics of trainers were analyzed.

Conclusions

Training laypeople in tourniquet use is effective in enhancing their early response to massive hemorrhage, improving both practical skills and theoretical knowledge, and increasing their willingness to act, which may contribute to a reduction of prehospital mortality.

In this context, nurses play a strategic role as health educators and promoters, serving as a bridge between the healthcare system and the community.

Accessible and standardized training programs, such as Stop the Bleed, should be promoted institutionally to build more aware and responsive communities in emergency situations.

A5

Reduction of no-flow time in cardiac arrest in the Turin area: analysis of the response system and operational strategies. A retrospective study

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A5

Background

Out-of-hospital cardiac arrest (OHCA) is a major cause of sudden death and one of the most time-critical emergencies. Survival depends heavily on early intervention: rapid EMS activation, immediate CPR, and timely AED use are vital. However, emergency response and AED

distribution remain uneven, including in the Turin area, where systems are still being developed.

Objective

To describe response times and intervention modalities in OHCA cases in the Turin area, aiming to identify and propose strategies to reduce no-flow time.

Methods

A retrospective study will analyse all cardiac arrests classified as code R02 or R03 (cardiocirculatory red or respiratory red), recorded by the 118 Emergency Operations Centre in Turin between May 2024 and June 2025. Data were extracted from triage forms completed by emergency crews (MSB, MSA1, MSA2). Only out-of-hospital events with complete intervention time data will be included. For each case, data collected include: age, sex, intervention times, type of emergency means, execution of CPR, telephone-assisted BLS activation, AED use, and outcome (ROSC or death). Statistical analysis will include a descriptive phase (frequencies, percentages, means, SDs) and a comparative phase to explore associations. The study has been submitted for Ethics Committee approval.

Results

Expected results aim to highlight OHCA frequency, emergency activation times, and the impact of early First Responder intervention. Particular attention will be given to the correlation between reduced no-flow time, lay rescuer presence, and AED use. The analysis will provide a foundation for improving emergency response and developing more effective strategies.

Conclusions

Data analysis will support proposals to strengthen the AED network, enhance responder activation, and promote community training. The study provides a solid basis for local strategies to improve OHCA survival rates.

A6

The disaster manager in disaster management and MCI: an observational study

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Background

In recent years, the increase in catastrophic events has highlighted the need for professionals prepared to manage complex emergencies. In this context, the figure of the Disaster Manager and the role of the nurse, also from a managerial point of view, are central to an effective health response in the event of a disaster.

Objective

The aim of the study is to investigate the basic skills of the nursing staff of SET 118 in AST 5 of Ascoli Piceno in response to major disasters and incidents and to identify any training gaps.

Methods

A cross-sectional, single-center, observational study was conducted through convenience sampling. A validated questionnaire entitled "Nurses' Perceptions of Disaster Core Competencies Scale" - Celik was administered. F. (2010) divided into two sections: (i) socio-demographic data; (ii) second "cognitive" part consisting of 45 items divided into 5 domains: 1. critical thinking skills, 2. Special diagnostic skills, 3. General diagnostic skills/abilities, 4. Technical skills and 5. Communication skills.

Results

RR of 87%. 69.7% demonstrated solid critical thinking skills, while technical, diagnostic and special skills recorded scores over 90% who said they "know how to do" or "know how to do easily". 70.6% of nurses are able to correctly identify vulnerable groups and recognize the main clinical signs in the event of a disaster. A minority of the sample (5–10%) showed deficiencies in the management of communication during emergencies, especially in the ability to transmit information effectively.

Conclusions

The study confirms the adequacy of the preparation of SET 118 nurses in dealing with complex emergencies but it is essential to invest in continuous training programs, specialized updates and realistic simulations.

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A7

The nursing management of the stroke in out-of-hospital emergency: a review of the literature

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A7

Background

Cerebral stroke is a medical emergency that, if not treated promptly, can lead to serious consequences and continues to be one of the leading causes of death globally. In this context, the role of the nurse in the out-of-hospital phase is decisive for the early identification and management of stroke.

Objective

The study aims to analyze, through a review of the literature, the impact of nursing management in the emergency-urgency phase of the acute stroke patient, with attention to the reduction of door-to-needle times.

Methods

A literature review was conducted according to the PICO methodology. They have been considered scientific articles published in the last 10 years. Studies related to the pre-hospital management of stroke by nursing staff were included, excluding patients in the post-acute or rehabilitation phase.

Results

The analysis included 31 studies out of a total of 306 initially identified. The data show how the nurse, through the use of assessment scales and structured protocols, contributes significantly to early diagnosis and rapid referral of the patient to specialized centers. Timeliness of intervention was associated with better clinical outcomes. In addition, advanced training of nurses and the use of technologies (Mobile Stroke Unit, telemedicine) further improve the quality of care.

Conclusions

Nursing management of stroke in out-of-hospital emergencies is a fundamental element. The implementation of training courses and the efficient organization of the emergency system are crucial to optimize the prognosis of patients. The enhancement of nursing skills is a strategic resource for the evolution of the health system.

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A8

Sepsis and septic shock: the effectiveness of nursing care for early recognition

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A8

Background
Sepsis is a life-threatening organ dysfunction induced by a disordered host response to infection. If not treated early, it can lead to septic shock, multiorgan failure, and death.
Objective
To investigate nurses' knowledge regarding the assessment and management of sepsis with the aim of identifying potential organizational strategies for improvement through nursing care.
Materials and methods
A literature review was conducted using databases such as PubMed and Google Scholar. All studies published in the last 5 years regarding nursing interventions and activities for the identification and management of sepsis and septic shock in adults were included.
Results
SIRS, qSOFA, NEWS, and MEWS help identify early signs of sepsis. PAI assessment, source control, and vital signs monitoring remain the fundamental cornerstones for managing the highly complex care of septic patients. In emergencies, the ABCDE approach allows for rapid patient assessment. Blood cultures remain the gold standard for identifying microorganisms present in the blood, and urine cultures are used to identify a urinary tract infection, which may have caused sepsis. Additionally, shared decision-making (SDM) between patients and caregivers and follow-up management are essential.
Conclusions
Education and dissemination of knowledge, along with the rapid recognition and timely treatment of these patients, are essential elements capable of improving outcomes. Evidence emphasizes the importance of nursing activities and interventions in the management of septic patients for achieving outcomes. It is important to understand and disseminate the ESC Guidelines for the prevention and management of sepsis and septic shock.

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A9

The use of movement restriction devices in the management of suspected spinal injury in the prehospital setting: a literature review

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A9

Background
Spinal cord injuries are among the most severe traumatic emergencies, with significant impact on functionality, autonomy, and quality of life. Traditionally, prehospital management included systematic immobilization using cervical collars and long spine boards (LSBs), often applied without clinically justified indications. Recent evidence has highlighted the limitations and complications of this approach, prompting a paradigm shift. This has led to the concept of Spinal Motion Restriction (SMR), which promotes a selective and clinically guided restriction of spinal movements to enhance both safety and effectiveness.
Objective
To describe the effectiveness of spinal motion restriction techniques compared to full spinal immobilization in reducing complications in adult patients with suspected spinal trauma in the prehospital setting.
Methods
A literature review was conducted (April–July 2025) using PubMed and Embase. Studies published in the last 10 years, in English or Italian, on adults (>18 years), with available abstracts and full texts, were included. Studies on in-hospital trauma, pre-existing spinal injuries, non-critical settings, long-term management, and pediatric populations were excluded. Selected sources included guidelines, systematic reviews, and observational studies. Priority was given to recent and methodologically sound literature focused on prehospital spinal trauma management, decision-making criteria, and emergency clinical strategies.
Results
The literature highlights a shift from systematic immobilization to a selective, clinically guided approach. SMR reduces complications, improves patient comfort, and optimizes resource use without compromising neurological stability.
Conclusions
Current evidence supports a more critical and selective approach to prehospital spinal immobilization. The adoption of SMR enhances care quality, reduces associated risks, and marks a transition toward safer and more effective clinical practices.

A10

Emotional skills in emergency medical services: development and preliminary validation of a new tool

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A10

Background
Emergency Medical Services (EMS), including dispatch centres and Helicopter services (HEMS), often face emotionally demanding situations that require rapid decisions under pressure. Emotional skills are crucial not only for safeguarding well-being, but may also support non-technical skills (Ceschi et al., 2019). Since situational awareness (SA) depends on perception, attention and working memory, it is hypothesised that emotion regulation and empathy influence cognitive and social performance in critical operations (Thompson, 2022).
Objective
To develop and validate a psychometric tool for emotional skills in (H) EMS personnel, examine links with NTS and provide a basis for specific training to improve these skills.
Methods
A 24-item questionnaire was created, covering eight constructs (attention deployment; reappraisal after and during the event; suppression after and during the event; emotional empathy/unpleasant emotions; emotional empathy/pleasant emotions; cognitive empathy). Items were rated on a 10-point scale. The aim is to select one item per construct. Preliminary analyses assessed construct validity and test–retest reliability. Data were collected across (H)EMS services in Italy
Results (preliminary)
Findings indicate acceptable construct validity across the eight domains. Test–retest reliability showed moderate stability, consistent with challenges of high-range response scales. Results support the robustness of the instrument. The possible impact of emotional skills on cognitive dimensions of NTS will be further explored..

Conclusions
This study represents a novel attempt to measure emotional competencies in (H)EMS personnel. Preliminary findings support its psychometric soundness. The tool also lays the groundwork for future training aimed at enhancing these skills to improve provider well-being and patient safety.

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2. Ceschi et al., Frontiers in Psych

A11

Impact of the Trauma Team on the Management of Polytrauma: Experience from a Level II Trauma Center

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Background
Trauma Team activation is crucial for the prompt care to trauma patients resulting in improved patient outcomes and reduced hospital stay and costs.
Objective
A prospective observational study was carried out to assess the outcomes of trauma patients before and after the implementation of a dedicated Trauma team at a Level II trauma center.
Methods
This prospective observational study includes all trauma patients during the observation period (2024–2025) who met the criteria for Trauma Team activation. The collected data were compared with a retrospective dataset (2023–2024) from the period prior to the implementation of the Trauma Team. Descriptive and inferential statistical analyses were performed. A multivariate regression model was applied to identify risk factors associated with 30-day mortality. The study was approved by the Local Ethics Committee
Results
A total of 243 patients were prospectively enrolled in the study. Our study showed a non-statistically signifant reduction in overall 72h- (2% vs 3.6%; p: 0.41) and 30-day mortality (3.75% vs 5.88%; p:0.393). Age>65 years (OR 14.8; 95%CI:2.9–76.6.9.6; p<.001), ISS>15 (OR 90,9; 95%CI 5.1- 1605.8; p<.001), GCS<9 (OR 34; 95%CI 5.2- 196; p<.001), hemorrhagic shock (OR 10,7; 95%CI 1.8- 62.8; p=.006), unstable pelvic fracture (OR 38.2; 95%CI 6.4- 228; p<.001) and use of antiplatelet drug (OR 6,7; 95%CI 1.5- 29.5; p=.007) were associated with higher 30- day mortality.
Besides, after the activation of TT, we observed a statistically significant reduction of the Door-to-imaging (48 vs 78 minutes; p<.01), Door-to-OR (183 vs 237 minutes; p:0.03), door to transfer (238 vs 305 minutes; p<.04) and Door-to-ICU (226 vs 343 minutes; p:0.02) time.
Conclusions
The implementation of a dedicated Trauma Team protocol is associated with an improved overall timeliness of care for trauma patients. Although a positive trend was observed, the reduction in overall mortality did not reach statistical significance.

A12

Organization of the emergency medical service (EMS) in the construction of the second St. Gotthard motorway tunnel

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A12

Objective
The aim of Tre Valli Soccorso was to establish a unique EMS with specially trained and equipped Registered Paramedics capable of operating independently (as the sole medical provider on the scene) in a multi-professional team, in confined environments with potentially non-breathable air, during the construction of a large public work lasting 10 years.An 4X4 vehicle was then built to transport the paramedic, the equipment and a patient to rendezvous with the ambulance.
Methods
Retrospective evaluation of the process with data extraction.The development of the Tunnel Rescue Paramedic (TRP) role, included mandatory training in fall protection, respiratory protection equipment use, specific construction site knowledge and rescue procedures.
Results
In 2024 the service operated for 354, totaling 5664 working hours. The total staff for the 2TG service is 19 TRP units.
A total of 82 interventions and 281 hours of on-shift training were carried out.
Discussion
The Gotthard Tunnel is one of the longest highway tunnels in the world. The construction of the doubling of the tunnel made it necessary to set up a specialized service capable of providing rapid and quality medical assistance within the worksite spanning the Cantons of Ticino and Uri. The EMS is currently entrusted to TVS with a presence of 16 hours a day, 7 days a week, while technical rescue is entrusted to a professional fire brigade.
The TRP operates as an integral part of the firefighters team, collaborating in 2TG (construction site) and 1TG (current tunnel) interventions, highway rescue operations and rapid responder activities in the surrounding area.
Ongoing training is a cornerstone of quality assurance and service management.
Conclusions
The development of a new role capable of operating as the sole medical provider in a hazardous environment requires the acquisition cross-disciplinary and technical rescue skills. Synergy with professional firefighters is a key factor.

A13

The implementation of in-situ simulation in the emergency department

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**

Background
Simulation plays an increasingly important role in the training of healthcare professionals. The literature is focusing on "in-situ simulation" (ISS), which integrates high-fidelity features into the clinical contexts increasing training effectiveness.

Due to its versatility, it is an optimal solution for critical care and emergency settings, offering the opportunity to simulate complex situations by integrating multidisciplinary skills.

Objective

The aim of the study is to analyze the latest evidence to demonstrate that in-situ simulation in training programs can improve patient safety, technical and non-technical teamwork skills, and professionals' self-confidence, as well as reduce costs, compared to standard simulation-based training.

Methods

A literature review was developed that included 12 articles (3 qualitative, 4 quantitative and 5 reviews, including 2 systematic reviews), for a total of 1,271 patients enrolled and 120 studies analysed.

Exclusion criteria: contexts other than the emergency department, methodological rigour and time frame (2014-2024).

Results

Patient safety: decrease in morbidity and mortality rates (from 26.7% to 40.8%, p<0.05)*1, increase in technical skills (p< 0,000005).*2 Clinical risk: more targeted identification of errors and near misses, identifying preventive measures.

Teamwork: improvement in communication (p<0.001), decision-making (p<0.001), self-efficacy of professionals (p=0.03) and overall teamwork performance (p<0.05).*3 Costs: reduction in resources required (<112%) and maintenance costs.*4,5.

Conclusions

In-situ simulation-based training is a new concept that integrates with everyday clinical reality, supports multidisciplinary teamwork and trains teams for rare and complex events such as a health emergency. It is an opportunity to support professionalism, enhancing role recognition and reinforcing the retention of healthcare professionals in the emergency department.

A14

Digital innovation in training gamification and virtual reality for BLSD

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A14

Background

Basic Life Support Defibrillation (BLSD) is a critical skill that can determine life or death in emergencies. Traditional training is widespread, but new technologies like gamification and virtual reality (VR) may enhance learning.

Objective

This study examines how gamification and VR are applied in BLSD learning. Objectives include identifying approaches and platforms, analyzing reported benefits and challenges, comparing their effectiveness with traditional training, and exploring future prospects of these technologies in BLSD education.

Methods

A systematic literature review was conducted using databases such as PubMed, Scopus, Google Scholar, and IEEE Xplore. Articles from the last 15 years addressing gamification and VR in BLSD training were included.

Results

The literature review included a total of 15 articles relevant to gamification and virtual reality in BLSD training. Of these, 53% (8 articles) focused on gamification, while 47% (7 articles) addressed virtual reality applications. Overall, the studies reported positive outcomes: gamification made learning more interactive and motivating, whereas virtual reality provided immersive simulations of emergency scenarios in safe, controlled settings, enhancing practical skills and learner confidence. Some challenges were highlighted, including the considerable initial investment of time and resources needed for development and implementation, as well as difficulties in fully replicating the realism of actual emergencies.

Conclusions

Evidence suggests gamification and VR are valuable tools to support BLSD learning by increasing user motivation and facilitating practical skill acquisition in a controlled environment. Despite challenges related to costs and technology complexity, benefits in engagement and emergency training are notable. Integrating these technologies could revolutionize BLSD education, making it more accessible and dynamic.

A15

Workplace First Aid in Italy A Review of Legislative Framework and Literature

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Background

Legislative Decree n. 81, 2008, as amended, together with Ministerial Decree n. 388, 2003, defines the regulatory framework, establishing minimum requirements, equipment, and training for designated first aid responders. Recent legislative provisions have extended the use of Automated External Defibrillators (AEDs) to trained non-healthcare personnel and, in emergency situations, to untrained individuals under the state of necessity principle.

Objective

To propose updates to Ministerial Decree n. 388 by integrating current legislation with the most recent scientific evidence and operational guidance documents.

Methods

A legislative review of the literature was conducted, consulting major search engines and official documents on workplace first aid in Italy.

Results

The proposed updates include:

- Mandatory AED availability for companies with >250 workers, or verification of territorial accessibility within a maximum of 4 minutes.
- Mandatory AED use training for at least one designated responder per shift.
- Standardization of training programs based on workplace risk level.
- Expanded minimum first aid kit equipment (e.g., pocket mask, protective face shields);
- Alignment of the practical component of training courses with ERC 2025 guidelines, increasing time allocated to hands-on exercises compared to theory.
- Certified training for instructors, with a dedicated registry.
- Use of digital technologies and immersive simulations for training; rapid responder location systems in case of emergency.

Conclusions

Updating Ministerial Decree n. 388, with more structured training requirements and innovative tools would allow for standardized training, improved emergency management, and reduced workplace mortality and morbidity. An integrated approach focused on prevention and preparedness would strengthen the safety culture and reduce the socioeconomic impact of acute events.

A16

Are our Cities truly Cardio-Protected? The actual availability of Automated External Defibrillators in the Province of Verona

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Background
Out-of-hospital cardiac arrest is one of the leading causes of sudden mortality. Automated external defibrillators (AEDs) are a key component of the chain of survival, especially when available 24/7 and supported by first responders. In Italy, Law No.116 4/8/2021 introduced the obligation to install AEDs in specific public and private facilities and to notify their availability to the local emergency medical services dispatch center (EMS 118). Actual availability depends on installation site (outdoor cabinets always accessible vs. indoor locations with limited opening hours).
Objective
To analyze the distribution of AEDs in the Province of Verona, assessing their number, characteristics, location, and temporal/street accessibility, in order to determine real availability and propose strategies to enhance community cardioprotection.
Methods
Data were collected through the digital registry available on the local EMS 118 website, including AEDs declared between June 2023 and June 2025. Information comprised device number, location, brand/model, accessibility hours.
Results
A total of 771 AEDs were recorded. Among these, 133 devices(17.3%) were installed in outdoor cabinets with 24/7 access, while 13 units located indoors were nevertheless available at all times due to staff presence. Overall, 146 AEDs(19%) were continuously accessible. The majority were located in schools(211), followed by sports facilities(140) and workplaces (130); the remainder were distributed across public offices, pharmacies, stations, hospitality venues, and private sites.
Conclusions
Although AED distribution is significant, accessibility remains a critical issue. Proposed measures include strengthening legislation with mandatory declarations and sanctions, allocating funds for outdoor cabinets, and promoting awareness campaigns targeting both public institutions and private stakeholders. The ultimate goal is to shift from a "cardio-protected city" to a "cardio-protected community".

A17

Knowledge and perceptions of the use of the semi-automatic external defibrillator (AED) and of BLSD courses among users accessing the Territorial Health Units (UST) of the Italian Railway Network (RFI)

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Background
Investigate the level of knowledge and the perception of the importance of the automated external defibrillator (AED) and Basic Life Support and Defibrillation (BLS-D) courses among users of the Territorial Health Units (UST) of Rete Ferroviaria Italiana (RFI).
Objective
Identify, by means a dedicated survey, any critical issues and provide useful guidance for future training and awareness strategies.
Methods
An observational study was conducted using a paper-based, anonymous, self-administered questionnaire. The tool was divided into three sections: sociodemographic data, theoretical knowledge of the AED, and perception of the importance of the AED and BLS-D courses.
Results
A total of 660 questionnaires were collected. More than 90% of participants reported knowing the function of the AED; among them, about 40% had attended at least one BLS-D course, while over 60% expressed interest in participating in one. Most respondents believed that the AED could only be used by individuals who had completed a BLS-D course, while only 30% knew that its use is allowed even without specific training. Seventy-three percent knew the single European emergency number. Among women, 70% were interested in attending a BLS-D course. In the over-60 age group, theoretical knowledge of the AED was good, but more than 70% had never attended a BLS-D course. The vast majority of respondents considered the presence of AEDs in workplaces and schools to be necessary.
Conclusions
The surveyed population showed good theoretical knowledge of the AED, but the mistaken belief persists that it can only be used by those who have attended a BLS-D course. Practical training remains limited, although the importance of spreading AEDs in public places and workplaces is widely acknowledged. The population is informed but not adequately trained: it is necessary to intensify awareness campaigns, make BLS-D courses more accessible, and promote them starting from compulsory school.

A18

The Human Factor in the Chain of Survival: a neuropsychological proposal to evolve BLSD training through the lens of cognitive load, acute stress, and decision making

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Background
Experience in teaching BLSD reveal frequent feelings of emotional inadequacy. Trainees express a desire to avoid intervening due to perceived emotional unpreparedness. These findings call for a reconsideration of how human factor is integrated into resuscitation education.
Objective
This study explores the perceived psychological preparedness of BLSD-trained responders, assessing whether there is a need to include psychological components such as stress management and emotional resilience into the current educational program.
Methods
The opinions of 154 adult rail workers in possession of a BLSD certification were collected. The survey included both quantitative and qualitative items evaluating perceived emotional readiness before and after training,satisfaction with the current course content, and interest in the integration of neuropsychological strategies.Descriptive statistics were applied to analyze the data.
Results
Most respondents reported a substantial improvement in emotional readiness post-course,despite the absence of explicit psychological content.Specifically,70% noted increased ability to manage fear, anxiety,and self-doubt.This improvement appears to stem from the course's experiential structure. Notably,84% expressed a desire for

enhanced content on stress management,decision-making under pressure,and post-event emotional recovery,signaling a strong interest in a more human-centered training experience.

Conclusions

While the current BLSD methodology effectively fosters emotional confidence through its pedagogical and experiential strengths, the demand for deeper psychological preparation suggests potential for growth. The addition of a structured training focused on cognitive load, acute stress, and emotional reactions may represent a significant enhancement.Such a module could further strengthen the course by helping trainees build a resilient mindset, ultimately improving intervention outcomes in high-pressure situations.

A19

To CPR or not to CPR? That is the bystander's question

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Background

Cardiac arrest is a major clinical emergency that, unless immediate cardiopulmonary resuscitation or defibrillation is started, can rapidly results in death. Nonetheless, in about half of cases witnessed, no resuscitation is initiated by laypersons. Multiple reasons are beyond this resistance, which are not yet fully understood.

Objective

To identify predictors for lower likelihood of bystanders attempting resuscitation.

Methods

Out-of-hospital cardiac arrests occurring in Lombardy region between July 1, 2024, and May 30, 2025, treated only by laypersons were included in this study.

Results

Among 11.945 registered cardiac arrests, 4.132 were assisted by laypeople. Logistic regression showed a lower likelihood of CPR in urban areas (OR 0.89; 95% CI: 0.86–0.93), in non-medical events (OR 0.85; 95% CI: 0.81–0.87), among female patients (OR 0.95; 95% CI: 0.92–0.98), in patients aged >80 years (OR 0.81; 95% CI: 0.79–0.84), and in cardiac arrests at home (OR 0.79; 95% CI: 0.76–0.82). Conversely, an EMS response time below 15 minutes was associated with a higher likelihood of resuscitation attempts (OR 1.05; 95% CI: 1.03–1.09).

Conclusions

Both sex- and age-related differences call for enhanced educational materials within BLSD courses, as well as inclusion of such variables by dispatch centers. Development of specific communication strategies and establishment of further research on such processes are essential in raising bystander resuscitation rates.

A20

Pre-Arrival Instructions and Outcomes in Out-of-Hospital Cardiac Arrest: A Six-Month Observational Study in Southern Italy

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Background

Out-of-hospital cardiac arrest (OHCA) is associated with very high mortality despite advances in emergency care. Early bystander cardiopulmonary resuscitation (CPR) guided by emergency dispatchers through pre-arrival instructions (PAI) has been proposed as a strategy to improve survival.

Objective

To describe the demographic and clinical characteristics, initial rhythms, response times, therapeutic interventions, and outcomes of OHCA cases managed after the systematic introduction of PAI in our local emergency medical system.

Methods

This retrospective observational study included all OHCA cases attended by the 118, ASL Lecce (Italy) between January and June 2025. Data were collected prospectively from the EMS registry. Variables analyzed included patient demographics, arrest location, witness type, PAI performance, response intervals, initial cardiac rhythm, therapeutic measures, and outcomes. Descriptive statistics were applied, with results reported as means ± standard deviations, medians, and proportions.

Results

36 OHCA cases were recorded. Patients were predominantly male (69.4%) with a mean age of 71.9 ± 13.4 years. Most events occurred at home (91.7%) and were witnessed by family members (91.7%). CPR instructions were delivered in 88.9% of calls. The mean interval between the call and arrival of the first rescue team was 13.6 ± 6.2 minutes. CPR was initiated in 75.0% of patients, defibrillation in 11.1% (average 3.5 shocks per patient), and drugs were administered in 63.9%. ROSC occurred in 8.3% of cases, while 91.7% were declared deceased on scene.

Conclusions

Systematic dispatcher-led PAI was associated with high rates of bystander CPR and a measurable rate of ROSC in OHCA cases. These findings support the integration of PAI as a standard component of emergency medical dispatch and warrant further evaluation in larger cohorts with long-term outcome data.

A21

From decline to recovery: the lasting impact of COVID-19 on Out-of-Hospital Cardiac Arrest

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Background

The COVID-19 pandemic caused a significant strain on emergency medical systems, affecting outcomes of time-dependent diseases like Out of Hospital Cardiac Arrest (OHCA). Studies have shown an increase in the incidence of OHCA during the pandemic, but there is limited evidence on how survival rates and rescue efforts have been affected in the post-pandemic period.

Objective

This study analyzes OHCA during the pre-pandemic, pandemic and post-pandemic period, with a focus on outcomes and rescue maneuvers.

Methods

This is a retrospective observational cohort study considering all OHCA managed by AREU (Agenzia Regionale Emergenza Urgenza), in the

italian Lombardy region in March of three different years (2019, 2020 and 2022). Data was collected from AREU's database, where information of patient rescue missions managed by the Lombardy Region's emergency medical system is recorded.

Results

The registered OHCA cases were 1097 in 2019, 1767 in 2020 and 934 in 2024. The results showed that during the pandemic period the probability of receiving bystander CPR (22.5% vs 17.4%, p value<0.001), PAD care (3.6% vs 1.6%, p value<0.001) or achieving ROSC (11.5% vs 2.3%, p value<0.0001) was significantly lower than in the pre-pandemic period. Conversely, data from 2024 shows a significant increase in the probability of receiving bystander cardiopulmonary resuscitation compared to 2019 (28% vs 22.5%; p=0.003), while probability to receive PAD care has returned similar to the pre-pandemic period (4.3 vs 3.6; p=0.39). However, there is a persistent decrease in ROSC rates (8.7% vs 11.5%; p=0.04).

Conclusions

Bystander resuscitation has improved in the post-pandemic period, possibly due to an increased public attention following the pandemic. Conversely, PAD use has returned to pre-pandemic levels. However, ROSC rates remain lower than before COVID-19, suggesting a lasting impact on outcomes and the need for targeted interventions to restore the chain of survival.

A22

Advanced Nursing Competencies in Prehospital Emergency Care: A Professionalizing Experience for Critical Care Master's Students at the Modena 118 Emergency Medical Service

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Background

In postgraduate healthcare education, internships play a strategic role in bridging academic learning with the practical demands of organizational and clinical contexts, ensuring coherence between expected competencies and clical practice.

Objective

To standardize and enhance the internship pathway by developing and assessing competencies according to the Dublin Descriptors.

Methods

The project involved a shared definition of expected competencies, the design of standardized assessment tools (checklists and questionnaires), and alignment of training with scientific evidence, while also integrating relational and ethical dimensions of professional practice. A 150-hour internship was conducted within the Territorial Emergency Medical Service (EMS 118) of Modena, in nurse – led and physician – led units, under the supervision of experienced clinical tutors. Training activities included active observation, operational shadowing, and progressive autonomy, supported by structured debriefings and theoretical sessions.

Results

Preliminary data indicate improved methodological consistency and strengthening of students' specialized competencies.

Conclusions

An internship model grounded in active learning methodologies and standardized assessment tools may represent a replicable approach for critical care education. Its key strengths lie in the centrality of situated and reflective learning, the use of shared evaluation instruments, and the enhanced role of the tutor as facilitator. Future developments should focus on extending this model to foster communities of practice and to promote deeper integration between academic education and clinical practice.

A23

The dark side of public access defibrillation: Ten years of AED thefts and malfunctions reported by Italian online newspapers

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Background

Automated external defibrillators (AEDs) are essential tools for survival in out-of-hospital cardiac arrest. Their availability is a cornerstone of emergency preparedness, as it integrates the community into emergency medical response. However, AEDs installed in public spaces are occasionally subject to theft, vandalism, or malfunction, which compromises their life-saving potential.

Objective

To analyze the frequency and geographical distribution of AED-related problems in Italy -specifically thefts and cases of malfunction or inaccessibility- reported by online newspapers over the past decade (2015-2025).

Methods

A retrospective search (January 2015– June 2025) was conducted in Google News. Two researchers independently screened results. Data included date, region, city, context, type of issue, and source.

Results

142 AED-related events were identified: 108 thefts and 34 cases related to malfunction or unavailability (locked facilities, battery failure, missing electrodes). The most affected regions were Lombardy, Sicily, and Campania. Media coverage often reflected strong community concern and social condemnation. These results, based exclusively on news media reports, may underrepresent the actual frequency of AED-related problems.

Conclusions

In Italy, AED thefts appear more frequent than international reports, which estimate <2% of public devices are affected. However, the true incidence remains unknown, as AEDs are not consistently included in registries or geolocated maps. In addition to theft or damage, many devices installed through donations or public funding are later neglected, with no routine maintenance or oversight. This silent failure represents a critical gap that undermines emergency response. These findings call for preventive measures, such as systematic monitoring, maintenance programs, geolocation, and alert systems, supported by public awareness campaigns to protect this vital health resource.

A24

Red code, pain ignored: rethinking analgesia in emergency care

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Background

The clinical context of emergency and urgent care is characterized by the phenomenon of oligoanalgesia, defined as inadequate pain management. Oligoanalgesia is a significant issue in Italy. Currently, there is no single standard for pain treatment in emergency settings, and practices vary based on local protocols.

Objective

This study aims to examine the current state of practice within our working context, with the objective of proposing solutions and innovations to enhance pain assessment.

Methods
An ongoing retrospective study conducted on a sample of 181 adults treated by nurses and physicians of the Regional Emergency and Urgency Agency of Sardinia (AREUS) from October 1, 2024, to March 31, 2025. All individuals over the age of 18 with GCS > 8, GCSm > 6, and without neurocognitive disorders incompatible with pain assessment were included. Numeric Rating Scale (NRS) scores, administered drugs, and their effectiveness were recorded.
Results
Preliminary data show that only 33 cases (18.2%) include a pain assessment, while in 148 cases (81.8%), pain was not assessed. Despite the initial evaluation, only six cases (3.3%) included a second assessment, and only in 50 cases (27.5%) was pharmacological treatment administered, primarily consisting of opioids, followed by ketamine and paracetamol.
Conclusions
The presence and quantification of pain remain poorly considered parameters by healthcare personnel working in the field. The lack of pain assessment makes its management impractical. Oligoanalgesia directly affect the quality of assistance, patient well-being, and even clinical outcomes. Inadequate pain management is not just a matter of immediate discomfort but can lead to far-reaching consequences, such as worsening prognosis and increased physiological and psychological stress. The implementation of clear guidelines, and the use of easily accessible pain assessment tools can significantly help reduce oligoanalgesia.

A25

Recognition, management, and transport times of suspected stroke in the prehospital setting: a retrospective observational pilot study conducted by the South Sardinia CO118 emergency medical service

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A25

Background
Stroke is one of the most common neurological emergencies, currently representing the second leading cause of death worldwide. Stroke demands rapid diagnosis and treatment ("time is brain"), yet accurate diagnosis in the prehospital setting remains limited.
Objective
This study aims to assess current practice to enhance competencies and optimize patient assessment and transport times.
Methods
Data were retrospectively collected for suspected stroke cases transported to designated HUB centers after appropriate consultation with the Stroke Unit. Includes all patients who had undergone the Cincinnati Prehospital Stroke Scale (CPSS) assessment, during the period from May 1 to December 31, 2024. Temporal variables such as time to target, on-scene time, and time to door were also recorded.
Results
During the 8-month study period, 294 patients with a positive CPSS were evaluated by advanced life support teams. After teleconsultation with the Stroke Unit, 70% of symptomatic patients were deemed eligible for acute treatment and were consequently directed to the HUB center. Average time intervals were as follows: Time to target: 16 minutes and 28 seconds; On-scene time: 26 minutes; Time to door: 147 minutes.
Conclusions
Time-dependent pathologies present a significant challenge for the territorial emergency network, involving all professionals from the moment the emergency call is received. At this stage, the operator must determine the most appropriate vehicle to dispatch and may administer a prehospital stroke scale via phone. Performance analysis focused on the recognition of eligibility criteria, percentage of teleconsultations performed, and management times will allow timely adaptation of current protocols to any critical issues encountered, thereby enhancing both the efficiency and effectiveness of care delivery while ensuring patient safety.

A26

Evaluation of factors associated with patient's refusal of emergency medical transport in the Lombardy Region

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Background
The Lombardy Region, with nearly 10 million inhabitants, presents significant demographic and geographic challenges for emergency medical services (EMS). The Agenzia Regionale Emergenza Urgenza (AREU) coordinates thousands of daily interventions across urban, rural, and mountainous settings. A recurring issue is patient refusal of transport, that raises concerns regarding patient decision-making, resource allocation, and system efficiency.
Objective
This study investigated determinants of transport refusal, examining demographic, clinical, operational, and contextual variables.
Methods
A retrospective review of AREU intervention records was performed. Variables included patient demographics, on-scene clinical assessments, EMS reports, and system metrics. Structured interviews and focus groups with EMS personnel supplemented quantitative findings. Statistical and multivariate analyses identified correlations.
Results
Transport refusal occurred in 11.25% of cases and was most frequent among young men (18–35 years), residents of suburban or rural areas, and patients with non-critical conditions such as syncope without trauma, anxiety episodes, or chronic pain. Operational factors, including night-time interventions, prolonged response times, and third-party-initiated calls, were associated with higher refusal rates. Many refusals followed EMS confirmation of non-urgent status, with patients preferring self-care or consultation with their general practitioner. Seasonal peaks and perceptions of emergency department crowding further influenced refusal (Figure 1).
Conclusions
Transport refusal is driven by a complex interplay of clinical appropriateness, patient autonomy, and system-level dynamics. While some refusals are justified, others may reflect miscommunication or mistrust.

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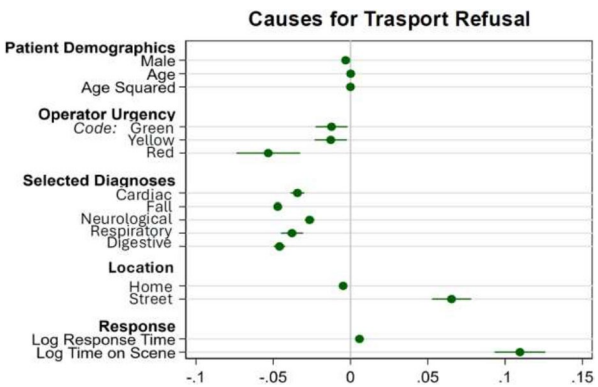

Fig. 1 (Abstract A26). Causes for transport refusal

A27

Evaluating Offloading Times in Emergency Departments: Seasonal Trends and Systemic Implications in the Lombardy EMS Network

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Background

Efficient ambulance turnaround is a critical determinant of emergency medical service (EMS) performance. A key metric is offloading time, defined as the interval between ambulance arrival at the emergency department (ED) and its readiness for redeployment. Regional guidelines in Lombardy recommend completion within 30 minutes; however, substantial variability exists across hospitals and periods, especially during winter peaks.

Objective

This study quantified offloading times across hospitals and seasons, identified clinical and operational predictors of delay, and evaluated structural factors influencing performance.

Methods

A retrospective cohort analysis of >150,000 EMS interventions over 12 months was conducted using data from the Agenzia Regionale Emergenza Urgenza (AREU) and regional hospitals. Offloading time was calculated from ED arrival to ambulance redeployment. Variables included triage codes, patient characteristics, ED occupancy, boarding rates, and seasonal influenza incidence. Descriptive statistics, time-series decomposition, and multivariate regression models were applied.

Results

Average offloading times exceeded the 30-min benchmark by 20–50% during winter months, with the sharpest increases in January–February. Urban high-volume hospitals (>250 visits/day) had the longest delays, particularly during morning and early afternoon shifts. Boarding was strongly associated with prolonged offloading, confirming capacity constraints as a major driver. Non-critical patients (green/white codes) experienced longer handovers than critical cases, reflecting triage prioritization. Hospitals with dedicated EMS intake pathways demonstrated shorter turnaround times (figure 1).

Conclusions

Offloading delays in Lombardy are driven by seasonal demand surges, ED crowding, and structural bottlenecks such as boarding. Variability across hospitals highlights the impact of organizational practices.

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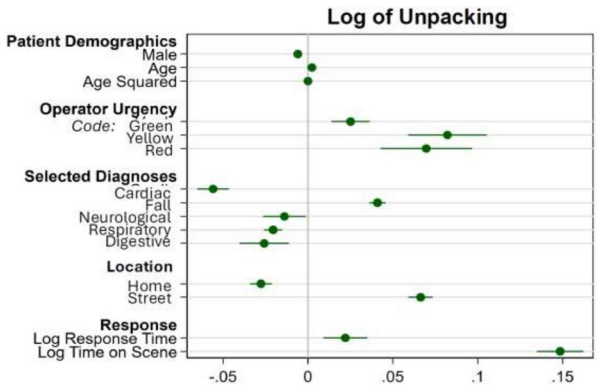

Fig. 1 (Abstract A27). Log of unpacking. Multivariate regression controlling for location and data/hour. N=7262537

A28

Pre-arrival instructions and airway obstruction management

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Background

The effective management of medical emergencies necessitates seamless communication between healthcare professionals and patients. Pre-Arrival Instructions (PAIs), delivered by nurses represent a critical component in supporting the public during emergency situations such as airway obstruction.

Objective

Evaluate the effectiveness of PAIs, focusing on the communication strategies.

Materials and methods

The study analyzed 4 clinical cases of airway obstruction that occurred in 2024.

Results

1: A 78-year-old male was reported to be conscious but unable to cough. The nurse guided the caller instructing her to deliver five back blows followed by five abdominal thrusts until the foreign body was expelled. Hospital transport was deemed unnecessary. 2: An 83-year-old male with was found unconscious, apparently following food bolus aspiration. The nurse provided precise instructions to the family members on how to perform external chest compressions, resulting in the resolution of the obstruction and restoration of consciousness. Hospitalization was not required. 3: A 56-year-old female presented signs of partial airway obstruction after ingesting fruit. The nurse advised on assisted coughing and abdominal thrusts, which successfully led to expulsion of the foreign body. The patient subsequently declined hospital transport. 4: An 84-year-old male with cerebrovascular disease under sedative polytherapy reportedly aspirated a food bolus during a meal. Initially conscious, the patient's family was instructed on appropriate dislodgement manoeuvres. Following a loss of consciousness, the nurse adapted the PAIs, directing the execution of ECCs, which resulted in partial recovery of consciousness and the cough reflex.

Conclusions

These varied clinical scenarios underscore the critical importance of timely, clear, and standardized pre-arrival instructions. This highlights both the clinical competence and contribution of emergency dispatch nurses in remote patient management. Consent to publish had been obtained from the patients.

A29

Chest pain in the emergency room: comparison between the assessment scales used in triage

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Background

The assessment of chest pain in patients attending the Emergency Department (ED) aims to stratify patients through the use of assessment tools.

Objective

The objective of the study is to examine the various scores most commonly used in triage to stratify patients with chest pain and indicate which is the best in terms of results.

Materials and methods
Studies were included in this screening if they: covered a 10-year time window; had titles and abstracts relevant to the study in question; were conducted specifically in a triage setting.
Results
The first comparison is between the HEART and HEAR(1) scores, with the HEART score proving to be better in terms of effectiveness between the two. Comparing the GRACE, HEART and TIMI(2) scores, it is reported that the HEART score outperformed the GRACE and TIMI scores in identifying the largest group of low-risk patients. The guideline(3) provides guidance on the dissimilarity of chest pain symptoms in gender differences and on paying particular attention to the assessment of atypical pain.
The study(4) analysed the HEAR, HEART, EDACS, VCPR and MACS scores, concluding that the HEART scale proved to be safer and more effective.
The latest study (5) found that the HEART score is considered superior to the other scores, proposing its use in combination with the TIMI score to identify a subgroup of patients with a very low risk of developing MACE.
Conclusions
The study shows that the HEART score is more effective than the other scores considered. It was found that a combined use of the HEART score and the TIMI score could identify a subgroup of patients with a very low risk of developing MACE.
The importance of recognising signs and symptoms at the time of the interview and data collection in triage is highlighted.
Attached: complete english and italian abstract with bibliografy.
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A30

Barriers to telephone-assisted cardiopulmonary resuscitation and adherence to pre-arrival instructions in out-of-hospital cardiac arrest

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Background
Out-of-hospital cardiac arrest (OHCA) is a time-sensitive medical emergency with high mortality. Early activation of the chain of survival, particularly timely bystander cardiopulmonary resuscitation (CPR) guided by pre-arrival instructions (PAIs), is crucial for prognosis. This study analyses barriers to Telephone-Assisted CPR (T-CPR) and bystander PAI adherence.
Methods
This retrospective observational study included adult OHCA cases of presumed cardiac etiology managed by the SOREU-Alpina emergency medical dispatch centre (March 10 – May 8, 2025). Data were extracted from dispatch recordings and medical records. OHCA patients were categorised into those who received PAIs and performed CPR (PAI – CPR) and those who did not (PAI – No CPR). Within the PAI–CPR group, a subgroup analysis compared patients with early (within 2-min) and delayed CPR initiation.
Results
Out of 87 OHCAs, the majority were male (68%), with events occurred predominantly in residential settings (76%). Barriers to T-CPR initiation were detected in 72% of cases (Figure 1). As shown in Figure 2, Table 2, CPR was performed by 75 patients (86%) who received PAIs, whereas 12 patients (14%) did not, despite receiving instructions. Significant barriers included the difficulty of moving the patient to a hard surface (p=0.0009) and caller disorientation (p=0.0063). Among the PAI – CPR group, early CPR initiation was associated with male gender (p=0.0219) and a shorter time to CA recognition (p<0.0001). Key barriers to timely T-CPR were the misinterpretation of agonal breathing (p<0.0001) and caller disorientation (p=0.0316, Figure 2, Table 3).
Conclusions
Our study highlights that PAI adherence is influenced by bystanders and contextual factors, with T-CPR barriers significantly delay layperson intervention. Targeted PAI improvements and bystander training are therefore crucial to enhance early CPR initiation in OHCA.

Fig. 1 (Abstract A30). Table 1

Table 1. All patients

	All patients
Demographic characteristics	
Patients n (%)	87 (100)
Male (sex), n (%)	59 (68)
Age (years), median [IQR]	75.00 [67.00-83.00]
Cardiac arrest location, n (%)	
Residential	66 (76)
Streets	8 (9)
Nursing home	5 (6)
Others	8 (9)
Witnessed CA, n (%)	69 (79)
Bystander age, n (%)	
< 50 years	31 (36)
50 - 70 years	49 (56)
> 70 years	7 (8)
Bystander sex (male), n (%)	30 (34)
Bystander-patient relationship, n (%)	
Relative	60 (69)
Colleague/friend	15 (17)
Stranger	7 (8)
Healthcare professional	5 (6)

	All patients
CA and CPR characteristics	
Bystander CPR, n (%)	
Ongoing before the call to EMS	14 (16)
Started after T-CPR	61 (70)
Not performed	12 (14)
Barriers to T-CPR initiation	
Presence of at least one T-CPR barrier, n (%)	63 (72)
Barriers to T-CPR:	
Emotional distress	25 (29)
Moving patient to hard surface	21 (24)
Misinterpretation of agonal breathing	16 (18)
Caller disoriented, not participative	11 (13)
Others	9 (9)

Fig. 2 (Abstract A30). Tables 2 and 3

Table 2. PAI – CPR vs PAI – No CPR

	PAI – CPR	PAI – No CPR	p-value
Demographic characteristics			
Patients, n (%)	75 (86)	12 (14)	-
Male (sex), n (%)	53 (71)	6 (50)	0.1890
Age (years), mean ± SD	72 ± 15	84 ± 12	0.0061
Barriers to T-CPR initiation			
Emotional distress	19 (25)	6 (50)	0.0950
Moving patient to hard surface	13 (17)	8 (67)	0.0009
Misinterpretation of agonal breathing	16 (21)	0 (0)	0.1123
Caller disoriented, not participative	6 (8)	5 (42)	0.0063
Telecommunication issues	3 (4)	0 (0)	1.0000
Caller not on scene at the beginning	3 (4)	0 (0)	1.0000
Caller reluctance	1 (1)	1 (8)	0.2582
Language barrier	0 (0)	1 (8)	0.1379

Table 3. Early CPR initiation vs Delayed CPR initiation

	Early CPR initiation	Delayed CPR initiation	p-value
Demographic characteristics			
Patients, n (%)	33 (44)	42 (56)	-
Male (sex), n (%)	28 (85)	25 (60)	0.0219
Age (years), mean ± SD	71 ± 15	72 ± 15	0.7503
Bystander age, n (%)			
< 50 years	14 (42)	12 (28)	0.2316
50 - 70 years	17 (52)	28 (67)	0.2370
> 70 years	2 (6)	2 (5)	1.0000
Cardiac arrest characteristics			
Location of arrest, n (%)			
Residential	21 (64)	34 (81)	0,1176
Street	5 (15)	2 (5)	0,2294
Nursing home	3 (9)	2 (5)	0,6488
Others	4 (12)	4 (9)	1,0000
Time interval between the start of the call and CA recognition (seconds), mean ± SD	53 ± 35	112 ± 69	<0.0001
Barriers to T-CPR initiation			
Emotional distress	7 (21)	12 (28)	0,5950
Moving patient to hard surface	3 (9)	10 (24)	0,1283
Misinterpretation of agonal breathing	0 (0)	16 (38)	<0,0001
Caller disoriented, not participative	0 (0)	6 (14)	0,0316
Telecommunication issues	1 (3)	2 (5)	1,0000
Caller not on scene at the beginning	0 (0)	3 (7)	0,2508
Caller reluctance	1 (3)	0 (0)	0,4400

A31

Physiology-directed cardiopulmonary resuscitation: a systematic review of the literature and meta-analysis

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Background

Cardiac arrest resuscitation guidelines advocate for a uniform approach to cardiopulmonary resuscitation (CPR). Nevertheless, newer research data support the implementation of resuscitation strategies targeted to patient's physiology in order to improve survival and, potentiality, neurological outcomes. The expert panel of the 2013 AHA Consensus Statement, recommends the implementation of haemodynamic-directed CPR (HD-CPR) strategies targeting a coronary perfusion pressure (CoPP) of at least 20mmHg or an Arterial Diastolic Blood Pressure (ADBP) of 25 mmHg.

Objective

The primary goal of this systematic review and metanalysis is to analyse research available data to assess whether HD-CPR improves cardiac arrest outcomes compared to standard provider-centred CPR care delivered according to international ALS/ACLS protocols.

Methods

Literature search of relevant articles was performed in PubMed, Cochrane Library, Embase, and relevant grey literature databases. The primary outcome was survival at 30 days with favourable neurological outcome.

Results

In total, 11,302 studies were initially identified from database search and grey literature assessment. Seven studies were included in the systematic review and metanalysis. All studies were conducted in animal models of cardiac arrest.

Compared with standard CPR, HD-CPR might be superior in achieving Short Term survival (45-minutes post-ROSC), with pooled risk ratio (RR) of 0.25 [95% CI: 0.12, 0.39]. Four studies showed that HD-CPR may significantly improve survival with favourable neurological outcome at 24 h in a swine model of cardiac arrest (CPC 1 or 2) with a pooled RR of 0.36 [95% CI: 0.22–0.69.22.69].

Conclusions

To the best of our knowledge, this is the first systematic review and metanalysis attempting to undertake a comprehensive synthesis of the preclinical evidence that has been used as the foundation for international recommendation addressing the implementation of haemodynamic-directed CPR.

A32

In Situ Simulation (ISS) in the management of Cardiac Arrest (CA) in the emergency department: a scoping review

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Background

In Situ Simulation (ISS) is an innovative training method that recreates emergency clinical scenarios in the actual workplace. It helps healthcare professionals improve technical skills (TS) and non-technical skills (NTS), enhances teamwork and leadership, builds confidence with the environment and equipment, and allows early identification of latent safety threats (LST). This approach is especially useful in high-pressure settings like the Emergency Department, where intense care, workload, and stress may lead to deviations from best practices.

Objective

To identify TS and NTS acquired through ISS during the management of Cardiac Arrest (CA) in the Emergency Department, and to evaluate its impact on clinical outcomes (survival at admission and discharge, return of spontaneous circulation – ROSC, unexpected events) and on LST detection.

Method

Scoping Review.

Results

- TS: Reduced time from CA to chest compressions, first shock, and first epinephrine. No significant change in time to ECMO flow.
- NTS: Improved teamwork, leadership, situational awareness, and decision-making.
- Clinical outcomes: Increased ROSC and reduced unexpected CA. No significant differences in survival at admission/discharge, neurological outcomes, or unexpected intubations.
- LST: Most frequent issues were errors in staff/equipment positioning during resuscitation and device malfunction.

Conclusions

ISS is a valuable training method in complex settings like the Emergency Department and for time-sensitive conditions. It supports the development of TS and NTS and enables early detection of LST, allowing proactive improvements in training and organizational strategies.

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A33

Peer-to-Peer (P2P) versus traditional method in Basic Life Support and Defibrillation (BLSD) training within the undergraduate nursing program: a retrospective observational study

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Background

Peer-to-peer (P2P) learning is a participatory teaching strategy in which students of similar age or background engage in reciprocal instruction. It facilitates the acquisition of theoretical and practical skills, enhances trust and motivation, reduces anxiety, and fosters transversal competences such as communication, problem-solving, and leadership.

Objective
To assess the application of P2P in BLSD training for third-year nursing students at Marche Polytechnic University of Ancona and compare it with the traditional instructor-led method.
Method
A teaching workshop was conducted with two cohorts: one trained by a certified instructor (N=25) and the other through P2P (N=25). Performance data (compressions/minute, rate, depth, ventilation volume) were collected using Resusci Anne QCPR. Perceptions and satisfaction were measured through a Likert-scale questionnaire.
Results
Of 50 students, 68% had never attended a BLSD course. Performance outcomes were comparable between groups. P2P participants reported higher active engagement (88% vs. 80%) and greater ease (96% vs. 58%). They also perceived the environment as less inhibiting (60% vs. 40%) and less judgmental (54% vs. 28%). Confidence, motivation, and comprehension were similar across groups.
Conclusions
P2P represents a valid alternative to traditional BLSD training. The integration of both methods is recommended to achieve comprehensive and engaging learning, particularly in complex educational settings.

A34
When simulation challenges certainties: a pilot study on an in-hospital mass-casualty incident
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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A34

Background
Mass Casualty Incidents (MCI) require both technical and non-technical skills (NTS), which can be improved through interdisciplinary practise. NTS help reduce errors and enhance overall performance. However, the educational effectiveness of simulation in this context remains underexplored..
Objective
To evaluate the impact of a simulated intra-hospital major emergency held on November 23, 2024, at Presidio Ospedaliero Santo Spirito Hospital in Rome, on the understanding and perceived effectiveness of the PEIMAF (Internal Emergency Plan for Mass Influxes).
Methods
Pilot study. Closed-ended questionnaires were administered before and after the simulation to assess knowledge of the plan, preparedness, technical skills, and NTS. Descriptive and inferential statistical analyses were performed.
Results
Participation rates declined between the pre- and post-simulation questionnaires. Following the simulation, improvements were observed in communication, teamwork, and the number of staff members who reported feeling very prepared to manage an MCI. A positive correlation emerged between the simulation and the enhancement of NTS. Participants who had previously attended company training sessions demonstrated a better understanding of the PEIMAF. Experienced personnel reported that simulations reinforced existing knowledge, while less experienced participants perceived a significant improvement in their NTS. Post-simulation, those who found the simulation useful for developing NTS showed a strong correlation with improvements in communication and teamwork; those who felt prepared also showed a positive correlation with decision-making skills. Subjective self-assessment and participant drop-out represent key limitations. The simulation strengthened NTS among less experienced staff but elicited uncertainty among experienced professionals, prompting reflection and critical thinking.
Conclusions
The integration of simulation-based training with theoretical planning proved synergistic and effective. Future directions should focus on moving beyond self-assessment by employing validated and objective evaluation tools.

A35
REBOA in cardiac arrest
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Background
REBOA (Resuscitative Endovascular Balloon Occlusion of the Aorta) is applied in patients with severe hemorrhagic shock, representing an effective "bridge therapy" in management protocols within "Damage Control Resuscitation" (DCR). In non-traumatic cardiac arrest, REBOA is being studied for application during cardiopulmonary resuscitation (CPR). Zone I aortic occlusion aims to increase coronary and cerebral perfusion, improving hemodynamics. Although several studies reported improvements in physiological parameters, its effectiveness on clinical outcomes remains uncertain.
Objective
To evaluate the current state of REBOA use in OHCA patients, observing physiological effects and clinical outcomes, as an alternative treatment for advanced ALS strategy in non-ECMO centers.
Methods
A literature review was conducted on PubMed using keywords: "REBOA AND (cardiac arrest OR out-of-hospital cardiac arrest OR CPR)". Inclusion criteria were clinical studies within 5 years, adult population. Exclusion criteria were: pediatric population, trauma, animal or simulator studies. Observational studies, case series and case reports were included; protocols and consensus were considered only as support.
Results
Ten records were identified, seven were included. Findings reported: significant increase of coronary perfusion pressure; rise of $ETCO_2$ and transient ROSC, and elevation of peripheral arterial pressures. Use of transesophageal ultrasound to guide deflation post-ROSC was essential to avoid hemodynamic instability.
Conclusions
REBOA, applied in non-traumatic cardiac arrest, is technically feasible and effective in improving hemodynamic parameters during CPR, enhancing the chance of ROSC. However, benefits in terms of survival and neurological outcomes are not yet demonstrated.

A36
Impact of timing and patient selection on outcomes of extracorporeal cardiopulmonary resuscitation in cardiac arrest
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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**36

Background
Out-of-hospital cardiac arrest represents a condition with high mortality, where advanced cardiopulmonary resuscitation does not always allow the return of spontaneous circulation. The introduction of extracorporeal resuscitation (ECPR) has shown potential in improving survival and neurological outcome. However, variability of results in the literature strongly depends on two critical factors: the time required for support placement and the selection of eligible patients. Defining

strict criteria and reducing procedural times therefore appears essential to optimize the benefits of the method.

Objective

The purpose of this work is to analyze the impact of activation timing and inclusion criteria on the success of ECMO, evaluating survival, neurological outcome and organizational feasibility.

Methods

A literature review was conducted, including prospective and retrospective studies published within the last ten years, analyzing: interval between collapse and CPR start, duration of low-flow until ECMO cannulation, exclusion criteria (age, comorbidities, prolonged no-flow, non-shockable initial rhythm) and prehospital activation protocols.

Results

Evidence emerges that no-flow >5 minutes and low-flow >60 minutes are associated with unfavorable prognosis. Centers implementing predefined pathways in collaboration with emergency services reported survival rates up to 30–40%, with favorable neurological outcomes in half of the surviving cases. The adoption of strict selection criteria (age <65 years, absence of severe comorbidities, shockable initial rhythm, immediate bystander CPR) allowed reduction of futile procedures and improvement of system efficiency.

Conclusions

The effectiveness of ECPR is determined by inclusion criteria that must be restrictive to ensure appropriateness of emergency care.

A37

Validation of the BDCA score for early prediction of brain death after out-of- hospital cardiac arrest: a retrospective cohort study

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Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2025, **33(1):**A37

Background

A subset of patients resuscitated after out-of-hospital cardiac arrest (OHCA) progress to brain death (BD), creating an opportunity for organ donation. The Brain Death after Cardiac Arrest (BDCA) score was developed to predict BD at 24 hours using routinely available variables, but external validation is limited.

Objective

The primary objective was to evaluate the ability of the BDCA score to identify progression towards BD 24 hours after OHCA, and to assess its utility in a real-world Italian ICU cohort for early recognition of patients likely to progress to BD.

Methods

We performed a retrospective cohort study of adult OHCA patients admitted to the ICUs of Trieste (January 2021–May 2023) after successful resuscitation. The BDCA score was calculated at 24 hours in patients remaining comatose (motor GCS $\leq$3). The primary outcome was BD, confirmed per Italian legal criteria. Score performance was assessed with ROC analysis, including sensitivity, specificity, and predictive values at different cut-offs.

Results

Of 105 patients (median age 64 years; 65.7% male), 67 remained comatose at 24 h; 14 (20.9%) developed BD. Median BDCA scores were significantly higher in BD patients versus others (44 vs. 24; p<0.0001). ROC analysis showed good discrimination (AUC 0.85; 95% CI: 0.72–0.96). A cut-off of 50 achieved 98% specificity with 35% sensitivity. All BD patients fulfilled unfavorable neuroprognostic criteria per ERC 2021 guidelines. Median time to BD diagnosis was 1–2 days.

Conclusions

The BDCA score demonstrated good predictive performance for BD at 24 h post-OHCA in this Italian ICU cohort. Early identification of high-risk patients may optimize management, support family discussions, and improve organ donation pathways. Prospective multicenter validation is needed.

A38

Metabolic and EEG profiles after cardiac arrest: prognostic markers of survival and neurological outcome

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Background

Early prognostication after cardiac arrest remains challenging. While guidelines recommend a multimodal approach, objective indicators of cerebral viability are limited. Tools such as indirect calorimetry and processed EEG may provide real-time insights into systemic and cerebral recovery. However, their potential for early outcome stratification remains understudied and not yet validated in post-resuscitation care.

Objective

To evaluate whether metabolic activity and EEG patterns differ between survivors and non-survivors after cardiac arrest and whether they correlate with neurological outcome. Surgical patients under general anesthesia were used as physiological controls.

Methods

We conducted a prospective observational study including 43 post-cardiac arrest patients treated with continuous sedation and normothermia (36 °C) in the ICU, and 19 surgical controls. All underwent indirect calorimetry (VO_2, VCO_2, EE, RQ) and continuous EEG monitoring (SedLine®). Outcomes were stratified by survival and Cerebral Performance Category (CPC) at ICU discharge. Statistical tests included t-tests, ANOVA, and Chi-square.

Results

Cardiac arrest patients had significantly higher energy expenditure than controls (45.6 $\pm$ 15.5 vs. 18.0 $\pm$ 3.0 kcal/kg/day, $p < 0.001$). Survivors had greater VO_2 (334.8 vs. 215.9 mL/min, $p < 0.01$) and lower RQ. Irritative EEG patterns were observed in 95.7% of survivors vs. 4.3% of non-survivors ($p = 0.002$). CPC scores correlated with SEF ($p < 0.001$) and EE ($p = 0.0015$), with highest metabolic demand in CPC 3–4.

Conclusions

Hypermetabolism and irritative EEG activity are associated with survival and better neurological outcome after cardiac arrest. Combined calorimetric and EEG monitoring may offer early prognostic value and support individualized post-resuscitation care.

A39

Impact of Dispatcher-Assisted CPR on pediatric Out-of-Hospital cardiac arrest: a narrative review

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Background
Out-of-hospital cardiac arrest (OHCA) in children is associated with a poorer prognosis compared to adults. Dispatcher-assisted CPR (DA-CPR) can increase CPR rates and survival. However, the effectiveness in pediatric populations is still being investigated.
Objective
To evaluate the impact of DA-CPR in pediatric OHCA.
Methods
A narrative review of the literature including primary studies published in English over the past 15 years, as the data on pediatric age groups is still scant.
Results
Seven observational studies were included. DA-CPR increased early cardiac arrest recognition and bystander CPR rates, time to CPR initiation was shortened by approximately one minute[1],[2]. Survival to hospital discharge and favorable neurological outcomes were higher in resuscitated patients, regardless of DA-CPR, although age influenced outcome associations[3],[4]. DA-CPR improved chest compression quality and ventilation frequency.
Conclusions
DA-CPR enhances CPR timeliness and quality, but challenges remain, especially in dispatcher training and bystander comprehension.

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A40
GITIC - Going Inside Trauma-Induced Coagulopathy
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Background
Major trauma is a leading cause of death globally, especially among young people. Trauma-Induced Coagulopathy (TIC), characterized by abnormal coagulation after injury, remains poorly defined and can range from hypocoagulation to hypercoagulation. Factors like tissue damage, shock and time since injury contribute to TIC, affecting about 25% of severely injured patients with a mortality rate of 35–50%.
Objective
This study aims to estimate TIC incidence in severely injured patients referred to the Emergency Department (ED) of the University Hospital of Padua. We will describe the clinical and laboratory features of TIC, identify predictive factors for its presence and development and examine their correlation with transfusion needs. The study will also explore the incidence of adverse events such as death, thromboembolic and haemorrhagic complications.
Methods
This is a monocentric, observational, prospective study, with data collection over two years (01/06/2025-01/06/2027). We plan to enrol 300 patients aged 15–90 years, triaged as "major trauma" in the ED (coded as “red” or “orange”) with ongoing bleeding signs. Descriptive statistics will summarize data (means, standard deviations, frequencies). The Shapiro-Wilk test will assess normality and statistical analyses (mixed-effects models, t-tests, ANOVA) will compare variables. Correlations will be analysed using Pearson or Spearman coefficients and regression models will identify predictors of outcomes.
Results
The study is ongoing and results are not yet available.
Conclusions
TIC remains a complex, underexplored issue, particularly regarding the clinical complexity and management of polytrauma patients. The use of viscoelastic testing (ROTEM) in the ED may allow for early detection of coagulation abnormalities that might otherwise go undiagnosed and enable for early targeted treatment. However, due to the monocentric nature of the study, the results may not be generalizable to other settings.

A41
Quantitative pupillometry index (QPI) in comatose patients after cardiac arrest
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Background
The evaluation of pupillary reactivity is crucial in assessing unconscious patients following cardiac arrest (CA). The Neurological Pupil Index (NPi) has been recognized as an accurate index to predict unfavourable neurological outcome (UO). A new index, called the Quantitative Pupillometry Index (QPI) has emerged; however, there are no prognostic data on its application in CA patients.
Objective
This study compared the prognostic value of NPi and QPI in patients after CA.
Methods
This is a prospective observational double-center study, conducted at the Erasme University Hospital in Brussels (Belgium) and at Ramon y Cajal Hospital in Madrid (Spain). We collected data from patients admitted to the ICU after successful resuscitation from CA between March 2022 and October 2024. Exclusion criteria included facial and/or ocular trauma not allowing pupillometry. Measurements of NPi (Neuroptics, California, USA) and QPI (Neurolight, IdMed, Marseille, France) were performed twice at 24, 48 and 72 hours after CA. The follow-up was performed by using a semi-structured telephone interview or evaluated during follow-up visits; UO was considered as Glasgow-Pittsburgh Cerebral Performance Category (CPC) 3–5 at 3 months.
Results
Over a total of 113 patients enrolled only 111 had available follow up data and were included in the final analysis. ICU mortality occurred in 69 (62.2%) patients, while 78 (70%) patients had an UO. Patients with UO showed a lower NPi and QPI during the first 24, 48 and 72 hours (Figure 1). The QPI showed an increasing predictive power over time. At 72 h a QPI $\leq$ 2 showed a sensitivity of 61.5 [47.0–74.7]% and a specificity of 100 [87.7–100]% with a false positive rate of 0%, while a NPi $\leq$ 2 showed a sensitivity of 26.4 [15.3–40.3]% and a specificity of 100 [87.2–100]% whit a FPR of 0% to predict an UO at 3 months.

Conclusions
QPI showed a good prognostic power to predict UO at 3 months in comatose patients after CA.

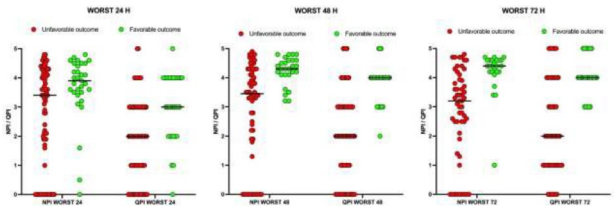

Fig. 1 (Abstract A41). See text for description

A42

Pediatric cardiopulmonary arrest: comparative analysis of a local Italian cohort versus European registry data

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Background
Pediatric cardiopulmonary arrest (CPA) is a rare but high-mortality event where timeliness and quality of intervention are crucial. A national Italian data registry is not currently available.
Objective
This study aims to analyze characteristics and outcomes from a single-center database and compare them with European data to identify areas for improvement in the local chain of survival.
Methods
A retrospective analysis was conducted on a sample of 52 pediatric patients who experienced CPA. Key variables including location of arrest, bystander intervention, pre-hospital interventions, and survival to discharge were evaluated and compared to European literature.
Results
The mean patient age was 4.8 years; 75.0% of arrests occurred out-of-hospital. While 71.2% of events were witnessed, bystander-initiated cardiopulmonary resuscitation (CPR) occurred in only 35.3% of cases, a rate lower than reported European averages (often >46%). The pre-hospital defibrillation rate was 11.5%, consistent with the low incidence of shockable rhythms in children. The overall survival-to-discharge rate was 21.2%, which is higher than the typical 10% for out-of-hospital CPA in Europe but below the >35% rate for in-hospital events.
Conclusions
Despite encouraging survival rates for out-of-hospital arrests, the low rate of bystander CPR is a critical weakness in the local system. This finding suggests that implementing public awareness and training campaigns focused on pediatric CPR is a priority to reduce treatment delays, improve neurological outcomes, and enhance overall survival. This analysis was limited by the lack of structured data, highlighting the need for a standardized national data registry, for both pre-hospital and in-hospital events, to effectively monitor and improve the chain of survival.

A43

Public AEDS and first responders: management of out-of-hospital cardiac arrest in Trentino

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Background
In Trentino (Northern Italy), the Emergency Dispatch Center (COE) manages ~600 out-of-hospital cardiac arrests (OHCA) annually. In prehospital OHCA, each minute without treatment reduces survival odds by 7–10%. The 2021 European Resuscitation Council (ERC) guidelines recommend: (1) widespread citizen training in cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED) use; (2) technology to alert trained lay responders to bring an AED before EMS arrival; (3) engagement of school-age children to build a CPR culture; (4) development of specialized centers for post-arrest care; and (5) dispatcher-assisted CPR with structured pre-arrival instructions (PAIs). Trentino has geolocated a large network of public-access AEDs and mobilizes volunteer fire brigades as First Responders (FRs) in every municipality.
Objective
To evaluate the impact of public-access AED activation and/or FR dispatch on return of spontaneous circulation (ROSC) among prehospital OHCA patients in Trentino.
Materials and methods
We analyzed two years of data (January 2023–December 2024) from all prehospital OHCA cases managed by Trentino Emergenza.
Results
Overall ROSC was 22.1%. Among witnessed OHCAs with effective PAIs from the COE and FR activation, ROSC reached 34.3%. Shockable presenting rhythms accounted for 18.3% overall; in the subset of witnessed OHCAs with effective PAIs and FR activation, the proportion with a shockable rhythm was to 42.3%.
Conclusion
In Trentino, a dense FR network capable of rapid arrival with dedicated AEDs, combined with effective dispatcher-delivered PAIs, is associated with higher ROSC rates and a greater proportion of shockable rhythms at first assessment—both proxies of improved survival potential. These findings support sustained investment in public-access defibrillation, technology-enabled citizen responder systems, early CPR education, and coordinated post-arrest care pathways. Further work should assess neurological outcomes and system-level time metrics to confirm and refine these observed benefits.

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Table 1 (Abstract A43). See text for description

Out-of-Hospital Cardiac Arrest (OHCA) in Trentino, 2023–2024: Descriptive

Overall and Witnessed Status		
	Count	**% of all OHCAs (N = 1,032)**
Total number of events	1032	
Witnessed by bystander	671	65.0%
Unwitnessed	259	25.1%
Witnessed by EMS (arrest occurred during care)	102	9.9%
Dispatcher Pre-Arrival Instructions (PAIs)		
OHCA with effective PAIs	Count	% of all OHCAs (N = 1,032)
Yes	603	58.4%
No	429	41.6%
First Responder (FR) Activations (Alerted by Dispatch Center)		
FR Group	Count	% of all OHCAs (N = 1,032)
Volunteer Fire Brigade (VVF)	88	8.5%

Out-of-Hospital Cardiac Arrest (OHCA) in Trentino, 2023–2024: Descriptive

Overall and Witnessed Status

	Count	**% of all OHCAs (N = 1,032)**
CNSAS (Mountain Rescue)	37	3.6%
Healthcare personnel	1	0.1%
Ski patrol	1	0.1%
Total FR activations	127	12.3%

Abbreviations: OHCA out-of-hospital cardiac arrest, *EMS* Emergency Medical Services, *PAIs* dispatcher Pre-Arrival Instructions, *FR* First Responder, *VVF* Volunteer Fire Brigade, *CNSAS* National Alpine and Speleological Rescue Corps

A44

Chemical emergency management teams: training and in-situ simulation

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Background

The training of workers in chemical factory represents a great challenge in terms of the effectiveness of the training intervention, as they must work in contexts with high environmental risk.

Objective

The purpose of this study is to demonstrate that the introduction of "in-situ simulation," directly at the workplace, improves the retention of the theory and practice of chemical emergency management procedures

Materials and Methods

The course was structured over 4 hours. In the first part, we used a combination of frontal lectures and mannequin training. The objectives were: to crystallize safety concepts, to effectively simplify the great diversity of chemical products that workers have to deal with in order to create simple, safe, and effective procedures, and to consolidate basic first aid concepts such as patient transport and management. The part on donning and using PPE concluded the first part of the course, allowing verification of the participants' ability to protect themselves appropriately.

The second part of the course involved the workers engaging in-situ simulation scenarios, with the aid of mid-fidelity mannequins, powders, liquids, and emergency sirens. The participants had to manage typical incidents in chemical factory, applying company procedures (see picture).

At the end of the simulations, a plenary debriefing was held with the aid of the video material recorded during the scenario.

Results

All workers correctly performed the donning procedures in less than 2 minutes (117"), and correctly managed scene safety and patient evacuation, they confirmed communication difficulties when wearing facial filters.

The scenarios that involved patient first aid management proved challenging for 50% of the participants.

Conclusions

The positive results of this preliminary study suggest that in-situ simulation-based training is highly effective also in specific chemical scenario and in PPE use.

Publisher's Note