REUE | Viewpoint

SIRATTE: A new acronym as a cognitive tool in the prehospital response to mass casualty incidents

SIRATTE: un nuevo acrónimo como herramienta cognitiva en la respuesta prehospitalaria ante incidentes de múltiples víctimas

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Introduction

In emergency and disaster situations, effective communication is essential to coordinate rapid and efficient responses.[1] Acronyms play a crucial role in this context, as they simplify and standardize complex terms, facilitating comprehension and action among response teams.[2] Their usefulness lies not only in the organization of information but also in their ability to reduce cognitive load under high-stress situations, which is why they are frequently used in prehospital care.[3]

The use of acronyms in emergency settings is important from a cognitive perspective, since stress situations have an immediate effect on memory[4] and even on performance in simulated exercises.[5] Cognitive load (CL) is defined as "the total amount of mental effort being used in working memory at any given moment".[6] This CL can be especially relevant in mass casualty incidents (MCI), where large amounts of direct and indirect data must be processed under stress.

In an unstable and unpredictable scenario, memorizing structured sequences of actions through acronyms facilitates the execution of protocols and reduces the margin of error. Moreover, these acronyms are useful in the training of emergency teams, ensuring adherence to procedures across different situations and contexts, while helping implement the necessary basic measures in the proper order. It has been demonstrated that the use of acronyms improves information retention and the application of protocols in infrequent or high-stress situations where rapid decision-making is crucial.[7,8] The human mind processes and retains information better when it is structured schematically, allowing rapid access to the necessary knowledge at a critical moment.[9] Although it can be hypothesized that the use of acronyms in emergencies improves information retention and protocol adherence in infrequent or stressful situations, we have not found recent studies supporting this assertion.

In MCIs, where coordination among multidisciplinary response teams is essential, acronyms can play a crucial role by providing a standardized framework for transmitting relevant information and initiating actions in a logical sequence. In these scenarios, cognitive overload and stress may impair decision-making, so the use of acronyms helps structure information clearly, reducing the risk of errors and optimizing resource allocation. This fact gains further importance considering that group decision-making under stress has implications described long ago.[10]

Some acronyms used in emergency settings include:

– METHANE: used to structure communication between response teams. This acronym consists of Major Incident, Exact location, Type of incident, Hazards, Access, Number of casualties, and Emergency services present or required. Its application enables clear and standardized information transmission, optimizing the response in critical situations.[2]

– CABCDE: used to guide the assessment and treatment of severely injured trauma patients: Catastrophic bleeding, Airway, Breathing, Circulation, Disability (neurological status), Exposure (environmental control). This acronym helps prioritize critical interventions and ensures vital assessments are performed in the correct order.

– MARCH: originating from tactical medicine, it stands for Massive hemorrhage, Airway, Respiratory, Circulation, and Hypothermia, and is used in the initial assessment of severely traumatized patients.

– ATMIST: used for hospital pre-alert of severe trauma patients:[11] Age, Time of injury, Mechanism of injury, Injuries sustained, Signs and symptoms, Treatment given so far.

– AVPU: a quick assessment of the level of consciousness: Alert, Responds to Voice, Responds to Pain, Unresponsive.[12]

– SAMPLE: used to obtain basic and essential information about a patient, helping

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Figure 1. SIRATTE acronym as a cognitive tool for mass casualty incidents linked to the METHANE acronym.

collect important data for the initial evaluation: Signs and Symptoms, Allergies, Medications, Past medical history, Last meal, Events leading to injury/illness.

Our teaching and clinical experience have shown the importance of acronyms in MCIs. Based on this, and on the learning and care difficulties expressed by students, we have developed an acronym that has already been introduced in various training activities for emergency professionals (physicians, nurses, and emergency technicians), as well as for medical students and primary care professionals. We believe this acronym facilitates recalling the organizational phases that emergency teams at the scene must consider, especially those managing the first moments of the out-of-hospital response to an MCI. In this way, an appropriate and adapted response can be constructed according to the type and magnitude of the incident.

The acronym is called SIRATTE, and it has the advantage of being identical in both English and Spanish:

– Security: Safety is the main priority in any emergency situation, ensuring the protection of emergency teams. This includes risk assessment of the environment, proper use of personal protective equipment, and implementation of established safety protocols. In MCIs, this premise is essential and of utmost priority.[13]

– Information: The effective collection and management of information are vital for decision-making during an MCI. It involves gathering, analyzing, and transmitting data to the Emergency Coordination Center (EMC) and to other responding teams. Clear and coherent communication among all response units is essential for coordinated action.[13] In this regard, the use of the acronym METHANE can be considered to structure information clearly and efficiently.

– Roles: Clearly defining roles and responsibilities is crucial to prevent confusion and ensure an efficient and appropriate response. These roles should be outlined in the medical emergency system's (MES) operational procedures, adapted to its structure and function, and incorporated into its training plan.

– Working areas: Establishing work areas facilitates resource organization and task execution, directly impacting patient care and coordination with other healthcare services.

– Triage: Triage is the process of classifying patients based on treatment and evacuation priority, as well as their survival probabilities in the given context.[15] This process ensures efficient use of resources by prioritizing those who need care the most. Each MES should establish a standardized triage system to homogenize care and reduce variability.

– Treatment: Once victims have been classified, appropriate on-site treatment should be administered according to the established priority.[15] The complexity of prehospital treatment depends on available resources and the MCI level, ranging from advanced interventions to minimal acceptable care prior to hospital transfer. For surgical patients with uncontrolled hemorrhage, rapid transport is recommended, performing only essential interventions that do not delay evacuation.

– Evacuation: This is the process of transporting victims from the incident site to healthcare centers. It is essential to assign the most suitable transport resource according to availability and the patient's condition, and to coordinate the transfer with the EMC and health care centers. The complexity of each phase will depend on the assistance capacity (Emergency Services, Primary Care teams, etc.), but the first four phases should be common to any first-arriving response team.

The authors have been using the SIRATTE acronym for a year in training courses aimed at emergency professionals (physicians, nurses, and emergency medical technicians), as well as primary care professionals[17] and medical students.[18] This has allowed us to assess its practical applicability across different levels of care complexity during MCIs. Therefore, we believe that the SIRATTE acronym can facilitate the initial management of MCIs. Each component of SIRATTE represents a fundamental aspect of the prehospital response which, when carried out sequentially, contributes to a more organized, safe, and efficient operation. Its bilingual formulation may also help promote its international dissemination.

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