

Background: Awareness is an important concept arising in medical care. It has been a widely applied concept in aviation and military circles. Awareness is simply Knowing, being aware. Knowing what is going on around you and applying that knowledge in any situation until it becomes second nature; when you can immediately know the important aspects of the situation, and what will lead to life or limb threatening events.

Methods: To highlight the concepts key to Situational awareness; Normal, Change, Distractions, Bias, Target lock. Translating how training in these concepts improves outcomes. Defining the key concepts, understanding them and presenting exercises to assess the Emergency physicians grasp of the concepts.

Results: Projecting the gains this training has had in military and aviation, where it has improved the effectiveness of teams and outcomes of events. Leaders have been able to observe events as they unfold, identify the key aspects that would threaten outcome or prove fatal. It enables them to see changes in the progress of events and how numerous factors influence outcome. It shows the disadvantage of bias in any situation, and how focusing only on a small part of the bigger picture can be a problem.

Conclusion: The application of Situational awareness in emergency medicine and patient care, would optimize patient care and identify early changes or events that could be life or limb threatening. It consciously puts the emergency physician in a position to identify information and changes, which when acted upon early can improve patient outcome.

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Challenges for Cross-Jurisdictional Interoperability by Web-Based Situational Awareness System (SAS), Japan

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Study/Objective: The objective of this study is to analyze the regional response capability change in Hyogo prefecture for 3 years.

Background: A major incident necessary for the cross-jurisdictional response is rare. But, we experienced such an incident 3 years ago with neighboring Kyoto-prefecture. Our Hyogo-prefecture has been developing the web-based SAS, similar to the Hyogo-prefecture Emergency Medical Information System (HEMIS) for data communications.

Methods: Adding to our response record, we investigated the response records on site and questioned the stakeholders of the Explosion in Kyoto/Fukuchiyama. From lessons learned, we investigated the web-based EMISs in each prefecture.

Results: An outline of the Explosion in Kyoto/Fukuchiyama is as follows: 45 Burn patients were transferred to the only critical care center, and 59 burn patients were sent to 3 hospitals in this area, within 66 minutes. There were 5 medical teams from three

prefectures dispatched to the hospital. HEMIS could easily reveal that the 11 hospitals could receive 19 severe patients, and was enabled to share the information with all stakeholders. Finally, 9 among 16 severe burn patients were transported to Hyogo-prefecture, and 3 were to Osaka for further intensive treatments. As for starting prompt medical responses across the jurisdictions, voice communications are necessary, and those now depend on Drs' personal performance. Communications among local governments should be facilitated by principal disaster hub-hospitals in each jurisdiction. Web-based SAS is necessary for cooperation between medical and Fire/Ambulance agencies, but it is developing independently in each jurisdiction, and the national EMIS have no function. To fill the gaps, 6 jurisdictions in KINKI Region swapped each ID/Password for the systems login. We applied this framework to the contingency plan of an airport.

Conclusion: The cross-jurisdictional interoperability is a challenge to improve our response capability. Gaps of governance and technology should be filled by daily training and exercises among multi-agency or jurisdictions.

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Situation Display for the EMS Dispatch Team during Multi-Casualty Incident Management

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Study/Objective: Design and test a situation display for EMS dispatch

Background: Effective management of multi-casualty incidents requires rapid, tight, yet flexible coordination among members of the EMS dispatch to assist in managing ambulances and hospitals. Cognitive processes such as situational awareness, communication, and decision-making are critical for effective teamwork. Shared situation displays can facilitate effective situational awareness and decision-making. This paper introduces the user-centered design and preliminary testing of a situation display for the EMS dispatch during multi-casualty incident.

Methods: User research included: 1) Review and analyses of procedures and incident reports; 2) Interviews with experienced EMS dispatch personnel; 3) Observations of routine work in the dispatch center. Task analysis and operational flow diagrams identified the cognitive aspects of various tasks such as, situational awareness, dynamic decision making, and teamwork processes. The analysis uncovered the need to have information integrated to support the team. The conceptual design of the display consists of four primary areas: 1) Movement of ambulances to the incident site; 2) The incident site; 3) Evacuation from the site to hospitals; and 4) Routine operations. Details include amount and locations of ambulances to the site or from the site to hospitals, casualties on site,

hospitals' capacities, and tasks performed in the dispatch center and on site. Preliminary testing of the display included running a multi-casualty incident scenario, during which participants responded to situational awareness and decision-making probes presented to them.

Results: The findings show that various elements in the display, increased significantly the rate of correct responses to the situation awareness and decision making probes.

Conclusion: The situation display includes integrated elements that support situational awareness, predictive thinking, natural decision-making, and team transactive memory systems during the management of a multi-casualty incident. Implementing such a display in the dispatch center can thus facilitate effective teamwork and improve the incident management.

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