Abdullah Rasheed Aljahim; Comprehensive Review of Mass Casualty Incident Response Plans in Analyzing Preparedness, Coordination, and Resilience in Emergency Medical Services Through Critical Analysis.

230

Comprehensive Review of Mass Casualty Incident Response Plans in Analyzing Preparedness, Coordination, and Resilience in Emergency Medical Services Through Critical Analysis.

[1]**Abdullah Rasheed Aljahim,** [2]**Hassan Mohammed Kadam Almuhanna,**[3]**Rakan Saleh Dhafer Alharith,** [4]**Bilal Ali Alshehri,** [5]**Jabril Mohammed Hakami,** [6]**Mohammed Wafi Saad Almadhi,** [7]**Faisal Saud Abdulhaq,** [8]**Abdulrahman Ahmed Alzahrani**

[1]aalanazi435@moh.gov.sa, Ministry of Health, Saudi Arabia

[2]hamoalmuhanna@moh.gov.sa, Ministry of Health, Saudi Arabia

[3]rakansalhareth@gmail.com, Ministry of Health, Saudi Arabia

[4]Bilal_ems@hotmail.com, Ministry of Health, Saudi Arabia

[5]Jabrilmh@moh.gov.sa, Ministry of Health, Saudi Arabia

[6]malmadhi@moh.gov.sa, Ministry of Health, Saudi Arabia

[7]Fabdulhaq@moh.gov.sa, Ministry of Health, Saudi Arabia

[8]D7mme96@gmail.com, Ministry of Health, Saudi Arabia

Corresponding author: Abdullah Rasheed Aljahim, (aalanazi435@moh.gov.sa).

Abstract: When a situation of mass casualties develops (MCIs), being reactively strong enough is the only way EMS can cooperate reasonably and deal with the calamity. This piece of writing is a critical analysis of the current response plans to mass casualty incidents. It assesses their preparedness level in dealing with the plans, the mechanisms for organizing the response, and whether the strategy for resilience has been considered. This study intends to examine appropriate literature, find voids in knowledge, and synthesize the findings to broaden the understanding and offer competent insights for MCI responses in EMS.

Key Words: Mass casualty incident, emergency medical services, response plans, preparedness, coordination, resilience.

INTRODUCTION

From the point of view of emergency medical services, large-scale mass casualty incidents represent a significant challenge because a fast response must be made to minimize their impact on public health and safety. The article's opening part paves the way for the introduction to the integral issue of mass casualty incident response planning, which is paramount in crisis management and emergencies (Arnaouti et. al 2022). This study endeavors to highlight how response plans that emphasize preparedness and resilience can effectively be utilized in addressing emergencies so that this will, in turn, bring added value to the emergency medical service's preparedness and resilience during mass casualty emergencies. This work aims to review mass casualty incident response plans in hospitals in emergency medical care with an emphasis on preparedness mechanisms, operational mechanisms, and resilience measures. The study critically assesses existing literature links and extracts what is strong, what is wrong, and what can be improved in meaning response planning.

The research focuses on a comprehensive review of MCI preparedness plans for EMS from ambulance services, hospital systems, and disaster management agencies, to name a few. We want to explore the range of domestic and international reaction plans implemented to ensure our results are up-to-standard and comprehensive (Trucco et. al 2022).

The mass casualty event response plan cannot be understated anywhere practically before natural disasters get worse under the influence of exposing them to terrorist attacks, pandemics, and others. This research, which involves evaluating emergency response plans, compiles knowledge on policy development, training initiatives, and resource allocation strategies promoting EMS preparedness and resilience in MCI management.

The importance of a mass casualty incident response plan cannot be denied in combat and extreme emergencies that occur today all over the globe. Organized coordination, readiness, and resilience are necessary for reducing casualties, optimum resource application, and assuming precisely the power roles for timely healthcare delivery in the avalanche of crises. This section aims to give readers the necessary information about the role of MCI response time plans from the perspective of emergency management and public health.

LITERATURE REVIEW
Existing Literature

Mass-scale casualty incident (MCI) response planning has captured the attention of the literature due to the large-scale

Abdullah Rasheed Aljahim; Comprehensive Review of Mass Casualty Incident Response Plans in Analyzing Preparedness, Coordination, and Resilience in Emergency Medical Services Through Critical Analysis.

231

impact that emergencies have on the role of emergency medical services (EMS). This part of the topic review stresses the existing scientific research-based literature, which highlights the major problem areas and where research is mainly focused.

Development of Response Protocols
Researchers have conducted numerous studies to determine the suitability and advancement of response methods in Emergency Medical Services (EMS) for Mentally Ill Patients (MCIs). Likewise, while these protocols are a solid framework for triage, treatment, and transport of people with casualties, they might need to be improved, such as the fulfillment protocols, which should be specific to every casualty (Tippong et. al 2022). The research has shown that good guidelines for time adaptability for resource allocation are required when EMS personnel work in challenging and dynamic environments.

Resource Allocation Strategies
Resource allocation is the most critical component of the entire MCI response process. Efficiency in resource allocation would lead us to a solution to the limited resource issue. Research has thus focused on numerous strategies for resource distribution, of which command structures, mutual help frameworks, and surge capacity planning have been the most notable. Besides this, the research focused on applying simulation modeling and decision support systems and how these can influence resource allocation decisions and improve response capabilities (Bahrami et. al 2020).

Training Programs
Training programs are what EMS professionals are up to take care of MCIs. Experiments have been conducted to determine the outcomes of several training methods, like table exercises, simulations, and drills, when it comes to firming up the readiness and better performance of mass casualty emergencies. To this end, issues like interdisciplinary training and collaboration among EMS, fire, law enforcement, health care, and so on are also analyzed for managed response coordination.

Coordination Mechanisms
The cooperation among various parties, including community organizations, local government, and law enforcement, is the fundamental pillar for successful MCI response programs. The literature has found different coordination mechanisms involving the use of, among others, incident command systems, multi-agency coordination centers, and public-private partnerships to be very instrumental in ensuring that there is seamless communication, sharing of limited resources, and proper decision-making during MCIs. Furthermore, the studies emphasized the interoperability of communication systems and information-sharing platforms to promote collaboration and information exchange efficiency among the response tentacles (Goniewicz et. al 2021).

Technology's role
Technology has a critical impact on improving the response of a community affected by disasters by providing instant communication, information exchange, and awareness development. Researchers involved are seen to have managed the application of technology such as geographic information

systems (GIS), telemedicine, mobile apps, and social media platforms during major catastrophes and incident operations. Also, other researchers assess the combination of classical technologies and the latest generation, such as AI and machine learning, which are designed to provide integrated decision support and prediction in MCI planning and response (Goniewicz et. al 2021).

Community Engagement
Enabling the community to participate in local governance for disaster preparedness is vital. It empowers individuals and communities to withstand disasters more effectively. The investigation of nationwide volunteer search alternatives, broadcasting disaster education programs, and publicity of the concept of preparedness for COVID-19 have been coordinated. Community-based organizations, volunteer groups, and faith-based organizations amount to the maximum percentage of such effort to behave in an MCI-related response and recovery.

Identifying Gaps in Knowledge
However, the available literature sources reflect the unquestionable contribution of MCI response planning, whereas knowledge gaps still exist. Such factors are varied, including response effectiveness evaluation, coordination problems of multi-agency responses, damage from unequal resource allocation in disaster areas, and training and simulation exercises. Making up these shortages is the key to reaching an optimum MCI response capacity level and ensuring individuals' vitality (Goniewicz et. al 2021).

The current research on rapid response in EM shows us that different planning stages regarding MCI response contain the following aspects: the development of protocols, resource allocation, training programs, coordination issues, the role of technology, and community participation. Although there is considerable improvement in how MCI is responded to, we still have a long way to go in developing more advanced ways of cross-agency cooperation and training to make the local communities more resilient. The coverage of this sort of review will note the following truths closer to the innovations used in the MCI to have a sustainable response to large-scale unwanted emergencies.

MATERIALS AND METHODS
Relevant Theories, Methodologies, and Findings
Instead, only some studies have analyzed the MCI using methodologies such as systems theory, resilience theory, and scenario-based simulations. Research results note the critical elements of interdisciplinary cooperation, information transmission, and adaptive leadership that create high response management efficiency. Moreover, research has also found the requirement for updating and adapting policies on an ongoing basis, which helps to face dynamic challenges and vulnerabilities (Du et. al 2020).

Research design and methodology
This research uses a systematic literature review method to assess the effectiveness of mass casualty incident responses in emergency medical services. The research design identifies relevant literature, synthesizes findings, and qualitatively

Abdullah Rasheed Aljahim; Comprehensive Review of Mass Casualty Incident Response Plans in Analyzing Preparedness, Coordination, and Resilience in Emergency Medical Services Through Critical Analysis.

232

analyzes the central themes, challenges, and successful strategies included in MCI response planning'. The methodology covers the application of databases, literature analysis, raw data extraction, and categorization of results, which results in valuable findings.

Justification and alignment

Having decided on the research design and methods for the study within the monitoring objectives, a systematic exploration of scientific literature on the issues of maintaining an independent life on Mars becomes possible. This way, applying the systematic approach, the study's purpose is to guarantee compliance with rigor, transparency, and repetition while synthesizing the research results and delimiting areas where to inquire further (Oh & Lee 2020)

RESULTS

The systematic literature review about mass casualty incident (MCI) response plans as related to the emergency medical services system (EMS) is seen to be remarkable for the following points, which pertain to the policy development, implementation, and assessment of these plans as revealed by the literature review: The segment that follows would include the results and findings of the literature review. This will be done by highlighting major themes, trends, challenges, and best practices mentioned in the body of the literature.

Key Themes and Trends
Standardization of Protocols

Many studies found that various MCI response protocols were needed. These included triage, transport, and treatment procedures. During the articles, the authorities proved the necessity of visually understandable, adaptive protocols applicable in high-impact conditions student to secure their health.
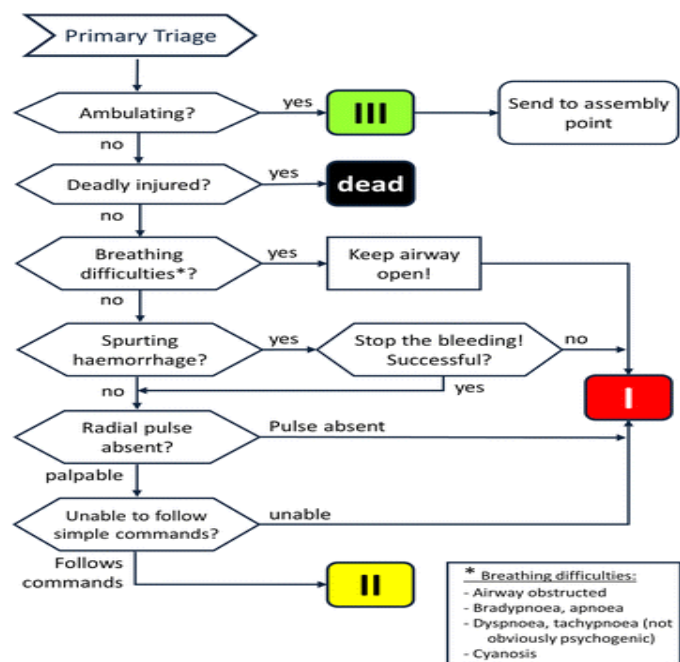

Figure 1: Standardization of Protocols for Mass Casualty Incident Response (Skryabina et. al 2020)

Resource Allocation Strategies

Research recognized different strategies communities use to handle their resources during MCIs, including incident command systems, mutual aid agreements, and surge capacity planning. The literature emphasized the significance of pre-planning and intercompany collaboration among the EMS agencies to obtain maximum output from the available resources and lessen response delays (Aminizadeh et. al 2019).
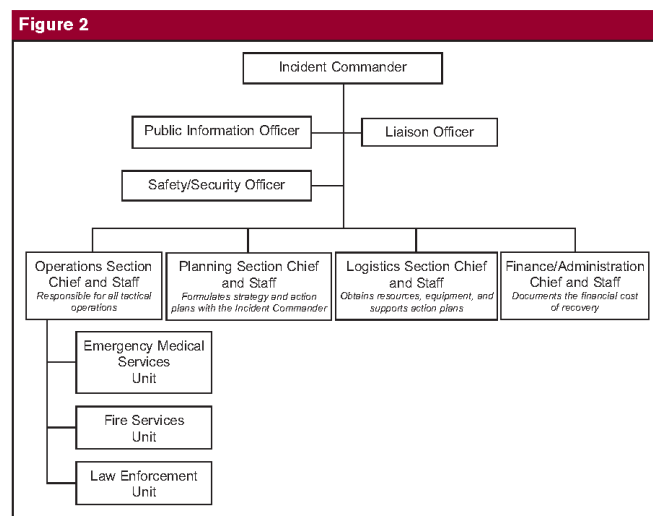

Figure 2: Resource Allocation Strategies in Mass Casualty Incident Response (Aminizadeh et. al 2019)

Training and Education

EMS training came as one of the key pillars in building up MCI preparedness, with most studies emphasizing the need for interdisciplinary training, reflective simulations, and ongoing education among EMS workers. The reviewed literature underlined the importance of using meticulous training scenarios that replicate the level of complexity in MCI responses and, at the same time, promote ideal teamwork and communication (Qari et. al 2019).
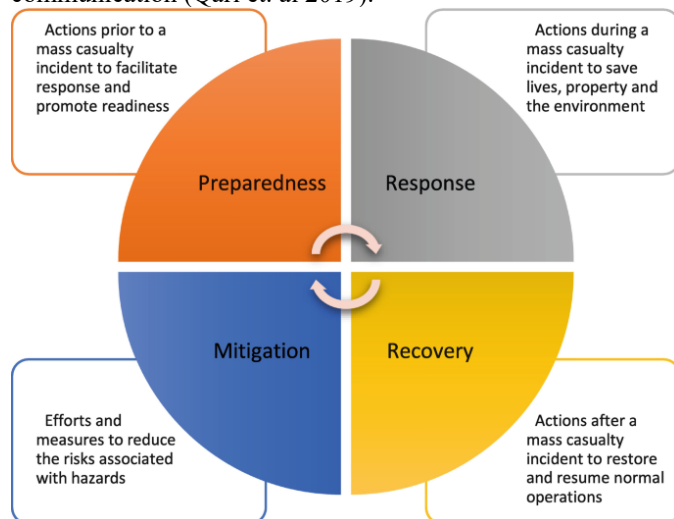

Figure 3: Training and Education Strategies for Mass Casualty Incident Response (Qari et. al 2019)

Coordination and Communication

Effective coordination and communication between the whole

Abdullah Rasheed Aljahim; Comprehensive Review of Mass Casualty Incident Response Plans in Analyzing Preparedness, Coordination, and Resilience in Emergency Medical Services Through Critical Analysis.

233

systems of the agency of response were acknowledged as primary factors in the control of MCI. The literature focused on the necessity of interoperable communication systems, the type of command structure for incidents, and multi-agency coordination centers for sharing information, resource allocation, and making decisions in a mass casualty incident.
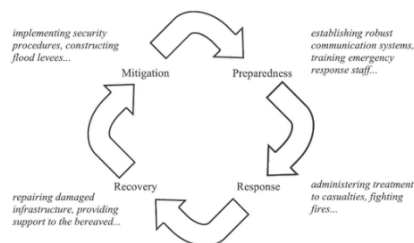

Figure 4: Coordination and Communication Mechanisms in Mass Casualty Incident Response (Li et. al 2022)

Role of Technology

GIS, telemedicine, mobile applications, and social media are the main areas of focus in the technology field for studying technology to improve MCI response, making it possible to respond to a disaster that might have far-reaching consequences. The novel identified a need for technology to expand situational awareness, facilitate communication, and support decision-making in MCI response and planning (Li et. al 2022).
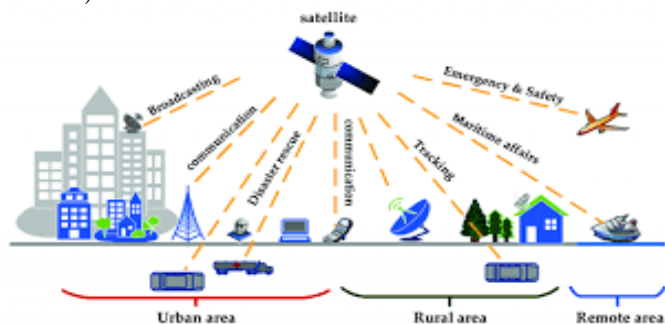

Figure 5: Role of Technology in Enhancing Mass Casualty

Incident Response(Huang et. al 2021).

Challenges and Best Practices

- Interoperability Issues Research and difficulties in coordination between different EMS agencies and response crews are among the challenges cited in the literature. For instance, insufficient intra-organizational communication systems, lag in data sharing, and lack of jurisdiction come forth as obstacles to collaboration and data interaction during times of community-wide crisis.
- Training Effectiveness: Despite recognizing training programs as crucial elements of MCI readiness, training effectiveness and sustainability challenges persist. Training was emphasized as something that needed to continue, that scenario training should be realistic, and that interdepartmental communication was required to be effective for EMS personnel to be prepared to respond to MCIs (Ali et. al 2022).

- Community Engagement: Community participation turns out to be a crucial part of the planning and preparedness process; however, the literature indicates things to be improved related to the capability of the planners to engage with the members of the community from diversified backgrounds. Strategies geared towards increasing community engagement involved the development of public campaigns, outreach programs, and joint ventures with community entities.

The outcomes and findings from the systematic literature review stressed the principles of the unified codes, the resource management options, the training programs, coordination mechanisms, and the use of technological advances to improve MCI response delivery in the EMS sector. As interoperability, training effectiveness, and community engagement problems are relevant, this literature points out some of the best practices and good opportunities for MCI preparation. Here is an overview of the subsequent part, in which the effects of these results will be discussed on the practices, policies, and research in dealing with MCI (Verheul & Dückers 2020).

DISCUSSION

The results of a comprehensive literature search on the mass casualty incident plan (MCI) of the Emergency Medical Services (EMS) yield rich findings on effectively planning and responding to the MCI. This part of the discussion revolves around MCI crises and the topic of better responses to them, e.g., reaction planning, implementation processes, and the development of policies. Our study aims to create a novel knowledge base from existing literature and identify the knowledge gaps in this field that will lay the foundation for EMS response strategy optimization and respective preparedness and resilience enhancement.

The literature emphasizes the use of standard protocols for MCI visualization, notably the fact that they should be straightforward and flexible enough to be appreciated manually during chaotic situations. However, it must be accepted that standardization is one of the critical components of the MCI response since it provides for effective coordination and efficiency. Nonetheless, no matter how crucial the standardization may be, there should be no problem if the protocols are flexible enough to suit the naturally changing circumstances of MCIs (Hugelius et. al 2020). EMS agencies need to balance standardization and the ability to adapt to various clinical issues, which is also a must as a large volume of variations in clinical practice is present in the field.

Managing resources is the groundwork for MCI response, which involves collaboration between EMS organizations, healthcare centers, and other agencies participating in response to the disaster. The reading text underlines this fact with a call for prior scheduling and cooperation that help utilize specific resources and reduce the time for response. However, problems like shortages of resources, geographical boundaries, and operation synchronization may negatively affect them. EMS agencies shall cultivate the collaboration of local, regional, and state-level agencies to produce comprehensive treatment resource plans that put patient care first because resource constraints cannot be ignored (Khorram-Manesh et. al 2021).

Training programs are indisputable for fully qualifying EMS personnel to do their job in such a critical situation as MCIs. On

Abdullah Rasheed Aljahim; Comprehensive Review of Mass Casualty Incident Response Plans in Analyzing Preparedness, Coordination, and Resilience in Emergency Medical Services Through Critical Analysis.

234

the other hand, the literature and practice indicate difficulties in training quality, sustainability, and intergovernmental coordination. EMS agencies should allocate their resources toward updated annual training and education that incorporates simulations of realistic situations, collaboration of different departments, and genuine "hands-on" gaining of experience. On the other hand, a combination of technology-assisted learning modules and virtual training environments may also significantly elevate the effectiveness and overall accessibility of the training programs, consequently assuring that EMS staff is well-versed in psycho-social aspects of the MCI response (Khalil et. al 2022).

With effective coordination as well as inter-agency communication, agencies can share information, allocate resources, and make better decisions when it comes to handling MCIs. As a result, interoperability and communication breakdowns and boundaries become the most apparent challenges among different services during the coordination process. EMS agencies must focus on creating interoperable communication systems, command structures for incidents, and multi-agency coordination armies to bolster the efficiency of communication and coordination. Similarly, integrating technologies such as GIS and telemedicine can enhance the ability to respond quickly and streamline intra-agency communications (Lamberti-Castronuovo et. al 2022).

Technology is instrumental in improving the reaction to MCI, having the prospect of introducing diverse techniques that can help improve situational awareness, communication, and decision-making. Although obstacles, such as the most relevant amongst them—the technological barriers, data security matters, and user adoption issues—need to be solved to recognize and utilize the technology capabilities to the fullest extent in the MCI response, EMS systems will have to commit their resources to the development of interoperable, intuitive, and contextual solutions to help the first responders in the management of MCI incidents. Furthermore, training and assistance to EMS personnel to introduce effective technological capabilities during MCIs must be an ongoing process.

This, in turn, brings me to the concluding part of the discussion, where the significance of addressing critical challenges and taking advantage of opportunities is stressed to make MCI response planning, practice, and EMS policy more effective and successful. By emphasizing standardization, resource allocation, training, coordination, and technology integration, EMS services are better positioned to boost their preparation and resilience in case an MCI happens, which would reduce harm to patients and community members (Al-Hajj et. al 2020).

CONCLUSION

In the end, there is a need for a good plan for mass casualty incident response in emergency medical services. In this first step, it is imperative to be prepared and coordinated to ensure that emergencies are effectively attended to. The research has pinpointed important themes, difficulty points, and improvement opportunities at meeting MCI. It suggests a requirement of internationally approved protocols, sound resource-allotted strategies, enhanced training and education, and improved coordination and communication strategies incorporating the latest technology. To accomplish this goal, EMS agencies should pay attention to evidence-based practices, collaborate with other services, and take innovative

steps to do their work and calm the situation effectively. The endeavors of policymakers, decision-makers, and other stakeholders may be achieved by investing in infrastructure, training, and technology recovery that would make it possible to create a timely and accurate response to the disaster (O'Brien et. al 2020). Similarly, there is a need for more scientific explorations about unknowns and MC disorders and attention given to the impact of intervention strategies in increasing MCI response outcomes. Through a joint effort to bring these recommendations into being, EMS units can only become more capable of dealing with harm that extends to the public and the safety of society.

RECOMMENDATION

- Standardize protocols: Such standards as the protocols and guidelines for disaster plans reduce the likelihood of confusion and misunderstanding in the case of disaster response.
- Enhance training and education: Develop extensive training and awareness programs for EMS personnel, healthcare professionals, and the community to raise readiness and response abilities.
- Improve coordination and communication: Develop closer collaborations and better communication mechanisms among EMS outlets, healthcare units, first responders, and government agencies to boost the effectiveness of MCI handling.
- Invest in technology: Invest in technology fields, such as interoperable communication systems, data analytics tools, and telemedicine facilities, to establish rapid viewing and decision-making during MCIs.
- Foster community partnerships: Build relationships with community groups, non-profit organizations, and local entities to promote neighborhood resilience and facilitate post-MCI recovery projects. Get In Touch
- Conduct regular drills and exercises: Monthly simulation drills, tabletop exercises, and response testing have to be planned to identify weak areas and strengthen team communication (Holgersson et. al 2020).
- Evaluate and adapt: Regularly test MCI response plans, procedures, and strategies in contrast with the findings and lessons from real-world incidents, studies, and best practices, and then adapt correctly to changing dangers and difficulties if necessary.
- Advocate for resources: advocate for sufficient resources, funding, and support from lawmakers and governing agencies for continued upholding and increasing MCI support systems in the EMS departments and health care systems.

This comprehensive literature review contributes to the existing library on mass casualty incident response planning that and aces strategies to enhance emergency medical service preparedness and resilience in managing crises effectively.

REFERENCES

[1] Hugelius, K., Becker, J., & Adolfsson, A. (2020). Five challenges when managing mass casualty or disaster situations: a review study. *International journal of environmental research and public health*, *17*(9), 3068.

Abdullah Rasheed Aljahim; Comprehensive Review of Mass Casualty Incident Response Plans in Analyzing Preparedness, Coordination, and Resilience in Emergency Medical Services Through Critical Analysis.

235

https://www.mdpi.com/1660-4601/17/9/3068

[2] Son, C., Sasangohar, F., Neville, T., Peres, S. C., & Moon, J. (2020). Investigating resilience in emergency management: An integrative review of literature. *Applied ergonomics*, 87, 103114. https://www.sciencedirect.com/science/article/pii/S00036 87020300752

[3] Ali, H. M., Ranse, J., Roiko, A., & Desha, C. (2022). Investigating organizational learning and adaptations for improved disaster response towards "Resilient Hospitals:" an integrative literature review. *Prehospital and disaster medicine*, 37(5), 665-673. https://www.cambridge.org/core/journals/prehospital-and-disaster-medicine/article/investigating-organizational-learning-and-adaptations-for-improved-disaster-response-towards-resilient-hospitals-an-integrative-literature-review/9D76EAEB474CFEF75619ADD2B1435FC5

[4] Li, Y., Hsu, E. B., Pham, N., Davis, X. M., Podgornik, M. N., & Trigoso, S. M. (2022). Developing public health emergency response leaders in incident management: a scoping review of educational interventions. *Disaster medicine and public health preparedness*, 16(5), 2149-2178. https://www.cambridge.org/core/journals/disaster-medicine-and-public-health-preparedness/article/developing-public-health-emergency-response-leaders-in-incident-management-a-scoping-review-of-educational-interventions/4BD25A9E54CEE10D06EC6886C27FDE D5

[5] Verheul, M. L., & Dückers, M. L. (2020). Defining and operationalizing disaster preparedness in hospitals: a systematic literature review. *Prehospital and disaster medicine*, 35(1), 61-68. https://www.cambridge.org/core/journals/prehospital-and-disaster-medicine/article/defining-and-operationalizing-disaster-preparedness-in-hospitals-a-systematic-literature-review/21A0554AF311EC8EFD9A8CFD08B8E087

[6] Qari, S. H., Yusuf, H. R., Groseclose, S. L., Leinhos, M. R., & Carbone, E. G. (2019). Public health emergency preparedness system evaluation criteria and performance metrics: A review of contributions of the CDC-funded preparedness and emergency response research centers. *Disaster medicine and public health preparedness*, 13(3), 626-638. https://www.cambridge.org/core/journals/disaster-medicine-and-public-health-preparedness/article/public-health-emergency-preparedness-system-evaluation-criteria-and-performance-metrics-a-review-of-contributions-of-the-cdcfunded-preparedness-and-emergency-response-research-centers/73E51A36362C431E0442C5FC9880F559

[7] Khorram-Manesh, A., Goniewicz, K., Hertelendy, A., & Dulebenets, M. (Eds.). (2021). *Handbook of disaster and emergency management*. Kompendiet. https://books.google.com/books?hl=en&lr=&id=G_1zEA AAQBAJ&oi=fnd&pg=PT1&dq=Comprehensive+Revie w+of+Mass+Casualty+Incident+Response+Plans+in+An alyzing+Preparedness,+Coordination,+and+Resilience+in +Emergency+Medical+Services+through+Critical+Analy sis.&ots=IjSRKD2vhx&sig=zDCQAB2QnT-g5yIkBwvkj1Ie4Vc

[8] Khalil, M., Ravaghi, H., Samhouri, D., Abo, J., Ali, A., Sakr, H., & Camacho, A. (2022). What is "hospital resilience"? A scoping review on conceptualization, operationalization, and evaluation. *Frontiers in public health*, 10, 1009400.

https://www.frontiersin.org/articles/10.3389/fpubh.2022.1 009400/full

[9] Tippong, D., Petrovic, S., & Akbari, V. (2022). A review of applications of operational research in healthcare coordination in disaster management. *European Journal of Operational Research*, 301(1), 1-17. https://www.sciencedirect.com/science/article/pii/S03772 21721008973

[10] Bahrami, P., Ardalan, A., Nejati, A., Ostadtaghizadeh, A., & Yari, A. (2020). Factors affecting the effectiveness of hospital incident command system; findings from a systematic review. *Bulletin of Emergency & Trauma*, 8(2), 62. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7211386 /

[11] Skryabina, E. A., Betts, N., Reedy, G., Riley, P., & Amlôt, R. (2020). The role of emergency preparedness exercises in the response to a mass casualty terrorist incident: a mixed methods study. *International journal of disaster risk reduction*, 46, 101503. https://www.sciencedirect.com/science/article/pii/S22124 20919311161

[12] Lamberti-Castronuovo, A., Valente, M., Barone-Adesi, F., Hubloue, I., & Ragazzoni, L. (2022). Primary health care disaster preparedness: a review of the literature and the proposal of a new framework. *International Journal of Disaster Risk Reduction*, 81, 103278. https://www.sciencedirect.com/science/article/pii/S22124 20922004976

[13] Du, L., Feng, Y., Tang, L. Y., Kang, W., & Lu, W. (2020). Networks in disaster emergency management: a systematic review. *Natural Hazards*, 103, 1-27. https://link.springer.com/article/10.1007/s11069-020-04009-5

[14] Trucco, P., Nocetti, C., Sannicandro, R., Carlucci, M., Weinstein, E. S., & Faccincani, R. (2022). Assessing hospital adaptive resource allocation strategies in responding to mass casualty incidents. *Disaster medicine and public health preparedness*, 16(3), 1105-1115. https://www.cambridge.org/core/journals/disaster-medicine-and-public-health-preparedness/article/assessing-hospital-adaptive-resource-allocation-strategies-in-responding-to-mass-casualty-incidents/712B6AAE77B57E23B8256AA3251BED0F

[15] Arnaouti, M. K. C., Cahill, G., Baird, M. D., Mangurat, L., Harris, R., Edme, L. P. P., ... & Haiti Disaster Response–Junior Research Collaborative (HDR-JRC). (2022). Medical disaster response: a critical analysis of the 2010 Haiti earthquake. *Frontiers in public health*, 10, 995595. https://www.frontiersin.org/articles/10.3389/fpubh.2022.9 95595/full

[16] Huang, D., Wang, S., & Liu, Z. (2021). A systematic review of prediction methods for emergency management. *International Journal of Disaster Risk Reduction*, 62, 102412. https://www.sciencedirect.com/science/article/pii/S22124 20921003733

[17] O'Brien, A., Read, G. J., & Salmon, P. M. (2020). Situation Awareness in multi-agency emergency response: Models, methods and applications. *International Journal of Disaster Risk Reduction*, 48, 101634. https://www.sciencedirect.com/science/article/pii/S22124 20920300443

[18] Al-Hajj, S., Abou-El-Hassan, H., Khalil, L., Kaafarani, H. M., & El Sayed, M. (2020). Hospital disaster and emergency preparedness (HDEP) in Lebanon: A national comprehensive assessment. *International Journal of Disaster Risk Reduction*, 51, 101889.

https://www.sciencedirect.com/science/article/pii/S2212420920313911

[19] Aminizadeh, M., Farrokhi, M., Ebadi, A., Masoumi, G. R., Kolivand, P., & Khankeh, H. R. (2019). Hospital management preparedness tools in biological events: A scoping review. *Journal of Education and Health Promotion*, *8*(1), 234. https://journals.lww.com/jehp/fulltext/2019/08000/Hospital_management_preparedness_tools_in.234.aspx

[20] Oh, N., & Lee, J. (2020). Changing landscape of emergency management research: A systematic review with bibliometric analysis. *International Journal of Disaster Risk Reduction*, *49*, 101658. https://www.sciencedirect.com/science/article/pii/S2212420920304891

[21] Chiossi, S., Tsolova, S., & Ciotti, M. (2021). Assessing public health emergency preparedness: a scoping review on recent tools and methods. *International Journal of Disaster Risk Reduction*, *56*, 102104. https://www.sciencedirect.com/science/article/pii/S2212420921000704

[22] Gunshin, M., Doi, K., & Morimura, N. (2020). Use of high-fidelity simulation technology in disasters: an integrative literature review. *Acute Medicine & Surgery*, *7*(1), e596. https://onlinelibrary.wiley.com/doi/abs/10.1002/ams2.596

[23] Goniewicz, K., Goniewicz, M., Włoszczak-Szubzda, A., Burkle, F. M., Hertelendy, A. J., Al-Wathinani, A., ... & Khorram-Manesh, A. (2021). The importance of pre-training gap analyses and the identification of competencies and skill requirements of medical personnel for mass casualty incidents and disaster training. *BMC public health*, *21*, 1-11. https://link.springer.com/article/10.1186/s12889-021-10165-5

[24] Holgersson, A., Eklund, A., Gyllencreutz, L., & Saveman, B. I. (2020). Emergency medical response in mass casualty tunnel incidents-with emphasis on prehospital care. *Journal of human security*, *16*(1), 3-15. https://www.ssoar.info/ssoar/handle/document/70628