

A call to action: attention to paediatric-specific disaster preparedness

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Natural and man-made disasters have been increasing worldwide. Six hundred natural disasters were documented worldwide in 2016 compared with 200 in 1980.¹ The Global Terrorism Index score (which reflects the relative impact of terrorism incidents annually) increased ninefold from 2000 to 2015.² With this increasing frequency of mass-casualty events globally, hospitals and their healthcare professionals (HCPs) must be ready to receive and manage a large influx of patients. Additionally, these institutions and front-line healthcare workers must be prepared to care for disaster victims of all ages, including the paediatric population, regardless of the hospitals' typical intake patterns.

In order to be best prepared, many countries across the world have developed healthcare-related disaster plans. Similar to other countries, France has developed the Organisation de la Réponse du Système de Santé en Situations Sanitaires Exceptionnelles plan to guide the management of mass casualties. However, this specific plan lacks explicit guidelines with respect to the management of paediatric victims; an oversight that is commonly seen in disaster plans worldwide. Children have unique anatomical, physiological and psychological aspects that increase their risk in the case of disasters.³ Consequently, paediatric disaster victims require an assessment and treatment plan different than that for adults. Therefore, there is a need, on a global level, for mass casualty plans to contain specific guidelines for the paediatric patient population.

Furthermore, while many studies have examined implementation of disaster management plans, very few have included the paediatric population. Recognising the lack of organised paediatric care in the case of a mass casualty disaster across France, Mortamet and

his colleagues studied paediatric disaster preparedness across their country. They completed a cross-sectional survey studying paediatric disaster preparedness related to¹ hospital organisational procedures and facilities including prehospital care and² level of preparedness with regards to paediatric disaster of the hospitals' physicians with roles in paediatric acute care (emergency, intensive care, surgery and anaesthesia).⁴ Their findings revealed a lack of hospital and physician readiness to manage large volume paediatric disaster patients. A similar study, completed in the USA, identified similar challenges in preparedness for disasters involving paediatric victims.⁵ Thus, although the organisation of paediatric acute care delivery varies from one country to the next, even within countries there is heterogeneity of paediatric disaster preparedness and globally there is a lack of paediatric mass casualty readiness by front-line physicians.

This need for paediatric-specific disaster preparedness of healthcare institutions and their HCP underscores the need for paediatric-specific mass casualty management plans and raises the question of how to best implement this plan within institutions and optimise physician readiness.

To optimise paediatric disaster preparedness and physician readiness requires the application of educational best practices, which includes hands-on learning. Using didactic methods to learn disaster-related patient management has significant limitations including poor retention. Whereas simulation-based experiential training has been shown to result in a higher prevalence of learner involvement, increased buy-in and longer retention of knowledge and skills.³ In addition, simulation-based, hands-on learning allows variation in the type of the simulation as well as the learning environment, depending on the local educational resources and learning objectives. Simulation can include a breadth of tools and modalities ranging from low-fidelity simulations such as table-top simulations (akin to a board game) and low-fidelity mannequins to more sophisticated modalities such as

high-fidelity mannequins, virtual reality technology and standardised patients (using actors). Although learning in a simulation lab has proven to be superior to more traditional classroom-style learning methods, learning in situ, that is, the clinical environments in which the HCP work, is ideal. Regardless of the simulation techniques used, in situ learning enables the HCP to optimally gain situational awareness and identify strengths and challenges that they may face in a real disaster within their own context. Importantly, these in situ simulations allow for real teams to work together within their clinical environment to develop the crisis resource management knowledge and skills including communication skills, resource utilisation and teamwork all necessary to optimise healthcare during a mass casualty event. Simulations allow teams to learn valuable lessons together and identify problems that need to be addressed, before managing a real disaster victim. Examples of problems include local environmental issues, team functioning and communication challenges. The issues identified during these simulated events can then be mitigated for an actual future event.

Additionally, it is the deliberate and repeated practice that will ready paediatric healthcare institutions and their front-line HCP for disasters. Therefore, healthcare institutions should practise and revise their disaster plans on a regular basis through the implementation of a longitudinal educational plan using different learning modalities, of which regular simulations with all implicated HCP must play an integral part. Ideally, as part of their disaster preparedness plan, institutions should identify an HCP clinician-educator champion to ensure adequate transmission of disaster-based knowledge and skills across all institutional departments so that all HCP could provide appropriate care in the case of a mass casualty incident involving all patients including paediatric victims. With the development and implementation of a strong disaster-based educational curriculum supporting knowledge translation, healthcare institutions will be

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able to provide the expected and desired wide-ranging medical care in the event of a disaster. In addition, identification of challenges that lie within the disaster plan will be more easily identified and, as a result, modifications in the plan can be made, checked and readjusted prior to a real event. Institutional commitment to allowing these educational activities is rooted in their social accountability to the populations in which they serve. The time, space and cost of such plans can vary, but as disasters increase, they should be prioritised as an essential part of training our healthcare workers.

Mortimet and his colleagues clearly identified the challenges of disaster preparedness in France, especially related to the paediatric population; findings which can be extrapolated to the global community. In order to improve both institutional and physician comfort and readiness for disaster care, paediatric-specific disaster plans must be

developed and a longitudinal educational plan including regular in situ-simulated learning is essential.

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