

ORIGINAL ARTICLE

Planning a large-scale tabletop exercise to test Qatar's healthcare system readiness to respond to a major incident during the 2022 FIFA World Cup

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Funding information

Qatar National Library

Abstract

This article is an illustration of 'Lessons from the Field'. The Journal of Contingencies and Crisis Management has begun to present lessons coming from professionals engaged in crisis management. 'Lessons from the Field' provides insights that can be useful to other professionals. Moreover, 'Lessons from the Field' can stimulate ideas for researchers and provide resources for educators. Hosting a mega-sporting event such as the International Federation of Football Associations (FIFA) World Cup presents many healthcare challenges, especially when organized over a small geographical area with many international supporters potentially increasing the country's normal population by 50%. This article presents how a system-wide tabletop simulation exercise was planned to test Qatar's healthcare system's readiness to respond to a potential major incident during the FIFA World Cup. The healthcare system-wide tabletop exercise lasted about 4 h with participants engaging in all the various facilities as expected. It provided opportunities for everyone to put their knowledge of major incident response and mass casualty management into practice. The exercise preparation ensured it ran smoothly for all participants who quickly understood how to engage in the activity. It enabled organizers and participants to identify potential gaps in systems and processes, but also in their own ability to manage such situation.

KEYWORDS

emergency preparedness, FIFA World Cup, mass casualty exercise, simulation, tabletop

1 | INTRODUCTION

Hosting a mega-sporting event such as the International Federation of Football Associations (FIFA) World Cup brings with it huge responsibilities to maintain the safety and well-being of all

stakeholders, which range from the athletes and their support team members right through to the fans attending the event, but also the rest of the country's population. The health sector is particularly complex when it comes to managing prolonged mass gathering events as it relies on many different aspects including manpower,

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facilities, resources and supplies, medications, decontamination equipment, means of transportation and so on and also needs to be ready and have the capacity to respond to potential large-scale emergencies. In addition, not only do the healthcare staff at an individual level need to have received adequate training to treat patients, but they should also be familiar with mass gathering events' emergency procedures and potential-related incidents to be able to work effectively as part of the wider team. Hence this requires that a sound major incident response (MIR) plan be in place and that staff playing a key part in its implementation are highly familiar with it. Simulation plays a key role in training staff and testing systems and procedures in many domains. It is also used to develop teamworking skills, especially where there is a potential risk of substantial financial or human life losses (Gangaram et al., 2023; Naik & Brien, 2013; Patterson et al., 2013). Several simulation modalities exist based on the learning objectives to be addressed, the level of experience of the learners, and the time and resources available (Alinier, 2007). Alongside this, numerous standards have been published to ensure the quality of the simulation-based learning (SBL) experiences provided to learners (Lewis et al., 2017; Watts et al., 2021). This implies that offering SBL opportunities involves a significant degree of investment in terms of planning and resources (Der Sahakian et al., 2019). This applies irrespective of the chosen modality and will usually be proportional to the level of complexity of the activity and the number of participants requiring to be simultaneously involved. The success of such an exercise relies on the full commitment of the participating agencies and understanding of the participants of how it works so the learning objectives can be appropriately addressed.

In preparation for the world's most popular sporting event, with a very large number of fans supporting their preferred national team, several agencies across the State of Qatar conducted numerous workshops and exercises in different domains of activity critical to hosting the 2022 FIFA World Cup (Mathew & Hubloue, 2018b). Stakeholders, which include many Ministries and governmental agencies, have run training events of various scales in isolation as well as jointly when it was relevant (Khan, 2018; The Peninsula Qatar, 2022). Such simulation-based exercises can be conducted full-scale and in-situ to test physical aspects of an environment, implementation of local procedures, and orientate staff to specific locations (Hssain et al., 2013). Hamad Medical Corporation (HMC) and its Ambulance Service (HMCAS), and Primary Healthcare Corporation (PHCC) have been organizing simulation-based exercises concentrating on the healthcare sector on a regular basis since 2014. Some have been small or large-scale tabletop exercises, while others have been full-scale and took place in actual World Cup tournament venues with deployment of real resources (Gangaram et al., 2023). Although less demanding on physical resources, tabletop exercises have been found to help participants develop confidence and knowledge with overlap of what they would learn from real events (Ledbury et al., 2023). Such exercises help each agency consider various eventualities, test their normal operational and emergency plans and make required adjustments when some gaps are identified (Mathew & Hubloue, 2018a).

The objective of this article is to present how a large-scale tabletop simulation exercise (SimEx) was planned to test the readiness of Qatar's healthcare system to respond to a potential major incident during the 2022 FIFA World Cup.

2 | HEALTHCARE CONTEXT IN QATAR

The State of Qatar is a peninsula which extends over nearly 11,500 km² with a total population of just over 2.8 million inhabitants, the vast majority of whom are expatriate workers. The public and private healthcare sector in Qatar has developed at an unprecedented pace since the start of the 21st century, and since 2012, 10 new government hospitals have been opened by HMC and 12 new PHCC and well-being centres have also opened (Al Khal et al., 2020; Goodman, 2015). Complementing the development of these facilities, a modern and highly organized national ambulance service provides a range of services to the population of Qatar and its visitors free of charge (Demir et al., 2022; Hutton & Alinier, 2013).

In total, PHCC has 31 health centres across the country which makes it well-positioned to assist first responders and hospitals with managing mass casualty incidents (MCI) by receiving minor care casualties. To that effect, 15 PHCC centres have been integrated into the Ministry of Public Health's (MOPH) National Response Framework to receive 'green tagged' patients in the eventuality of an MCI. These designated MCI health centres are referred to in emergency plans as Nodal Sites with the emphasis being on selection of these health centres based on geographic positioning across the country.

Much of these recent developments can be attributed to Qatar's preparation to host the FIFA World Cup, but some aspects are as a result of the COVID-19 pandemic and blockade imposed by the neighbouring countries from June 2017 to January 2021, especially with regard to the local manufacture of pharmaceutical products and medical equipment and supplies (Dergaa et al., 2022; Milton-Edwards, 2023).

3 | CREATION OF A MAJOR INCIDENT PREPAREDNESS AND RESILIENCE (MIPR) COMMITTEE AND EXERCISE PLANNING TEAM (EP TEAM)

To prepare the public health sector for emergencies that may occur during large mass gathering events, Qatar's national MIPR Committee was formed through Ministerial Decree 11 of 2021. The Committee was responsible for overseeing several tactical objectives designed to validate emergency response and recovery readiness across the public health sector. One of the objectives of the MIPR Committee was to ensure that all health agencies' MIPR plans were tested against likely scenarios. To enable the achievement of this objective, a member of the MIPR Committee was appointed to lead the Committee's efforts and coordinate the planning of training activities by MIPR stakeholders. This appointment was based on knowledge and expertise pertaining to exercise design, facilitation, and

evaluation. Nearly a year ahead of the exercise, the MIPR Committee decided to establish the MIPR 'EP Team' as a subcommittee reporting to it, with a primary purpose of designing and facilitating a national-level MIPR exercise for the public health sector. To officialise the participation of the concerned agencies, they were each requested to consider an Exercise Concept Note and have a senior official representative sign an *Intent to Play Agreement*. A second form, the *Extent of Play Agreement*, was then used to assist with exercise awareness and coordination with the participating agencies and so they could declare their 'scope of play' into the exercise which was 'to test and challenge the complete healthcare system in response to a potential World Cup related incident'. This provided each agency the opportunity to suggest aspects of their emergency response plan they would like to see being put to the test. For example, PHCC reported that they had set up a corporate Major Incident Command Centre (MICC) and that they wished to engage four of their nodal centres in the exercise to test communications and coordination with the National Health Incident Command Centre (NHICC) and emergency operations coordination across the health sectors through their MICC. They did not want to select the nodal sites to be involved based on proximity to the simulated MCI locations, since no patient was going to be physically transported, but decided to select them based on the least impact to real patient services.

EP Team members were selected from each of the healthcare agencies serving on the MIPR Committee and who agreed to take part in the exercise. They had to have experience in exercise design and have delegated authority for making and/or influencing emergency and disaster preparedness planning decisions in their organization. The first exercise planning meeting was held in October 2021 and the EP Team at this time consisted of representatives from the MOPH, HMC, HMCAS, PHCC, and the NHICC. In March 2022, the EP Team welcomed subject matter experts from the World Health Organization's (WHO) SimEx team. This was facilitated by the *Healthy 2022 World Cup –Creating Legacy for Sport and Health*, a multiyear collaborative project between Qatar MOPH and the WHO designed to promote a healthy and safe 2022 FIFA World Cup (Adelowo, 2022). During the early phases of the exercise planning process, the EP Team utilized the Homeland Security Exercise and Evaluation Programme (Renger et al., 2021) to guide the planning activities. Later, the EP Team leadership was transitioned to a WHO SimEx technical expert, which resulted in the use of the WHO SimEx Manual (WHO, 2017). The next step of the EP Team was to consider the scale of the exercise based on the participating agencies' scope of play, decide on an appropriate scenario, and prepare the human and physical resources required to make it happen. The exercise objectives that the EP Team derived based on identified needs are presented in Table 1.

4 | SCENARIO CREATION

The exercise theme was based on a FIFA World Cup scenario and to maintain the optimal conditions, it was decided that the concerned stadium venue and hospital Match Day Silver Commands and the

TABLE 1 Exercise objectives that guided the scenario development.

1. To evaluate the effectiveness of command and coordination across the Bronze, Silver, and Gold command levels of participating healthcare agencies.
2. To evaluate established communication methods and procedures between participating healthcare agencies.
3. To evaluate the accuracy of patient tracking processes at HMC and PHCC during the response to a mass casualty incident.
4. To undertake family reunification procedures.
5. To explore media management processes during the response to a mass casualty incident.

Abbreviations: HMC, Hamad Medical Corporation; PHCC, Primary Healthcare Corporation.

Corporations Gold Command would be activated (Figure 1). During the FIFA World Cup Qatar 2022™, these command posts would be in place 2 h before kick-off of the first game and stood down 2 h after the end of the last match of the day. Only two of HMC's hospitals and supporting Corporate Departments would have a match-day Silver in place during the World Cup. These would be the hospital with an Emergency Departments (ED) closest to the stadium and the Hamad General Hospital which is the only Level 1 Trauma Centre in the country (Al-Thani et al., 2021). However, for this exercise, all five hospitals with an ED were instructed to stand up their match day Silver Commanders and the remaining hospitals were simply on standby. In total 14 hospitals, 4 Corporate Departments, and 4 PHCC centres were going to take part.

The scenario focused around a hoax anthrax threat shared through social media which provoked a stampede and crush at three crowded venues (Stadium, fan zone, and a shopping mall) just before a much-awaited semi-final World Cup football match between two fictitious teams. The scenario needed to ensure a large number of casualties were created over a short period of time, and was consistent with the risks associated with mass gatherings (Hsieh et al., 2009). The incident generated 114 self-presenting casualties 524 casualties to be eventually transported by ambulance, and 36 nonincident-related casualties in total, including 100 deaths that were gradually injected into the different scenario venues and actual selected receiving facilities over the 4-h period of the exercise.

A variety of injects were used to drive the scenario forward and enable the objectives to be tested. Injects were sent from exercise control via email, mobile phone and video to participants in their various EOCs. All injects were included on a master events list. Inject topics focused on testing family reunification procedures, foreign nationals and officials as casualties, the use of social media platforms and public messaging, and external requests for information.

The 'live' aspect of the exercise involved the use of the Emergo Train System© (ETS) which is commonly used for such type of mass casualty exercise, testing emergency services preparedness, surge capacity and incident command systems (Hsieh et al., 2009). It was a practical solution to simulate the large number of patients coming from the three different incident sites. Use of this system enabled the ambulance service to test the allocation and transport of



FIGURE 1 Exercise controller (middle) and Hamad Medical Corporation Ambulance Service participants in position at their command post in the room used as the stadium venue for the exercise, before the start of the major incident (Picture credit: © 2022 GA).

patients across four main receiving hospitals without actually transporting people.

5 | INFORMING THE PARTICIPATING AGENCIES WHILE KEEPING THE SCENARIO SECRET

As the healthcare system is well established (Goodman, 2015) and the FIFA World Cup Qatar 2022™ was fast approaching, the aim was to thoroughly test the Mass Casualty Management Plans and Gold, Silver, and Bronze MIR plans, rather than having the participants deliberately putting them into practice with a known scenario and having the exercise evaluators (EE) watching a choreographed or rehearsed performance. Familiarization exercises for these plans had previously been conducted regularly for each facility over several months. Hence, for this SBL major incident exercise to realistically take place and for the maximum number of elements to be realistically tested, it was important for as many aspects as possible of the scenario to remain a secret from the participants and the leadership in general (Alinier & Oriot, 2022). The exercise date was communicated to the leadership and key players of each participating agency for operational reasons, however, the exact time at which it would start was not. A Concept Note (See Appendix) was sent to the leadership of the participating agencies about 6 weeks before the event as a reminder of the upcoming system-wide dispersed tabletop exercise on that specific day and to give them some background information about the exercise purpose, but without sharing any scenario details. The decision to activate match day Silvers needed to be communicated to the leadership so adequate arrangements could be made as if the FIFA World Cup Qatar 2022™ had started. They were informed that the announcement of the start of the simulated incident would be prefixed by the expression 'EXERCISE, EXERCISE, EXERCISE' and that it would be ended with the expression EndEX. If an actual emergency happened the exercise

TABLE 2 Scenario briefing information provided to all exercise participants during the morning exercise briefings.

Today is Wednesday December 14, 2022 and it is 15:20 h. All HMC facilities, PHCC, Sidra, and the Ministry of Public Health are under normal operating conditions. The World Cup has reached its semifinal stage and the second semifinal between Globalland and Anycountry will be played at Al Bayt Stadium, kicking off at 15:45 h. Interest in the game is very high, with the stadium occupied at full capacity and the Al Bidda fan zone packed out. As with other games, there are pop-up events at various malls around Doha.

Abbreviations: HMC, Hamad Medical Corporation; PHCC, Primary Healthcare Corporation.

would be suspended or terminated at the discretion of the Exercise Director. The designated emergency phrase was 'SAFEGUARD, SAFEGUARD, SAFEGUARD'. The Exercise Director could restart the exercise with 'CARRY ON, CARRY ON, CARRY ON'. The Command Instruction provided details of the pretended football match, which hospitals were required to stand up their match day Silvers, and which ones had to be on standby.

Immediately before the start of the tabletop exercise, the scenario briefing shown in Table 2 was shared with all participants across the healthcare system so they could have some context regarding the event that was going to unfold.

6 | LOGISTICAL PLANNING

The tabletop exercise was to be run as a modified 'command post functional' exercise, which meant that all participants with a command role had to report to their respective Emergency Operations Centre (EOC) or MIR location, which meant that the exercise was system-wide and dispersed. HMCAS frontline staff with a command role and who were meant to already be on standby at the various venues involved in this SBL major incident exercise had to



FIGURE 3 View of one of the rooms used as an incident scene, with the left-hand-side board showing the patient triaging, treatment and loading areas, and the right-hand-side board showing the destination and time log of each ambulance transporting the patients (Picture credit: © 2022 GA).



FIGURE 4 Exercise staff managing some of the injects from the exercise control room and responding to calls made by exercise participants to nonparticipating agencies (Picture credit: © 2022 GA).

of participants (Oriot & Alinier, 2018). EC were trained specifically on exercise facilitation such as managing exercise injects with an emphasis on controlling the introduction of paper patient cards into the scenario's various locations as this was the most critical element to facilitate exercise play at all levels. All were reminded about the importance of the confidentiality of the exercise, and they were respectively provided with a briefing handbook and evaluation sheets designed according to the exercise objectives in their location. ECs were informed that they were going to be individually posted at locations involved in the exercise such as the simulated major

incident venues, the real hospital ED, the various real Silver Command posts, the real NCC—through which all HMCAS dispatch communications are initiated), the real Corporate Communications and Material Management departments, the four nodal PHCC centres and so on, and the real NHCC (Gold Command), but a few were also allocated to the exercise control room to role-play over the phone or radio the nonparticipating agencies such as Civil Defence and the Police, and a few other key injected roles such as the media and people enquiring about their relatives (Figure 4). Their scripted interventions paced aspects of the exercise as they provided

'injects' during the course of the scenario at specific times, such as sharing social media announcements, releasing paper patient cards into healthcare facilities as walk-in casualties and calling as media reporters or next of kin. The EEs, who mostly had working knowledge of the MIR plans, were also individually posted at all locations taking part in the exercise to observe and document the actions of the participants. In some locations the EC also served as EE.

8 | IMPORTANCE OF RUNNING MAJOR INCIDENT PREPAREDNESS EXERCISES

Major incident preparedness exercises are commonly organized to ensure the readiness of healthcare professionals and agencies to respond to various emergency crisis situations (Skryabina et al., 2017). There are many commonly used definitions of what constitutes a crisis and adherence to some key principles are recommended in order to mitigate the impact of any potential critical situation (Logarajah & Alinier, 2014). Planning and anticipation are among the key principles that can be addressed through exercises as they are useful to consider various potential scenarios and help test processes, emergency response plans and the adequacy of available resources. Executing highly realistic full-scale exercises is very expensive, time-consuming and difficult to manage so alternative approaches are often used, such as tabletop or paper-based exercises, but they present some limitations and are also time and resource intensive to organize (Berndt et al., 2018). It is generally necessary for such exercises to be based on real baseline information (Skryabina et al., 2017). Information such as 'present' bed capacity and occupancy rate of each hospital facility or healthcare centre, time taken to perform various procedures and investigations on patients, total number of ambulance units, their location and status (i.e., crew with patient or available) at a specific point in time of the day, and travel times between different locations are important elements to take into account when the exercise is conducted for system testing purposes. This allows the exercise to be conducted in a more realistic manner in terms of how resources are used and how patients are managed and accounted for. This is the level of details the EP Team considered when planning the exercise described in this article.

Tabletop SimExs can be organized in various ways and complexity in terms of number of participants and patients, and take place across physically distant locations as long as appropriate communication measures are put in place and that the required resources are available everywhere. This relates to the participants as well as the organizers, including facilitators (ECs) and observers (EEs). This aspect is not too dissimilar to responding to a real major incident. Another critical element, from an educational point of view, is the information shared with the leadership of the participating agencies ahead of time to enable the exercise to take place and the briefing given to the various participants and ECs and EEs depending on their role and location (Alinier, 2011). These aspects ensure that all required participants can

engage in the activity in an appropriate manner and that lessons be learnt from everyone taking part in the activity.

9 | LIMITATIONS

As for all training activities, there can be variability in the facilitation styles and observation rigour of EEs despite observation tools being provided, especially as in any given facility or incident, it was difficult to keep track of the simultaneous interventions by multiple participants. The exercise focused solely on the healthcare system, when it would also have been valuable to engage other agencies such as FIFA and the Police, who instead had to be role-played by ECs.

10 | CONCLUSION

Simulation-based exercises are widely used as a way of improving the performance of systems or individuals especially when safety is a key concern. Conducting a system-wide dispersed mass casualty tabletop SimEx is a significant undertaking from which valuable lessons can be learnt regarding the readiness of a healthcare system to respond to such type of incident as long as participants can relate the exercise components to the real-life aspects. It requires careful planning to ensure the exercise is as realistic as possible so that valuable lessons can be learnt to improve systems, procedures, and people's understanding of their roles and responsibilities. Having engaged key staff from the different health facilities in Qatar in smaller-scale tabletops and command posts exercises helped them become familiar with the tabletop SimEx process and contributed to the smooth running of this very large-scale exercise. Organizing this activity was key in ensuring the healthcare sector's readiness to respond to a medical crisis involving a very large number of casualties during the FIFA World Cup Qatar 2022™. Our key lessons addressed to the planners of system-wide tabletop SimExs are to start by running multiple small-scale activities to get learners from various concerned facilities familiar with the tabletop exercise process. Plan scenarios that are plausible, relevant, and from which latent threats related to resources, processes, and human factors can potentially be identified. There needs to be a plan as to how the event will be evaluated and how the lessons learned at various levels will be shared with the management and participants. Work collaboratively the manpower plan so participants and facilitators (EC and evaluators) do not get pulled out from the exercise to deal with 'normal' duty. Last, when working on the system-wide tabletop exercise, plan very early and get the buy-in from the highest authorities among all stakeholders, and involve a team of facilitators that understand their role and with whom you can brainstorm and rehearse all aspects of the exercise to ensure that you have sufficient manpower, resources and parallel means of communication on the event day.

AUTHOR CONTRIBUTIONS

All authors contributed to different components of the article and approved on the final submitted version of the article. GA lead on the article write up.

ACKNOWLEDGEMENTS

The authors are grateful for the active engagement of all participants across the various facilities during the exercise and appreciate the support provided by the leadership and the many exercise controllers and evaluators for making the exercise possible. Qatar National Library funded the publication of this article.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Not applicable.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Alinier, G., Dacey, G., Segni, M. A., McCabe, S., & Dungan, D. R. (2023). Planning a large-scale tabletop exercise to test Qatar's healthcare system readiness to respond to a major incident during the 2022 FIFA World Cup. *Journal of Contingencies and Crisis Management*, 1–9. <https://doi.org/10.1111/1468-5973.12485>