

# Toward Collaborative Public Health Interventions during Mass Gathering Events in the Eastern Mediterranean Region

An Operational Guide



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## List of Acronyms and Abbreviations

AI	Artificial Intelligence
C3	Command, control, and communication mechanism
CDC	Centers for Disease Control and Prevention
EMR	Eastern Mediterranean Region
EOC	Emergency Operations Center
ERE	EMPHNET Resource Engine
FETP(s)	Field Epidemiology Training Program(s)
GHD EMPHNET	Global Health Development   The Eastern Mediterranean Public Health Network
IHR	International Health Regulations
IPC	Infection prevention and control
M&E	Monitoring and Evaluation
MG	Mass Gathering
MoH	Ministry of Health (as an abbreviation for the national ministry or agency/department responsible for public health)
RRT(s)	Rapid Response Team(s)
SOP(s)	Standard Operation Procedure(s)
TAG-VE	WHO's Technical Advisory Group on Virus Evolution
UI/UX	User interface and user experience
VPDs	Vaccine-preventable diseases
WASH	Water, sanitation, and hygiene
WHO	World Health Organization

## Introduction and Background

The World Health Organization (WHO) defines a mass gathering (MG) as an event where the number of people attending is sufficient to strain the planning and response resources of the community, state, or nation hosting the event [1]. This broad definition applies to a wide variety of events, including sporting events (football and other matches, Olympics, rodeos), cultural events (fairs, Expos, festivals, concerts, new year celebrations, e.g., NowRuz or NaiRoz<sup>1</sup>), political events (demonstrations, national and sub-national elections, political rallies), religious gatherings (Hajj and Umrah pilgrimages, Iraq Arba'eeniyya, Bangladesh Bishwa Ijtima<sup>2</sup>), and even scientific events (conferences, conventions, symposia, and forums). Table 2 in the Annexes section of this document provides a representative (albeit not comprehensive) list of some mass gathering events, including their type (religious observance, sporting event, art and music festival), location, scheduled and/or approximate dates, and typical numbers of attendees.

Major public health issues are associated with large-scale gatherings, and many risks endanger the health of MG participants for various reasons. The risks associated with huge gatherings vary and include:

- risk of injuries and deaths (including human crush and asphyxiation due to overcrowded fan influx or exit,
- human crush due to collapse of structures resulting from overcrowds, stampedes,
- huge rushes sparked by police firing tear gas to control crowds [2],
- ineffective communication during sudden blockages of routes, lack of pre-event advice, partial awareness of pilgrims about the risk of accidents and stampedes in certain areas, and old-aged pilgrims with chronic conditions [3, 4],
- risks of conditions due to hot or cold weather,
- deterioration of chronic conditions,
- food and water safety issues,
- diseases outbreaks,
- global health security threats, and
- risks of terrorist attacks with the intentional use of explosive, biological, or chemical agents.

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<sup>1</sup> Nowruz (meaning “New Day”) is a very old annual festival for the celebration of the new year that starts on the first day of the spring equinox. It is celebrated in Afghanistan, Iran and some 15 other countries across the region, including Central Asia, Caucasus, Black Sea Basin, Balkans, and Western Asia, and even some parts of Syria (among Kurds). Nowruz often involves indoor family and social gatherings, as well as larger outdoor activities and gatherings.

<sup>2</sup> Bishwa Ijtima in Bengali means Global Gathering.

Although the public health implications for most MG events remain similar, each type of these gatherings still require a tailored and planned set of public health interventions due to their event-specific settings.

The COVID-19 pandemic brought along extra level of complexity to public health measures during the mass gathering as tight restrictions had to be put in place. The pandemic affected all walks of social life in general, while mass gatherings were affected in particular, even the more strictly followed religious gatherings. These effects vary among different MGs. For example, both Hajj and Umrah pilgrimages were hugely disrupted. Umrah was entirely suspended, while Hajj was scaled back to 10,000 and 60,000 pilgrims in 2020 and 2021 respectively [5, 6]. On the 26<sup>th</sup> of November 2021, WHO designated the COVID-19 variant of B.1.1.529 a variant of concern, named Omicron, on the advice of WHO's Technical Advisory Group on Virus Evolution (TAG-VE) [7, 8]. With the rapid spread of the Omicron variant, health experts in different parts of the world called for even tighter restrictions on mass gatherings [9–13]. With this harsh reality, a lot is going on in our region within the current picture of the pandemic. Religious gatherings such as Hajj and Umrah gradually try to regain their massive shapes once again amid uncertainty around the new variant Omicron, while the measures to be taken change from time to time. In early August 2021, the Kingdom of Saudi Arabia (KSA) announced reopening its borders for vaccinated Umrah pilgrims, allowing 60,000 pilgrims to perform Umrah each month, and gradually increasing that to reach two million worshippers per month [14]. However, as of new developments in January 2022, the Kingdom reimposes anti-COVID measures at the Grand Mosque amid Omicron fears [15]. On the other hand, Qatar State is eagerly looking forward to hosting huge numbers of people from all over the world to attend the Qatar 2022 FIFA World Cup as the first in the Middle East and Arab World that is scheduled from 21 November to 18 December 2022 [16]. Despite all fears and uncertainty, it is impossible to stop moving around; the world must keep learning to live with this new reality.

## **Significance and Rationale**

Through its technical expertise in the subject matter, solid understating of the regional context and its diversity, close collaboration with ministries of health and relevant government entities, its network of field epidemiologists and other public health practitioners in the region, and several years of field work experience in implementing public health during the mass gathering, GHD|EMPHNET is in a unique position to function as a reliable public health network that is capable of implementing wide-scale of public health interventions during mass gatherings in the region.

Within an overall operational approach/framework devised according to the fragile context in many countries of the region and GHD|EMPHNET's strengths in this technical area, the current document outlines interventions in the strategic directions that are in line with the latest recommendations by the World Health Organization in

the context of COVID-19 [17] and other comprehensive measures as highlighted in WHO's Public health for mass gatherings: key considerations [18]. Thus, the framework in this document covers the whole timespan of the preparedness and response around mass gathering events (i.e., before, during, and after) that include approaches to the design, planning, preparations, intervention implementation, surveillance, gathering of data for informed decision-making, evidence generation, M&E, and dissemination of lessons learned for future use. This document is updated to reflect the latest technical guidance and recommendations as they apply to the regional context and provide links to those resources. It is also annexed by a comprehensive and regularly updated list of (and links to) technical resources on public health during the mass gathering. Thus, this document is intended to be an authoritative and reliable reference for EMPHNET and its affiliates in the Region in dealing with mass gathering events in the region and beyond.

## Our Approach

Based on its background and understanding of the regional context through its affiliated network and considering the latest recommendations on COVID and a comprehensive set of public health concerns during mass gatherings [17, 18], GHD|EMPHNET has devised a simplified yet inclusive and comprehensive (*pre-, intra-, and post-MG*) phases framework that includes sub-components under each of the mentioned interventional/operational phases and utilizes a risk-based approach [19].

This framework can be adapted to include more specific/trailer details based on each type of mass gathering event within a given setting/context. For example, for sport events, the WHO Mass Gathering COVID-19 Risk Assessment Tool (for Sports Events) [20] will be used to assess and manage the COVID-19 risk (including risk evaluation, risk mitigation, and risk communication) before, during, and after the events as needed, with a good example being the coming Qatar 2022 FIFA World Cup.

For religious gatherings, all planning efforts will be in sync with the dates according to Hijri lunar calendar (which moves throughout the Gregorian calendar and vary by drifting approximately 11 days earlier each year). Thus, for Hajj and Umrah, similar tools will be used while planning focus will be around the dates with the expected surge of the pilgrims (e.g., during Ramadhan for Umrah and during the 11<sup>th</sup> and 12<sup>th</sup> Hijri calendar month for Hajj) and preventive measures will be aligned with the timing of the prayers during which larger crowds will be expected. Similarly, for Arba'eeniyya MG, Iraqi MOH and relevant stakeholders' involvement plus other necessary planning efforts will be put in place prior to the Safar month. For Bishwa Ijtema, close contact and collaboration will be maintained, prior to the planned dates of the gathering, with the Bangladeshi Ministry of Health and Family Welfare, our network of FETPs, as well as relevant religious stakeholders.

For other cultural events in the region such as NawRoz in Afghanistan, all planning efforts will be coordinated with the Ministry of Public Health, our affiliated FETPs, and community stakeholders in charge of the gathering in Kabul and/or Mazar-e-Sharif Cities in advance of the New Year.

On the other hand, lessons learned from other parts of the world will also be adapted, based on their relevance, to address concerns around infectious diseases outbreaks during mass gatherings [21]. Provision of technical expertise to ensure and maintain high vaccine coverage for vaccine-preventable diseases (VPDs) is critical for avoiding the resurgence of VPDs during the World Cup mass gathering in Qatar [22], noting that the event takes place during the peak for seasonal influence (November and December 2022). Given its rich expertise in immunization programs across the region, GHD|EMPHNET can provide technical support that includes—but is not limited to—formulation of strategies to ensure high vaccination coverage against measles, influenza, hepatitis, meningitis, and other VPDs among residents and visitors, as well as the design and conduction of relevant implementation interventions during the event. It is worth noting that, vaccination will not be part of regular activities during MGs (i.e., to be done at home country for expatriate as well as before sufficient time). However, if some countries decide on requesting additional vaccination, technical advice and support will be provided to do vaccinations at their point of entries, as necessary.

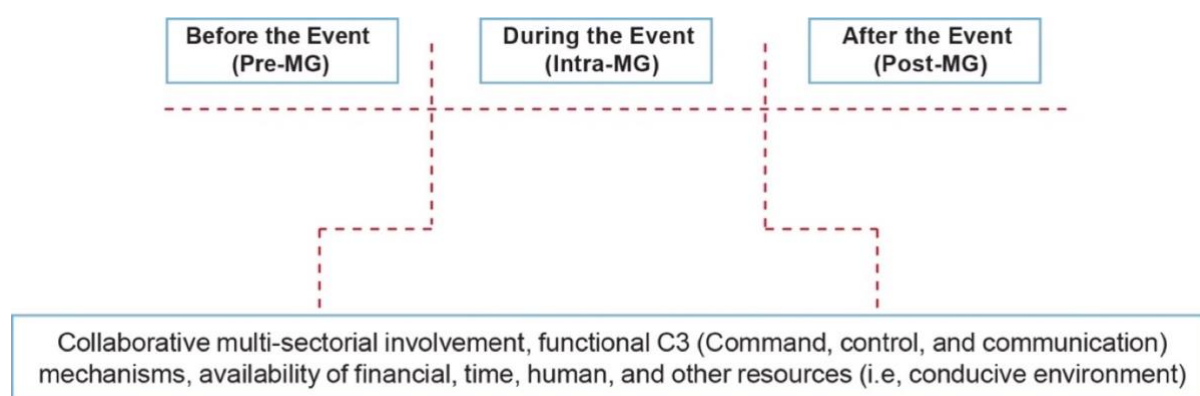
Other areas may include technical support to the real-time, syndromic surveillance activities during Hajj and all other MG events as per specific needs. To summarize, the provision of technical support within our operational framework will depend on the nature of the mass gathering event and the country- or setting-specific context where such interventions are needed. It is also important to note that almost all types of MGs mentioned here are the planned ones. However, the most complicated MG events are the unplanned events, like political rallies and demonstrations, which are unpredictable and usually associated with a negative mass mood as well as aggressive behavior and attitudes, inadequate planning and preparedness by default, significant potential causalities because of lack of adherence to the rules and systems. Still, such gatherings are crucial to the concerned agencies in the countries to have plans and adequate preparedness to minimize their potential risks. GHD|EMPHNET will work with relevant stakeholders in the countries to ensure preparedness and response plans for such anticipated events as their likely happening and possibilities appear.

As mentioned above, the framework allows all collaborative efforts—alongside identifying relevant stakeholders—to be arranged in three phases: 1) interventions *before* the mass gathering (*pre-MG*); 2) interventions *during* the mass gathering (*intra-MG*); 3) those *after* the event (*post-MG*). Early and coordinated public health interventions design, planning, preparations, and various risk assessments are the cornerstone of the measures needed *before* the event (*pre-MG*). This is an essential

consideration as the responsibility of the healthcare system is to assess, identify, and manage risks in order to reduce injuries and other risks affecting the health and well-being of the public during MGs [3]. On the other hand, collaborative planning, efficient use of surveillance and monitoring systems, effective communication mechanisms, and crowd management and control measures are needed *during* the event (*intra-MG*). Such measures also help in monitoring and minimizing public health threats, mitigating public health risks, and supervising healthcare providers' experiences with mass gathering events [4]. Similarly, there is a need to gather data and generate all evidence for informed decision making during the event and share and disseminate the evidence and lessons learned *after* the event (*post-MG*). To run efficiently and deliver intended results, the three phases require a conducive environment as described in the subsequent sections in this document.

## Operationalization

Considering the significance and rationale behind the required planning and preparations for any mass gathering event and active involvement of relevant partners in these efforts before, during, and after the event, operationalization of the following three phases of interventions are required within a conducive environment (which will be ensured through collaborative multi-sectoral involvement of all relevant stakeholders and partners to function alongside GHD|EMPHNET plus the availability of financial, time, human, and other resources) to deliver intended outcomes. The collaborative multi-sectoral involvement will be further supported by functional C3 (command, control, and communication) mechanisms. Communication is a key element that will be maintained before, during and after MG events. This includes the development of related communication material.



The involvement of all relevant sectors and partners brings synergy and efficiency to the process and is the key to success in the subsequent stages of interventions. This close coordination can start with stakeholders' identification, analysis, and their engagement in the process. Moreover, GHD|EMPHNET has an automated stakeholders mapping and analysis toolkit [23], which can be used for the mentioned purpose. The mentioned tool has been successfully implemented in several research projects in the Region.





### 1. **Interventions BEFORE the Event (Pre-MG):**

### 2. **Collaborative Multi-sectoral Planning and Design of tailored Public Health Interventions:**

GHD|EMPHNET will provide the required technical assistance and closely work with all relevant stakeholders from various sectors involved in the design and planning of a mass gathering event. All public health interventions proposed in this document will be duly adapted and included in the planning of public health interventions. Based on the scale of the MG interventions, more than one (virtual, hybrid, and/or in-person) planning and design meetings will be needed among stakeholders to design the whole set of interventions. The agenda items or main topics for each of these meetings will be specified as per the planning and preparedness needs for each mass gathering event. Focus will also be on designing and planning for public health interventions to mitigate any expected risks associated with the MG events.



### 3. **Preliminary assessments and/or formative research for improved public health preparedness before an event:**

As part of the mass gathering preparations, formative research will be conducted, as needed, to review the available literature on similar mass gathering events to gather the most important lessons learned from those events. Validated tools will be adapted to assess, identify, and manage possible risks of disease outbreaks, injuries, and other health conditions during a given MG event. As for COVID-19 concerns, WHO COVID-19 Risk Assessment Tools will be used for risk evaluation, risk mitigation, and risk communication based on the types of the MG events, including the tools for generic MG events [24], religious MG events [25], or sports events [20]. Other learned lessons to be adapted may include, for example, measures taken to address concerns around dengue fever infections in some of the Brazilian cities hosting the World Cup games [21]. On the other hand, seventeen infectious diseases are currently vaccine-preventable. Maintaining high vaccine coverage, in preventing infectious diseases spread during such large-scale gatherings is another area in which GHD|EMPHNET will contribute to the conduction of formative research as well as the implementation of interventions.



**1.1. Develop preparedness and response plans:** These plans will be based on the risk assessments conducted in 1.2 above. The development of emergency response plans and SOPs that will support the role of EOCs and contribute to revising and strengthening the national and regional coordination mechanisms. These response plans will be informed by various evaluation measure, including assessing infectious disease outbreak detection capacities, mapping health system readiness for mass injuries, and assessing capacities for the control of outbreaks

**1.2. Workforce capacity building and enhanced capabilities of rapid response (and preparedness) during the event:** This component includes various training activities from the conduction of assessment and the development of plans to the rehearsal of the developed plans, conduction of simulations exercises, enhancing the capabilities of rapid response, FETPs to and more extra-curricular learning activities and opportunities for FETPs. Such capacity building is helpful in various areas, including the detection, rapid response and control, risk assessment, emergency planning, incident management, among other.

**2. Interventions DURING the Event (Intra-MG): Regional involvement and human resource mobilization of GHD|EMPHNET's affiliated FETPs and public health practitioners in operational research and other activities during MGs:**



The aim is to support countries in response to potential public health threats and to overcome the challenges during MG events. This pillar is a part of the regional collaboration and cooperation efforts, and it will include epidemiologists, public health practitioners, and FETPs from the host country as well as other countries in the Region. The FETPs will be involved in different real-time surveillance activities, research projects, and other specific public health interventions during mass gathering events, because FETPs are an important pillar of the health systems in the host countries and, as such, they have a key role in the institutionalization of MG activities within the system itself.

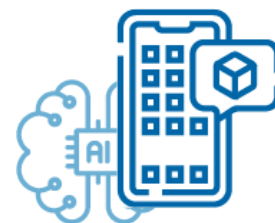
**2.2. Support real-time surveillance and response systems for infectious diseases, injuries, and other health conditions, research projects during MG Events as well as a MG forum/platform for the EMR:**



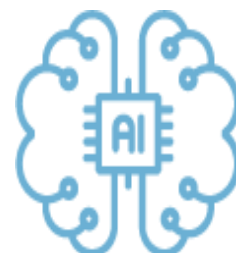
GHD|EMPHNET has a long experience in supporting real-time surveillance of infectious diseases, injuries, and other chronic conditions during Iraq Arba'eeniyya Mass Gathering [26, 27]. GHD|EMPHNET conducted wide-scale interventions in 2016 in two governorates, while expanded interventions to 11 governorates in the 2018 Arba'eeniyya Mass Gathering, and similar measures were kept in place during 2020 Arba'eeniyya Mass Gathering as well. GHD|EMPHNET will build on its experience with the Iraq Ministry of Health to support the other MG events in the Region. Such support will also include further enhancing research capacity (parallel to other surveillance efforts) and development of a forum/ platform that gathers all available capacity and experiences in the Region to be discussed during more focused meetings, conferences, or even a customized package of training (or exchange program) for FETPs on MG. This will ensure another valuable output of FETPs in the Region.

Other activities to be linked to this may include provision of technical support and capacity building in health promotion and public awareness, risk communication, community engagement, infection prevention and control (IPC), environmental health, food safety and WASH, support to medical services during the event, disaster preparedness and contingency planning, as well as preparedness and planning for various threats arising from the intentional use of explosive, biological, or chemical agents, psychosocial considerations during MG events. Additionally, deployment and surge of technical staff and responders for emergency response, surveillance at points of entries, cross border health, and the adoption of One Health measures, call centers, development of dashboards for monitoring and informed decision makings, use the events as opportunities for FETPS and RRT field trainings will also be considered as needed. In the long run and based on evolving needs, the provision of technical support in these areas may slightly change in scope.

**2.3. Develop strategies for effective communication during MG events (while also maintaining robust communication before and after the event), and dissemination of public health messages through the use of artificial intelligence (AI) and Mobile App:**



Under this component, we propose the use of mobile technology to develop various public health/wellbeing and safety applications and/or integrate current social media platforms (Telegram, WhatsApp), or other messaging apps into an already developed mobile application with the aim of targeted communication and rapid sharing of public health information to the organizers and participants. This mechanism may have different levels of mass messaging targeted at different segments of audience groups with relevant health-related messaging content. Developed mobile applications and their contents can be translated and made available in Arabic, English, and possibly other languages as needed to make efficient use of resources and ensure that the application is used by its intended audience groups. To the extent possible, one application will be considered to integrate any proposed communication mechanism. The same mechanism will be used for crowd control and avoiding any mishaps due to overcrowds or huge rushes sparked by incorrect information. As already pointed out, the application will not be a stand-alone one, rather it will be integrated into the one that has mandatory installation as part of the event registration and that combines all components of communication for public health messaging, crowd control, and other event-related information. Necessary efforts will be made and encouraged for the artificial intelligence (AI) to be an integral part of the app, which will be continuously



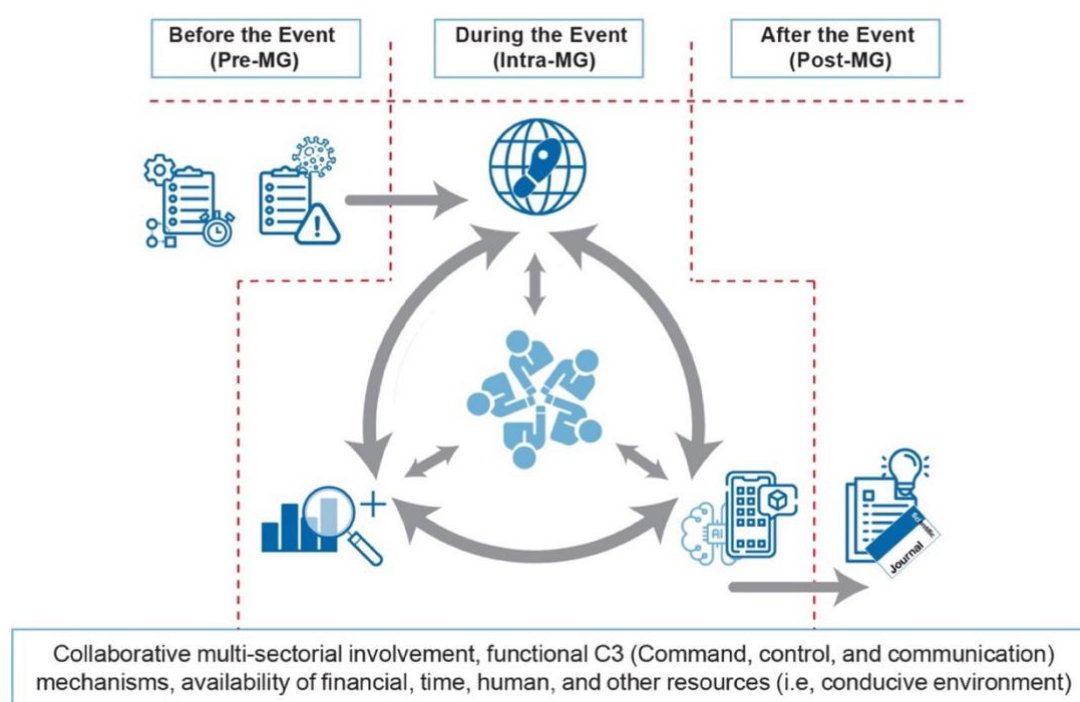
enhanced to better manage public health alongside other intended functions of the Application. Other than technology, appropriate and tailored public health messages themselves can be developed by GHD|EMPHNET.

- 3. AFTER the Event (Post-MG):** Sharing experience and lessons learned of utmost importance. There is a need to gather data and generate evidence for informed decision making during the event and share and disseminate the evidence based information and lessons learned after the event (*post-MG*). GHD|EMPHNET will support the data collection, data cleaning, handling, and management, turning data into information, and finally generation of knowledge and evidence that support having informed decisions by the concerned policy maker and help in planning of the coming events, and translating mass gathering research and experience to improve relevant practices. Other areas of support may include: After Action Reviews. take findings and recommendations for the generation of improvement plans to further build the health system, supporting countries to monitor and evaluate their response to such events, support countries test/evaluate their capacities though conducting simulation exercises and functional/table-top exercises, involvement of FETPs will also be considered in other MG phases, as well as active roles for RRTs, and consideration of mini grants for FETPs projects during, before or after MG events. GHD|EMPHNET will also support any researchers in the host countries and the region with their research papers and scientific writing.



The diagram below visualizes the above-described components within a three-phase operational framework.

#### The Three-Phase Operational Framework for Mass Gathering Events



## Additional Considerations

By definition, the number of people attending a mass gathering is sufficient to strain the planning and response resources of the community, state, or nation hosting the event. Thus, as pointed out earlier, there is a need to adopt a multi-sectoral approach and ensure regional involvement to address resource constraints. GHD|EMPHNET has a huge network of public health experts in different specialties and public health expertise areas. They are registered in a dedicated database that is maintained by GHD|EMPHNET Resource Engine (ERE). GHD|EMPHNET can involve them in various stages of planning, preparation, and implementation of interventions. Further, GHD|EMPHNET's affiliated field epidemiologist (FETPs) in the region will be a reliable source for the conduction of operational research activities or any other of the proposed public health interventions. Given its network of regional public health experts, its affiliated FETPs, and its expertise at the regional level and in different areas of public health mentioned in this document, GHD|EMPHNET is a regional network and well-experienced institution that can effectively collaborate with ministries of health and other line ministries or government entities in the region, as well as with community establishments and/or other MG organizing bodies to support the implementation of MG public health interventions that are outlined in this document. GHD|EMPHNET will maintain close coordination with all parties/stakeholders and bring synergy through a multi-sectoral approach it proposes, including the involvement of its affiliated public health experts and FETPs in the Region. Moreover, GHD|EMPHNET can provide additional support and coordination with other partners in the Region, as follows:

- Close partnership and collaboration with WHO's Regional Office for the Eastern Mediterranean and the WHO MG Group;
- Proactive collaboration with WHO for further development, user interface and user experience (UI/UX), refinement, adaptation, and automation of the current risk assessment tools. GHD|EMPHNET has the capacity in all of these areas, including the automation of the current WHO MG tools;
- Collaboration with partners who have expertise and relevant work in the region;
- Provision of technical support, resource mobilization (with our network of affiliated field epidemiologists/FETPs and other public health practitioners), and implementation support as required;
- Provision of capacity-building opportunities for MG preparedness and response measures, International Health Regulations (IHR), and biorisk management (as well as capacity on laboratory biosafety and biosecurity).

GHD|EMPHNET is convinced that the adoption of approaches proposed in this paper is the key to a concerted and successful implementation of such wide-scale interventions. Please refer to the Annexes section of this document for important resources on MG that can be consulted during the implementation and operationalization of this Technical Guide.

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## ANNEXES

### Annex 1 - Technical Resources on Public Health During Mass Gatherings

The table below lists and summarizes all so far identified technical resources on mass gathering during public health. This list will be updated as new resources are identified and/or updated versions of currently listed resources are made available. The items on this list are ordered chronologically (the most recent on top). The exception to this order is all webpages which have no specific dates on them. Thus, they are marked as “-n.d.” (no date) and are placed at the bottom of this list. Structured training courses on public health during mass gatherings are highlighted **in bold**.

**Table 1. Summary Table of Technical Resources on Public Health During Mass Gatherings**

S/ N	Title	Author(s)	Year/Date	Type of Publication	Pages	URL/Access Link; and/or Comments
1	Collaborative Public Health Interventions during Mass Gathering (MG) Events in the Eastern Mediterranean Region	GHD EMPHNET	2022-02-28	Technical Guide	22	<b>Current document (version 3.4)</b>
	GHD EMPHNET list of publications on mass gathering (continuously updated)	Various authors	2022	Published peer-reviewed articles (various journals)	N/A	<a href="https://emphnet.net/en/mediacenter/publications/?country=undefined&amp;year=all&amp;searchterm=Mass%20gathering">https://emphnet.net/en/mediacenter/publications/?country=undefined&amp;year=all&amp;searchterm=Mass%20gathering</a>
2	Be Social Wise - Guidance for Social Gatherings During COVID-19	Ottawa Public Health	2022-02-03	Webpage	N/A	<a href="https://www.ottawapublichealth.ca/en/public-health-topics/hosting-postponing-or-cancelling-mass-gatherings.aspx">https://www.ottawapublichealth.ca/en/public-health-topics/hosting-postponing-or-cancelling-mass-gatherings.aspx</a>
3	GHD EMPHNET Stakeholders' Mapping and Analysis Toolkit (version 16.6, 2021)	Amiri M, & Al Nsour M	2021-12	<b>Tool and Training Course</b>	N/A	<a href="https://lms.emphnet.net/enroll/index.php?id=63">https://lms.emphnet.net/enroll/index.php?id=63</a> <b>A free online course</b> with the Tool and other resources available for download.
4	Key planning recommendations for mass gatherings in the context of COVID-19: interim guidance, 4 November 2021	WHO	2021-11-04	Technical Guide	9	<a href="https://www.who.int/publications/i/item/10665-332235">https://www.who.int/publications/i/item/10665-332235</a>
5	Mass Gathering Medicine in Soccer Leagues: A Review and Creation of the SALEM Tool	Khan AA, Sabbagh AY, Ranse J, Molloy MS, Ciottone GR	2021-09-22	Journal Article, (Full text)	15	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8508246/pdf/ijerph-18-09973.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8508246/pdf/ijerph-18-09973.pdf</a>
6	Individual and community-based measures to mitigate the spread of COVID-19 in Canada	PHAC (Public Health Agency of Canada)	2021-08-11	Webpage	N/A	<a href="https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/public-health-measures-mitigate-covid-19.html">https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/public-health-measures-mitigate-covid-19.html</a>

S/ N	Title	Author(s)	Year/Date	Type of Publication	Pages	URL/Access Link; and/or Comments
7	Holding gatherings during the COVID-19 pandemic: WHO policy brief, 2 August 2021	WHO	2021-08-02	Policy brief	2	<a href="https://apps.who.int/iris/handle/10665/343409">https://apps.who.int/iris/handle/10665/343409</a>
8	COVID-19 Mass Gathering Event Risk Assessment Tool	Public Health England	2021-07-22	Tool	3	<a href="https://accessaa.co.uk/wp-content/uploads/2021/07/20210722-Mass-Gathering-Risk-Assessment-Tool-v1.00-1.pdf">https://accessaa.co.uk/wp-content/uploads/2021/07/20210722-Mass-Gathering-Risk-Assessment-Tool-v1.00-1.pdf</a>
9	Real-Time Surveillance of Infectious Diseases, Injuries, and Chronic Conditions During the 2018 Iraq Arba'een Mass Gathering	Lami F, Amiri M, Majeed Y, Barr KM, Nsour MA, Khader YS	2021-05-03	Journal Article, (Abstract)	8	<a href="https://pubmed.ncbi.nlm.nih.gov/33945332/">https://pubmed.ncbi.nlm.nih.gov/33945332/</a>
10	WHO COVID-19 Mass Gatherings Risk Assessment Training	OpenWHO	2020-10	<b>Training Course</b>	N/A	<a href="https://openwho.org/courses/WHO-COVID-19-mass-gatherings-risk-assessment-training">https://openwho.org/courses/WHO-COVID-19-mass-gatherings-risk-assessment-training</a> <b>FREE course</b>
11	WHO Mass gathering COVID-19 risk assessment tool – Sports events	WHO	2020-07-10	Tool	N/A	<a href="https://www.who.int/publications/i/item/10665-333187">https://www.who.int/publications/i/item/10665-333187</a>
12	WHO Mass Gathering COVID-19 Risk Assessment Tool – Generic Events	WHO	2020-07-10	Tool	N/A	<a href="https://apps.who.int/iris/handle/10665/333185">https://apps.who.int/iris/handle/10665/333185</a>
13	WHO Mass Gathering COVID-19 Risk Assessment Tool – Religious Events	WHO	2020-07-10	Tool	N/A	<a href="https://apps.who.int/iris/handle/10665/333186">https://apps.who.int/iris/handle/10665/333186</a>
14	Technical Advisory Group on SARS-CoV-2 Virus Evolution (TAG-VE); initially formed as Virus Evolution Expert Working Group (VEWG)	WHO	2020-06	Webpage	N/A	<a href="https://www.who.int/groups/technical-advisory-group-on-sars-cov-2-virus-evolution">https://www.who.int/groups/technical-advisory-group-on-sars-cov-2-virus-evolution</a>
15	Risks threatening the health of people participating in mass gatherings: A systematic review	Tavan A, Tafti AD, Nekoie-Moghadam M, et al.	2019-10-24	Journal Article, (Full text)	11	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6852309/pdf/JEHP-8-209.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6852309/pdf/JEHP-8-209.pdf</a>
16	Real-time surveillance of infectious diseases and other health conditions during Iraq's Arbaeenia mass gathering: Cross-sectional study	Lami F, Hameed I, Jewad AW, Khader Y, Amiri M.	2019-10-04	Journal Article, (Full text)	6	<a href="https://publichealth.jmir.org/2019/4/e14510/PDF">https://publichealth.jmir.org/2019/4/e14510/PDF</a>
17	Public Health Preparedness For Mass Gathering Events (VERSION 1.0 - July 2019)	Public Health England WHO Collaborating Centre for Mass Gatherings and Global Health Security and WHO	2019-07	<b>Training Course</b>	N/A	<a href="https://extranet.who.int/hslp/training/enrol/index.php?id=135">https://extranet.who.int/hslp/training/enrol/index.php?id=135</a> <b>Online Course</b>
18	Mass gatherings medicine: public health issues arising from mass gathering religious and sporting events	Memish ZA, Steffen R, White P, et al	2019-05-18	Journal Article, (Full text)	12	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7159069/pdf/main.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7159069/pdf/main.pdf</a>
19	Mass Gatherings: Are You Prepared?	Northwest Center for Public Health Practice	2010-06-24	Training Course, print version	41	<a href="https://www.nwcp.org/docs/mass_gatherings/mass_gathering_print_version.pdf">https://www.nwcp.org/docs/mass_gatherings/mass_gathering_print_version.pdf</a>

S/ N	Title	Author(s)	Year/Date	Type of Publication	Pages	URL/Access Link; and/or Comments
20	Mass Gatherings: Are You Prepared?	Northwest Center for Public Health Practice , Andy Stergachis	2010-06-24	<b>Training Course</b>	N/A	<a href="https://www.nwcp.org/training/mass-gatherings-are-you-prepared">https://www.nwcp.org/training/mass-gatherings-are-you-prepared</a> <b>FREE Self-paced course</b>
21	Communicable disease alert and response for mass gatherings	WHO	2008-04-30	Generic (Workshop Report)	29	<a href="https://www.who.int/csr/resources/publications/WHO_HS_E_EPR_2008_8c.pdf?ua=1">https://www.who.int/csr/resources/publications/WHO_HS_E_EPR_2008_8c.pdf?ua=1</a>
22	Australian Disaster Resilience Handbook Collection   Handbook 15   Safe and Healthy Crowded Places	Australian Institute for Disaster Resilience	2018	Manual	96	<a href="https://knowledge.aidr.org.au/media/4455/manual-12-safe-and-healthy-mass-gatherings.pdf">https://knowledge.aidr.org.au/media/4455/manual-12-safe-and-healthy-mass-gatherings.pdf</a>
23	Public health for mass gatherings: key considerations	WHO	2015	Technical Guide	180	<a href="https://apps.who.int/iris/handle/10665/162109">https://apps.who.int/iris/handle/10665/162109</a>
24	Australian Disaster Resilience Handbook Collection   Manual 12   Safe and Healthy Mass Gatherings	Australian Institute for Disaster Resilience	1999	Manual	151	<a href="https://knowledge.aidr.org.au/media/4455/manual-12-safe-and-healthy-mass-gatherings.pdf">https://knowledge.aidr.org.au/media/4455/manual-12-safe-and-healthy-mass-gatherings.pdf</a>
25	Topic Collection: Mass Gatherings/Special Events	TRACIE Healthcare Emergency Preparedness Information Gateway	-n.d.	Webpage	N/A	<a href="https://asprtracie.hhs.gov/technical-resources/85/mass-gatherings-special-events/0">https://asprtracie.hhs.gov/technical-resources/85/mass-gatherings-special-events/0</a>
26	COVID-19 and Mass Gathering Events Resources	Australia   Mass Gathering Collaboration   Website	-n.d.	Webpage	N/A	<a href="https://massgatherings.com.au/resources/">https://massgatherings.com.au/resources/</a>
27	Mass-gathering medicine	The University of Sydney	-n.d.	Webpage	N/A	<a href="https://www.sydney.edu.au/infectious-diseases-institute/our-research/mass-gathering-medicine.html">https://www.sydney.edu.au/infectious-diseases-institute/our-research/mass-gathering-medicine.html</a>
28	Reducing COVID-19 risk in community settings: A tool for operators	Health   Canada	-n.d.	Webpage	N/A	<a href="https://health.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/reducing-covid-19-risk-community-settings-tool-operators.html">https://health.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/reducing-covid-19-risk-community-settings-tool-operators.html</a>
29	Public buildings and mass gatherings	WA Health	-n.d.	Webpage	N/A	<a href="https://ww2.health.wa.gov.au/Articles/N_R/Public-buildings-and-mass-gatherings">https://ww2.health.wa.gov.au/Articles/N_R/Public-buildings-and-mass-gatherings</a>
30	Resources   Centre for Excellence in Emergency Preparedness (CEEP)	CEEP–CEMU   Canada	-n.d.	Webpage	N/A	<a href="https://www.ceep.ca/nresources">https://www.ceep.ca/nresources</a>

## Annex 2 - Examples of international mass gathering events

The table below provides a representative (albeit not comprehensive) list of some mass gatherings, including their type (religious observance, sporting event, art and music festival), location, scheduled and/or approximate dates, and anticipated numbers of attendees. The source is CDC [28] unless cited otherwise.

**Table 2. Examples of international mass gathering events**

S/ N	Event Name	Event Type	Host Country	Scheduled/ Approx. Dates	Typical Attendance
1	Kumbh Mela [29]	Religious	India	March–April 2022	Around 40 million
2	Arba'eeniyya	Religious	Iraq	September 17, 2022	Around 20 million
3	Summer Olympics	Sporting events	Japan	July 23–August 8, 2021	7.5 million
4	Hajj	Religious	Saudi Arabia	July 17–22, 2021	2.5 million
5	Bishwa Ijtima [30]	Religious	Bangladesh	January 2020	Varies. Over 2 million attendees in 2018
6	Nowruz	Cultural	Afghanistan, Iran and some 15 other countries across the region	Annually on March 21	About 300 million people in the region celebrate this New Year Day with indoor or outdoor gatherings of varying sizes in different locations.
7	Carnival	Cultural (arts and music)	Brazil	February 25–March 2, 2022	Initially planned for 7 million
8	Feast of the Black Nazarene (aka Traslación) [31]	Religious	The Philippines	January 9, 2019	1–6 million (4 million in 2019)
9	Grand Magal of Touba	Religious	Senegal	September 25–26, 2021	Planned as large as 3 million
10	FIFA World Cup	Sporting events	Qatar	November 21–December 18, 2022	3 million
11	Donauinsselfest (Danube Island [Music] Festival)	Cultural (arts and music)	Austria	September 17–19, 2021	Typically attracts 2.5 million (Downsized in 2020 & 2021)
12	Durga Puja [32]	Religious	India	September 25 – October 5, 2022	Typically 2 million
13	Iztapalapa Passion Play	Religious	Mexico	Good Friday (annually)	2 million
14	Mardi Gras	Cultural (arts and music)	USA	March 1, 2022	1.4 million
15	Obon [33]	Religious	Japan	August 13–16, 2022	1.3 million
16	Kandy Esala Perahera [34]	Religious	Sri Lanka	August 14–24, 2022	1 million
17	Winter Olympics	Sporting events	China	February 4–20, 2022	1 million
18	Calgary Stampede [35]	Cultural (arts and music)	Canada	July 8–17, 2022	1 million
19	Street Parade	Cultural (arts and music)	Switzerland	2nd Saturday in August	1 million
20	New York International Auto Show [36]	Business	USA	August 14–24, 2022	1 million
21	Edinburgh Festival Fringe [37]	Cultural (arts and music)	Scotland	August 5–29, 2022	850,000
22	North American International Motor Show [38]	Business	USA	September 14–25, 2022	800,000
23	Urs of Fariduddin Ganjshakar [39]	Religious	Pakistan	July 25 – August 8, 2022	500,000
24	PRIDE Month	Cultural (arts and music)	Worldwide	June 2021	Varies per city



**GHD|EMPHNET: Working Together for Better Health**

The Eastern Mediterranean Public Health Network (EMPHNET) is a regional network that focuses on strengthening public health systems in the Eastern Mediterranean Region (EMR) and beyond. EMPHNET works in partnership with ministries of health, non-government organizations, international agencies, private sector, and relevant institutions from the region and the globe to promote public health and applied epidemiology. To advance the work of EMPHNET, Global Health Development (GHD) was initiated to build coordination mechanisms with partners and collaborators. Together, GHD|EMPHNET is dedicated to serving the region by supporting efforts to promote public health policies, strategic planning, sustainable financing, resource mobilization, public health programs, and other related areas.