

Proceedings of the Third International Scientific Medical Gathering Conference, Karbala, Iraq, 1–2 August 2025

Mulazim Hussain Bukhari,¹ Ali Abed Saadoon AL Ghuzi,² Dhafir Fadel Hussein³

Abstract

The Third International Scientific Medical Gathering Conference, held on August 1–2, 2025, in Karbala, Iraq, addressed health system preparedness and medical challenges during mass gatherings, with a particular focus on the Arbaeen pilgrimage. Organized by the Imam Hussain Holy Shrine's Health and Medical Education Board in partnership with the Popular Mobilization Authority, the conference convened experts from Iraq, Iran, Russia, Pakistan, and other nations. The scientific programme featured keynote speeches, research presentations, and workshops covering clinical care, public health, administrative dimensions, and ethical considerations. The proceedings advanced the field by expanding the scope of topics to include cybersecurity and inclusive health services, emphasizing evidence-based research, and moving towards integrated, actionable frameworks for operational readiness. Key recommendations included the development of national protocols, real-time surveillance, and the expansion of mobile medical services to ensure a safe pilgrimage.

Keywords: Mass gathering medicine, Arbaeen pilgrimage, public health, disaster management, health system preparedness.

Introduction

The Third International Scientific Medical Gathering Conference was held on 1–2 August 2025 in Karbala, Iraq, organized by the Imam Hussain Holy Shrine's Health and Medical Education Board in collaboration with the Popular Mobilization Authority in Sibtain University of Medical sciences a branch of Tehran University of Medical sciences (TUMS). The conference convened healthcare professionals, disaster managers, public health experts, researchers, and policymakers from Iraq, Iran, Russia, Pakistan, and other countries. The focus was on health systems preparedness, clinical care, surveillance, and

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¹Azad Jammu Kashmir Medical College, Pakistan, ²Dean College of Medicine, University of Warith Al Anbyaa karbala, ³Chairman Scientific Committee, third Mass gathering conference Karbala,

Correspondence: Mulazim Hussain Bukhari

Email: mulazim.hussain@gmail.com

ORCID ID: 0000-0001-6861-2394

ethical considerations in mass gatherings, with a particular emphasis on the Ziarat al-Arbaeen pilgrimage. The scientific programme included keynote addresses, panel discussions, research presentations, and workshops covering clinical, public health, and administrative dimensions of mass gathering medicine.

Review of Literature

Mass gathering medicine is an interdisciplinary field addressing public health and clinical challenges during events that attract large populations. These include risks of infectious disease outbreaks, trauma, heat-related illnesses, and crowd-control issues.^{1,2}

The Arbaeen pilgrimage in Iraq is one of the largest annual religious gatherings in the world and poses unique logistical and medical challenges. Studies have documented the importance of integrated surveillance, risk communication, and mobile health units.^{3,4}

Comparative experiences from other events such as the Hajj, highlight that pre-planned crowd management, regulated food and water safety, and multi-agency preparedness, can reduce morbidity and mortality.⁵

Bukhari et al publications in the Journal of Pakistan Medical Association, Pakistan Journal of Medical Sciences, and Pulse Pakistan proceedings have emphasized vaccination, sanitation, rapid medical response, and inclusive health services for vulnerable groups during mass gatherings.^{6,7}

Proceedings:- The Opening Ceremony of the Third Arbaeen Mass Gathering Health Congress began in a spirit of unity and purpose. After the national anthem, Prof. Faris Hasan Al-Lami, President of Al-Subtain University for Medical Sciences, welcomed delegates from across the globe. He spoke of the Arbaeen pilgrimage not just as a religious journey, but as one of the greatest public health responsibilities in the world, where millions converge in a short span of time. Dr. Dhafir Fadel Hussein, Head of the Scientific Committee, outlined the vision behind the congress — a gathering of minds committed to translating scientific evidence into real-world safety and care for pilgrims. Representatives from the Popular Mobilization Authority, the Ministry of Higher Education



Closing ceremony of 3rd Arbaeen mass gathering Medicine Conference Al-Sabtain University of Medical Sciences with president, secretary of mgm and all delegations

and Scientific Research, and the Ministry of Health, each shared their perspectives on security, academic leadership, and integrated healthcare. A keynote on global best practices in mass gathering health showcased how lessons from around the world could be tailored to the unique demands of Arbaeen. The ceremony closed with the launch of the “Medical Points” application, designed to connect health providers and streamline emergency response during the pilgrimage.

The Plenary Session on Challenges of Mass Casualty Incidents during Mass Gatherings was initiated by Dr. Osama Abdulhassan Kadhim by reminding participants that in the midst of millions, seconds could decide life or death. He stressed that planning alone is not enough — it is the coordination of agencies, the training of responders, and the awareness of the public that transform a plan into action. Prof. Faris Hassan Al-Lami outlined a public health systems approach, while Dr. Mohammed Taher Abu Ragheef Al-Musawi shared field strategies tested on the streets of Karbala. Prof. Taqi Zadeh spoke about adapting international disaster protocols to Iraq’s realities, and Dr. Fadil Ogla Al-Rubaie emphasised the value of volunteers. From Russia, Dr. Alexey Nikitin shared lessons from humanitarian crises, and Dr. Mahdi Razavi introduced technology-based solutions, including telemedicine and remote triage. Together, they wove a picture of disaster preparedness rooted in science, compassion, and global cooperation.

The First Research Session in Hall 1 chaired by Dr. Ali Abed Sa’adoon, was a journey through the many health challenges faced in Arbaeen. Sarah Sabah Rasool spoke about the injuries and illnesses of the intense Tuwairij

Run, calling for targeted emergency stations. Mojtaba Fattahi Ardakani showed how well-timed, culturally relevant messages can protect pilgrims from a heatstroke. Safaa Ahmed Mahdi revealed patterns in road traffic injuries, pointing to practical fixes in infrastructure and traffic control. Syeda Sadia Saghir and Mulazim Hussain Bukhari lead the participants deep into the microbiological risks of mass catering, warning about *Helicobacter pylori* and its long-term link to cancer. Dr. Rahimeen Sibtain Jafri blended health and spirituality in guidelines for a safer Arbaeen walk. Zahraa Murtaadha Nasrallah warned about burn injuries, while Sadegh Kazemi and Aimen Batool addressed nutrition and food safety as cornerstones of public health in such gatherings.

Workshops (Hall 2) — Day 1:- Dr. Amin Al-Alwani’s workshop on respiratory infections and inhalation injuries brought science to life, with hands-on demonstrations of airway protection and infection control in crowded, dusty environments. Later, Dr. Mahdi Razavi turned theory into action with a live major incident management simulation, where participants practised triage, resource allocation, and inter-agency communication under realistic time pressure.

Second Research Session (Hall 1) was lead by Dr. Qasim Jaffry, which ranged from oral health to public awareness. Dr. Zahra Kamran and Dr. Kamran Chaudhry opined that even dental emergencies can derail pilgrim health, and should be part of the medical plan. Dr. Amber Batool mapped the spread of viral conjunctivitis, a common yet disruptive infection in mass gatherings. Muhammad Sarfraz Ahmad explored how airborne infections spread in crowded routes. Dr. Ali Hasan reflected on the Arbaeen

walk as both a physical trial and a moral journey. Dr. Hamad Raza mapped global crowd management research, while Farwa Narjis Naqvi and Maryam Narjis Naqvi tackled the hidden risks of heat-exposed bottled water and poor catering practices. The day closed with Ali Abdul Ridha Abutiheen's eye-opening data on gaps in health awareness among pilgrims — a topic that sparked lively debate.

The Third Research Session (Hall 1) was chaired by Dr. Mahdi Razavi and included systems and science. Dr. Azadeh Tahernejad talked on the factors that make emergency medical services succeed or fail. Dr. Osama Abduln Kadhim compared trauma cases during Arbaeen and normal days, showing the unique injury profile of the pilgrimage. Dr. Hussein Hawilo described the mobility and reach of mobile medical units. Abdulkarim Jaafar Ahmed Al-Kashfi highlighted how volunteering builds both services and young leaders. Dr. Alexey Nikitin linked lessons from war zones to mass gatherings, and Ma'an Talib Badeiwi returned the focus to health awareness. Pirhossein Kolivand closed the session by reminding that protecting responders is as vital as protecting the public.

The Workshops on Day-2, started with Dr. Ali Nasiri discussing health system resilience in war and terrorism. He took the participants into the difficult world of keeping hospitals running when the world outside was unsafe. Meanwhile, Dr. Mahdi Razavi's basic and advanced life support training got participants practising CPR, airway control, and the use of defibrillators in conditions that mimic the dense crowds of Arbaeen.

The Fourth Research Session was chaired by Dr. Ali Abed Sa'adon, and was based on innovation and inclusion. Hojat Hajimohammadiyazdi displayed how smart media could send real-time health alerts to millions. Iman Mohammed Ridha analysed why some pilgrims experience chest pain, and how to reduce those risks. Nasibeh Rady Raz demonstrated an AI system that translates sign language for deaf pilgrims seeking medical help. Prof. Farwa Batool Shamsi discussed on how to better serve those with disabilities or chronic illnesses. Jalil Ghayur Safar proposed solar-powered medical units, while Advocate Muhammad Ali Kumail turned the spotlight to protecting health systems from cyber threats. Dr. Abdulameer Kareem Leilo offered practical fixes for faster response to road traffic accidents.

The Workshop in the afternoon facilitated by Dr. Sa'ad Al-Fartousi's included medical ethics, asking participants to consider triage dilemmas, informed consent, and respect for cultural norms — all through the lens of Arbaeen experiences.

The Fifth and final Research Session, lead by Dr. Ali Abdul Ridha Abutiheen, examined the human, legal, and clinical dimensions of health at Arbaeen. Prof. Muhammad Shahzad Anwar addressed health-related crimes, including the exploitation of vulnerable people. Ryseva Kseniia shared how eye-tracking can reveal the presence of PTSD. Maryam Kohansal Kalkenari proposed legal reforms for more agile public health governance. Dr. Haidar Hassan Aziz explored how voluntary health services can be better organised. Dr. Asad Ali Shah distilled lessons from Arbaeen's health challenges, and Amen Bukhari spoke on making services truly inclusive.

The Closing Ceremony in the afternoon displayed a sense of shared mission. After the national anthem, the Chief of Staff of the Popular Mobilization Authority spoke about the importance of unified planning for the safety of millions. Prof. Faris Hasan Al-Lami thanked delegates who had come from across the world. Dr. Osama Abdulhassan Kadhim presented the joint recommendations, which called for coordinated action between the health, education, security, and local governance sectors. Awards recognised the dedication of committee members. Prof. Mulazim Hussain Bukhari presented a Lifetime Achievement Award to Prof. Faris Hasan Al-Lami for his leadership in holding three consecutive Arbaeen congresses in Karbala, and a commemorative shield was handed out to Dr. Dhafir Fadel Hussein for his pivotal role in shaping the congress's health and safety recommendations for the pilgrimage.

Discussion

The proceedings of the Third International Scientific Medical Gathering Conference in 2025 was built upon the experiences and recommendations of previous years. In the 2023 International Congress on Health in Arbaeen, Bukhari and Kumail highlighted the importance of strengthening inter-departmental coordination and synergy to reduce obstacles in providing health services to pilgrims. That conference emphasized the need for integrated command structures, joint training exercises, and enhanced information-sharing mechanisms between health departments, security agencies, and religious organizers. The 2024 Fourth International Congress on Health in Arbaeen, held in Tehran, expanded this dialogue by incorporating cross-border cooperation, particularly between Iraq and Iran, and exploring technological innovations such as mobile health applications, GIS-based crowd monitoring, and AI-assisted triage systems. Discussions in Tehran also stressed the necessity of harmonizing clinical protocols across jurisdictions to ensure continuity of care during the pilgrimage. The First Conference on Mass Gathering Health in Karbala, held in

2024, brought the focus back to local-level operational challenges, including heat-related illnesses, sanitation, and food safety. It provided practical guidelines for field clinics, outlined rapid referral mechanisms for critical cases, and underscored the importance of cultural competence in health education campaigns. Compared with these earlier events, the 2025 proceedings reflect a maturation of the field in several ways. First, the breadth of topics covered has expanded to include cyber-security threats, inclusive health services for people with disabilities, and systematic bibliometric analyses of crowd management strategies. Second, there is a notable emphasis on evidence-based research, with systematic reviews, meta-analyses, and technology evaluations presented alongside field reports. Finally, the conference has moved from primarily identifying challenges to actively proposing integrated, actionable frameworks that synthesize policy, technology, and operational readiness for mass gatherings like the Arbaeen pilgrimage.

Recommendations

1. Establish national mass gathering health protocols and real-time surveillance.
2. Expand mobile medical units and intensive/special care capacity.
3. Strengthen emergency preparedness through training, simulation, and ECS implementation.
4. Improve road safety, safe travel routes, and visitor transport standards.
5. Ensure essential medicines, vaccines, and safe water/food supply.
6. Promote culturally tailored health education and public awareness.
7. Support disaster management initiatives and integrate AI into health planning.

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