

Distribution of effective medical services during mass gatherings

The religious visit commemorating the occasion of the fortieth day (Arbaeen) after Imam Husain's martyrdom in 2015 is an example

Mohammed Abdul Ridha Abbas¹, Raghad Abdul Ridha Abbas²

ABSTRACT

INTRODUCTION: Mass Gathering Medicine: is the branch of medicine that explore the effects and health risks for sufficient number of people and to develop strategies that positively contribute to the provision of effective health services during these events. The reason for the development of this branch of medicine is to the fact that mass gathering result in a significant increase in cases of injuries and illnesses.

OBJECTIVE: to assess the distribution of mobile clinic, doctors and health personnel in the geographical area of Al-Rusafa side during commemorating the occasion of fortieth day (Arbaeen) after imam Husain's martyrdom. in 2015.

METHODS: Across sectional study was conducted in Al-Rusafa side of Baghdad during the religious visit of 40th day post Imam Hussein's martyrdom from 29 November- 4 December 2015. The study was approved by the Research committee of Rusafa Health Directorate. All Health districts of Al-Rusafa Health Directorate have been included in this study excepted Al- Madain. Data were collected by a form designed for this purpose. It included number of mobile clinic dispatched, number of doctors and other health care personnel dispatched and number of the patients received by each mobile clinic with the types of complaint.

RESULTS: Majority of patients received by Baghdad Al-Jadida district (12291) patients represents (54.5%) of total patients while the lowest number of patients has been recorded in Adhamiya district (853) patients and represents (3.8%). Joint and muscle disease is the commonest complaint of patients seeking medical help (8655 patients 38.4%) of the total patients. The number of patients per a doctor is the highest in Baghdad Al-Jadida district (1117), while the lowest number was found in the Adhamiya district (28). Similarly, the number of patients per health personnel is highest in Baghdad Al-Jadida district (439), while the lowest number was found in Adhamiya district (15). Majority of patient having age group (15-45 years) which represent (56.2%) of all patients and (63%) are male gender.

CONCLUSION: Dispatch of mobile clinic and allocation of human resources is distributed disproportionately with regards to the need.

Key words: mass gathering, religious visit, mobile clinic.

Iraqi New Medical Journal July 2018;4(8)

INTRODUCTION

Mass Gathering Medicine is a branch of medicine that explore the effects and health risks for sufficient number of people and to develop strategies that positively contribute to the provision of effective health services during these events.^{1,3} The development of this branch of medicine is due to the fact that mass gathering result in a significant increase in injuries and illnesses,

also could lead to accidents or horrible bouts result in huge numbers of injured or dead persons.^{4,5}

Definitions of a mass gathering generally include the following:^{1,2}

- A Planned (long term or spontaneously planned) event.
- Attendance of a specified number of persons (at least >1000 persons).

¹ FIBMS/ Community Medicine. Al-Rusafa Health Directorate, Al-Sadr General Hospital. Baghdad, Iraq.

² FIBMS/ Family Medicine. Head of Primary Health Care Department, Public Health Directorate, Baghdad, Iraq.

Corresponding Author: Mohammed Abdul Ridha Abbas, Al-Sadr General Hospital. Baghdad, Iraq. E-mail: raspecter2006@yahoo.co.uk

- At a specific location, for a specific purpose (e.g. social function, public event, sporting event).
- For a defined period of time.

The turnout of the medical care in mass gatherings may be affected by the following factors:^{3,6,7}

- Weather condition.
- Duration of the event.
- Movement of the crowd.
- Encircle the event (fenced or gated place or not).
- Availability of alcohol or drugs.
- The density of the crowd.
- The possibility of the spread of infectious diseases.

The core objectives of providing the medical services in Mass-gathering are:²

- Quick access to the sick and injured.
- Stability and efficient transport of patients and injured.
- Local care for minor injuries and illnesses

Crowds in the pilgrimage may lead to the spread of the communicable, noncommunicable diseases, injuries, accidents and risks of endemic and pandemic disease in the regional provinces, violence and terrorism.^{8,9} It is important to develop a strategy for the purpose of control and prevent the spread of diseases and to identify health and environmental risks and deal with it for the purpose of reducing injuries among visitors before, during and after the pilgrimage. As well as the development of a clear plan for providing medical services and health for pilgrims and optimise investment in the distribution of mobile clinic, medicines, medical supplies, and human resources.^{4,9}

To regulate the crowds process needs the concerted efforts of all ministries such as Ministry of Defence, Interior, Transportation, Health and Municipalities for the purpose of providing security and safety for itineraries masses and to create places crowds as well as the treatment of Communicable Diseases and non - Communicable and prevent the spread of epidemics to those crowds as well as the prevention of environmental pollution.¹⁰⁻¹²

Religious visits in Iraq are considered one of most important event that drive millions of per-

sons to gather at the same time and in the same location. Most of the religious visits commemorating the religious events in Iraq characterized by not only the presence of large number of people in a place but also marching of people for many kilometres; a journey which add more dangers and needs more distribution of medical services along the walking lines. In a visit commemorating the occasion of fortieth day (Arbaeen) after Imam Husain's martyrdom which occurs yearly, people from city of Baghdad and nearby districts marching from Baghdad to Karbala over many days. Ministry of Health and the Department of Health in Baghdad Al-Rusafa Health Directorate are doing their job to provide medical and health services, counselling and distribute health messages to population crowds. Department of health in Al-Rusafa creates the mobile clinic along the course of the visitors' walking lines for the purpose of receiving and treating patients and referring emergency cases to hospitals, in addition to preventing the spread of the epidemics and improving health and environmental awareness.

Data about this issue is scarce in Iraq, so this study was designed to assess the distribution of mobile clinic, doctors and health personnel in the geographical area of Al-Rusafa side during commemorating the occasion of fortieth day (Arbaeen) after imam Husain's martyrdom.

METHODS

Setting and study design: A descriptive cross sectional study was conducted at Al-Rusafa, the eastern part of Baghdad from 29 November to 4 December 2015. Al-Rusafa Health Directorate consists of 7 health sectors, each serves a district area.

Ethical consideration: This study was approved by the local research and ethical committee of Al-Rusafa Health Directorate.

Sampling: During the pilgrimage each health sector detaches mobile clinics to be distributed along the walking line of the pilgrims in order to provide the essential health services to the visitors (Pilgrims). In this study we included 6 health sectors with 19 mobile clinics (Almada'in health sector was excluded because it is not along the walking line). The included health sectors were Al-Adhamiya, Al-Shaab, City of Al-Sadr, Al-Rusaf, Baghdad Al-Jadida, Baladiyat.

Table 1: The distribution of the patients and human resources according to districts. During Imam Hussein at 40thday after martyrdom in Al-Rusafa side of Baghdad for 2015.

Sector name	The number of mobile clinic	Number of patients (%)	Number of doctors	Number of health personnel	Patients / a doctor	Patients/a health personnel	Patients \ a mobile clinic
Al-Shaab Sector	1	1054 (4.7)	3	10	351	105	1054
Baghdad Al-Jadida Sector	4	12291 (54.5)	11	28	1117	439	3073
Al-Sadr Sector	3	2437 (10.8)	10	50	244	49	812
Al-Adhamiya Sector	4	853 (3.8)	31	56	28	15	213
Al-Baladeit Sector	3	2134 (9.5)	21	55	102	39	711
Rusafa Sector	4	3779 (16.7)	25	65	151	58	945
Total number	19	22548 (100)	101	264	223	85	1187

Data collection: the authors have prepared two forms to collect the data from the mobile clinics. The first one, patient's form, included data about the patients were treated in the mobile clinic like age, gender, type of the disease that the patient ask the clinics for advice. We classified the complaints into the following groups: infectious disease which include all communicable diseases; chronic diseases included all non-communicable diseases; musculoskeletal diseases have included anything related to the joints, bone and muscles apart from those related to direct trauma; skin diseases included all skin complaints apart from direct trauma; trauma of all time and on any part of the body; and others which are not fit for the above groups.

The second form, the mobile clinic form, was designed to extract the data about the clinic like number of doctors, other health personnel, and medical equipment; in addition to the number of the mobile clinic detached by the health sector.

Procedure: the authors have attended many meetings with members of the Department of Health Monitoring at the division of the public health/ Al-Rusafa health directorate to explain the aims of the study and how to fill the forms. Those members would be distributed among the mobile clinics during the commemorating visit to teach the staff of the clinic about how to fill the forms. All forms were sent daily by staff of mobile clinic to the health sector and then transferred to the Department of health monitoring at the division of the public health/ Al-Rusafa health directorate for manage the data and statistical analysis.

Statistical Analysis: Data with entered into an

Microsoft excel sheet 2016. Frequencies and ration were calculated and shown in tables.

RESULTS

Table 1 shows the distribution of patients, mobile clinics and human resources among the health sectors of Al-Rusafa Health directorate during the religious visit commemorating the occasion of the fortieth day after Imam Al-Husain' Martyrdom. Baghdad Al-Jadida Sector has received the largest number of patients 12291 (54.5 %) with patients to a mobile clinic of 3073:1, while Al-Adhamiya sector has received 853 (3.8 %) which constitutes patients to a mobile clinic of 213:1. Al-Adhamiya Sector has dispatched 31 doctors, while Al-Shaab Sector has dispatched only 3 doctors. This shows a huge variation in the ratio of patients per a doctor from 1117 patients per a doctor in Baghada Al-Jadida Sector to 28 to a doctor in Al-Adhamiya. The situation is similar for patients to one health personnel ratio.

It was noted that the highest percentage of patients that receipted in each mobile clinic to total number of patients in all districts was in the mobile clinic of the Bagdad Al-Jadida Primary Health Care Centre which received 7500 patients (33.3%), followed by Primary Health Centre of Zayuna (15.5%) and while the least was in Adhamiya Second Primary Health Centre (0.3%). (see **table 2**)

The percentage of male patients (63%), while the percentage of female patients (37%) as in **table 3**. The highest percentage of patients (56.2%) are in the age group (15-45 years), followed by age group (<14 year) (28.8%), and less percentage (15 %) was within the age group

Table 2: Number of patients visiting each mobile clinic of health sectors during religious visit of 40th day after Imam Hussein martyrdom in Al-Rusafa / Baghdad in 2015.

Sector	Mobile clinic/ primary health centre	Number of patients	%
Al-Shaab Sector	Sumar Health Centre	1054	4.7
Baghdad Al-Jadida Sector	Sindbad Health Centre	755	3.3
	Baghdad Al-Jadida Health Centre	7500	33.3
	Zayuna Health Centre	3500	15.5
	Saida Health Centre	536	2.4
Al-Sader Sector	Main Mobile Clinic	999	4.4
	The third health centre	606	2.7
	The first health centre	832	3.7
Al-Baladiat Sector	Abdul Salam Al-Bahadli Health Centre	305	1.4
	Al-Amien Health Centre	795	3.5
	The Third Health Centre	1034	4.5
Rusafa Sector	FakhryAldin Al-jamil's Health Centre	319	1.4
	Al-Qanat Health centre	1431	6.3
	Al- Mustansiriya Health Centre	1310	6
	Al-Karrada Health Centre	719	3.2
Adhamiya Sector	Adhamiya Second Health Centre	65	0.3
	Adhamiya Third Health centre	120	0.5
	New Health Centre of Al-Suleikh	525	2.3
	Kray'at First Health centre	143	0.6
Total	19	22548	100

(>45 years). **table 3**). Joint and muscle diseases were the commonest cause of consultation reported in 8655 (38.4 %) followed by infectious diseases. **Table 3**

DISCUSSION

Mass gathering, including pilgrimage in Iraq need to be well prepared before and after the

visit, to ensure dealing with any incident during and or after the visit and to prevent spread of infectious diseases and the occurrence of accidents. One of the main strategies to deal with the pilgrimage is to develop a scientific and clear plan for providing medical services to those in need. One of the priorities of these processes are the proper distribution of mobile clinic on the geographical area where the event was, and scientific plan with previous data for

Table 3: The distribution of patients according to age, sex and by diseases for each sector during Imam Hussein at 40th day after martyrdom in Al-Rusafa side of Baghdad for 2015.

	Patients' gender			Patients' age groups			Diseases						
	Male	Female	Total	>45	15-45	<14	Infectious	Chronic non-com-municable	Musculo-skeletal	Skin	Trauma	Others	
Rusafa Sector	2420	1359	3779	645	2857	277	267	253	2480	520	259		
Al-Sader Sector	1755	682	2437	311	1590	536	138	103	1191	145	18	842	
Al-baladiat Sector	1165	969	2134	613	1130	391		415	1465	165	89		
Al-Shaab Sector	667	387	1054	107	699	248	99	68	553	98	109	127	
Baghdad Al-Jadida Sector	7610	4681	12291	1509	5802	4980	4794	2172	2685	618	2022		
Adhamiya Sector	576	277	853	177	602	74	54	54	281	86	12	366	
Total number	14193	8355	22548	3362	12680	6506	5352	3065	8655	1632	2509	1335	
%	63	37	100	15	56.2	28.8	23.7	13.6	38.4	7.2	11.1	6	

distribution and providing the mobile clinic with medications, medical supplies and personnel.¹³⁻¹⁵ Through the results that were obtained by this study we note the followings:

1. Majority of patient (56.2%) within in the age group (15-45 years) which indicates that this category are the most among the visitor. As well as the percentage of men (63%) compared with (37%) of women among the patients recorded by mobile clinic. It is corresponds to the fact that the privacy of the visit requires bear the burden of long-distance walking.

2. It was found that the number of mobile clinic in each district is disproportionate to the number of patients. It was observed that the percentage of patients in the New Baghdad district (54.5%) of the total number of patients with highest mean of patients for each mobile clinic (3073) patients for each clinic. While in the Adhamiya district (3.8%) with lowest mean (213) patients for each clinic, and more Mobile clinic receipted the patients is the mobile clinic of the primary Health Centre New Baghdad by (33.3%) of the total number of patients. From this we conclude that the distal district from the pilgrims walking line have the lowest percentage reception for the patients compared with nearby sectors progress of pilgrims walking line especially New Baghdad district The reason is may be due to the fact that pilgrims in the eastern and northern provinces as well as Baghdad province have walked the line toward New Baghdad sector, then crossing to the Karkh side of Baghdad towards the holy city of Karbala as the final destination.

And also noted that the number of doctors and health personnel is disproportionate with the number of patients for each district. New Baghdad sector receive 1117 patients for each doctor, and 28 patients for each doctor in Adhamiya sector as well as there is a clear disparity in the rest of the district. In New Baghdad district there is 439 patients for each health personnel While in Adhamiya district 15 patients for each health personnel.

This misdistribution of mobile clinic and Human resources may due to depend on scarce data or incorrect data (depend on data of the pilgrimage of the Imam Kadhimi where the walking line of pilgrims to Adhamiya sector and new

Baghdad sector will away from the walking line in Imam Kadhimi visit), also lack of structural accredited by the Ministry of Health to form a special mobile clinic.

3. According to this study the majority of diseases that treated in the mobile clinic are joint and muscle disease with a percentage 38.4%, followed by infectious disease 23.7%, and chronic diseases 13.6%. The reason for highest percentage of joint and muscle disease between the patients is that the nature of the visit is walking and for long distance, the second highest percentage is infectious disease and this may due to cold weather at the time of this pilgrimage and high density crowd. And low percentage of chronic diseases may due to the age group of these diseases mostly old age whom cannot walking for long distance, also the burden of the chronic disease prevent them for participation in the religious visit.

CONCLUSIONS

Large number of people is seeking for a medical consultation during the mass gathering in the religious visit commemorating the occasion of fortieth day post Imam Husain's Martyrdom, they are of variable age and complaints. The dispatch of the mobile clinics and distribution of human resources are disproportionate to the actual needs as expressed by the number of people seeking a medical advice or consultation.

REFERENCES

1. World Health Organization. Communicable disease alert and response for mass gatherings: key considerations, June 2008. Geneva: WHO.
2. Memish ZA. The Hajj: communicable and non-communicable Health hazards and current guidance for pilgrims . *Euro Surveill*. 2010;15(39):pii=19671.
3. Al-Tawfiq JA and Memish ZA. Mass gatherings and infectious diseases: prevention, detection and control. *Infect Dis Clin North Am*. 2012;26(3):725-37.
4. Health conditions for travellers to Saudi Arabia for the pilgrimage to Mecca (Hajj). *Wkly Epidemiol Rec*. 2012 ;87(30):277-80.
5. Borrow R. Meningococcal disease and prevention at the Hajj. *Travel Med Infect Dis*. 2009 ;(4):219-25.
6. Al-Gahtani YM, el Bushra HE, al-Qarawi SM, al-Zubaidi AA Fontaine RE. Epidemiological investigation of an outbreak meningococcal meningitis in makkah (Mecca), Saudi Arabia 1992. *Epidemiol Infect*. 1995;115(3): 399-409.

7. Memish ZA, Venkatesh S, Ahmed QA. Travel epidemiology: the Saudi perspective. *Int J Antimicrob Agents* 2003;21(2): 96–101.
8. Balkhy HH, Memish ZA, Bafaqeer S, Almuneef MA. Influenza a common viral infection among Hajj pilgrims: time for routine surveillance and vaccination. *J Travel Med* 2004;11(2):82-6.
9. Alborzi A, Aelami MH, Ziyaeyan M, Jamalidoust M, Moeini M, Pourabbas B, et al. Viral etiology of acute respiratory infections among Iranian Hajj pilgrim, 2006. *J Travel Med* 2009;16(4):239-42.
10. Memish ZA, Al Rabeeah AA. Health conditions for travellers to Saudi Arabia for the Umra and Hajj pilgrimage to Mecca: requirements for 2012 (1433). *Journal of infection and public health* 2012; 5(2): 113-115.
11. Balaban V, Stauffer WM, Hammad A, Afgarshe M, Abd-Alla M, Ahmed Q et al. Protective practices and respiratory illness among US travelers to the 2009 Hajj. *Journal of travel medicine* 2012; 19(3): 163-168.
12. Alzeer A, Mashlah A, Fakim N, Al-Sugair N, Al-Ghamdi SM, Akbar HO, Qari YA, Fathaldin OA, Al-Rashed RS. Pattern of admission to hospitals during muslim pilgrimage Hajj. *Saudi Med J* 2003;24(10):1073–6.
13. Alzeer A, Mashlah A, Fakim N, Al-Sugair N, Al-Hedaithy M, Al-Majed S, Jamjoom G. Tuberculosis is the commonest cause of pneumonia requiring hospitalization during Hajj (pilgrimage to Makkah). *J Infect* 1998;36(3):303-6.
14. Mayer LW, Reeves MW, Al-Hamdan N, Sacchi CT, Taha MK, Ajello GW, et al. Outbreak of W135 meningococcal disease in 2000: not emergence of a new W135 strain but clonal expansion within the electrophoretic type-37 complex. *J Infect Dis* 2002;185(11):1596-1605.
15. Al-Joudi AS. An outbreak of foodborne diarrheal illness among soldiers in Mina during hajj: the role of consumer food handling behaviors. *J Family Community Med* 2007; (1)14: 29-33.

Conflict of interest: Author has nothing to declare.

Funding: Authors received no funds to complete this report a part from self funding.