

Hajj – the pilgrimage of muslims - archetype of a mass gathering (Poster NECTM 7)

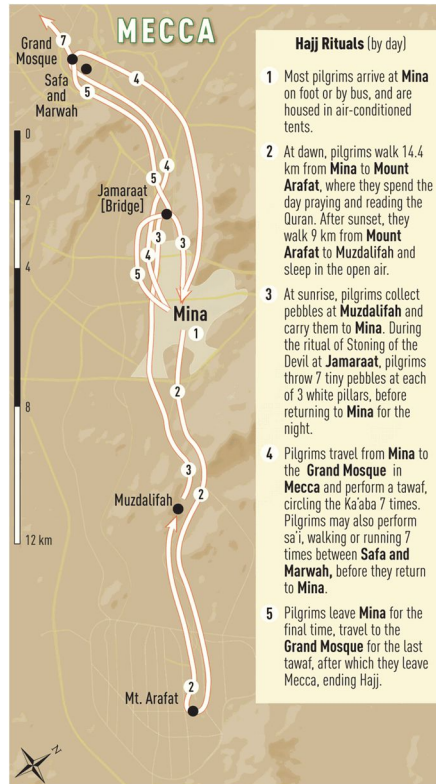
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Muslims have to respect five pillars of Islam:

Shahadah (profession of faith) – sala'at (prayer) – zakat (purification, tax for the poor) – saum (fasting) – **hajj (annual pilgrimage)**

The Noble Qur'ân, surat 2, al-baqarah ('the cow') 196: "And perform properly (i.e. all the ceremonies according to the ways of Prophet Muhammad ﷺ), the Hajj and 'Umrah (i.e. the perennial pilgrimage to Makkah) for Allah". Every year about 2- 3 Mio Muslims follow this demand of Muhammad.

The extremely diverse population from about 185 countries performs the same activities within 6 days in a state of purity and holiness (*Ihram*). Many of these people were not able to afford their attendance before getting old and are restricted in their health. The security of the pilgrims and their health care is a huge challenge for Saudi Arabian authorities. During the hajj, pilgrims often neglect obvious and hidden health risks.



The main holy sites of the hajj

- Mina:** Thousands of tents to accommodate a million people
- Plain of Arafat:** Pilgrims pray from noon to sunset and climb the mountain
- Jamarat:** Stoning the devil
- Mecca Great Mosque:** seven walks around the holy shrine Kaaba, Kissing of the stone
- Safa – Marwah runs in Reminiscence of Hagar and Ismael**

Possible and probable health risks

Communicable diseases

- Malaria, and other VBD
- Hepatitis A, E
- Cutaneous leishmaniosis
- Invasive meningococcal meningitis
- Tuberculosis
- Influenza
- Gastroenteritis, diarrhea
- Poliomyelitis

Non-communicable diseases

- Sunstroke/heat exhaustion/cramps
- Circulatory collapse, coronary syndrome
- Renal failure
- Panic attack and other psychiatric disorders
- Exacerbation of preexisting diseases like diabetes or coronary heart disease

Other risks

- Road accidents
- Stampede
- Injuries, for example by falling down
- Acts of terrorism

Measures of health care, prevention and precaution to minimize health hazards (Saudi Arabia invests billions of dollars p.a. since decades)

- Obligatory vaccinations:**
 - meningococcal meningitis ACYW
 - poliomyelitis
 - YF of people from endemic regions
- Recommended vaccinations:**
 - Influenza, dPT, HepA, measles, PNC
- Other measures:**
 - Air-conditioned rooms, sun protection
 - Everywhere offering drinking water
 - Mobile hospitals
 - Ambulances
 - > 20.000 members of medical staff
 - Intensive care and dialysis units
 - Gate control (Jeddah, Great Mosque)
 - Extended presence of police, fire Brigade, security staff
 - Fireproof tents in Mina
 - Developed public transport system
 - Compulsory visa contingents

Assessment of persistent health risks of the holy sites and the routes to get there; legend: 0 = no risk, + = little risk, ++ = moderate risk, +++ = high risk

Estimated health risks	Communicable diseases					Non-Communicable diseases				violence Injuries	Stampede	Acts of terrorism
	Malaria, other VBD	Tuberculosis	Invasive Meningo-coccal disease	Gastro-enteritis diarrhea	Exacerbation of diseases	Panic attacks, psychiatr. disorders	Heart attacks, collapse	Heat exhaustion, sunstroke				
Stay in Mina	0 - +	++ - +++	0 - ++	++	++ - +++	+	+	+	+	(+)	(+)?	
Plain of Arafat	0 - +	(+)	0 - +	(+)	++ - +++	++ - +++	++ - +++	++ - +++	+	+	(+)?	
Jamarat-Bridge	0 - +	+	0 - +	+	+	++ - +++	++ - +++	++	++	++ - +++	++ - +++	
Great Mosque	0 - +	++ - +++	0 - +	+	++ - +++	++ - +++	++ - +++	++	++	++	++?	
Safa - Marwah	0	-	0	0 - (+)	0 - +	0 - +	0 - +	0	(+)	(+)	(+)?	
Public routes	0 - +	-	0	+	+	+	++ - +++	++ - +++	++ - +++	(+)	(+)	

Results: Hajj, obligatory pilgrimage of the Islamic world, reveals a lot of different risks to health. The knowledge of the rites, holy sites and the health state of the traveler will allow adequate advice to travel medicine staff

Figure: Route of hajj (CDC); Pictures: Ministry of Haj (SA); References: The Noble Qur'ân (Darussalam), Schmolz G, Hadsch (FTR 2009:117-124), ECDC: Rapid risk assessment for the hajj (10.08.2017), WHO-WER