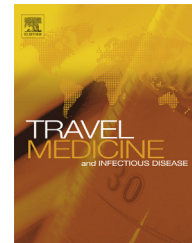




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EDITORIAL

The Hajj in The Time of an Ebola outbreak in West Africa



This issue of Travel Medicine and Infectious Disease has a number of papers pertinent to infectious disease risks for pilgrims attending Hajj, one of the largest annual recurring mass gathering events that takes place in the Kingdom of Saudi Arabia (KSA). The total number of pilgrims attending the Hajj increased from 58,584 in 1920 to 3,161,573 in 2012 with about 1,752,932 from countries other than KSA [1]. The number of pilgrims received from each country is based on the number of Muslims living in these countries. National quotas are based on a ratio of 1000 visas per one million people. To control the ever rising number of pilgrims attending Hajj every year and to give priority to the increasing number of awaiting international Muslims to attend, Saudi nationals and local residents have to register for the Hajj and Locals who have already performed the Hajj are not issued permits for 5 years. The number of Muslims and the average number of pilgrims from the four countries in West Africa involved in the current Ebola Virus Disease (EVD) outbreak are shown in Table 1.

The risk of the transmission of infectious diseases is amplified during the Hajj due to the large number of pilgrims, overcrowding and the presence of a large number of elderly pilgrims with comorbid diseases [1,2]. Previous outbreaks of infectious diseases such as meningitis and food poisoning have occurred during the Hajj. Each year there is an early coordination of efforts of multiple KSA agencies in collaboration with international organizations to identify any emerging or potential infectious outbreak [2]. The occurrence of any public health emergency of international concern (PHEIC) or the emergence of any infectious disease outbreak any where across the globe requiring notification by the International Health Regulations (IHR), incite the public health authority in KSA to take extra-precautions to curtail the introduction and subsequent spread of such infectious diseases during the Hajj season. Careful review and consultations with international agencies did not result in the restriction of any pilgrims due to the emergence of the Middle East Respiratory Syndrome coronavirus (MERS-CoV) in 2012–2014 [2]. There were no travel restrictions due to

MERS, however the Saudi ministry of health recommended that older adults (>65 years of age), children, and those immunocompromized or with chronic medical conditions should postpone the Hajj for 2012–2014.

EVD has been recently detected in West Africa with the largest outbreak ever in the history of this disease ignited by the first case which was reported from Guinea in December 2013. As of August 28, 2014, Ebola had caused a total of 3069, with 1552 deaths in Guinea, Liberia, Nigeria, and Sierra Leone (Fig. 1). In the last three weeks, >40% of the total number of cases occurred. The World Health Organization (WHO) Director General declared the outbreak a PHEIC on August 8, 2014 after 2 days of deliberation by the IHR emergency committee [3]. Another outbreak was reported on August 26, 2014 in Democratic Republic of Congo (DRC) and was not related to the other West African countries [4]. And Senegal confirmed its 1st case of EVD on Friday 29 Aug 2014, according to a statement from its Health Minister. The patient, a Guinean national who traveled to Senegal, is in quarantine [5]. Currently, the high case fatality rate, the lack of approved preventative vaccines and specific therapy for EVD is magnifying the global public health concern. An experimental therapy (Zmapp) was tried in a few patients with Ebola and subsequently on August 12, 2014 an expert panel for the WHO considered it is ethical to use an unproven intervention for the treatment or prevention of the Ebola virus [6].

Ebola is highly contagious zoonotic disease caused by a virus of the family Filoviridae, whose members comprise 2 genera of enveloped, negative, single-stranded RNA viruses: Marburgvirus and Ebolavirus. The incubation period of Ebola ranges from 2 to 21 days, and can present initially with nonspecific symptoms such as fever, chills, myalgia, malaise, respiratory and gastrointestinal symptoms followed later by hemorrhagic symptoms in severe cases. The disease is transmitted by close contact and upon exposure to infected blood and body fluid. All global health authorities agree that preventing the Ebola spread once diagnosed is possible if human medical capacity and effective protective measures are applied.

Table 1 Number of Muslims (percentage of the total population) and the average number of pilgrims in the last two years from Liberia, Nigeria, Guinea and Sierra Leone.

Country	Country Population	Number (%) of Muslim Population	Average Number of Pilgrims in the Last Two Years
Liberia	3,990,000	483000 (12.2)	244
Sierra Leone	5,870,000	4059 (71.3)	952
Nigeria	158,420,000	78513000 (50.4)	87550
Guinea	9,980,000	8502000 (84.4)	8221

The 2014 Hajj season will take place from October 1 to 6th. And long before the WHO announcement about PHEIC, the Saudi MOH after careful review by its national infectious diseases committee had asked in April 2014 that the respective authorities to suspend issuing the Hajj and Umrah's visas for the people of Guinea, Sierra Leone and Liberia [2,7]. Based on risk assessment in 2012, the Saudi Ministry of Health excluded pilgrims from Uganda and the Democratic Republic of the Congo due to the occurrence of an Ebola outbreak at that time [8]. A mathematical modeling of the risk of Ebola introduction from the Uganda outbreak in 2012 during Hajj was estimated to have a mean risk of 8.9×10^{-14} ($SD = 6.9 \times 10^{-14}$) and thought to be negligible [9]. Despite the low risk, the introduction of a single case of Ebola during the Hajj would have a catastrophic consequences for the global health community. Therefore, it is imperative to prevent any such event and take strict preemptive measures for the prevention of Ebola importation to the Hajj. The Saudi Ministry of Health public health staff who are stationed at all ports of entry into KSA

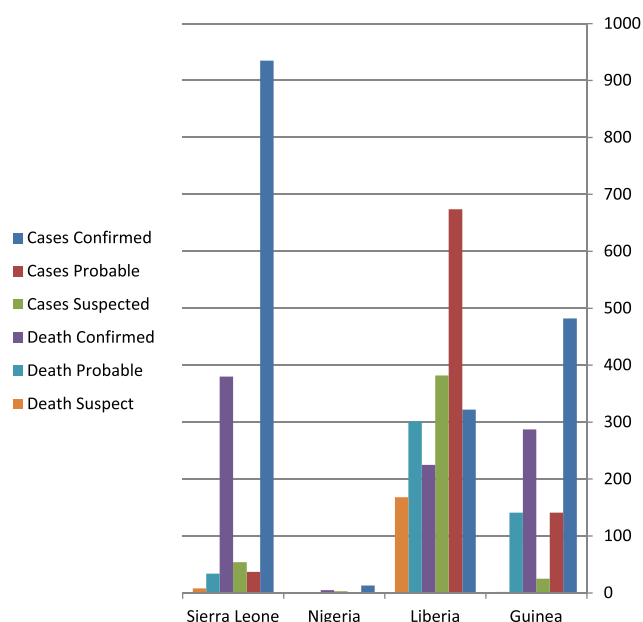


Figure 1 Number of probable, suspect and confirmed cases of Ebola and death (According to WHO: http://www.who.int/csr/don/2014_08_28 Ebola/en/).

have been trained to observe all arriving pilgrims for any signs or symptoms of infectious diseases requiring medical assessment and/or quarantine by the local public health authorities. They have gained significant experience from the decades of monitoring incoming and departing millions of pilgrims from more than 184 countries. The Saudi MOH and the US CDC had called to postpone non-essential trips to the most affected West African countries (Guinea, Sierra Leone, and Liberia) in order to prevent the spread of EVD beyond the boundaries of these countries.

KSA provides free health care for all pilgrims at the Hajj premises through 25 hospitals, 4427 beds including 500 critical care beds and 550 emergency care beds [8]. The availability of 141 healthcare centers in the Hajj area staffed with 20,000 specialized healthcare workers further enhance the provision of healthcare for the pilgrims [8]. Since EVD spreads mainly between individuals through direct and indirect contact with blood and body fluid, the focus to limit the introduction of the virus and its spread depends on three key elements: high level of vigilance to detect cases early, proper isolation and contact tracing and strict application of appropriate infection control standards with ample supplies of all personal protective equipment (PPE) to be used in the correct way constantly. The provision of enough supply and training of HCWs on the correct use of PPE are priorities for the control of the EVD outbreak without overuse or underuse [10].

The challenges facing mass gathering (MG) planners in dealing with Ebola will be multiple folds: including finding a simple syndromic surveillance mechanism/criteria that will be sensitive and specific enough to pick up highly suspected cases, development of point of care testing to confirm or rule out suspected cases, the ability to do effective contact tracing and quarantining of suspected cases and their extensive contacts which will disrupt the strict schedule of many of the MG attendees. In addition, lack of effective and approved preventative or therapeutic modalities and communication challenges to overcome the panic that such a disease with a very high mortality rate will generate add further challenges. Very elaborate and comprehensive plans need to be drawn up in advance involving all national, regional and international stakeholders to ensure smooth and effective execution at the time of any MG event. As Hajj is the largest recurring MG event in the world, planning for the Hajj each year starts immediately after completing the previous Hajj season. These preparatory plans had evolved over many years with unlimited government financial and logistical support with significant investment in establishing an extensive infrastructure, a cadre of highly trained human resources and deeply established networks, coordination and national, regional and international collaboration. The above investment in developing a state-of-the art global center for mass gathering medicine with all its global partners will be best fitted to face the current challenge and any future emerging infectious diseases challenges.

Conflict of interest

None declared.

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2 September 2014