RAPID RISK ASSESSMENT

Public health risks related to communicable diseases during the Hajj 2017, Saudi Arabia 30 August – 4 September 2017

10 August 2017

Main conclusions and options for response

This year, the Hajj takes place between 30 August and 4 September. This document assesses the potential risk of outbreaks and transmission of communicable diseases during the Hajj.

Due to the vaccination requirements prior to travel to Mecca, Saudi Arabia, and the preparedness plans addressing the management of health hazards during and after the Hajj, the overall risk of acquiring infectious diseases during the Hajj 2017 in Saudi Arabia is considered to be low.

The risk of communicable disease outbreaks is highest for food- and waterborne diseases and respiratory illnesses due to crowding, but the risk is not considered higher than can generally be expected for international mass gatherings of this size. MERS-CoV activity continues to be reported in the Arabian Peninsula, specifically from Saudi Arabia, and therefore imported cases may be detected in Europe following the Hajj. The risk of transmission of vaccine-preventable and vector-borne diseases is considered to be low.

The national health authorities from countries from where Muslims embark on the Hajj pilgrimage to Mecca should apply appropriate strategies for the prevention and control of communicable diseases before, during and after the completion of the Hajj.

Advice for those travelling to the Hajj

Prior to travelling

- Seek advice from healthcare providers on vaccination requirements for visa and entry into the country as well as recommendations issued by the Ministry of Health of Saudi Arabia and WHO to update routine vaccinations including boosters as recommended in your EU country of residence. See ECDC vaccine schedule site.
- Seek advice from healthcare providers about additional recommendations, including travel vaccines related to travelling to the Hajj. In dialogue with a healthcare provider, consider postponing the travel if you are pregnant, or if an accompanying child is aged under 12 years. Avoid travelling if aged over 65 years, if you have chronic disease, immune deficiency, illness due to cancer, or terminal illness.

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During the Hajj

- Follow personal food and water hygiene measures and advice on prevention of food- and waterborne diseases to decrease the risk of gastrointestinal illness.
- Practice good hand and personal hygiene to reduce the risk of respiratory infections.
- Avoid close contact with animals, particularly camels, when visiting farms, markets, or barn areas.

After the Hajj

- If symptoms suggestive of gastrointestinal, respiratory or any other type of infection occur upon return, travel history should be mentioned to the healthcare provider.
- Due to the continuing reports of MERS-CoV disease in Saudi Arabia, returning pilgrims should seek medical advice if they have a fever (38 ºC and over), cough or difficulty in breathing.
- If pilgrims require hospitalisation within one year after travel to another country (or if hospitalised in another country), they should report their travel history and previous hospitalisation to their healthcare provider in order to consider the possible acquisition of antimicrobial-resistant (AMR) bacteria and to implement appropriate measures in accordance with national guidelines to prevent the spread of AMR.

Based on the general risks during a mass gathering event, ECDC will conduct enhanced epidemic intelligence surveillance for communicable diseases from 23 August to 10 September 2017.

Source and date of request

ECDC internal decision, 28 July 2017.

Public health issue

International mass gatherings can pose a risk for communicable disease outbreaks and global spread of infectious diseases. The aim of this document is to assess the potential health risks related to communicable diseases and other health threats for European citizens during their stay in Saudi Arabia for the Hajj pilgrimage between 30 August and 4 September 2017.

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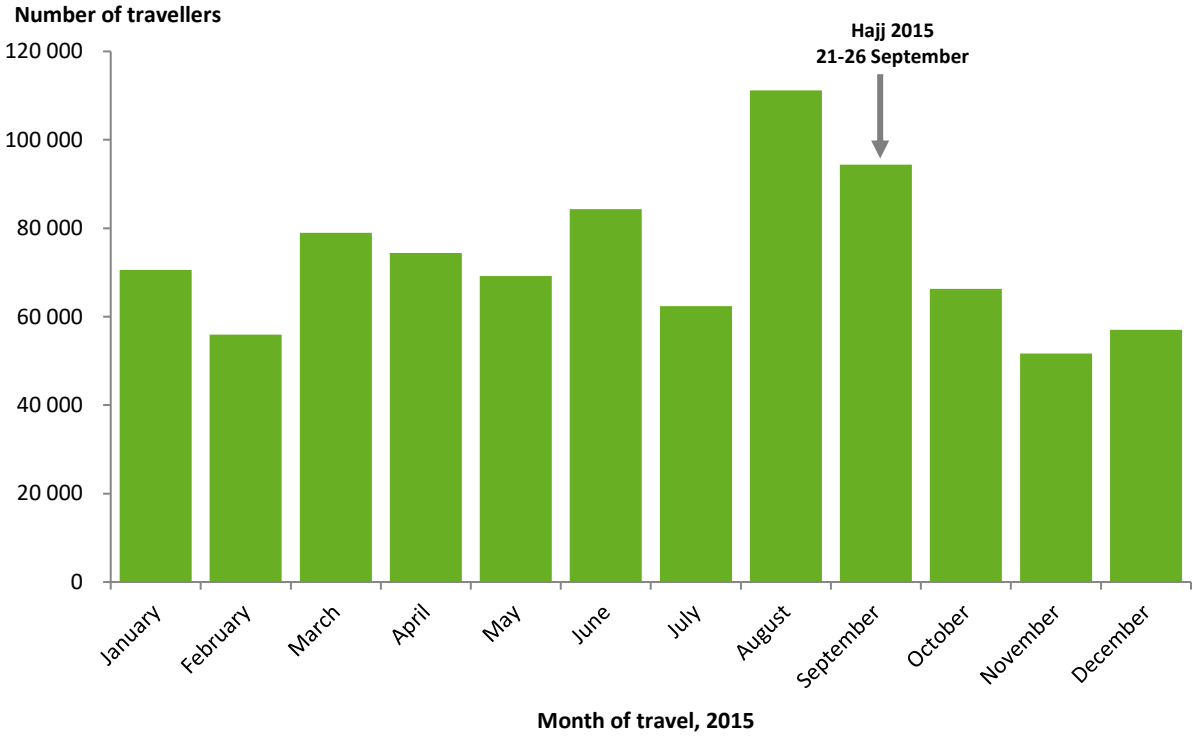
Event background information

More than one million pilgrims travel every year to Saudi Arabia for the Hajj. In August 2016, 1 325 372 foreign and 537 537 domestic pilgrims took the Hajj. In 2016, most (94%) of the foreign pilgrims arrived by air, while only five percent crossed land border; one per cent came by sea [1].

In 2015, the Hajj took place between 21 and 26 September, resulting in an increase in travel patterns from the EU/EEA during the two months preceding the Hajj (Figure 1). According to IATA data for 2015, almost 900 000 travellers from EU/EEA countries travelled to Saudi Arabia throughout the year. The majority of the travellers originated from the United Kingdom (39%), France (14%) and Germany (13%).

Figure 1. Distribution of travellers from EU/EEA to Saudi Arabia, by month, 2015



Source: IATA

Risks associated with infectious diseases in relation with the Hajj 2017

The following public health risks associated with mass gathering events are considered in this document:

- Risks associated with the importation of communicable diseases to the Hajj
- Risks associated with transmission of communicable diseases during the Hajj
- Risks associated with exporting infectious diseases upon returning from the Hajj.

Risk for importation of communicable diseases to the Hajj

The risk of importation of communicable disease to Saudi Arabia by pilgrims participating to the Hajj is related to the outbreaks currently taking places in the country of origin of pilgrims.

The following outbreaks should be considered of relevance:

- Cholera, currently spreading in many countries of the Horn of Africa and the Gulf of Aden, including Yemen, Somalia, Ethiopia, South Sudan and the Democratic Republic of the Congo. In May 2017, an imported case of cholera from Tanzania to the Czech Republic was detected [2].
- Poliomyelitis, with wild poliovirus cases still occurring in 2017, e.g. in Afghanistan (five cases) and Pakistan (three cases). In 2017, circulating vaccine-derived poliovirus type 2 was reported in four cases in the Democratic Republic of Congo and in 27 cases in the Syrian Arab Republic [3].
- Yellow fever, Zika, chikungunya, dengue, with ongoing outbreaks in many countries worldwide, increasing the possibility of the introduction of these viruses through viraemic travellers. In 2017, India reported its first Zika case. Thailand, Taiwan and Singapore also reported Zika cases. In 2017, Bangladesh reported close to 3 000 chikungunya cases, while India has had more than 15 000 cases since the beginning of the year [4]. In 2017, the most affected countries in Asia for dengue are Sri Lanka, Malaysia and Vietnam. Sri Lanka, Laos and Vietnam have reported more dengue cases than during the same period in the previous year, while Malaysia, Cambodia and Singapore have reported fewer cases. In Africa, dengue cases were reported in Côte d'Ivoire, Kenya, La Reunion and Togo [4].
- Seasonal influenza, currently ongoing in the southern hemisphere and intertropical countries. In a recent study, 11% of Hajj returnees tested positive for influenza viruses in 2014/15 [5].

- Measles, with large ongoing outbreaks in the European continent as well as in Africa and Asia. Cases are being reported in Bangladesh, Cameroon, the Democratic Republic of the Congo, Ethiopia, Indonesia, Kenya, Liberia, Nigeria, Somalia, South Africa, South Sudan and Thailand. In the USA, there is an outbreak in a Somali community in Minnesota [3].
- Ebola, in the context of a recent outbreak in the Democratic Republic of the Congo and the situation in West Africa in the previous years.

Risk of transmission during the Hajj

The risk of local transmission during the Hajj is increased compared to other times, as a consequence of overcrowding, possible breaches of food standards and hygiene, and the increased potential for introduction of vector-borne diseases into indigenous vectors competent for the transmission of arboviruses.

Meningococcal diseases

The transmission of meningococcal meningitis is facilitated by crowded environments, as occasionally experienced during the Hajj. The risk of importation of meningococcal meningitis is increased during the seasonal peaks in the countries of the African meningitis belt, several of which are home to large Muslim populations.

A worldwide outbreak of serogroup W-135 meningococcal disease occurred during the 2000 Hajj in Saudi Arabia. Most cases were identified in Saudi Arabia. Of the 253 cases identified, 161 (64%) had serogroup identification. Serogroup W-135 caused 93 cases (37%), while serogroup A caused 60 (24%) cases [6]. The same outbreak resulted in 90 cases of meningococcal infection in nine European countries, mostly affecting the UK and France [7].

Food- and waterborne diseases

Gastrointestinal illnesses during mass gathering events, including the Hajj, are a possible health threat. This is due to possible breaches of food hygiene standards, shortage of clean water, the presence of mildly ill and asymptomatic carriers of pathogenic bacteria and viruses, and the preparation of large numbers of meals that may be poorly stored by pilgrims. There are several studies describing the incidence and aetiology of traveller's diarrhoea during the Hajj [8,9].

Hajj and Umrah pilgrims are not allowed to bring fresh food into Saudi Arabia. Only properly canned or sealed food or food stored in containers with easy access for inspection is allowed in small quantities, sufficient for one person for the duration of the trip [10].

Malaria

Malaria is a widespread parasitic disease in tropical areas, and it is likely that many pilgrims host the parasite [11]. Outbreaks of malaria have occurred during the Hajj in the past [12]. However, Saudi Arabia is currently at the pre-elimination phase of malaria, and local transmission of malaria has only been reported in villages along the border with Yemen [13]. Therefore, the risk of transmission in relation with the Hajj is very low.

Arboviruses

Aedes aegypti mosquitoes have not been detected in areas where the Hajj and Umrah are taking place. However, *Ae. aegypti* is present in surrounding cities, for example Jeddah [14]. A recent literature review pointed out that dengue outbreaks have regularly occurred in Saudi Arabia since the 1990s [15,16]. Therefore, there is a possibility of an outbreak of dengue fever during the Hajj.

Alkhurma haemorrhagic fever (AHF) is a tick-borne disease found in Saudi Arabia and in Egypt. In Saudi Arabia, outbreaks took place in Jeddah and Mecca (see https://www.cdc.gov/vhf/alkhurma/outbreaks/distribution-map.html). The virus is transmitted by ticks, following contact with livestock, including sheep. The risk of AHF is probably low, but AHF should be considered as a differential diagnosis for viral haemorrhagic fevers.

Tuberculosis

It is difficult to assess the transmission of tuberculosis during the Hajj due to the long incubation period. However, based on the origin of the pilgrims, many of whom come from areas where tuberculosis is endemic, a risk for the spread of tuberculosis exists. Contributing factors are overcrowding, and conditions of co-morbidity, which make pilgrims susceptible to infection or reactivation of latent tuberculosis. There is evidence indicating a significant risk of getting infected during the Hajj [17].

Risk of exportation of infectious diseases related to the Hajj

Returning pilgrims can all be affected by the communicable diseases mentioned above and could thus trigger a local chain of transmission in their home countries. Vector-borne diseases are excluded from this, as there must be a competent, active vector in the home country.

Two conditions associated with nosocomial transmission are of particular interest in the context of the Hajj: infection with MERS-CoV and infection with, or carriage of, antimicrobial-resistant bacterial strains.

MERS-CoV

Although no cases of MERS-CoV infection have been associated with the Hajj events since the discovery of the virus, MERS-CoV disease still raises a concern as outbreaks linked to camel contact and transmission in healthcare settings continue to be reported in Saudi Arabia [18]. During 2017, MERS-CoV cases have occurred in Saudi Arabia, the United Arab Emirates, Qatar and Lebanon. Many of the primary cases reported direct camel contact or consumption of raw camel milk, while the secondary cases mostly occurred in healthcare settings. During May and June 2017, hospital outbreaks were detected in Riyadh, Saudi Arabia, involving patients and healthcare workers [18].

While camel contact is unlikely during participation in the Hajj, pilgrims admitted to a hospital may become exposed to MERS-CoV. Transmission in home countries after travelling to a MERS-CoC-affected country has been documented in several instances, e.g. in the UK [19], France [20], and South Korea [21]), albeit not in the context of the Hajj.

Antimicrobial resistance and healthcare-associated infections

High rates of antimicrobial resistance (AMR) in gram-negative and gram-positive bacteria [22] are reported from the eastern Mediterranean region. Increasing resistance in gram-negative bacteria have been reported for Saudi Arabia; this includes increases of carbapenemase-producing *Enterobacteriaceae* and carbapenem-resistant *Acinetobacter baumannii,* as well as hospital outbreaks of multidrug-resistant (MDR-)bacteria [23-25]. Over-the-counter use of antibiotics without prescription, heavy international travel due to pilgrimage, a large population of expatriates, low adherence to infection control measures (e.g. hand hygiene in hospitals and detection of multidrug-resistant bacteria in food animal specimens) have been identified as local risk factors contributing to the emergence of AMR [26].

A recent systematic review showed a high prevalence and/or a high risk of acquisition of MDR-bacteria in pilgrims during the Hajj [27]. Factors promoting the acquisition of MDR-bacteria during the Hajj include crowding, lack of efficient food and personal hygiene, and the acquisition of respiratory and gastrointestinal infections with subsequent antimicrobial use and healthcare exposure [27]. Pilgrims who acquire MDR bacteria abroad and return to their home countries represent a potential reservoir for onward transmission of MDR bacteria to the community and in hospitals.

ECDC threat assessment for the EU

The Hajj is one of the largest annual mass gathering events and may result in the importation and transmission of infectious diseases related to the crowded conditions during the pilgrimage. This may contribute to the amplification and international spread of infectious disease outbreaks.

However, despite a few outbreaks which previously affected the EU after the Hajj, the Hajj poses a low risk for the importation and spread of communicable disease in the EU thanks to the strict precautionary measures taken by Saudi Arabia.

Conclusions and options for response

ECDC monitors current outbreaks worldwide and reports through the weekly Communicable Diseases Threat Report [28].

ECDC enhances epidemic intelligence activities during and after the Hajj to detect possible events posing a public health threat to the European Member States. The epidemiological situation is covered in the weekly Communicable Diseases Threat Report [28]

Other ECDC reports are released:

- Monthly for cholera, Zika [29], dengue, chikungunya, measles, MERS-CoV (worldwide)
- Weekly for measles and seasonal influenza (EU/EEA)
- Daily for epidemic intelligence threats.

In the event of a public health emergency of international health concern, or in the case of any disease outbreak subject to notification under the International Health Regulations 2005, the health authorities in Saudi Arabia will undertake additional preventive precautions following consultation with WHO and necessary to avoid the spread of infection during the pilgrimage or upon return to their country of origin.

General recommendations

For each Hajj season, the Saudi Arabia Ministry of Health publishes the health requirements for Hajj including specific requirements for vaccinations. These requirements and recommendations are included in the Annex of this risk assessment and available online [10].

Before the event, pilgrims should ensure that they meet the visa requirements, receive the required vaccines as well as recommended routine immunisations including booster doses, in order to avoid outbreaks of vaccine-preventable diseases. The national health authorities of countries from where pilgrims travel to the Hajj should have appropriate strategies in place that are aimed at the prevention and control of communicable diseases before, during and after the completion of the Hajj. The current international collaboration in planning vaccination campaigns, developing visa quotas, arranging rapid repatriation, and managing health hazards at the Hajj are crucial steps in this process.

Returning pilgrims should be vigilant for symptoms of acute respiratory illness with fever and cough during the first two weeks after their return. Returning pilgrims experiencing such symptoms should seek immediate medical attention and inform health attendants of their recent travel to Hajj. To reduce the risk of transmission of infection they should minimise contact with others and practise strict cough etiquette and respiratory hygiene. Health practitioners and facilities should arrange appropriate testing for returning pilgrims with a clinical presentation suggestive of MERS-CoV.

Specific recommendations

WHO and Saudi Arabia recommendations for specific diseases

- **Yellow fever**: pilgrims arriving from countries or areas at risk of yellow fever (see list in the Annex) transmission and pilgrims having transited for more than 12 hours through an airport of a country with risk of yellow fever transmission are required to present a valid yellow fever vaccination certificate at entry in Saudi Arabia. Since July 2016, the international certificate of vaccination against yellow fever is valid for life, starting from 10 days after the vaccination date.
- **Meningococcal disease**: pilgrims are required to carry a certificate of vaccination against meningococcal disease. Adults and children aged two years and over should be vaccinated with the tetravalent (ACYW135) vaccine no less than 10 days before arrival. Polysaccharide ACWY vaccine should have been administered no more than three years and conjugate ACWY vaccine no more than five years before arrival. Pilgrims from the meningitis belt in sub-Saharan Africa (see list of countries in the Annex) will receive chemoprophylaxis at their port of entry to lower the rate of meningococcal carriers [10].
- **Poliomyelitis**: pilgrims arriving from countries classified as infected with wild polio virus type 1 or circulating vaccine derived polio virus with potential risk of international spread, or those no longer infected but vulnerable to reinfection or remaining vulnerable to polio, should provide a proof of receipt of a dose of oral polio vaccine (OPV), or inactivated poliovirus vaccine (IPV), within the previous 12 months and at least four weeks prior to departure and will receive one dose of OPV at all border points on arrival in Saudi Arabia (see the list of countries in the Annex).
- **Seasonal influenza**: pilgrims are recommended to be vaccinated against seasonal influenza with the most recently available vaccines prior to arrival.
- **Cholera**: since 2012, the Ministry of Health of Saudi Arabia has instructed the public health staff at ports of entry to be observant of pilgrims coming from areas with on-going cholera outbreaks. Emphasis is on early detection of cases and timely provision of treatment at Hajj premises once pilgrims have passed the ports of entry [30].
- **MERS-CoV**: WHO does not recommend travel restriction and has updated travel recommendations to Hajj related to MERS-CoV [31].
- **Dengue**, **chikungunya** and **Zika** virus diseases: pilgrims for Hajj and Umrah should practise insect bite avoidance measures. Aircraft, ships and other means of transportation coming from countries affected by Zika virus are requested to submit a certificate indicating that they have applied disinsection in accordance with methods recommended by WHO [10].
- **Malaria**: the Ministry of Health of Saudi Arabia and WHO do not recommend malaria prevention measures in in the cities of Mecca and Medina [32,33].
- **Measles**: outbreaks continue to occur globally [34]. There is a risk of spread and sustained transmission in areas with susceptible populations. It is strongly recommended that non-immune pilgrims attending the Hajj are vaccinated according to the national schedule prior to their travel, i.e. two doses of measles-containing vaccine.

WHO and Saudi Arabia recommendation for routine immunisations

The Ministry of Health of Saudi Arabia recommends pilgrims to be up-to-date on routine immunisations. WHO recommendations are available for childhood and for life-long protection against diphtheria, tetanus, pertussis, polio, hepatitis B, *haemophilus influenzae* type b, pneumococcal and rotavirus (infants only) infections, measles,

mumps, rubella, cholera, typhoid, yellow fever and rabies [35]. The WHO position papers also provide travel recommendations. It is strongly recommended that non-immune pilgrims initiate, and ideally complete, their immunisation prior to travelling and, for those who did not complete a primary course or for whom a booster is routinely recommended, that they complete the schedule upon return to their home country.

Saudi Arabia general public health recommendations

- **Deferral of the Hajj**: The Saudi Ministry of Health recommends that people aged over 65 years and those with chronic diseases (e.g. heart disease, kidney disease, respiratory disease, diabetes) and pilgrims with immune deficiency (congenital and acquired), malignancy and terminal illnesses, pregnant women and children aged under 12 years to postpone the performance of the Hajj and Umrah.
- **Prevention of respiratory illness**: The Saudi Ministry of Health advises all pilgrims to comply with public health recommendations to prevent the spread of respiratory infectious disease [10], including the following:
  - Washing hands with soap and water or disinfectant, especially after coughing and sneezing, after using toilets, before handling and consuming food, after touching animals
  - Using disposable tissues when coughing or sneezing and dispose of it in the wastebasket
  - Trying as much as possible to avoid hand contact with the eyes, nose and mouth
  - Wearing masks, especially when in crowded places
  - Avoiding direct contact with the persons who appear ill with cough, sneeze, expectoration, vomiting, or diarrhoea, not sharing their personal belongings, and maintaining good personal hygiene
  - Avoiding close contact with animals, particularly camels, when visiting farms, markets, or barn areas
  - Avoid consumption of raw camel products including milk and meat that has not been properly cooked.
- **Prevention of foodborne outbreaks**: The most important measures to prevent gastrointestinal illnesses are the use of adequate sanitation, drinking safe water (chlorinated or boiled water before consumption) and appropriate food hygiene, regularly hand washing with soap, eating thoroughly cooked food, carefully washing fruits and vegetables with bottled or chlorinated water before consumption and avoiding consumption of raw seafood products. Another available measure to prevent food and waterborne diseases is vaccination against hepatitis A and typhoid fever. In the EU/EEA, hepatitis A vaccines exist as stand-alone or in combination with HBV antigen or typhoid antigen. Typhoid vaccine is also available as stand-alone vaccine.
- **Health education**: Health authorities in countries of origin of the pilgrims should provide information on infectious disease symptoms, modes of transmission, complications, and means of prevention as well as on changes in temperature that may have adverse effect on health. Hajj and Umrah pilgrims should be advised to drink plenty of clean water, preferably bottled or boiled and cooled, to avoid dehydration. This is particularly important for children and older pilgrims. Consumption of salt-containing food and drink, unless contraindicated will also be helpful.
- During the event, participants should follow standard hygiene measures and advice on the prevention of food and waterborne diseases to decrease the risk of gastrointestinal illness, and consider general hygiene practices when consuming food and drink.

ECDC additional recommendations

Antimicrobial resistance and healthcare-associated infections: If pilgrims require hospitalisation within one year after travel to another country (or if hospitalised in another country), they should report their travel history and previous hospitalisation to their healthcare provider in order to consider the possible acquisition of antimicrobial-resistant (AMR) bacteria and to implement appropriate measures in accordance with national guidelines to prevent the spread of AMR.

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Annex. Health requirements for travellers to Saudi Arabia for pilgrimage to Makkah (2017/1438H Hajj)

Source: Ministry of Health of the Kingdom of Saudi Arabia. Health requirements for travellers to Saudi Arabia for pilgrimage to Makkah* (2017/1438H Hajj). Riyadh: Ministry of Health; 2017 [cited 2017 7 Aug]. Available from: http://www.moh.gov.sa/en/hajj/pages/healthregulations.aspx

The maps in this Annex were prepared by ECDC.

The Ministry of Health of Saudi Arabia has issued the following requirements and recommendations to obtain entry visas for 2017/1438H-Hajj and Umrah seasons:

1. Yellow fever

(A) In accordance with the International Health Regulations 2005, all travellers arriving from countries or areas at risk of yellow fever transmission (see list below) must present a valid yellow fever vaccination certificate. The life-long certificate of yellow fever vaccination is valid for the life of the vaccinated person, starting from 10 days after the vaccination date.

In the absence of such a certificate, the individual will be placed under strict surveillance until the certificate become valid or until a period of not more than 6 days from the last date of potential exposure to infection have lapsed, whichever is earlier. Health offices at entry points will be responsible for notifying the appropriate Director General of Health Affairs in the region or governorate about the temporary place of residence of the visitor.

The following countries/areas are at risk of yellow fever transmission (as defined by the International travel and health 2016):

Africa:

Angola, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Sudan, The Republic of South Soudan, Togo and Uganda.

Americas:

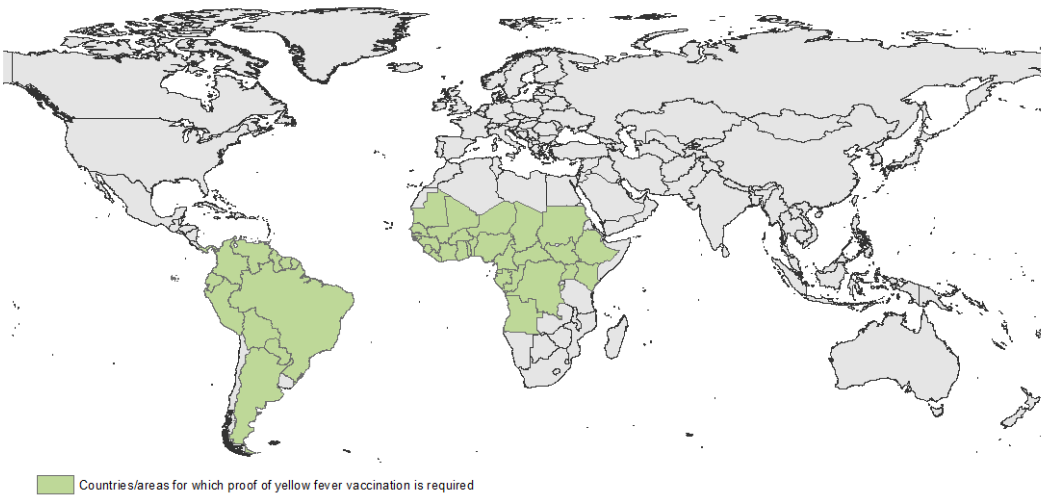
Argentina, Bolivarian Republic of Venezuela, Brazil, Colombia, Ecuador, French Guyana, Guyana, Panama, Paraguay, Peru, Pluractional State of Bolivia, Suriname and Trinidad and Tobago.

(B) Aircrafts, ships and other means of transportation coming from countries affected by yellow fever are requested to submit a certificate indicating that it applied disinsection in accordance with methods recommended by WHO.

In accordance with the International Health Regulations 2005, all arriving ships will be requested to provide to the competent authority a valid Ship Sanitation Certificate. Ships arriving from areas at risk for yellow fever transmission may also be required to submit to inspection to ensure they are free of yellow fever vectors, or disinfected, as a condition of granting free pratique (including permission to enter a port, to embark or disembark and to discharge or load cargo or stores).

* Arabic name for Mecca

Figure 2. Countries/areas for which yellow fever vaccination proof is requested before entering Saudi Arabia



Source: ECDC illustration adapted from WHO [11] and the Ministry of Health of Saudi Arabia [10]

2. Meningococcal meningitis

(A) Visitors from all countries

Visitors arriving for the purpose of Umrah or pilgrimage (Hajj) or for seasonal work are required to submit a certificate of vaccination with the tetravalent (ACYW135) vaccine against meningitis, proving the vaccine was administered no less than 10 days before arrival in Saudi Arabia. Both polysaccharide and conjugate vaccines are valid options*; the first one confers a protection of at least three years and the latter at least five years. The vaccine should have been administered not more than 3 and 5 years respectively, prior to entry into the country. The responsible authorities in the visitor's country of origin should ensure that adults and children aged over 2 years are given at least 1 dose of the tetravalent ACYW135 vaccine and state clearly the name of the vaccine used on the vaccination card.

Please note that the conjugate meningococcal vaccine certificate is valid for 5 years. However, the certificate must state clearly that the Hajji actually received the conjugate meningococcal vaccine. If the vaccine type it not indicated in the certificate, then it will be assumed that it is not the conjugate vaccine and it the validity of the certificate will to be for 3 years.

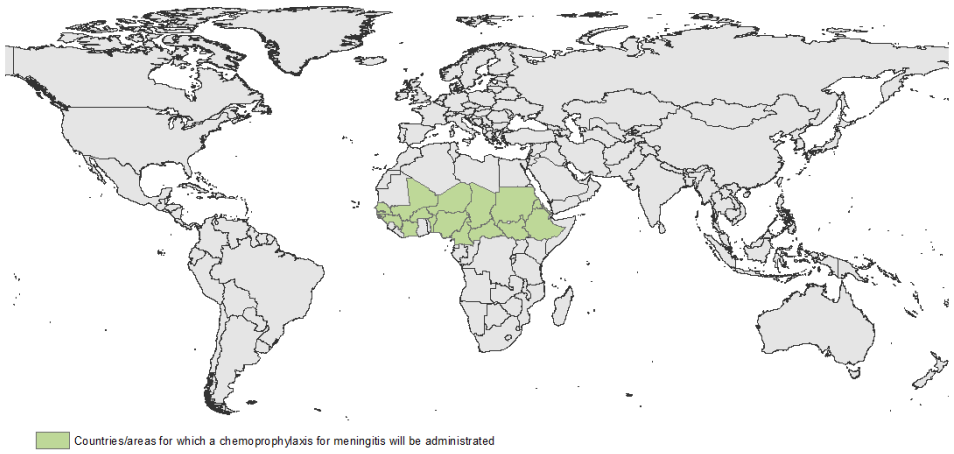
(B) For visitors arriving from countries in the African meningitis belt: Benin, Burkina Faso, Cameroon, Chad, Central African Republic, Côte d'Ivoire, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sudan and South Sudan. The above stated requirements apply. In addition, chemoprophylaxis will be administered at port of entry to lower the rate of carriers.

(C) Interior pilgrims and the Hajj workers:

Vaccination with tetravalent (ACYW135) vaccine is required for:

- All citizens and residents of Medina and Mecca who have not been vaccinated during the past 3 years with a polysaccharide vaccine or 5 years with a conjugate vaccine;
- All citizens and residents undertaking the Hajj who have not been vaccinated during the past 3 years with a polysaccharide vaccine or 5 years with a conjugate vaccine;
- All Hajj workers, including individuals working at entry points or in direct contact with pilgrims, who have not been vaccinated in the past 3 years with a polysaccharide vaccine or 5 years with a conjugate vaccine.

Figure 3. Countries and areas from which pilgrims will be administrated with chemoprophylaxis for meningococcal disease at port of entry to Saudi Arabia (in addition to showing a proof of vaccination (ACYW135))



Source: ECDC illustration adapted from WHO [11] and the Ministry of Health of Saudi Arabia [10]

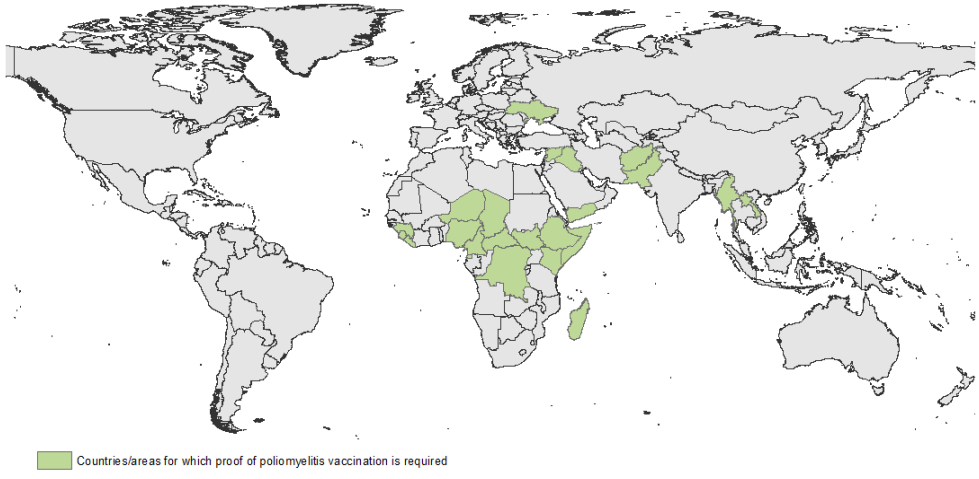
3. Poliomyelitis

Regardless of age and vaccination status, proof of receipt of a dose of oral polio vaccine (OPV), or inactivated poliovirus vaccine (IPV), within the previous 12 months and at least 4 weeks prior to departure, is required to apply for an entry visa for Saudi Arabia for travellers arriving from the following countries, territories or areas:

1. States infected with Wild Polio Virus 1 or circulating Vaccine Derived Polio Virus with potential risk of international spread: Afghanistan, Nigeria and Pakistan;
2. States no longer infected but remain vulnerable to reinfection: Cameroon, Central African Republic, Chad, Guinea, Laos People's Democratic Republic, Madagascar, Myanmar, Niger, and Ukraine;
3. States which remain vulnerable to Polio: Democratic Republic of the Congo, Equatorial Guinea, Ethiopia, Iraq, Kenya, Liberia, Sierra Leone, Somalia, South Sudan, Syrian Arab Republic and Yemen.

All travellers from these countries will also receive 1 dose of OPV at border points on arrival in Saudi Arabia.

Figure 4. Countries/areas for which proof of vaccination for poliomyelitis is required



Source: ECDC illustration adapted from WHO [11] and the Ministry of Health of Saudi Arabia [10]

4. Seasonal influenza

The Ministry of Health of Saudi Arabia recommends that international pilgrims be vaccinated against seasonal influenza with most recently available vaccines (i.e. those for Southern Hemisphere 2016) prior to arrival, particularly those at increased risk of severe influenza diseases including pregnant women, children aged over 5 years, the elderly, and individuals with pre-existing health conditions such as asthma, chronic heart or lung diseases and HIV/AIDS infection.

In Saudi Arabia, seasonal influenza vaccination is recommended for internal pilgrims, particularly those with pre-existing health conditions as described above, as well as for all health-care workers in the Hajj premises.

5. Zika virus disease and Dengue

The *Aedes aegypti* mosquito has not been detected in the Hajj and Umrah areas for many years; however this mosquito is present in surrounding cities. The Ministry of Heath recommends travellers for Hajj and Umrah to take insect bite avoidance measures during daytime and night time hours to reduce the risk of infection. For travellers arriving from areas with Zika virus transmission, it is recommended to follow WHO advice.

Aircrafts, ships and other means of transportation coming from countries affected by Zika virus are requested to submit a certificate indicating that it applied disinsection in accordance with methods recommended by WHO.

Countries and Territories with Active Zika Virus Transmission can be found on the following link: (http://goo.gl/tucRQX)

6. Health education

Health authorities in countries of origin are required to provide information to pilgrims on infectious diseases symptoms, methods of transmission, complications, and means of prevention as well as on changes in temperature that may have adverse effects on health. Hajj and Umrah performers need to be reminded to drink enough fluid to be able to maintain usual urine production and those older travellers should take particular care to consume extra fluids in hot conditions. Also, consumption of salt-containing food and drink (unless this is contraindicated for the individual) that helps to replenish the electrolytes should be recommended in case of heat exhaustion and after excessive sweating.

Countries and individuals are encouraged to consider the physical ability and health conditions of individuals applying for Hajj and Umrah. Those with sever medical conditions like terminal cancers, advanced cardiac, respiratory, liver or kidney diseases and senility should be exempted from these religious duties.

7. Food items

Hajj and Umrah performers are not allowed to bring fresh food in Saudi Arabia. Only properly canned or sealed food or food stored in containers with easy access for inspection is allowed in small quantities, sufficient for one person for the duration of his or her trip.

8. International outbreaks response

The Saudi Ministry of Health recommends that people aged over 65 years and those with chronic diseases (e.g. heart disease, kidney disease, respiratory disease, diabetes) and pilgrims with immune deficiency (congenital and acquired), malignancy and terminal illnesses, pregnant women and children aged under 12 years planning to come for Hajj and Umrah this year, to postpone the performance of the Hajj and Umrah for their own safety.

The Saudi Ministry of Health also advises all pilgrims to comply with common public health recommendations to prevent the spread of respiratory infectious disease, such as the following:

- Washing hands with soap and water or disinfectant, especially after coughing and sneezing, after using toilets, before handling and consuming food, after touching animals;
- Using disposable tissues when coughing or sneezing and dispose of it in the waste basket;
- Trying as much as possible to avoid hand contact with the eyes, nose and mouth;
- Wearing masks, especially when in crowded places;
- Avoiding direct contact with the persons who appear ill with cough, sneeze, expectoration, vomiting, diarrhoea and not sharing their personal belongings; and maintaining good personal hygiene;
- Avoiding close contact with animals, particularly camels, when visiting farms, markets, or barn areas
- Avoiding contact with sick animals;
- Avoiding drinking raw camel milk or camel urine or eating meat that has not been properly cooked.

Updating immunization against vaccine-preventable diseases in all travellers is strongly recommended. Preparation for international travel provides opportunity to review the immunization status of travellers. Incompletely immunized travellers can be offered routine vaccinations recommended in national immunization schedules (these usually include diphtheria, tetanus, pertussis, polio, measles and mumps), in addition to those needed for the specific travel (e.g. meningococcal vaccination for Hajj).

In the event of a public health emergency of international health concern, or in the case of any disease outbreak subject to notification under the International Health Regulations 2005, the health authorities in Saudi Arabia will undertake additional preventive precautions (not included in the measures mentioned above) following consultation with WHO and necessary to avoid the spread of infection during the pilgrimage or on return to their country of origin.