

FIFA World Cup 2022 in Qatar; Health Advice and Safety Issues for Travelling Attendees

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Abstract

Background: Fédération Internationale de Football Association (FIFA) World Cup 2022 in Qatar is a unique mega mass gathering event. Attendees from around the globe will meet in this small area for the first time in history. The chance for transmission of communicable diseases is high and requires a detailed elaboration of the diseases that may threaten the health of those attendees. **Objective:** To highlight the most common communicable diseases in Qatar that may threaten the health of Qatar 2022 attendees and provide advice and suggestions for preventive measures that should be taken. **Evidence Review:** We reviewed peer-reviewed articles to identify common health outcomes associated with previous FIFA World Cup tournaments. Then, we refined our review to focus on the most relevant infectious diseases that may threaten Qatar 2022. Relevant preventive measures and safety advice were also discussed. **Results:** Attendees of Qatar 2022 face unique risks for infectious diseases associated with this mega mass gathering event. **Conclusion:** Attendees should be aware of general preventive measures that should be taken and seek up-to-date information regarding their visit to Qatar 2022. Immunization status should be up to date. Authorities should promote health advice materials. Adequate stock of materials to attend to health-related needs should be obtained.

Keywords: FIFA World Cup 2022; Qatar; Travel disease; Travel medicine; Football

Introduction

History has not witnessed any FIFA World Cup tournaments held in the Middle East. These tournaments used to be held in major countries such as Brazil, Germany, and the USA. However, Qatar, one of the smallest countries in the Middle East, is preparing to make history by hosting the 2022 tournament for the first time in the Arab world and for the second time overall in Asia (the first time being the 2002 tournament in Japan/South Korea).^[1]

Qatar's population is equivalent to 0.04% of the total world population, totalling 2,914,434 people based on Worldometer's elaboration on the latest United Nations data, the vast majority of whom inhabit its capital, Doha.^[2]

Qatar is a peninsula with flat and sandy terrain and is bounded by Saudi Arabia from the west, and Bahrain and the United Arab Emirates, found nearby, to the north-west and south-east respectively [Figure 1].^[3]

The country spans about 160 km from north to south and 80 km from east to west and can be covered in a little over two hours by road. Despite its small area, it is one of the richest countries in the world, as it is the second-largest exporter of natural gas and has the world's third-largest proven natural gas reserve.

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Figure 1: The geographical map of the Qatar area.

There are three zones that have been prepared for the tournament, with eight playing venues (Lusail, Al-Khor, Al-Wakrah, Al-Rayyan, Ras Abu Aboud, and three at Doha). They have an average venue capacity of 47,500 seats and there is only 55 km between the most distant stadiums. [4] Qatar consists of a total of nine cities, five of which will be host to the World Cup: Al-Rayyan, Dakhira, Al-Wakrah, Doha, and Al-Daayen. [5] To avoid Qatar's scorching summer heat that lasts from May to October, the tournament will be held from November 21 to December 18. [6] The choice to host the tournament in the winter months – with lower temperatures of about 20 degrees Celsius in December – was not only because of the heat, which may reach 50 degrees Celsius in the summer months, but also because of the humidity. Humid air combined with high temperatures is

more difficult to endure than dry air. [7] Since Qatar has several wadis instead of rivers and lakes, it witnesses an intermittent flow of water in the rainy season with an average of 77 mm. [8,9] The tournament will involve 32 teams with upwards of 1.7 million visitors who could visit Qatar during this event. The expected numbers of attendees are around three million people, as was seen during the Russia 2018 FIFA World Cup and Brazil 2014 FIFA World Cup. [10,11]

The government of Qatar made a courageous decision when it requested to host the 2022 FIFA World Cup, despite difficulties and concerns due to the weather conditions and the decision to move the event from June-July to November-December, an unconventional period. [12] Therefore, the aim of this study is significant because it demonstrates, in detail, all health-related issues related to the Qatar area. Moreover, it provides some important advice and preventive measures that should be taken by World Cup 2022 visitors.

Pretravel Health Care and vaccination

As international travel increases the risk of transmitting communicable diseases across communities, it is important for visitors to be cognisant of the potential risks and be well-prepared. [13] It is recommended that all travellers who are willing to visit Qatar 2022 should visit a medical practitioner 4 to 6 weeks prior to travelling for a pre-travel consultation for appropriate health and safety measures, including vaccination. [14] Though no vaccination is mandatory prior to visiting Qatar, CDC and WHO recommends the following vaccinations for Qatar, as summarized in Table 1.

Table 1: Recommended vaccinations prior to Qatar visit by CDC and WHO

Vaccines for disease	Recommendations
Routine vaccines	Make sure you are up to date on all routine vaccines before every trip. Some of these vaccines include: Chickenpox (Varicella) Diphtheria-Tetanus-PertussisFlu (influenza). Measles-Mumps-Rubella (MMR). Polio.
Hepatitis A	Recommended for unvaccinated travellers aged 1 year and above. Efficiency varied from 90% to 100%, depending on the type of vaccine.
Hepatitis B	Recommended for unvaccinated travellers in all ages. The efficacy is between 90% and 95%. Older age, male gender, obesity, smoking are factors reduce the immune response to HB vaccine.
Measles	All nonimmunized travellers should be vaccinated against Measles, Mumps, and Rubella (MMR). Its efficiency is up to 95%.
Rabies	Preexposure vaccination is recommended before travelling to Qatar, as rabid dogs commonly found there. It has 100% efficiency rate.
Typhoid	Recommended for all travelers with following food and water precautions.
TDAP (Tetanus, Diphtheria and Pertussis)	Only one adult booster of pertussis is required.
Pneumonia	Two vaccines are given separately. All people aged 65+ or immune compromised should receive both.

Infectious Disease Risks for Qatar 2022 Attendees and Disease-Specific Prevention Recommendations

Respiratory tract infection

Mass gathering events are believed to play a role in the transmission of respiratory diseases. Influenza and COVID-19 are potentially public health risks that are spread by respiratory droplets.^[15] Seasonal influenza is a highly contagious disease caused by Influenza A (IAV) and B (IBV) viruses.^[16]

Conditions such as overcrowding, poor hygiene, and malnutrition can induce influenza epidemics, which can result in significantly high mortality and morbidity. The World Health Organization (WHO) estimates that influenza causes between 290,000 and 650,000 deaths worldwide annually.^[15,16]

In Qatar, the prevalence of influenza is higher in the winter season (from December to February), with a peak incidence between November and December. This is when Qatar 2022 will take place, meaning that influenza could potentially cause an epidemic. The ministry of public health follows WHO's recommendations and provides the flu vaccine for free to the public and healthcare workers.^[17,18]

The annual seasonal flu vaccine is the best and safest way to reduce the chances of catching the flu.^[19] It is available across all health centres in Qatar from October until March.^[19,20] The WHO recommends routine annual influenza vaccination for high-risk groups, including children between the age of 6 months and 5 years, the elderly, individuals with chronic diseases, pregnant women, and healthcare providers. However, the vaccine is not recommended for patients on immunosuppressive medications, patients receiving organ transplant, and patients with HIV or an allergy to the vaccine.^[20]

SARS-CoV-2 has negatively impacted human health across the world.^[21] It is a member of the large coronavirus family that causes acute respiratory diseases, leading to potential complications especially in individuals with pre-existing comorbidities.^[21,22] Qatar has recorded one of the lowest COVID-19 mortality rates in the world due to the comprehensive measures established by the government, such as adjusting public health and social measures based on the ongoing epidemiological surveillance, strategic testing, and awareness campaigns on COVID-19, in addition to providing the public with vaccines free of charge. The Ministry of Public Health has approved the Pfizer-BioNTech and Moderna COVID-19 vaccines for emergency use.^[21-23] Vaccination campaign strategy will enable everyone who needs to be vaccinated within 2021. However, prioritising the people most at risk of experiencing severe complications from the virus is implemented.^[21,24] In addition, it is possible that foreign travellers could introduce new strains of virus to

the Qatar population. Therefore, the government of Qatar has applied stringent travel regulations for visitors from outside the country. This includes restricted entry to all visitors except those with a passport or permanent residency in Qatar.^[9,21] All in-bound travellers must produce a virus-free certificate from an accredited COVID-19 facility, obtained within 48 hours from the time of departure. On arrival in Qatar, all travelers are tested for COVID-19 and are placed in quarantine for seven days.^[25] The government has also initiated a digital app on a trial basis as an International Travel Pass Digital Passport.^[26] Finally, the WHO highly recommends maintaining hand hygiene (washing and disinfecting), wearing a protective mask, and social distancing as preventive measures against COVID-19.

Food-Related Infections

As a large number of people gather during the FIFA World Cup, the incidence of food- and water-borne diseases tends to be noticeably increased during the tournaments.^[27] The consequences vary from mild diarrhoea to serious documented outbreaks. As an example, cases of norovirus were documented in Germany during the World Cup of 2006.^[28-30]

The microbiological assessments revealed that the most common causative organisms of food- and water-borne diseases are *E-coli*, noroviruses, rotavirus, Salmonella species, *Campylobacter jejuni*, Shigella species, Aeromonas species, and *Plesiomonas shigelloides*.^[32] Possibly implicated factors are the consumption of raw food, particularly vegetables and fruits, undercooked food, inadequate food-handler hygiene, ice from unknown sources, tap water, and contaminated animal products.^[27-29] Travelers to Qatar 2022 should take precautions to prevent the transmission of food-borne diseases. One of the most effective methods is to observe the following dietary precautions. Travelers are encouraged to eat steamed food hot (>59°C), use bottled drinks for both water and beer, eat fruit that can be peeled, and consume processed and pasteurized milk. Furthermore, they are advised to avoid eating raw vegetables,^[30] meat, fish and shellfish, as well as fresh fruit or cane juices prepared on public streets and in places that do not meet adequate sanitary standards. Moreover, chemoprophylaxis is another option for prevention either through antibiotics or non-antibiotic medications. Bismuth subsalicylate provides modest protection against traveller's diarrhoea.^[31]

Adequate preventive measures should be taken to prevent the spread of disease in Qatar 2022, starting with good general hygiene and sanitation systems, and proper health surveillance systems encompassing all the food services from the airport to the football stadium. These are applied to ensure the provision of both safe water and food. Aside from these measures, travelers should receive certain vaccines before coming to Qatar, such as the typhoid vaccine.

In addition, awareness campaigns about communicable diseases' modes of transmission could be useful in promoting health and preventing the spread of infectious diseases.

Hepatitis A

The transmission rate of HAV infections among European travellers to the Middle East is 181 per 1000 journeys^[33] as it is influenced by multiple factors, including the length of stay and personal habits.^[34] HAV transmission usually occurs through the feco-oral route by ingesting contaminated water and food, and through person-to-person contact.^[34-35] Travelers to Qatar 2022 should take precautions to prevent hepatitis A transmission. Hepatitis A is a vaccine-preventable disease and, therefore, it is recommended that all unvaccinated travellers receive the HAV vaccine before travelling. The doses of this vaccine are adjusted based on the age of a person and the presence of comorbidities. Moreover, sanitation measures are essential as they play an important role. This includes providing appropriate education to travellers and implementing an appropriate health surveillance system, covering all the food services from the airport to the soccer stadium.

Sexually Transmitted Infections (STIs)

During mass gathering events, attendees may have an unsafe or random sexual practice which increases their risk for contracting Sexually Transmitted Infections (STIs).^[35] STIs are caused by bacteria (for example: vaginosis, gonorrhoea, chlamydia, syphilis and *Lyphogranulomavenerum* (LGV)), viruses (for example: Human Papillomavirus (HPV), genital herpes, Human Immunodeficiency Virus (HIV), and hepatitis (B)), or parasites (example: pubic lice and trichomoniasis) that are transmitted through unprotected sex (vaginal, anal, or oral) and skin-to-skin genital contact.^[36-37] Travellers to Qatar 2022 should take precautions to prevent STIs. One of the most effective methods is practicing safe sex by using condoms correctly and consistently.^[38] Furthermore, other methods are also useful, including avoiding unsafe sexual behaviours such as sex with a stranger or a sex worker, and avoiding getting tattoos, body piercings, or acupuncture treatments that may increase the risk of contracting STIs.^[37-40]

Such STI prevention methods are essential to decrease transmission during mass gathering events. Therefore, developing strategies like campaigns in many languages to promote information about sexual health, the free and unconditional distribution of condoms, and the provision of easy access to health services for travellers exposed to STIs should also be considered for Qatar 2022.

Vector-Borne Diseases

Vector-borne diseases are caused by pathogens transmitted by arthropods. Among all vector-borne diseases, malaria, dengue, and leishmaniasis are associated with major burden worldwide.^[40] Both environmental factors and personal

habits are implicated in increased individual risk.^[41,42] The World Cup in Brazil was associated with a high risk of malaria, dengue, and yellow fever. In contrast to Brazil, Qatar is a malaria-free country.^[43] However, dengue and leishmaniasis, particularly cutaneous leishmaniasis, are endemic diseases in the Qatar area.^[44]

Travellers to Qatar 2022 should take precautions to prevent vector-borne diseases. Examples of effective preventive measures to avoid the transmission of arthropod diseases are to use repellent for the skin containing DEET (Diethyl-Meta-Toluamide) in concentrations >25%, avoid walking in the sand without footwear, avoid sunbathing on a large towel or deck chair, avoid going outdoors particularly from dusk until dawn, and inspect rooms for bed bugs or their droppings on beds, mattresses, or sheets.^[45,46] As developing vector-preventive strategies is important, spraying potentially high-risk areas should be considered for Qatar 2022.

Animal-Related Diseases

Rabies

Travellers to Qatar during the tournament may come into contact with rabid dogs since they are commonly found there.^[47] Rabies is a viral illness that causes acute, progressive, and fatal encephalomyelitis caused by neurotropic viruses in the family *Rhabdoviridae*, genus *Lyssavirus*. It can be transmitted through the saliva of an infected animal when contact occurs through broken skin, the nose, mouth, or even eyes. However, being bitten or scratched by a rabid mammal, such as a dog, is more common.

Travellers to Qatar during the 2022 FIFA World Cup should take precautions to prevent being infected. Travellers should be educated about the risks and the need to avoid contact with mammals, receive pre-exposure vaccinations, and know how to obtain the Post-Exposure Prophylaxis (PEP) without waiting to return home or for the symptoms to appear, since this usually takes weeks or months.^[48]

Pre-exposure vaccination consists of three intramuscular injections that are administered on days 0, 7, and 21 or 28. Travellers should receive all 3 doses before travelling as the Centers for Disease Control and Prevention (CDC) recommended that travellers do not start the series if they are unable to complete it before travelling.^[49]

Although transmission between humans is extremely rare and would not pose the risk of spreading the infection among travellers during the mass gathering, increasing travellers' awareness of the seriousness of this illness by conducting campaigns should be considered for the Qatar 2022 FIFA World Cup.^[50] These campaigns should explain the importance of seeking medical help and following the critical steps that must be taken after any potential exposure to the rabies virus, as this will contribute to achieving a better outcome in the management of the condition.

Brucellosis

Brucellosis, the most prevalent zoonotic disease, is a systemic infection that can involve any organ or system of the body. This disease is endemic to many parts of the world including Qatar, where the incidence of brucellosis ranges from one per 100,000 to 20 per 100,000 persons and where the consumption of unpasteurised dairy products from camels is common among the native population. This camel milk ingestion is a well-known mechanism of brucellosis acquisition.^[51]

When thinking about travelling to Qatar for the 2022 World Cup, visitors may go on camel rides and drink their raw milk, and since brucellosis is endemic to Qatar, visitors may get exposed to the bacilli – hence, they are advised to be cautious of and avoid contact with livestock and the consumption of raw animal products. Consumption of raw or undercooked meat, as well as raw or unpasteurised dairy products, can result in the transmission of *Brucella* and potentially lead to illness.^[52]

Accessibility of the Healthcare

Health care in Qatar continues to grow, which makes Qatar one of the biggest healthcare spenders per capita in the Middle East. Although citizens are covered by a national health insurance scheme which was introduced in 2013, health insurance for foreigners is not compulsory and they can access the healthcare services. However, the high costs of health services make insurance a necessity and visitors are strongly advised to obtain it before visiting Qatar.^[53]

As the Qatar 2022 FIFA World Cup will attract large numbers of people, which increases the likelihood of risks such as accidents, injuries and communicable diseases. It would be judicious for hospitals and other medical institutions to enhance their preparedness for mass casualty incidents. Public health services in Qatar are provided by two organizations. One of them is The Primary Health Care Corporation (PHCC), which manages 23 health centres, and is preparing with other healthcare facilities to adopt the mass-casualty incident plan for the FIFA World Cup. A study published in 2018 showed that the PHCC is not ready to deal with the event and requires significant changes and improvements to show its effectiveness.

In order for health institutions to be well-prepared for this mega mass gathering event, any defects in the previous plans must be discovered and processed, and the capacity of Qatar's hospitals and stockpiles should be increased due to the mass casualties that may occur. In addition to this, having an adequate workforce, providing appropriate training for the medical staff and having multilingual services to address the language barrier are also essential. These steps will enhance Qatar's ability to handle such events.^[54,55]

Conclusion

As every mass gathering has potential health risks, travellers to the Qatar 2022 FIFA World Cup should be willing to see a

medical practitioner 4 to 6 weeks prior to their journey to have a pre-travel consultation and to ensure that their routine vaccinations are up to date. It would be judicious for hospitals and other medical institutions in Qatar to enhance their preparedness for mass casualty incidents as this small area is holding such an event for the first time. Qatar's authorities should promote health advice materials in multiple languages in addition to ensuring an adequate stock of materials to attend to health-related needs.

Conflict of Interest

None of the authors has any conflict of interest to declare.

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