

Consensus building and recommendations based on the available epidemiology of meningococcal disease in Gulf Cooperation Council States

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Received 29 July 2010; received in revised form 7 January 2011; accepted 24 January 2011

Available online 22 February 2011

KEYWORDS

Conjugate vaccine;
Hajj pilgrimage;
Legislation;
Middle East;
Quadrivalent vaccine

Summary The Gulf Cooperation Council (GCC) States share concerns about meningococcal disease, particularly in association with the Hajj and Umrah pilgrimages, which have been connected with outbreaks within the Kingdom of Saudi Arabia and among contacts of the pilgrims in their countries of origin. Currently, the most prevalent meningococcal serogroup in the GCC States is W-135. Although vaccination with polysaccharide vaccines has protected pilgrims and their close contacts from invasive disease, the potential availability of novel conjugate vaccines, such as the one currently used for vaccination of military personnel in the Kingdom of Saudi Arabia, prompted an evaluation of disease epidemiology in the region. For several countries, published data on recent epidemiology are not available. We report findings from a meeting of the GCC States Meningitis Study Group, which comprised experts from the Kingdom of Saudi Arabia, the Kingdom of Bahrain, Kuwait, Qatar, the Sultanate of Oman, and the United Arab Emirates. These experts provided an update on epidemiology and current vaccination practices in the GCC States, and discussed new approaches to more effective disease prevention.

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Introduction

Every year, the Kingdom of Saudi Arabia hosts international pilgrims from approximately 160 countries, for both the

Umrah and the Hajj season. More than 1.6 million pilgrims travelled to the Hajj in 2009.¹ Crowded conditions and close contact with people from various parts of the world are both known risk factors for the transmission of meningococcal disease. Pilgrims to the Hajj have been considered at an increased risk of carriage and developing invasive illness for many years.^{2–4} An outbreak of *Neisseria meningitidis* serogroup A in 1987 led to recommendations for the use of a bivalent (meningococcal serogroups A and C) polysaccharide vaccine.⁵ The virulent serogroup W-135 clone evaded then-current vaccination measures against

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serogroups A and C in 2000.⁶ After the 2000 Hajj, invasive W-135 disease was detected worldwide (Fig. 1a)⁶⁻⁸; by August of that year, more than 400 cases caused by the same virulent clone had been reported in 16 countries.⁹ It is believed that the W-135 ET-37 clone, which was responsible for the 2000 Hajj outbreak of meningococcal disease, is related to strains isolated in Mali and The Gambia in the 1990s.⁹

The increased risk of contracting invasive meningococcal disease among Hajj pilgrims is associated with various known risk factors in all populations worldwide, including overcrowding, shared living facilities, sharing food and beverages, low humidity, and heat.^{1,10-12} Various combinations of these risk factors also cause concerns about increased risk among attendees of sporting tournaments, such as the soccer World Cup.¹³ Although additional factors, including age, exposure to cigarette smoke, and climatic changes, can affect an individual's risk of contracting meningococcal disease,¹⁴ close contact and living in confined areas are important risk factors for military recruits, college students living in dormitories, and those living in densely populated communities.^{2,14,15}

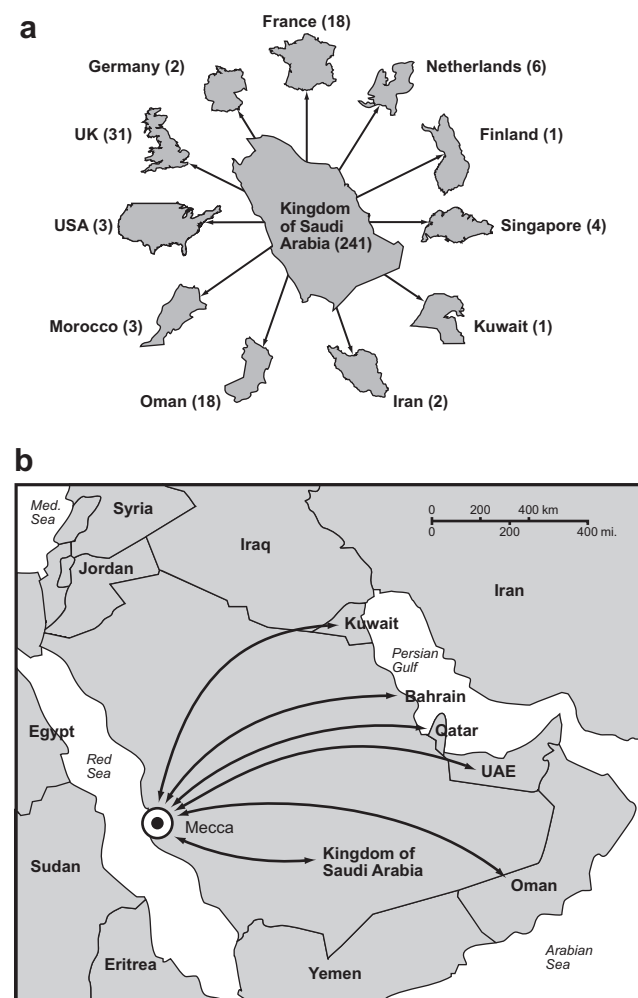


Figure 1 Spread of meningococcal serogroup W-135 cases from the Hajj in 2000 a) worldwide⁸ and b) to the other Gulf Cooperation Council States.

The Kingdom of Saudi Arabia has long employed vaccination practices to protect pilgrims and their contacts, going as far as to fund vaccines for those who cannot afford them. Vaccination is provided to residents of Hajj-related areas and Hajj pilgrims from the Kingdom of Saudi Arabia.¹⁵ Other Gulf Cooperation Council (GCC) States where meningococcal disease is also a risk (Fig. 1a and b) also have vaccination programmes in place. However, as shown by the experience with serogroup W-135 in 2000, changing epidemiology can allow virulent meningococcal strains to evade the protection offered by particular vaccines. It is therefore important to track circulating pathogens in order to understand risks and to update existing preventive recommendations.

While there is extensive information available about the epidemiology and outcomes of meningococcal disease in many developed countries, relatively little information is available in the nations of the Middle East.¹⁶ We present data disclosed in association with a consensus meeting of the GCC States Meningitis Study Group, held in Riyadh, in the Kingdom of Saudi Arabia, in February 2009. Experts from the Kingdom of Bahrain, the Kingdom of Saudi Arabia, Kuwait, Qatar, Sultanate of Oman, and the United Arab Emirates (UAE) provided data about the epidemiology of meningococcal disease and current vaccination practices. New approaches that may offer more effective prevention of meningococcal disease were also discussed.

Surveillance methods in the GCC States

Meningococcal surveillance methods differ substantially among the GCC States. In the Kingdom of Saudi Arabia, the Preventive Medicine Department of the Ministry of Health has a surveillance system for immediate reporting of suspected meningitis cases in each of the 20 public health directorates, with detailed case-reporting for all confirmed cases. Laboratory confirmation may be done by isolation of the causative organism from cerebrospinal fluid (CSF) or by blood culture, or by detection of antigen in the CSF. In the Sultanate of Oman, meningococcal meningitis is reportable to the Department of Communicable Diseases Surveillance and Control within 24 h of diagnosis^{17,18} and serotyping and serotyping are carried out on all meningococcal isolates. In Qatar, the Hamad Medical Corporation (HMC) laboratory department-run system reports confirmed cases to the Supreme Council of Health within 24 h. Confirmation may be by isolation of the causative organism from the CSF or by blood culture, or by detection of antigen in the CSF. In the UAE, meningococcal disease is monitored continually and reporting to the Ministry of Health has been a statutory requirement since 1981.

Epidemiology of meningococcal disease in the GCC States

Available meningococcal epidemiology data among the GCC States vary in scope, and different collection methods may be employed within or between countries. In some countries, the case numbers of meningococcal disease are

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