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REVIEW

# Pneumococcal disease in the Arabian Gulf: Recognizing the challenge and moving toward a solution

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## KEYWORDS

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**Summary** Pneumococcal disease has substantial incidence, morbidity and mortality in older adults. Decreased birth rates and longer lifespans indicate that the global population is aging, although rates of aging differ between countries [1]. In 2010, the proportion of the population aged >60 years in the general Arab Region was 7%, and this proportion is expected to rise to 19% by 2050 for the region as a whole [2]; the United Nations estimates for the individual countries of the Arabian Gulf by 2050 are 25.7%, 24.9%, 20.7%, 26.7% and 10.5% in the Kuwait, Bahrain, Qatar, United Arab Emirates (UAE) and Oman, respectively, which are comparable to the 26.9% predicted for the USA and lower than that predicted in European countries,

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Elderly adults;  
Type 2 diabetes;  
Hajj pilgrims

in which the 2050 estimates are 32.7%, 34.0% and 38.1% for France, the UK and Germany, respectively [1]. Globally and in the Gulf Region, pneumococcal disease is an increasingly important public health burden in the elderly.

The burden of pneumococcal disease can be reduced by effective vaccination programs, but the recommendations on pneumococcal vaccination in adults vary widely. The major barriers to vaccine implementation among healthcare professionals are an incomplete awareness of pneumococcal disease and the vaccination options in adults. The Gulf Advocate Group calls for healthcare providers in the countries of the Arabian Gulf (Kuwait, Bahrain, Qatar, United Arab Emirates and Oman) to support awareness and education programs about adult pneumococcal disease, particularly in high-risk groups such as those >65 years of age, those with type 2 diabetes mellitus, hematological malignancy, organ and bone marrow transplantation or chronic kidney or lung diseases and pilgrims undertaking the Hajj to improve pneumococcal disease surveillance and optimize and disseminate recommendations for adult vaccination. The Gulf Advocate Group recommends following the U.S. Centers for Disease Control and Prevention (CDC) guidelines for pneumococcal vaccination [3,4].

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## Respiratory infections represent a significant burden globally

Respiratory infections are a significant cause of mortality worldwide [5,6]. Twenty-five percent of deaths globally are due to infectious diseases, with respiratory infections ranked as the leading infectious disease cause of mortality [7]; considering global deaths from all causes, lower respiratory tract infections (LRTIs) are ranked third [7,8]. Global mortality due to respiratory infections exceeds the total mortality from HIV infection, malaria and diarrheal diseases combined. Although the specific incidences and mortalities may vary from region to region and between studies, the burden of community-acquired pneumonia (CAP) is substantial in all parts of the world. While the etiology is often difficult to establish (determination of a microbial cause occurs in approximately one-half

of the cases of CAP), among these cases, pneumococcus is by far the most frequently identified pathogen. For the elderly in developed countries, pneumococcus is estimated to cause 25–50% of CAP cases requiring hospitalization [9]. Pneumococcal disease is a considerable health problem, and even in countries with a sophisticated healthcare system, pneumococcal disease is associated with an elevated hospitalization rate that consequently represents a large economic burden to society.

## Pneumococcal disease: a major preventable health burden

*Streptococcus pneumoniae* causes invasive and non-invasive pneumococcal diseases. These invasive diseases include bacteremic pneumonia, bacteremia without a focus and meningitis. The

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