

An analysis on the spread of *Streptococcus pneumoniae* during the Hajj:
A Synthesis of the Literature
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Background and Significance

- The Hajj is an annual religious mass gathering in the Kingdom of Saudi Arabia attended by millions of Muslims from all over the world. (AlBarrak et al., 2018)
- The rituals associated with the Hajj are physically demanding and include walking long distances in crowded conditions and extreme temperatures. This environment facilitates disease transmission especially respiratory infections. (Benkouiten et al, 2018)
- *S. pneumoniae* is the most common bacterium causing pneumonia and the leading cause of pneumonia-related hospitalizations and admission to the intensive care unit (ICU) during the Hajj. (AlBarrak et al, 2018)

Research Question

In Muslims who travel to the Hajj each year, how can studying the spread of *Streptococcus Pneumoniae* during the Hajj influence public health policies to reduce transmission in the future?

Methodology

- Literature review- 10 articles
- Database search using PubMed and CINAHL
- MeSH terms used 'Hajj,' 'S. pneumoniae,' 'prevalence,' 'mass gatherings,' 'vaccination,' 'pneumonia'
- Included studies published within the last 10 years

Literature Synthesis

- Yezli et al. determined that pneumonia accounts for 15–40% of hospital admissions during Hajj and like AlBarrak et al., found that *S. pneumoniae* is highly correlated to ICU admissions (2018, 2018)
- Yezli et al., Memish, Alharbi et al., and Ganaie found an increase in pre-Hajj and post-Hajj *S. pneumoniae* carriage rates among pilgrims (2018, 2016, 2016, 2016)
- Rashid et al. found that the 13 valent conjugate vaccine covered 75% of circulating serotypes, and 90% of serotypes are included in the 23-valent polysaccharide vaccine (2013)
- AlBarrak et al., Alqahtani et al., and Yezli et al. determined that more research needs to be done specifically to determine the disease causing serotypes of *S. pneumoniae* (2018, 2018, 2018)

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