

Enhanced Surveillance of Coccidioidomycosis in San Diego County, 2014-2016

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Background

Coccidioidomycosis (Valley Fever) is an infection caused by the inhalation of spores of the fungi *Coccidioides immitis* or *Coccidioides posadasii* found in soil or dust particles. This respiratory disease is endemic in Southern California, where rates have dramatically increased in recent years. Certain risk factors are associated with coccidioidomycosis, including male sex, African-American or Filipino race, and Hispanic ethnicity. In California, inmate populations have also been found to experience increased rates of coccidioidomycosis. Although 60% of infections are asymptomatic, coccidioidomycosis can present with severe clinical manifestations and dissemination may occur in 1-10% of symptomatic infections. The Border Infectious Disease Surveillance (BIDS) Program of California began conducting enhanced surveillance for coccidioidomycosis in San Diego County on October 1, 2014 to define the epidemiology of the disease in this region.

Objectives

This study aimed to describe the characteristics and exposures of patients with coccidioidomycosis in San Diego County, as well as assess the relationship between clinical characteristics and known risk factors.

Methods

This cross-sectional study collected information from medical and laboratory records to categorize confirmed cases as acute, chronic, and chronic among inmates. Information regarding demographics, symptoms, and occupational exposures was collected during phone interviews with confirmed cases. Geographical distribution of cases per major statistical area in San Diego County was determined with ArcGIS software. Univariate descriptive statistics were constructed on collected data. Associations between clinical and demographic characteristics

were assessed with Pearson's chi-square or Fisher's exact tests. SAS 9.4 software was used for analyses.

Results

There were a total of 337 enhanced surveillance cases, of which 161 (48%) were acute cases, 80 (24%) were chronic cases among non-inmates, and 96 (28%) were chronic cases among inmates. The majority of cases were male (75%), 24 cases were in African-American patients (8%), and for those with information about ethnicity, 42% were Hispanic. Occupation was largely underreported. White Hispanics were more likely to have visited the emergency room than their non-Hispanic counterparts ($p < 0.05$) and had a higher frequency of pneumonia and hospitalization (n.s.). A rate of 11.9 acute cases per 100,000 people was identified in the South Suburban area versus the overall rate of 4.2 acute cases per 100,000 people in San Diego County.

Conclusion

The San Diego County region has environmental factors favorable to the proliferation of *Coccidioides*, making it a regional public health concern. The results of this enhanced surveillance suggest there may be a disproportionate risk of coccidioidomycosis in certain regions within the county and that Hispanics might be at an increased risk of disease severity. These results can inform targeted campaigns to reach those who are most at risk.

Learning objectives

- Describe the characteristics of patients diagnosed with coccidioidomycosis in San Diego County, CA.
- Identify areas to be addressed for future surveillance of coccidioidomycosis along the California-Mexico border.

Target Audiences

Professionals involved in the diagnosis, testing, and surveillance of coccidioidomycosis. Public health officials. Epidemiologists in non-endemic areas interested in learning about possible risk factors.

Keyword(s): Epidemiology, Surveillance

Learning Areas

- Epidemiology
- Protection of the public in relation to communicable diseases including prevention or control

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