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Title

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---PRELIMINARY REPORT---
**Investigation into the cause of elevated eosinophil percentage at the VA
Imperial Valley Clinic**

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Background

Eosinophils are a specific type of leukocytes that are often elevated in cases of allergy, parasitic infection, or certain fungal infections. Clinicians at the VA San Diego Healthcare System noticed that many patients happened to have elevated eosinophil percentage when they ordered CBCs. An investigation to quantify the percentage of CBCs with elevated eosinophil count (with a threshold of 3% as determined by the VA Clinical Laboratory) was undertaken at 6 different VA Clinics within the VA San Diego Healthcare system from May 2010 until June 2010. This study found that the VA Imperial Valley Clinic had 50.45% elevated eosinophil percentage, which differed from all other clinic sites in a statistically significant manner as seen in Figure 1.

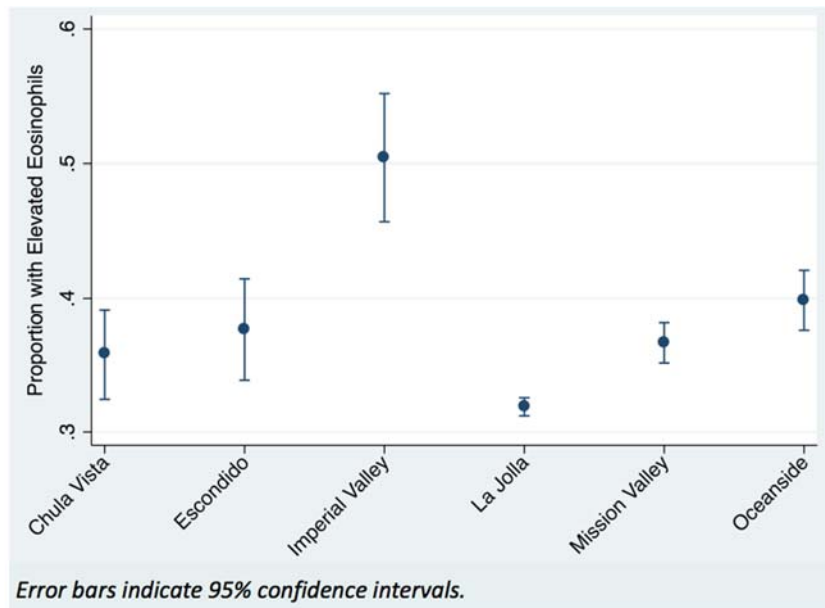


Figure 1: Percent of population with elevated eosinophil percentage by VA clinic site (1)

It is thus hypothesized that there may have been an environmental cause for the elevated eosinophil count, especially given that elevated eosinophil percentage varied by geographic location. In this study we set to investigate whether environmental factors such as exposure to fungal infection, parasitic infection, HIV, or common allergens could account for the elevated eosinophil percentage. Of particular interest is exposure to *Coccidioides immitis* as it is endemic to Southern California, as seen in Figure 2.

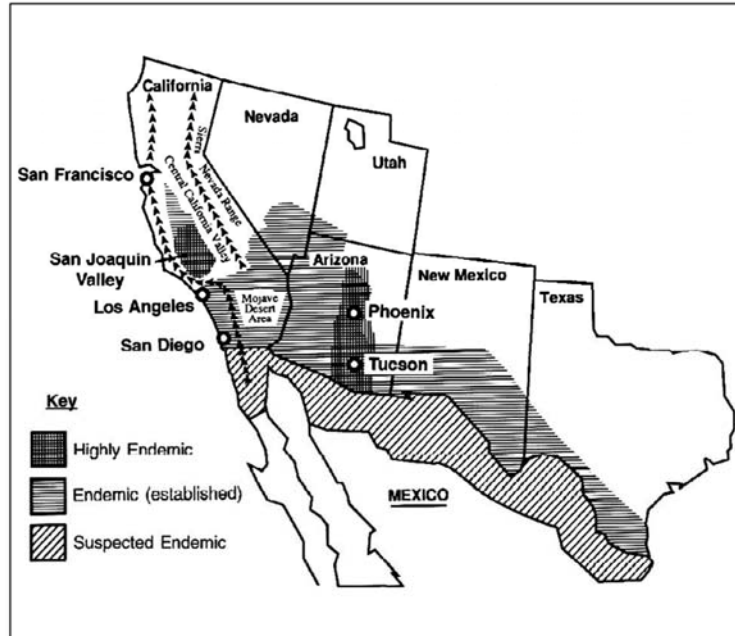


Figure 2: Distribution of coccidiomycosis. Of note, coccidioides is endemic to San Diego County and much of Southern California. (2)

Methods

Eosinophil percentage, HIV 1/2 serology, coccidioides serology, stool ova and parasites, strongyloides serology, history of allergies and/or allergic rhinitis, were recorded for 106 patients at the VA Imperial Valley Clinic from May 2010 to June 2010 (this was the same population and time period from the previous study). We chose to investigate the VA Imperial Valley Clinic because it had the highest overall percentage of CBCs with elevated eosinophil percentage in the previous study by Syed et al.

Results

There were no cases of positive coccidioides serology, HIV ½ serology, stool ova and parasites, or strongyloides serology so there was no correlation between elevated eosinophil percentage and these factors. Additionally, there was no correlation between history of allergies and/or allergic rhinitis and elevated eosinophil percentage. (Chart pending)

Discussion

There was no evidence of a correlation between the environmental factors that we tested for and elevated eosinophil percentage. However this may have been due to the fact that there simply was not enough testing done for these environmental factors. In future work, it would be particularly interesting to test the study population for coccidioides serology given the fact that coccidioides is so prevalent in this area.

References

1. Syed, Rehan, MSc, Colin Thomas, MD, MPH, David Smith, MD, and Priya Jagasia, MD. "Dependence of Elevated Eosinophil Levels on Geographic Location in the VA San Diego Healthcare System." Poster Presentation. 2014.
2. Kirkland, Theo, MD, Joshua Fierer, MD. "Coccidioidomycosis: A Reemerging Infectious Disease." *Emerg. Infect. Dis. Emerging Infectious Diseases* 2.3 (1996): 192-99.