

Noedl et al. 2006 Scientific Paper Guiding Questions

Parasite Predicament

- 1. What is considered to be best the diagnostic tool used by scientists for detection of asexual parasites?**
 - Light microscopy
- 2. What are some of the shortcomings of this tool?**
 - The use of microscopes makes it difficult to detect low parasite densities and mixed infections.
- 3. What diagnostic tool are the authors testing in this paper? What are they specifically testing for?**
 - ELISA (Enzyme-linked immunosorbent assay) antigen detection assay
 - Malaria antigen (parasite) *Plasmodium falciparum*
- 4. In what country was this study performed? Why do you think it was performed in this country?**
 - Thailand
 - There must be a large number of people who have malaria/ malaria is a problem in Thailand
- 5. How many people participated in the study? Why is a large sample size important?**
 - 700 adults participated
 - The larger the sample size the more likely the outcome of the study will represent what is actually happening/ a larger sample size is a better representation of the entire population
- 6. What is sensitivity? What was the overall sensitivity of the ELISA when testing for malaria?**
 - Measures the proportion of actual positives, which are correctly identified as such (e.g., the percentage of sick people who are correctly identified as having the condition).
 - 98.8%
- 7. What is specificity? What was the overall specificity of the ELISA when testing for malaria?**
 - Measures the proportion of negatives which are correctly identified as such (e.g., the percentage of healthy people who are correctly identified as not having the condition).
 - 100%
- 8. Do you think that ELISA assays are a useful tool for diagnosing malaria? Discuss when and why ELISA would be a useful and when other diagnostics are more appropriate.**
 - The researchers argue that yes, in certain situations ELISA assays could be a useful alternative to light microscopy when diagnosing malaria.
 - ELISA assays are useful when screening large numbers of samples, because ELISA is fast, inexpensive, do not require advanced knowledge, and have been found to be reliable.
 - ELISA can diagnose for malaria even when parasite densities are low
 - Light microscopy remains the "gold standard" for diagnosing malaria infections with blood samples
 - Commercially available ELISA tests can only test for one species of the malaria parasite, limiting the use as a diagnostic tool