

# Noedl et al. 2006 Scientific Paper Vocabulary

## Parasite Predicament

Noedl, A., K. Yingyuen, A. Laoboonchai, M. Fukuda, J. Sirichaisinthop, and R. S. Miller. 2006. *Sensitivity and specificity of an antigen detection ELISA for malarial diagnosis*. American Journal of Tropical Medicine and Hygiene. 75:1205—1208.

### **Definitions in order as they appear in the paper:**

**ELISA:** Enzyme-linked immunosorbent assay, a test that detects the presence of antibodies or antigens using color change to identify a positive result.

**Plasmodium falciparum:** A parasite that causes malaria in humans. It is transmitted by the *Anopheles* mosquito. This is the most dangerous form of malaria in humans, almost every malarial death is caused by this parasite. The name is shortened to *P. falciparum* in the text, other species of the parasite that causes malaria include *P. vivax* and *P. malariae*.

**Symptomatic:** Showing symptoms

**Polymerase Chain Reaction (PCR):** A technique used to copy a piece of DNA, making thousands or millions of copies of the piece of DNA.

**Microscopy:** The use of a microscope

**Geometric mean:** A type of average used in statistics.

**μL:** A symbol for microliters, a unit of volume. There are 1,000 microliters in one milliliter.

**Sensitivity:** 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).

**Specificity:** 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).

**HRP2:** Histidine rich protein II, a protein that is found in malaria parasite cytoplasm.

**Antigen:** A foreign body that generates an immune response (in this paper the antigen is the malarial parasite).

**Giemsa-stained:** A stain used to diagnose malaria and other parasites.

**Epidemiologic:** Epidemiology is the study of diseases and their patterns, causes and effects on specific populations.

**EDTA tubes:** A type of tube for collecting blood samples.

**Assay:** An investigative procedure used by scientists to measure the presence or amount of a substance.

**Hemolysis:** The rupturing of blood cells.

**Positive and negative control:** A variable that has a known outcome, (example of a positive control is blood sample that is known to contain the malaria parasite, a negative control is a blood sample that is known to not contain malaria) in an ELISA assay a positive control will result in a color change a negative control will not result in a color change.

**Antibody:** A large Y-shaped protein used by the immune system to identify and neutralize pathogens. Antibodies recognize and bind to a specific antigen.

**Spectrophotometric analysis:** Measures the intensity of a beam of light after it is projected through an object, usually a solution that is undergoing a chemical reaction.

**Aliquots:** A portion of a total amount of a solution or the act of portioning from a larger solution into smaller amounts.

**Oil-immersion fields:** Referring to the strongest objective lens on a microscope.

**WBC:** White blood cell

**Parasitemia:** The number of parasites counted in a blood sample, it is an indication of the parasite load in an organism.

**Non-concordance:** In disagreement with another's opinion or findings.

**N:** Referring to the number of samples used in a statistical analysis.

**True Positive (TP):** A sample that tested positive, and was actually positive (test result was correct).

**False Positive (FP):** A sample that tested positive, and was actually negative (test result was incorrect).

**True Negative (TN):** A sample that tested negative, and was actually negative (test result was correct).

**False Negative (FN):** A sample that tested negative, and was actually positive (test result was incorrect).

**Positive Predictive Value (PPV):** The proportions of positive results in a diagnostic test that are true positive results. A high value indicates the accuracy of the diagnostic test.

**Negative Predictive Value (NPV):** The proportions of negative results in a diagnostic test that are true negative results. A high value indicates the accuracy of the diagnostic test.

**Pre-test Probability:** The subjective probabilities of the presence of a condition (malaria) before and after a diagnostic test (ELISA test).

**Confidence interval:** Consist of a range of values (interval) that act as a good estimate of the unknown population parameter. One type of confidence interval is called Clopper and Pearson.

**Optical density:** Referring to a measurement using a spectrophotometer.

**Asymptomatic:** Not showing symptoms.

**Rapid Diagnostic Test (RDT):** A medical diagnostic test that is quick and easy to perform.

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