Types of error

A type I error (or error of the first kind) is the incorrect rejection of a true null hypothesis.

Type I error include a text that shows a patient to have a disease when in fact the patient does not have the disease, fire alarm going on indicating a fire.

A type II error (or error of second kind) is the failure to reject a false null hypothesis.

Type II error would be a blood text failing to detect in a patient it was designed to detect, in a patient who really was has designed disease.

Type III error

Type III error", though none have wide use. All statistical hypothesis texts have probability of making type I and type II.

Example:

All blood test for a disease will falsely detect the disease in some proportion of the people who do have it.

A test's probability of making a Type I error is denoted by a. A test probability of making a type II error is denoted by β. These error rates are trade off against each other. for any given sample set, the effort in increasing the other type of error.