SCREENING TESTS

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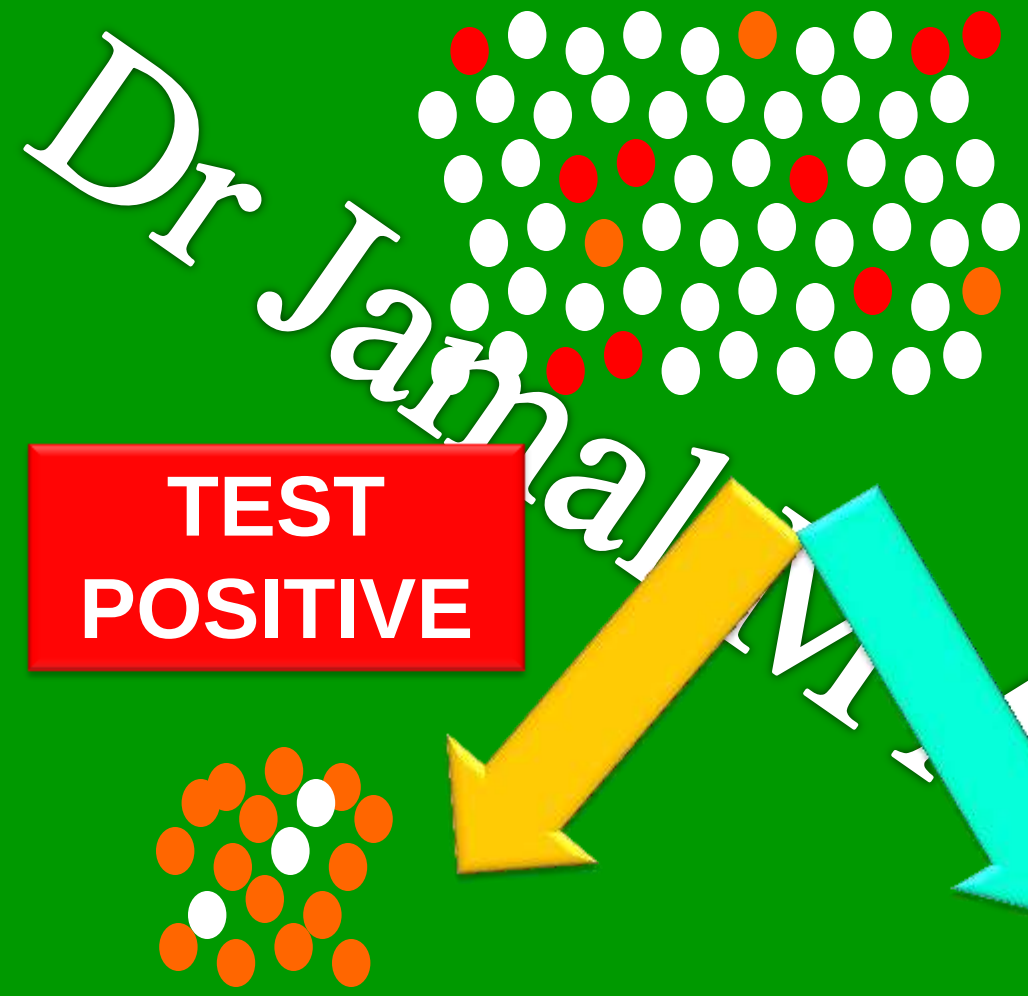
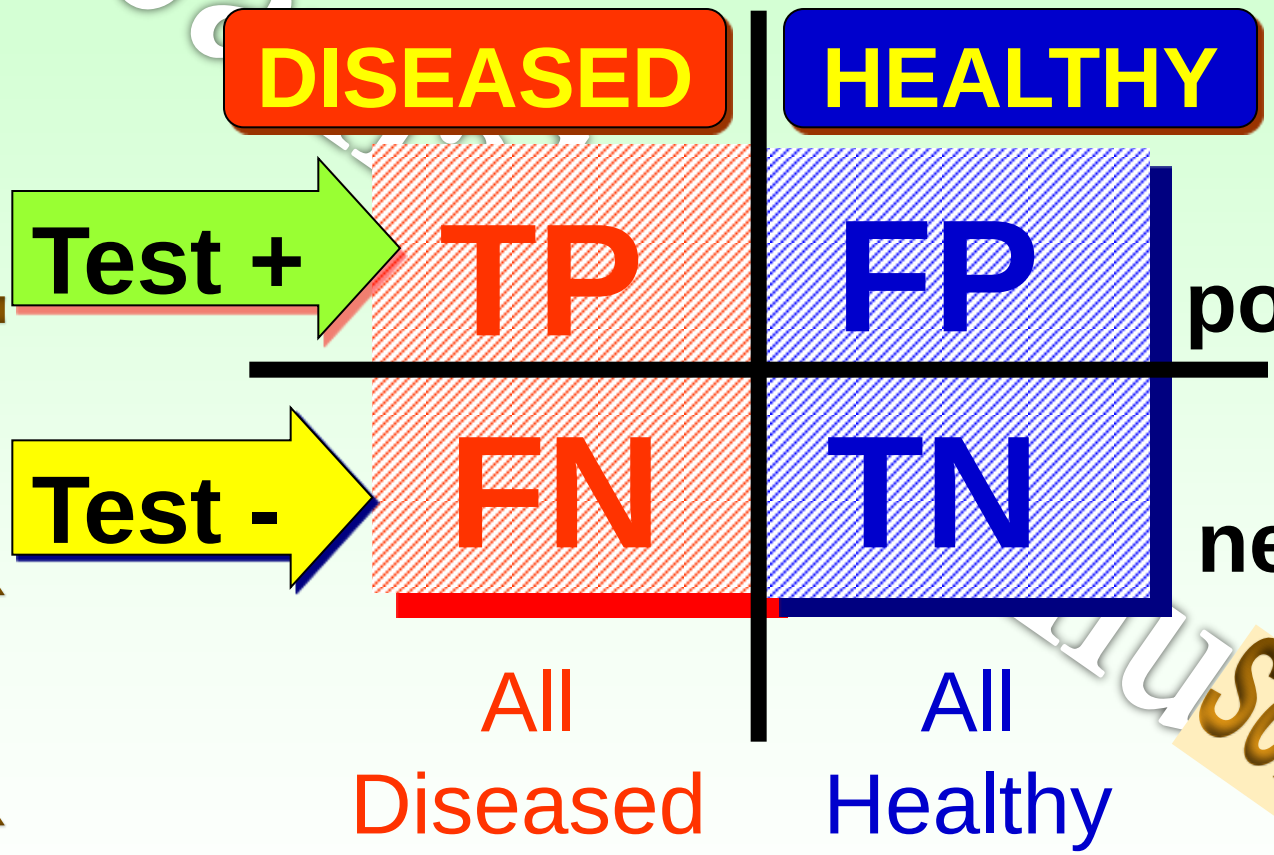
Learning Objectives

Evaluation of screening tests via:

- Sensitivity
- Specificity
- Predictive values



Diagnosis



Screening test

Screened pop

Sensitivity: ability of screening test to identify diseased people

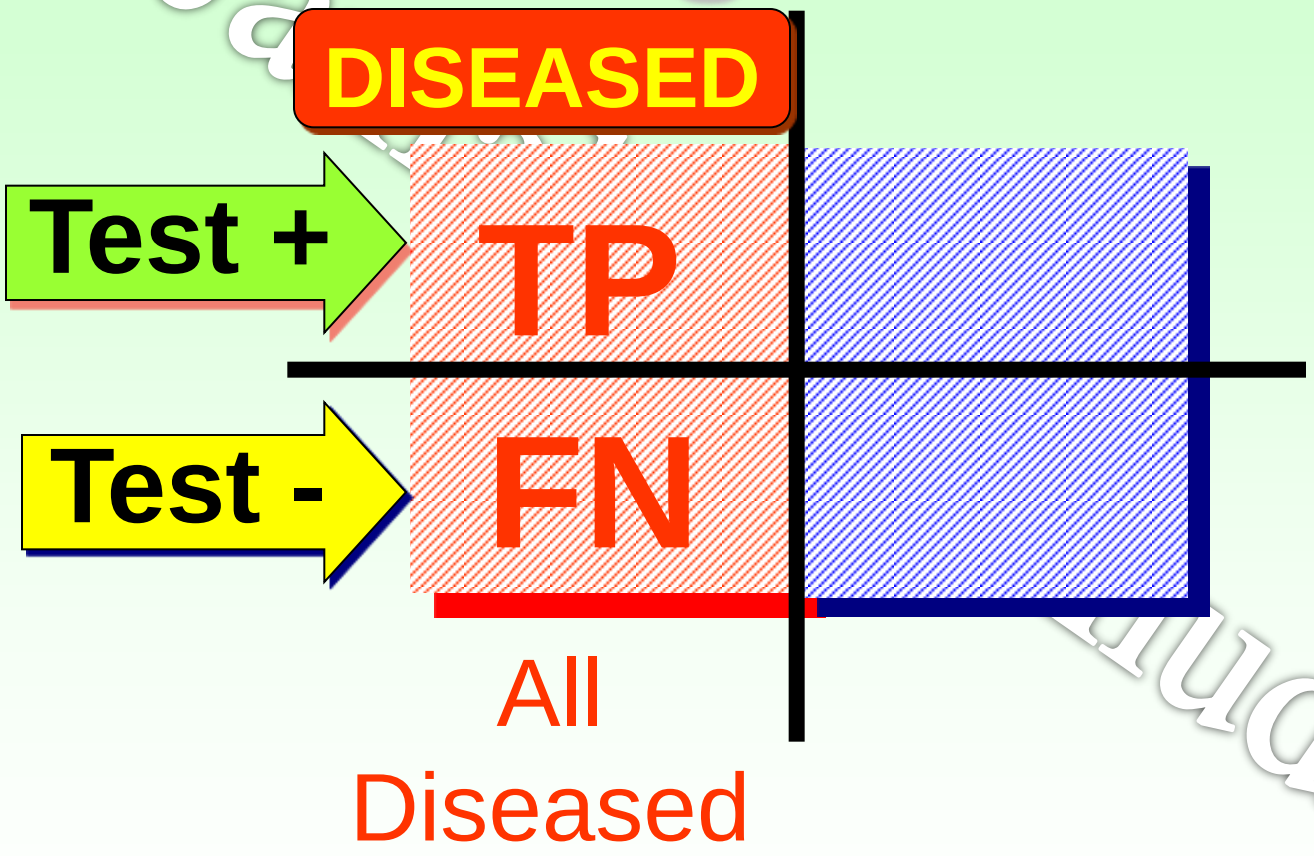
or % of diseased people who were positive in the test حساسية الاختبار

$$Sensitivity = \frac{TP}{Diseased} \times 100$$ ➔ TP%

Percentage of false negatives: % of diseased people who were negative in the test (% of missed cases)

$$FN\% = \frac{FN}{Diseased} \times 100$$ ➔ 100 - Sn

Diagnosis



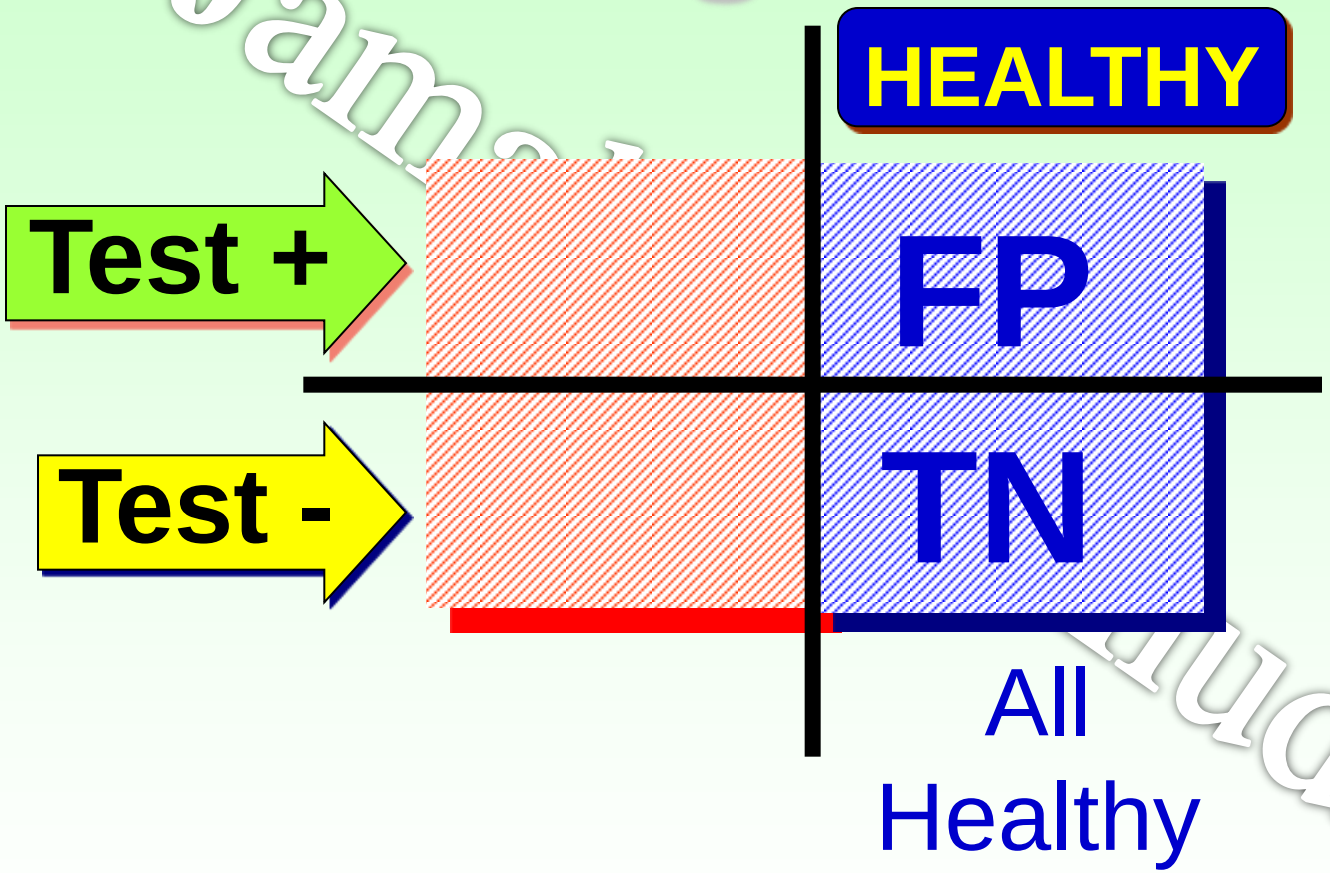
Specificity: ability of screening test to identify healthy people or % of healthy people who were negative in the test نوعية الاختبار

$$Specificity = \frac{TN}{Healthy} \times 100$$ ➔ **TN%**

Percentage of false positives: % of healthy people who were positive in the test

$$FP\% = \frac{FP}{Healthy} \times 100$$ ➔ 100 - Sp

Diagnosis



Sensitivity & specificity

- Each test have its own Sn & Sp
- We can change the cut-off point of the test to change the validity
- Any change in sensitivity leads to opposite change in specificity, and visa versa
- The relation is reciprocal

Predictive value of positive test:

% of people with +ve test who have the disease (diagnostic power of the test)

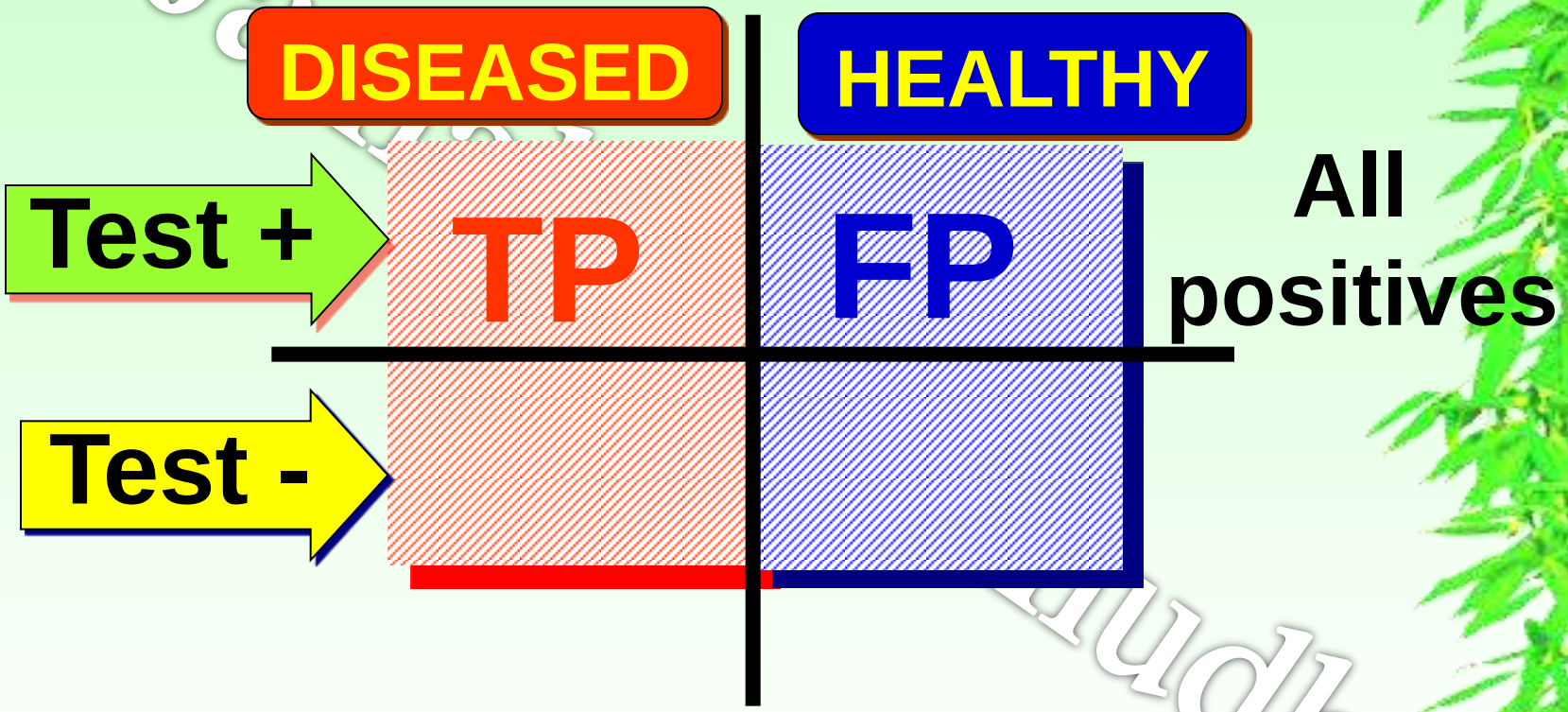
$$\Pr(+) = \frac{TP}{All\ Positives} \times 100$$

Predictive value of negative test:

% of people with -ve test who are healthy

$$\Pr(-) = \frac{TN}{All\ Negatives} \times 100$$

Diagnosis



10000 children screened for visual defects by Snellen chart. 288 referred to hospital and 90 of them given eyeglasses. If you know that visual defects prevalence among children is 1%. Find out test validity?

10000 x 1% = 100 cases of visual defects

Sn = TP/ diseased % = 90%

Sp = TN / healthy % = 9702/9900 % = 98%

	Visual defect	normal
+ve test		
-ve test		


Dr
Thank You