**Investigations and Tests**

- The **ideal test** is **sensitive** – it detects all those with the disease.
- The **ideal test** is **specific** – it detects only one condition/disease.
- There are **no ideal tests**.
  - True +ve indicates the test has worked correctly.
  - **Positive Predictive Value** = PPV
  - **Negative Predictive Value** = NPV

**Interpret with Care:**

- Sensitivity does not tell you the chance of a positive result indicating disease:
  - A 90% sensitivity does not mean that a positive result carries a 90% chance of indicating disease.
  - Sensitivity and specificity just reflect how good the test is in the lab.

**PPV (Positive Predictive Value) and NPV (Negative Predictive Value) Depend on Disease Prevalence**

- **Prevalence** = proportion of population with the condition/disease.
- **Positive Predictive Value** rises when a disease is present (and the negative PV falls).

- Tests work really well when the disease is common.

**Value of the Test depends on how it is used**

- A test MUST answer a specific question framed by the clinician in the light of history and examination.
- In the right circumstances, many tests have PPV >98%.
- Conversely, wrong used tests don't work – you cannot obtain a diagnosis by throwing every test at a patient.

**There are no ideal tests – they must be selected (by you) for a purpose.**

- **Screening tests**, useful if you are:
  - Cheap, rapid, acceptable test that tells whether a person is likely to have a condition or not.

**Useful for diagnosis** – only tell you whether a person is likely to have a disease or not. **1st test to decide whether someone should go on for more deeper investigations. May have a low PPB → e.g. BPE → 6PPC.**

- **Diagnostic tests**, whose usefulness depends on:
  - Need for test – why is it done?
  - Situation in which used:
    - Incidence of disease.
    - Significance of a wrong result – a low PPV may be acceptable.
    - Ability to define a "cut off" level.

**Never Confuse Numerical Precision with Biologically Relevant Accuracy**

- The INR is reported to 1 place of decimals but is useful and reproducible to only to about 0.5 or even 1 unit.

**Histopathology**

- The **gold standard for much diagnosis** in medicine – 70-80% of patients' treatment depends on a histological diagnosis.
- Is not a TEST, it is a medical opinion.
- Can also be of no great value – you need to know which diseases in this course are diagnosed by biopsy and this value if not diagnostic.

- **Dysplasia** – pre-cancer state
- **Lichen plasia** – keratosis of buccal mucosa