

Differential Diagnosis Trees

Probabilistic Branching

- **Prior Probabilities:** Based on prevalence and risk factors
- **Likelihood Ratios:** Each test updates probabilities
- **Bayesian Updates:** Continuous refinement with new data
- **Threshold Decision:** Diagnostic certainty level to act

Example: Chest Pain Differential

Initial:

MI (30%)

Angina (25%)

PE (15%)

GERD (20%)

After Troponin:

MI (92%)

After ECG:

MI (65%)

Angina (20%)

PE (10%)

GERD (3%)

Angina (5%)

Others (3%)

Treat as MI (>90% threshold)

Quantitative reasoning: Numbers guide clinical decisions