

Uncertainty Propagation in Clinical Reasoning

Sources of Uncertainty

- Incomplete patient history
- Test measurement error
- Diagnostic ambiguity
- Treatment response variability

Managing Uncertainty

- Confidence intervals
- Probability distributions
- Decision thresholds
- Risk-benefit analysis

Propagation Example

Initial
Symptom Interpretation
 $\pm 20\%$

After Test
Diagnosis
 $\pm 15\%$

Treatment
Outcome Prediction
 $\pm 25\%$

Total Uncertainty: Compounds through reasoning chain

Action: Make decisions robust to uncertainty levels