

**UNDERSTANDING  
OBSERVATIONAL DATABASE  
ANALYSES: TRICKS OF THE  
TRADE**

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# STATEMENT OF PROBLEM

- **The major problem for studies without a randomized control is lack of insurance for homogeneity of groups.**
- **"... it is the absence of randomization that is crucial, for since this device is not available there is no clear-cut distinction between factors which are explicitly accounted for in the hypothetical model and disturbing factors which are summed up in the residual variation." (Wold, 1956)**

# Outline of Issues

## 1. Study Types

- **Clinical Series**
- **Historical Controls**
- **Observational Studies**
  - **Prospective (Cohort)**
  - **Cross-Sectional**
  - **Retrospective**
- **Meta Analysis**

**How do Registries and Administrative Data Bases fit?**

# Issues

## **2. Bias Adjustment**

- **Matching**
- **Stratification**
- **Covariance Adjustment**
- **Covariance Adjustment with**
  - **Instrumental Variables**
- **Propensity Scores**

## **3. Other Issues (e.g., Validation)**