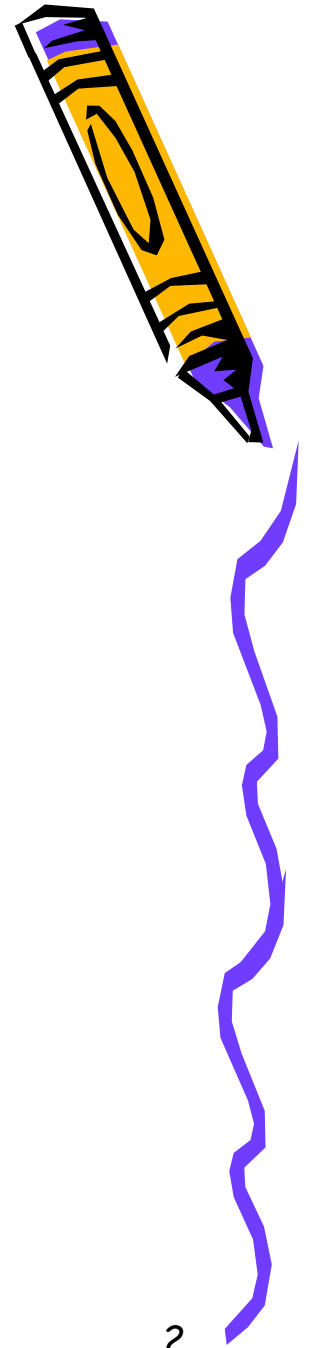


Biometry and Epidemiologic Methods in Perspective

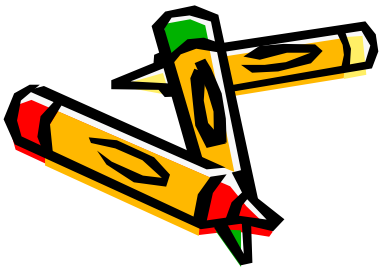
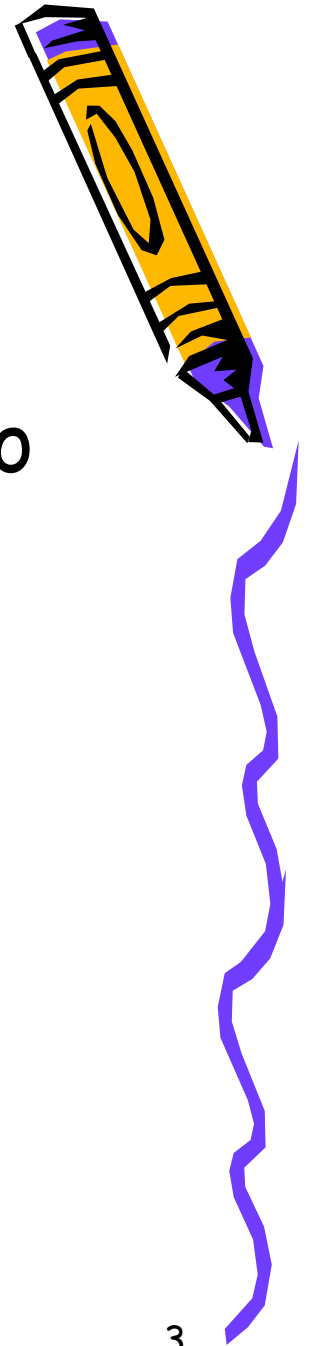
Overview

- An Axiom
- General/Core Areas
- Potential Areas of Interest



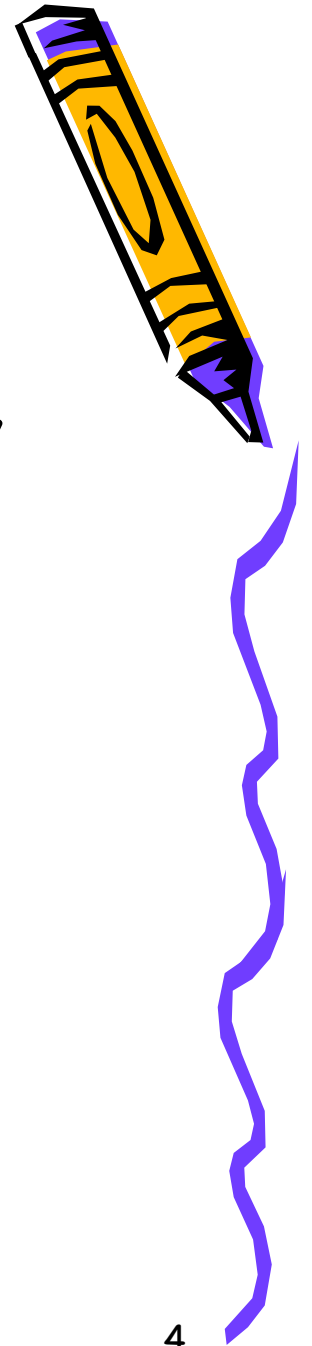
An Axiom

- difficult, if not impossible at all, to say what will be core areas in a couple of years
- many tried, but failed miserably



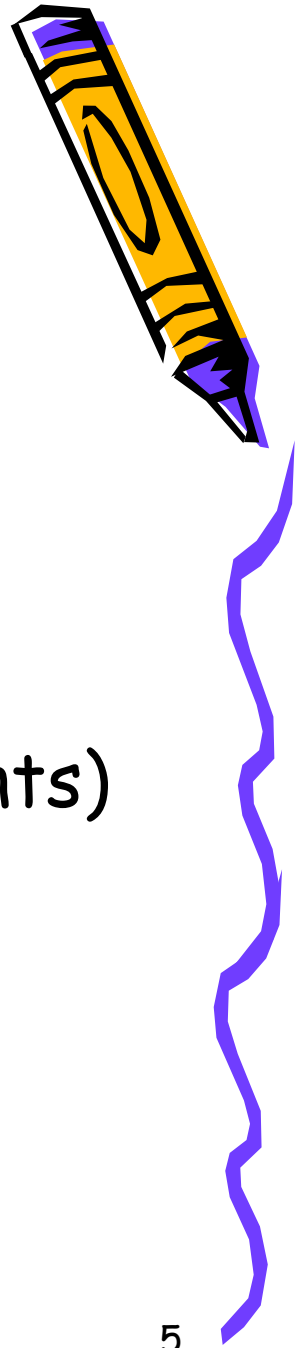
An Example

- „Statistics in the 21st century“ by Raftery, Tanner and Wells
- Book review of *Technometrics*:
- „ ... it was little more than self-congratulatory efforts of various statisticians prominent in the last part of the 20th century.“



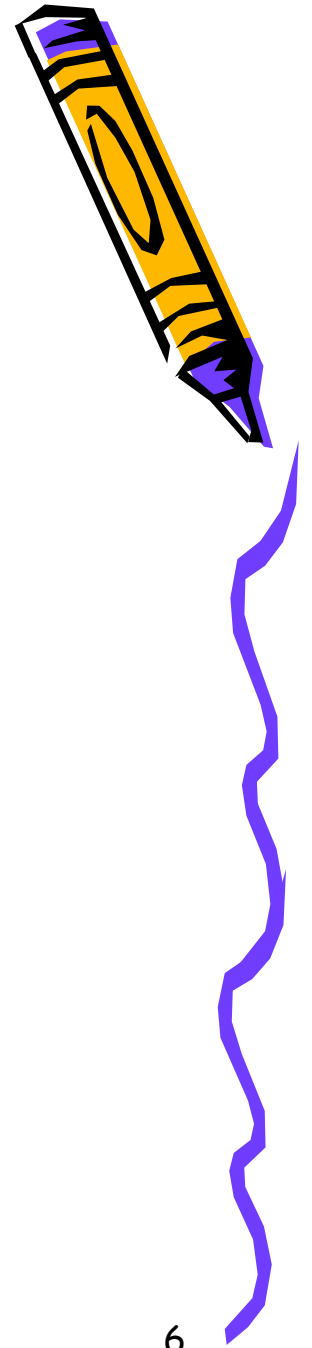
The Axiom: Be Ready!

- Take appropriate steps to get in shape
 - contents of these steps (core elements)
 - media of communicating these steps



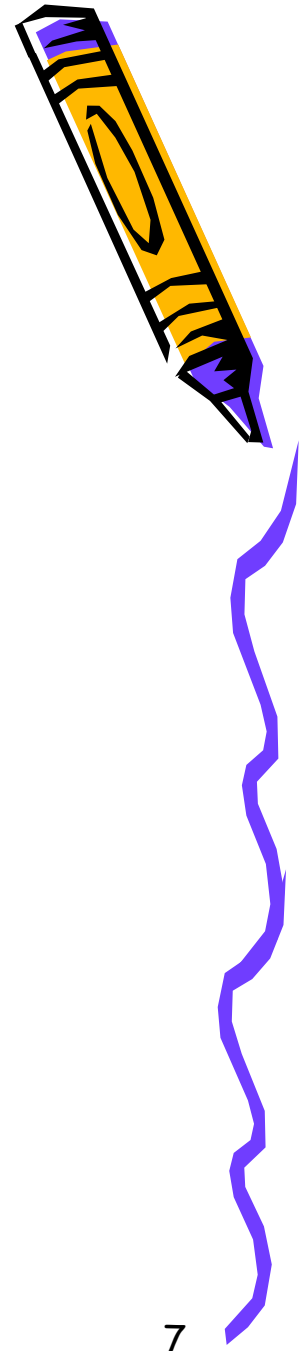
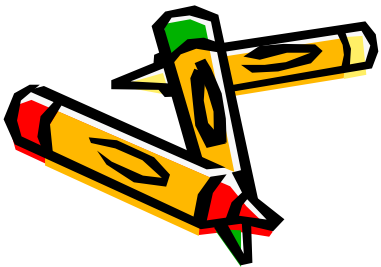
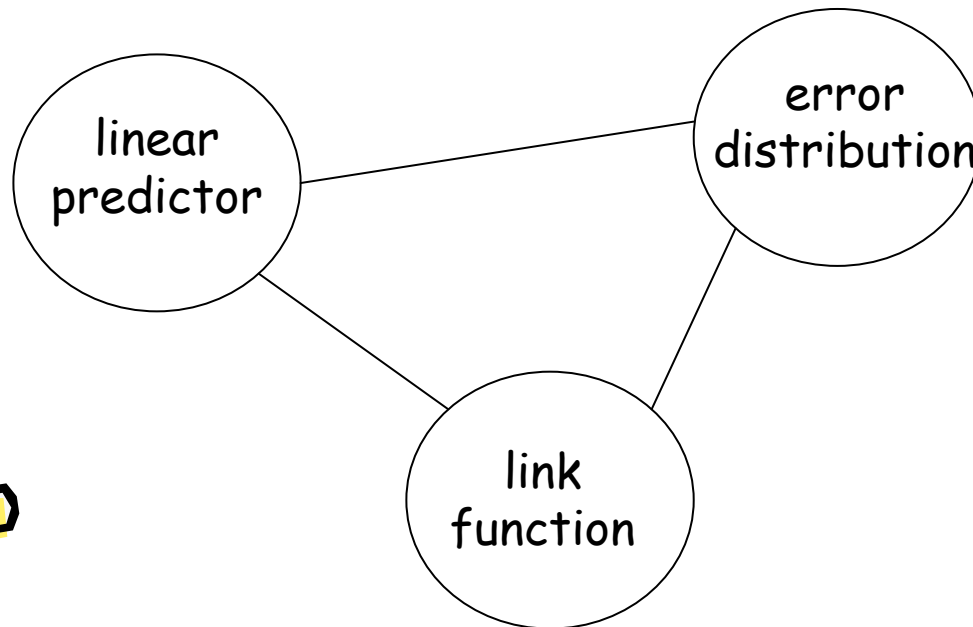
General/Core Areas (to ensure potential)

- Likelihood based inference and modeling
- Study type based epidemiologic inference



Likelihood Based Inference and Modeling

- Effect Investigation and Generalized Linear Model (GLM)



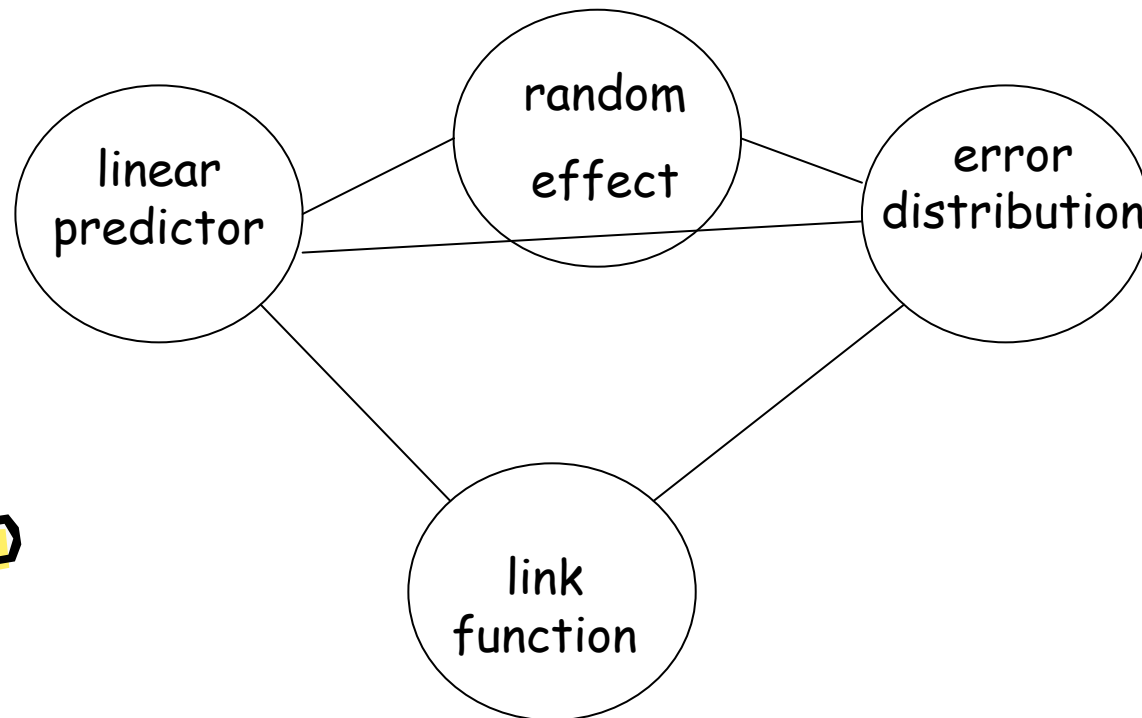
Study Type Based Epidemiologic Inference

- Cohort/RCT and RR modeling
 - Poisson/log-linear
- Unmatched Case-control and OR modeling
 - Logistic
- Matched Case-control and conditional OR modeling
 - Conditional logistic



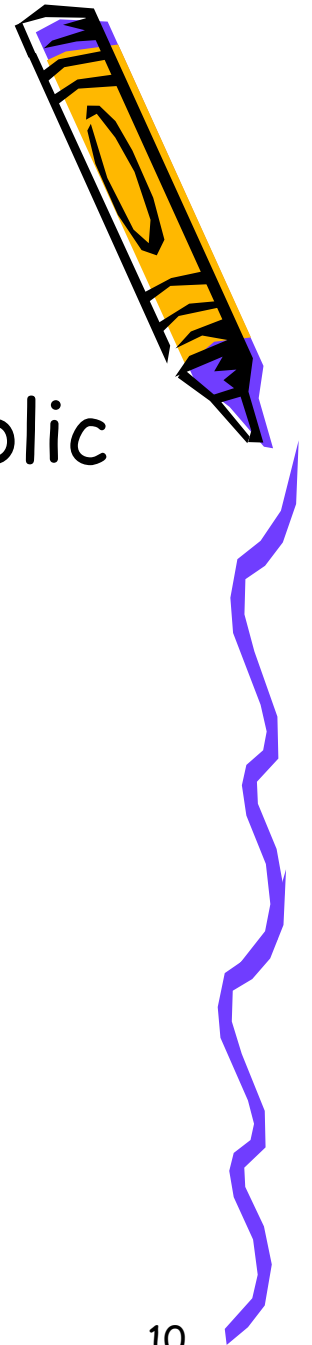
Potential Areas of Activity

- Effect Investigation and Generalized Linear Mixed Model (GLMM)



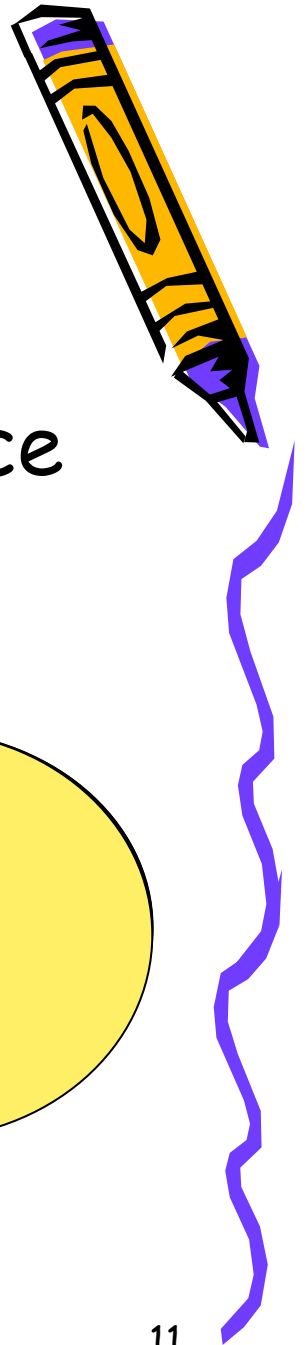
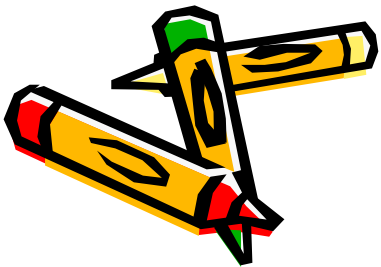
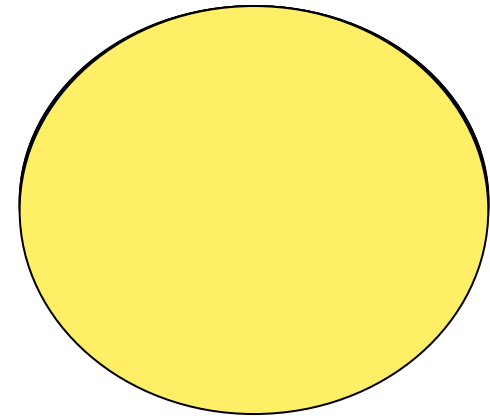
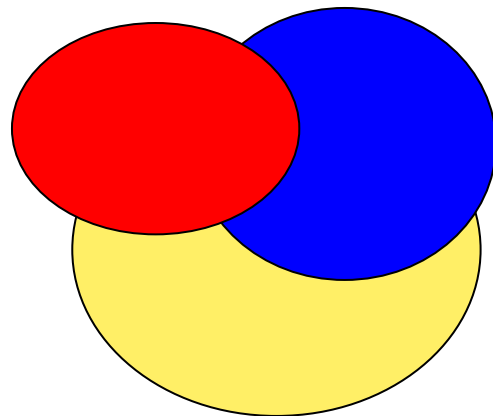
Potential Areas of Activity

- Capture-Recapture Methods in Public Health and Surveillance
 - Registry Completeness
 - Dark Number Research
 - Screening
 - Population Size Problem (how many studies are missing in the meta-analysis?)



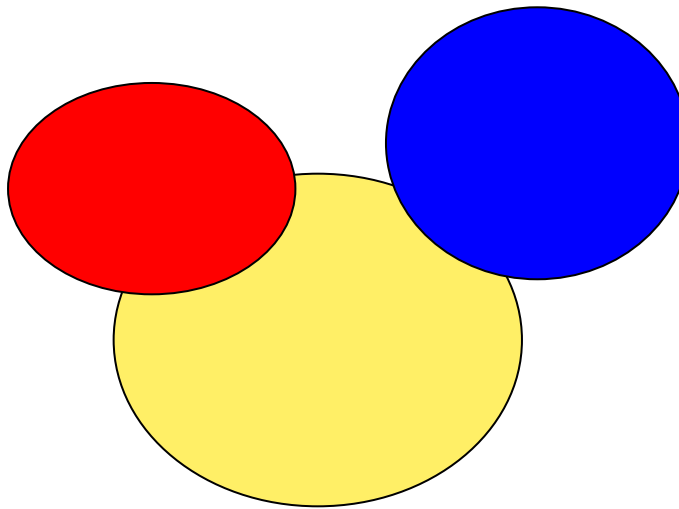
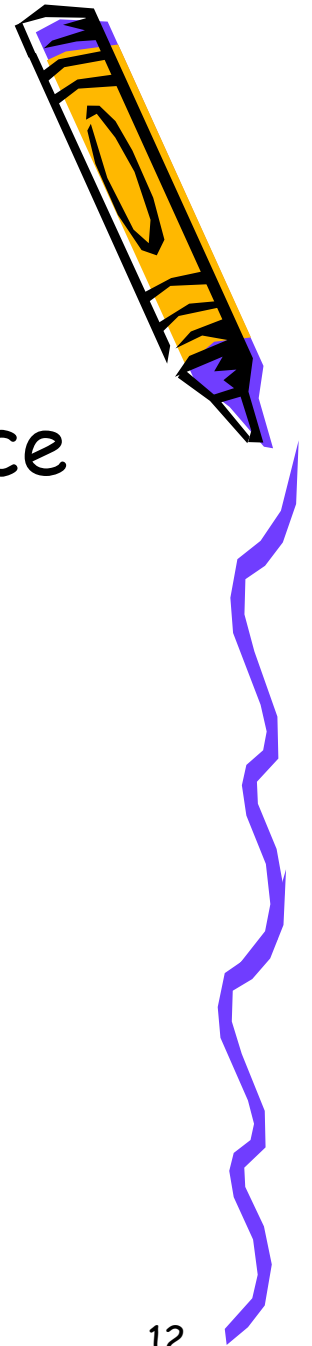
Potential Areas of Activity

- CR in Public Health and Surveillance
 - CR-Studies with **fixed sources**



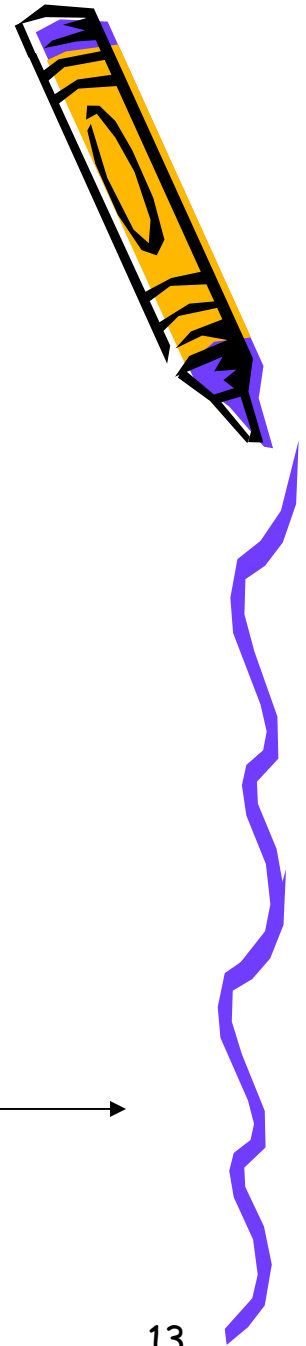
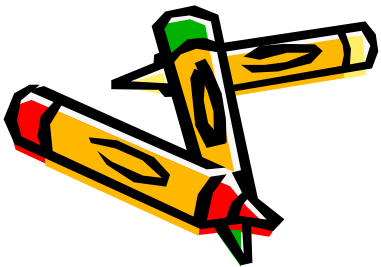
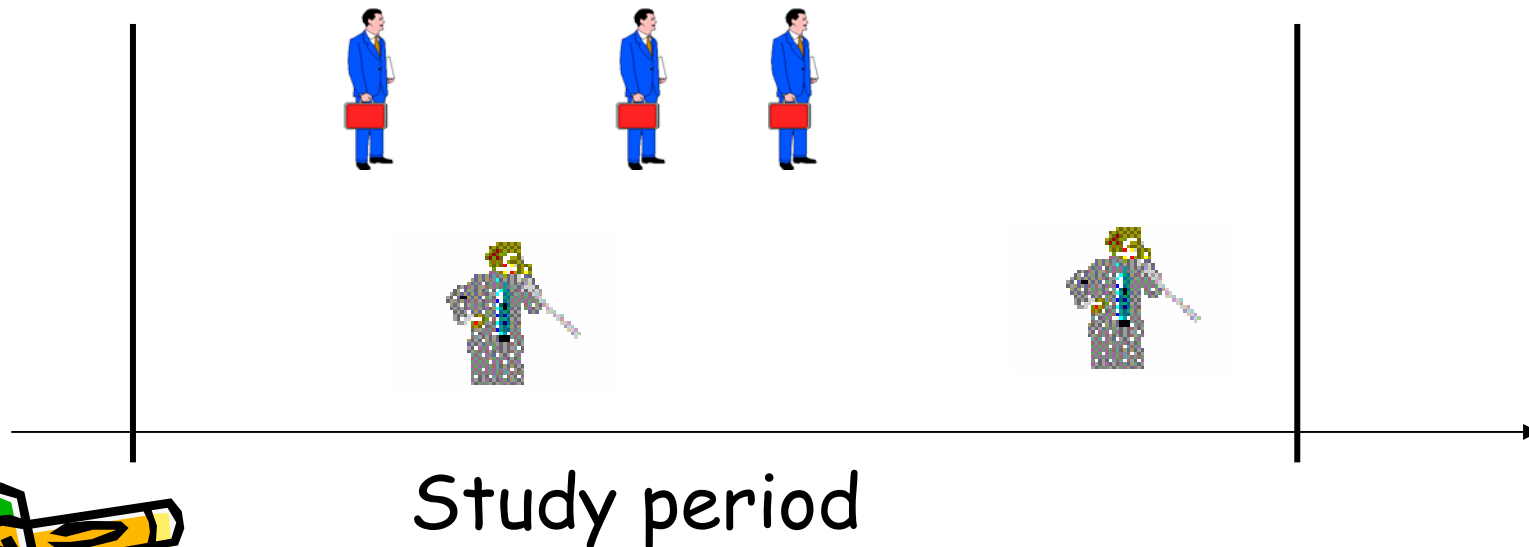
Potential Areas of Activity

- CR in Public Health and Surveillance
 - CR-Studies with **fixed sources**

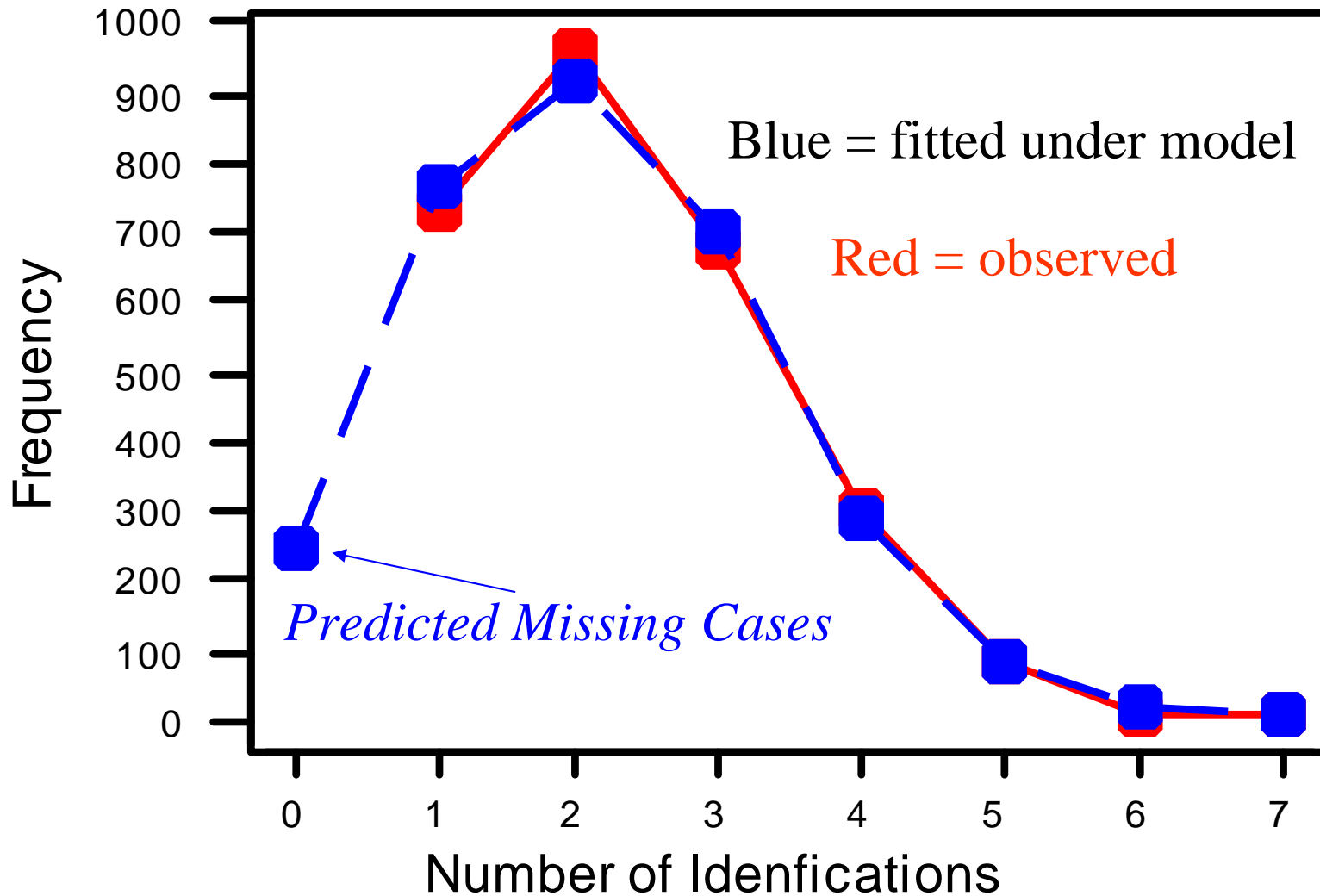


Potential Areas of Activity

- CR in Public Health and Surveillance
 - CR-Studies in **continuous time**

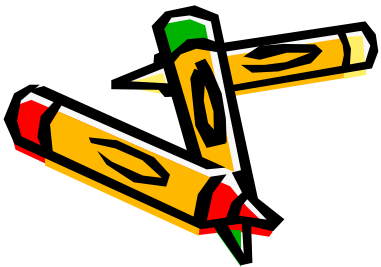


Distribution of Observed and Predicted Counts of Sources *for fictional data of multiple identifications*



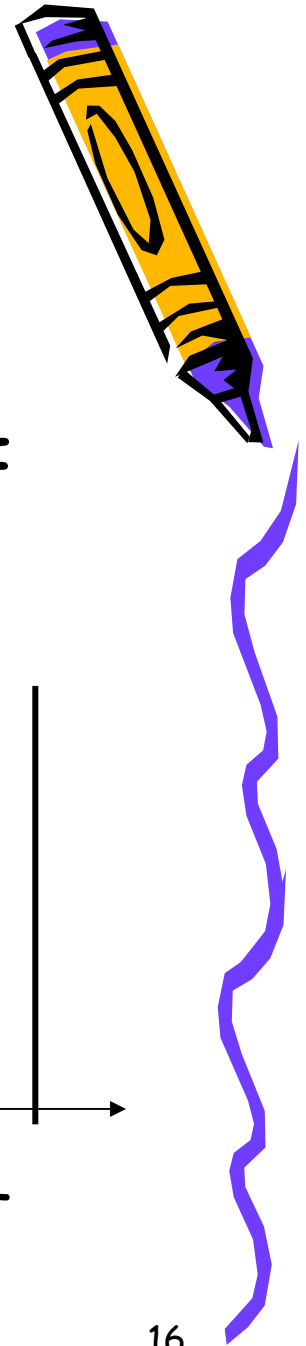
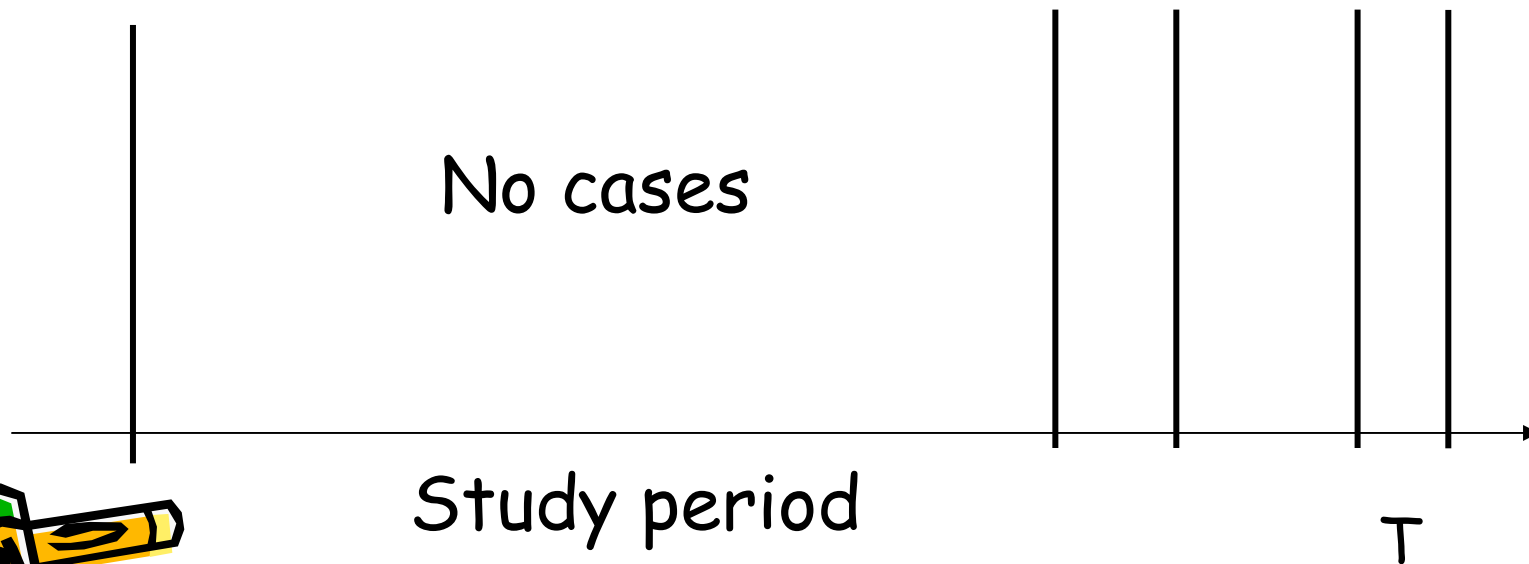
Potential Areas of Activity

- Research Evaluation
 - Integrating concepts (heterogeneity, publication bias, moderator analysis ...)
 - Integrating different effect measures
 - Dealing with multiple end-points



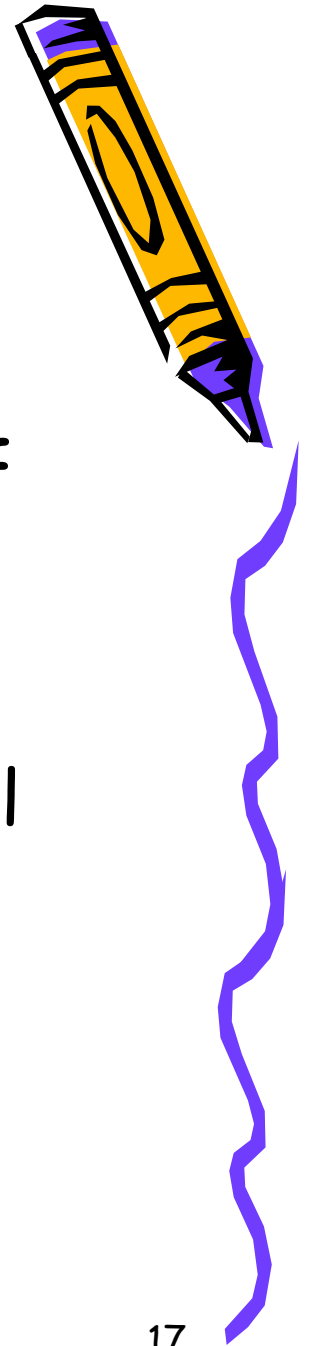
Potential Areas of Activity

- Evidence for complete freedom of disease



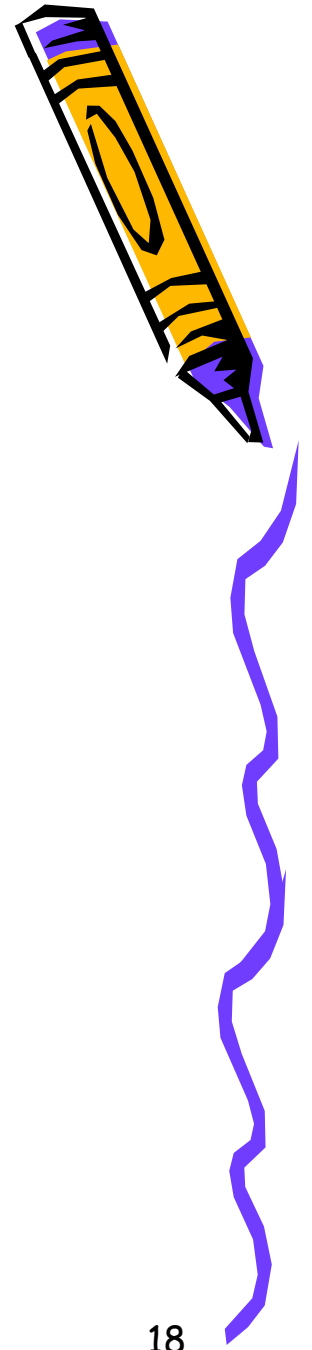
Potential Areas of Activity

- Evidence for complete freedom of disease
 - which time is enough waiting time?
 - can be tackled via waiting time model



Potential Areas of Activity

- Surveillance spatio-temporal epidemiology
 - Disease mapping
 - unfocussed and focussed cluster testing
 - Ecological analysis



Potential Areas of Activity

- ... but different people, different potential areas of activity
 - Sampling (a lot of development here)
 - Bayes
 - Design
 - ...

