BCA and beyond....

Dr Alicia Stein
A bit of history.....

• Undergraduate degree in Argentina
  – “Licenciada” in Biological Sciences: broad degree
• PhD Monash: transplantation immunology

• 21 years of research in immunology of transplantation and renal disease
What drew me to the BCA course?

• Laboratory based research → clinical research
  – Large numbers of patients/samples
  – Repeated measures analyses

• Ready for a change….

• Dipped my toe: Graduate Certificate in Biostatistics
BCA Course: general comments

• Committed, interested course instructors
• Excellent materials
• Extensive use of journal articles
• Modern methods
• Excellent balance of theory and practice
• WPP: application of concepts/methods to real data
• Stata
• Distance education: excellent use of WebCT

• Many late nights!
2003: Graduate Certificate in Biostatistics

- Mathematical Background for Biostatistics
- Epidemiology
- Principles of Statistical Inference
- Design of Experiments and Randomized Clinical Trials
2004: Graduate Diploma in Biostatistics

- Data Management and Statistical Computing
- Linear Models
- Categorical Data and Generalised Linear Models
- Clinical Biostatistics
2005-06: Masters in Biostatistics

- Survival Analysis
- Longitudinal and Correlated Data
- Work placement
  - Use of log linear models for the assessment of reproducibility in symptom reporting by Gulf War veterans and a Comparison Group
  - Analysis of a randomized double-blind placebo controlled trial to determine the efficacy of physiotherapy after hydrodilatation for the stiff painful shoulder (Buchbinder et al Arthritis Care Res 2007)

*Supervisor: Prof Andrew Forbes, Dept of Epidemiology and Preventive Medicine, Monash University*
WPP: Statistical issues

- Use and limitations of weighted kappa statistic (CLB)
- Use of log linear models of agreement to assess repeatability of symptom reporting, assessment of covariate effects (CDA, LMR)
- Correlation between measures, use of robust standard errors and application of bootstrap methodology (LCD)
- Data cleaning (DMC)
- Experimental design, intention to treat analyses, drop outs/lost to follow up, imputation methodology (DES, LMR)
- Quality of life measures
- Log binomial models for estimation of relative risk
Where am I now?

- Senior Epidemiologist in Health Economics Group, CSL
- Evidence based decisions for health policy
  - Listing drugs on the PBS
  - Inclusion of vaccines on the NIP
  - Supporting epidemiological studies, burden of illness studies, QoL impact, costs
PBAC submissions

• Section A: Details of drug and listing requested
• Section B: Clinical evaluation
  – All relevant clinical trials – details, quality, population, etc
  – Outcome measures: primary, secondary, statistical analyses
  – Meta-analyses
  – Interpretation of clinical evidence
  – Non inferiority trials
  – Indirect comparisons
PBAC submissions

• Section C: translating clinical evaluation to required listing
  – Extrapolation issues: time to event data, parametric models, transition probabilities
  – Transformation issues: LY to QALY
  – Australian specific data: costs, HCRU, epidemiology

• Section D: economic model
  – Markov state transition models
  – Monte Carlo simulations
  – Probabilistic sensitivity analyses

• Section E: Estimated extent of use and financial implications
  – Epidemiology
  – Population data
So…..BCA course

- Challenging and stimulating
- Insight into the field
- Vastly increased skills
- New opportunities

- Frequently use BCA materials at work
- Use Stata

- Wish I’d done Bayesian Statistics as well
"When I'm working on a problem, I never think about beauty. I think only how to solve the problem. But when I have finished, if the solution is not beautiful, I know it is wrong."

Richard Buckminster Fuller.

Thank you