

# BCA and beyond....

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# 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 hydrodilataion 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