Appendix VI

Programme Outline
for the
Introductory Veterinary Epidemiology Course
April 12th – 17th, 1999
Dublin

Instructor

Dr Wayne Martin
Professor,
Department of Population Medicine,
Ontario Veterinary College,
Guelph, Ontario, Canada.
N1G 2W1

Laboratory Instructor

Victoria Edge
Consultant in Epidemiology,
Department of Population Medicine,
Ontario Veterinary College,
Guelph, Ontario, Canada.
N1G 2W1
An Introduction to Epidemiology for Laboratory and Field Scientists

Schedule---Topic Plan

Topic 1: Introduction to Epidemiology
- Roles of epidemiology in National disease-control programs
- Basic concepts/tenets of epidemiology
- Epidemiologic sequence of causal reasoning

Lab I: Introduction to data files and computer software SX, Excel, Epi-Info

Topic 2: Measuring Disease Frequency
- Morbidity: Prevalence, Incidence, Attack rates
- Mortality vs Case Fatality
- Calculating rates: Risk versus True Rates
  Numerators: Counts of Events
  Denominators I: Population at risk
  Denominators II: Animal-time
- Follow-up “Life” Tables

Measuring Production
- Distributional Statistics: Means, Variances, Percentiles

Lab II Measuring Health

Topic 3: Standardising Rates
Lab III Standardising Rates

Topic 4: Sampling: Surveys
- Examples of Surveys:
  Role of formal sampling methods to estimate means
  Sampling Methods: Simple, Systematic, Stratified, Cluster, Two-stage.
- How to select the sample
- How to calculate the estimate
- How variable is the estimate (Precision and its relationship to sampling design)
- How “big” a sample do I need

Lab IVa: Survey Sampling

Lab IVb: Disease Detection

Quality control methods to detect disease/infection

Topic 5: Screening Tests
- What is screening?
- When/what to screen?
- Sensitivity/Specificity
- Apparent/True prevalence
- Predictive value positive and negative
- Herd (groups of individuals) vs individual screening

Lab V: Screening for Disease

Topic 6: Sampling: Hypothesis Testing
- Hypothesis testing: Types I and II errors
- Cross-sectional, Cohort, and Case-Control
- Sampling methods and examples
• Sample size estimation
Lab VI: Analytical Study Sampling

Topic 7: Measures of Association
Lab VII: Measures of Association

Topic 8: Analytical Studies
• Design Details for Cross-Sectional, Cohort and Case-Control
Lab VIII: Project Lab

Topic 9: Confounding: What is it and how do we prevent it?
• Some analytical methods
  Mantel-Haenszel Odds ratios
• Interaction: What is it and what does it mean?
Lab IX: Mantel-Haenszel methods

Topic 10: Modeling Observational Data
Modeling associations using regression techniques
Lab X: Logistic Regression

Topic 11: Field/Clinical Trials
• The Basics: Design Features

Topic 12: Causation of Disease
• Rules of Inference
• Statistical vs Causal Associations
• Judgemental Criteria for causation
• Elaborating Mechanisms of causation
Lab XI: Least Squares Regression

Topic 13: Temporal Patterns of Disease

Topic 14: Disease Control Programs

Presentation of Projects

Course Evaluations

End of Course