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Appendix VI

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

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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: Prevalance, 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

Quality control methods to detect disease/infection

Lab IVb: Disease Detection

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