Single count or rate

• How the Poisson distribution arises

• Behind the Poisson distribution - and when is it appropriate?

• Features of Poisson Distribution

• Examples
  - some with Poisson variation
  - some with "extra- Poisson" or "less-than-Poisson" var^{n}.

• Table & Graphs of (Poisson) probabilities

• Gaussian Approximation to Poisson Distribution

• Confidence limits for expectation of Poisson variable{table]

• Basis for "First Principles" Poisson Confidence Interval

• "Exact" CI for mean, μ , of a Poisson distribution using Link between Poisson and Chi-Square tail areas.

• Approximate CI's for mean, μ , of a Poisson distribution, based on 4 different approximations to Poisson tail areas

• Inference re a single event rate parameter (summary)

Readings
• Rothman 2002, Ch 7, pp132-134
• JH's Notes on Poisson Distribution and Inference re Rates
• Armitage Ch 3.7 & 5.2 / Colton Ch 3

Other Resources [Computer / Chapters / Articles / etc..]

• under "Poisson Distribution; Inference re Rates"
  [http://www.epi.mcgill.ca/hanley/c626/]

Comparison of 2 rates

• Inference re comparative parameters:

  - Rate Difference

  - Rate Ratio

    - unconditional

    - conditional [especially if small # of events]

  - SIR/SMR [more a comparison of 2 SETS of rates]

    e.g. *"LEUKEMIA RATE TRIPLES NEAR NUKE PLANT: STUDY"*

• Sample sizes for studies that compare rates

Readings
• Rothman 2002, Ch 7, pp 137-139; 141
• JH's Notes on Poisson Distribution and Inference re Rates
• Armitage Ch 5.2

Other Resources [Computer / Chapters / Articles / etc..]

• under "Poisson Distribution; Inference re Rates"
  [http://www.epi.mcgill.ca/hanley/c626/]