THE CAMBRIDGE STATISTICS DISCUSSION GROUP

Thursday 27th March 2014 7:15 for 7:45

The Large Seminar Room, Institute of Public Health, University Forvie Site, Robinson Way, Cambridge, CB2 0SR

Working with Epidemiologists

Nick Galwey
GlaxoSmithKline

Abstract: This presentation first explores the motivation for conducting epidemiological research: such research ranks well below the 'gold standard' of randomised clinical trials in the conventional hierarchy of evidence, yet observational studies (sometimes on >100 million patients) provide valuable information that is rarely obtained from such trials. Hence the problems of confounding and bias (two sides of the same coin) that beset observational studies are well worth addressing, and in this presentation the statistical tools that epidemiologists use for the purpose – adjustment for covariates, case-control matching etc. – are reviewed.   The statistics that epidemiologists typically present are incidence and prevalence rates, and their ratios between exposed and unexposed patients.   These statistics are interpreted in terms of the Poisson and binomial distributions, rather than the Normal distribution used for continuous variables, so the statistician must be familiar with the methods for fitting models using these distributions – Poisson regression with overdispersion, logistic regression, etc.   He or she also needs to be aware of the difficulty of specifying confidence intervals for parameter estimates based on these discontinuous, asymmetric distributions: there is no single 'right answer'.   In the author's experience, epidemiologists have breathtakingly well-developed intuition for the ways in which data can mislead, and what to do about it.   But the majority do not habitually express their ideas in algebra and geometry, and when the tasks required of them take them beyond the edge of their statistical comfort zone they will welcome the support of a statistician who is a fast learner and a good communicator.

Speaker: Nick was a demonstrator and lecturer at the University of Cambridge between 1979 and 1995. He then moved to Perth to lecture at the University of Western Australia from 1995 to 2001 before working as a statistical geneticist for Oxagen Limited for two years. He has worked in a similar capacity for GlaxoSmithKline since 2003.

Directions: (From Central Cambridge) Turn right off Hills Road into the Addenbrooke's site then turn left at the hospital roundabout onto Robinson Way. Follow Robinson Way until you see an access road on the left signed 'Forvie Site' (but note that the sign is on your right). Turn into the access road and follow signs - first to the Institute and then to the Large Seminar Room. There is ample car parking. The front doors will be locked at 7:45. Arrivals after 7:45pm can gain admittance by contacting the secretary on 07761769436.

Provisional Next Meetings: (Please note further change of the next talk date – apologies for any inconvenience)
1st May – Peter Fretwell (British Antarctic Survey) on 'Counting the Emperor'.
14th October – Adrian Mander (MRC Biostatistics). 17th November – Trevor Lewis (TLwise Consulting Limited).
2nd February 2015 – Anthony Edwards (Gonville & Caius). 5th March – Tom Bramley (Cambridge Assessment).
Supper: Some members eat regularly in the University Centre before each meeting at **5-45pm**. Feel free to join them.
Subscriptions: of 1 pound are now due for attending the 2013-2014 session.
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Slides and .mp3 files of old talks: http://www.mrc-cbu.cam.ac.uk/people/peter.watson/csdg.html