

Making sense of statistics for family practitioners

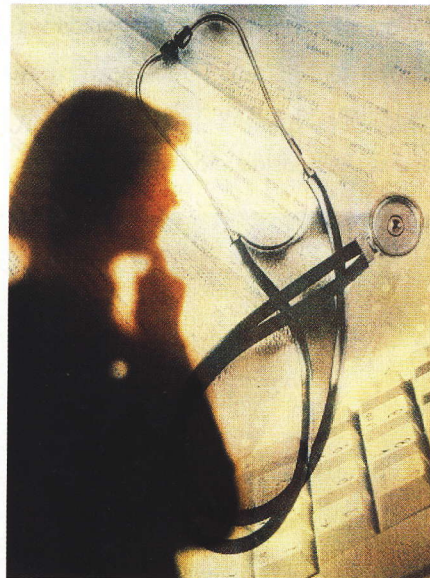
'Lies, damn lies and statistics'

There is a delightful story about three family practitioners and three statisticians who shared a train compartment on the way to a conference. The statisticians asked the family practitioners whether they had bought tickets for the journey and began to laugh derisively when each doctor produced a ticket. With unconcealed pride the statisticians boasted that they had only bought one ticket between them. On hearing the ticket collector approaching their carriage, the statisticians proceeded to lock themselves in the toilet. When the conductor knocked on the toilet door, to the amazement of the family practitioners, they proffered the single ticket under the door. Satisfied, the ticket collector clipped it and slid it back to them.

Family practitioners have the capacity to grasp things quickly and on the return journey they proudly flaunted the single ticket they had bought to the statisticians. The statisticians guffawed and indicated, to the disbelief of the family practitioners, that they had bought no tickets. As the ticket collector approached their carriage the family practitioners hid together in the toilet. The statisticians walked up to the door and knocked on it. The family practitioners slid the ticket under the door and the statisticians took it and used it as they had previously done, leaving the family practitioners to the mercy of the ticket collector.

As we launch this series for the busy family practitioner on making sense of statistics, this anecdote conveys an important lesson - it is imprudent to use a statistical technique unless you are completely familiar with it. Unfortunately authors, researchers and even journal editors, do not always adhere to this principle. The results of

reviews of the use of statistical procedures in papers published in a number of leading medical journals have been disappointing. For example, the review of articles published in the South African Medical Journal during 1992 found that the incorrect statistical procedure was used in 53% of published papers.



Modern statistical software packages are able to perform convoluted statistical calculations at the touch of a button. This is their greatest asset and paradoxically their greatest weakness. Unless the user has a reasonable grasp of the problem requiring solving and the assumptions underlying the use of each test, computer use becomes a classic example of "GISGO" - garbage in, sophisticated garbage out.

Our chief aim with this series is therefore to introduce family practitioners, in a user-friendly and stepwise manner, to valuable statistical and epidemiological procedures, while highlighting common pitfalls and fallacies. We also hope to rid biomedical statistics of unnecessary mysticism and disdain that has prompted comments like the famous one by Benjamin Disraeli, "lies, damn lies ..and statistics".

In this respect biomedical statistics share many features with certain medical super-specialities. We would confidently predict that many readers might struggle to differentiate neurological syndromes from statistical tests in the following list: Kolmogorov-Smirnov, Lesch-Nyhan, Muckle-Wells, Kruskal-Wallis, Landau-Kleffner, Kiloh-Nevin. The similarity between neurology and biostatistics does not end with the confusion invoked by double-barreled names.

Simple neurological conditions, such as uncomplicated migraine and appropriate treatment, remain within the ambit of the family practitioner. The recognition of other potentially life-threatening signs, such as papilloedema, should prompt immediate referral to a neurologist. Similarly we do not aim to produce statisticians, but well-informed family practitioners who are comfortable using basic biostatistics and who are able to recognize when a specialist statistician should be consulted. We sincerely trust that this passage of discovery will be painless yet challenging.

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