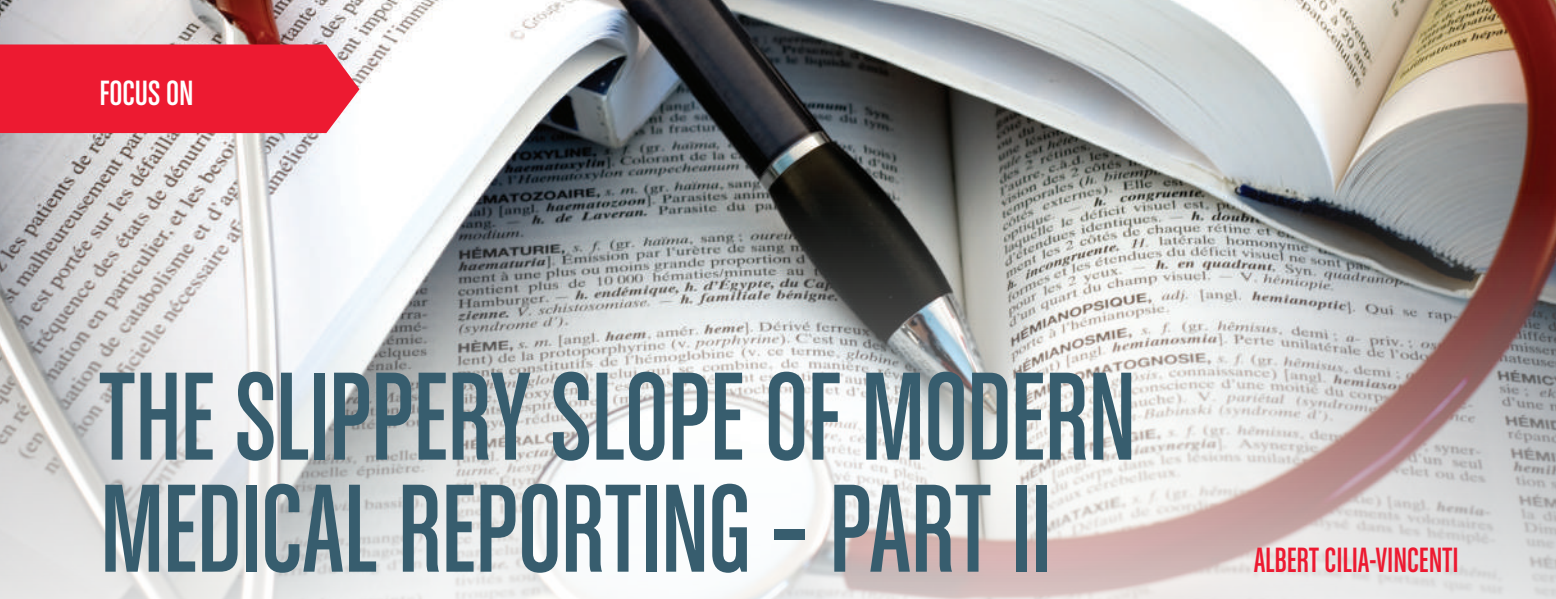

THE SLIPPERY SLOPE OF MODERN MEDICAL REPORTING – PART II

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Medical literature is littered with words like "may", "possibly", "associated with" and "could". These words allow indefinite conclusions, exceptions and failures, so that no one is ever "wrong". Nutritional and conventional medicine, and the pharmaceutical industry, have a long history of issuing recommendations that are later found to be incorrect and have to be amended. Information is widely disseminated as fact, when in reality it is little more than a guess. Unproven theories are then incorporated into people's lives under the guise of "practicing good health". It can take decades for false information to be purged out from the "common knowledge" that is tainted with it.

Nutritional "'science" has often abandoned the study of "cause and effect" in the laboratory, replacing it with "associated with". Laboratory experiments are what medical physiology and biochemistry textbooks are based on, not mere association. This standard of requiring cause/effect relationships has often been replaced with sloppy statistical studies that reach erroneous conclusions through mere association. This practice is particularly prevalent in "epidemiology". Some have referred to it as "desktop science vs laboratory science" – it's a lot easier to perform desktop "studies", but a huge price in quality is paid.

Astrophysicist/cosmologist Dr Carl Sagan warns against eager blind acceptance without personal understanding. He says, "one of the saddest lessons of history is that if we've been bamboozled long enough, we tend to reject any evidence of the bamboozle, and we're no longer interested in finding out the truth. The bamboozle has captured us. It is simply too painful to acknowledge, even to ourselves, that we've been so credulous. So the old bamboozles tend to persist as the new bamboozles emerge".

Stanton Glantz, professor of medicine at University of California, San Francisco, says in his book, *Primer of Biostatistics*, 'most readers assume that when an article appears in a journal, the reviewers and editors have scrutinised every aspect of the manuscript, including use of statistics[1,2]. Unfortunately, this is often not the case. Most journals do not provide a complete secondary statistical review of all papers, so the fraction of published papers containing statistical errors is probably still about 50% for many journals'.

Readers, including other researchers, never know of the statistical mistakes. Thus, the reported effectiveness of drugs can rarely be taken at face value, and the treatment results are often misinterpreted, either inadvertently or to push marketing goals.

The medical community doesn't adequately understand relative risk, and physicians are forced into believing the status quo. "Absolute Risk" is a measure of occurrence. The Absolute Risk is the appropriate measure when determining the likelihood that an event will occur. Sample size is essential. An example is use of statins versus placebo and comparing the number of cardiovascular events in both legs. If the difference between the placebo and the statin is very small, then statins are highly ineffective.

"Relative Risk" is a measure of change. The Relative Risk is the appropriate measure when comparing the possibility of one event to another event, or the change between events – how much the intervention will help the patient's disease. Sample size is irrelevant. An example is comparing a country's skin cancer rates in 1980 vs 2010 – if the difference is significantly greater as a percentage in 2010, something is increasing skin cancer incidence.

Physician, mathematician and statistician, Dr John P.A. Loannidis, chief of Stanford University's Prevention Research Centre has been questioning the "massaged" pharmaceutical statistics. He claims people are being hurt and even dying because of false medical claims; not quackery, but errors in medical research. He says negative results sit in a file drawer, or the trial keeps hoping the results turn positive. With millions of dollars on the line, companies are loath to declare a new drug ineffective. As a result of the lag in publishing negative results, patients receive a treatment that is actually ineffective. He claims that from clinical trials of new drugs to cutting-edge genetics, biomedical research is riddled with incorrect findings.

The number of studies is said to be inversely proportional to the effectiveness of what is being studied. Publishing papers has become an end in itself, with the so frequent conclusion "more research is needed". There has been little medical advancement these last 10 years compared to, say, the great advances in computers. Apart from better diagnostic equipment designed by medical physicists and electrical engineers, medical advances pale in comparison.

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