OTHER JOURNALS IN BRIEF

A selection of abstracts of clinically relevant papers from other journals.
The abstracts on this page have been chosen and edited by John R. Radford.

ONCOGENESIS

PubMed Commons – Miguel Lopez-Lazaro examines the science in the following two papers:

Substantial contribution of extrinsic risk factors to cancer development

Wu S, Powers S *et al. Nature* 2016; **529:** 43–47 (in response to the paper)

Variation in cancer risk among tissues can be explained by the number of stem cell divisions

Tomasetti C, Vogelstein B. *Science* 2015; **347:** 78–81

Although smoking may not be the major contributor, this may tip the balance towards tumour formation.

Last year a paper was published in *Science* (2014 Impact Factor 33.611), that received considerable exposure in the public domain. It concluded that '"bad luck" of random mutations plays predominant role in cancer'. The investigators showed that when considering R-tumours (that comprise the majority of tumours including pancreatic islet, osteosarcoma and head and neck cancer, but head and neck cancer only marginally), 'primary prevention measures (altered lifestyles or vaccines)...are not likely to be very effective'. However, primary prevention may have a major impact on D-tumours. Such are the minority of tumours and include HPV-16 head and neck cancer.

In contrast, the key conclusion made by S. Wu, S. Powers *et al*. in *Nature* (2014 Impact Factor 41.456), which contested the *Science* paper, is that 'intrinsic risk factors contribute only modestly (less than ~10–30% of lifetime risk) to cancer development'. Intrinsic factors would be random and unavoidable DNA mutations. How can leading scientists who have had their research published in such high impact journals have such diametrically opposed views?

In PubMed Commons, a forum for encouraging 'constructive criticism and high quality discussions of scientific issues', Miguel Lopez-Lazaro argues 'the bad luck of cancer' theory is flawed; there is a distinction between 'stem cell divisions' and 'DNA replication mutations'. The division of stem cells is not a random process whereas the mutations arising during DNA replication are random and unavoidable. But then Lopez-Lazaro also challenges the modelling used by the investigators in the *Nature* paper; most cancer is not avoidable. Ageing gives rise to random and unavoidable DNA mutations, and is the most important risk factor for the majority of cancers. For example, the risk of lung cancer is over 600 times higher in people over 60 years of age than in those under 30 years of age, yet smoking, an extrinsic factor, only increases lung cancer risk by approximately 20 times.

Lopez-Lazaro makes the following point, albeit subtle: 'Preventing a small percentage of cancer risk may be sufficient to prevent a high percentage of cancer cases.' Put more simply, 'avoiding smoking prevents a high percentage of lung cancer cases' as smoking maybe the 'the straw that breaks the camel's back'.

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IMPACT FACTOR – GAMING

Is the impact factor the only game in town?

Smart P. *Ann R Coll Surg Engl* 2015; **97:** 405–408

'Not everything that can be counted counts. Not everything that counts can be counted.' William Bruce Cameron.

Editors of journals can use several ruses to increase the impact factor of their journal; they may decline to publish case reports that are generally less cited, yet may be tempted to accept review articles that can attract many citations. Another dodge is to hold back high quality papers from publication until the new year, in order to achieve as many citations as possible during the rest of that year.

The impact factor of a journal is the number of times each article, published over a two-year period, is cited during the one year after the two-year period. For example, if every article when taken as an average is cited five times over that year, then the impact factor is 5.

It is also assumed, that the quality of a journal with for example an impact factor of 40, is forty times 'better' than a journal with an impact factor of 1. But perversely, a paper that describes research that is flawed, or a paper that has indeed been retracted, may improve the impact factor of that journal if these papers are highly cited. Of note, the quality of a journal can be compared only with other journals in the same discipline. For example, mathematical journals may be of the highest quality but of low impact factor as there are few in that field who are positioned to cite such papers. And then, some journals are widely read but their readers may not write papers and therefore make citations. The impact factor is a reflection of the quality of the journal, not of that paper nor the investigator.

The scientific division of Thomson Reuters calculates the impact factors of journals. It uses its Web of Science™ database. But this database includes only about 20% of journals of which 90% are published in English. Thomson Reuters are only too aware on how impact factors can be distorted. As a consequence of excessive citations, 66 journals were not awarded an impact factor in 2013. There are many other ways of reflecting the quality of the journal. Google Scholar™ interrogates a larger database than Thompson Reuters.

Some journals use almetrics (alternative metrics) that include the number of tweets or blogs. The inclusion of social networking metrics may be particularly relevant as this may more reflect 'the actual impact that work has, whereas for pure science in the early stages of the translational pathway, probably citations are relatively fair' (personal communication).

The commentator also introduces the somewhat controversial measurement of *h*-index to rank scholars. 'This takes into account both the number of publications and the number of citations of an academic's published work.' But such may only be of interest to the 'insecure academic'.

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