Impact takes precedence over interest

Sir — Johannes Stegmann[1] presents an apparently simple method to calculate (not "evaluate") Journal impact factors (JIFs) for journals not receiving an official JIF through the *Journal Citation Reports* (JCR) of the Institute for Scientific Information (ISI). Unfortunately, there are some technical limitations to its applicability.

ISI's citation indexes include references to all kinds of bibliographical materials (also books and low-profile journals). An essential condition, however, is that these are cited by a controlled set of source journals. This implies that self-citations of non-source journals will not be included in the citation indexes. Although there is a lot of variation between individual journals, a substantial part of citations received are generally self-citations. In many cases the journals are their own single biggest source of citations.

Whereas for top-ranking journals receiving tens of thousands of citations the percentage of self-citations generally remains low, for a large part of the other journals a self-citation rate between 10% and 25% appears to be typical, especially when relating to the more recent years on which JIF calculations are based. So the total number of citations for constructing JIFs would be underrated to some degree. For example, deleting self-citations from the totals of the six source journal examples given by Stegmann would decrease their impact factors for 1996 by a minimal 1.7% (for *Molecular Medicine* which, having started in 1994, can be considered a special case) to a more substantial 12.9% (for *International Journal of Developmental Biology*). More impressive examples are easily found (for example, *Molecular and Biochemical Parasitology* 21.3% or *International Journal of Leprosy* 30%).

Calculating the number of source items per journal may also be more difficult than Stegmann suggests. If the exact number of source articles of a specific journal is included in the SciSearch database, then it is probably already an ISI source journal featuring a JIF. Databases such as Medline do not necessarily cover all their source journals completely (especially if their contents are multidisciplinary, as for example with *Nature*). And, as acknowledged by Stegmann, the criteria for counting source articles may vary in different databases. Besides, lots of journals are not represented at all in the major databases. So having physical access to these journals would often be a requisite.

Assuming that JIFs are appropriate value indicators for scientific publications[2], one may argue that an approximate JIF is preferable to nothing, even if both numerator and denominator are inaccurate. Apart from this issue, one should bear in mind that the somewhat inaptly named JIF indicates the average value of individual research articles judged by the journal they are published in, rather than the total impact of that journal. It would seem obvious that, when two journals have an identical JIF, if one annually publishes 2,000 papers and the other a mere 20, their overall impact on the scientific community cannot seriously be considered equal.

On the other hand, an important drawback of the unreserved attention being given to citation counts nowadays lies in the enormous gap between popular research areas (with many thousands of authors, papers and citations) and less popular research areas (with far fewer authors, papers and citations). To improve their status (and funding), the danger seems real that scientists would be tempted to neglect or abandon altogether the less popular research topics to the advantage of more rewarding ones. That might lead to an impoverishment of scientific knowledge in lots of domains.

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Challenges for vaccine institute

Sir — David Swinbanks[1] has succinctly outlined the political, fiscal, commercial and technical challenges faced by the Seoul-based International Vaccine Institute (IVI). Pending completion of the building of its laboratories, IVI is planning epidemiological studies of the burden of vaccine-preventable diseases, an assessment of vaccine requirements and clinical trials and field studies.

IVI must also concern itself with problems in the field for vaccines, therapeutics and diagnostics in Asia. There are alarming reports of large-scale theft and resale on the black market of expired and potentially toxic vaccines in Myanmar (formerly Burma). Nearly 10,000 doses of unrefrigerated vaccines were on sale in 1995. The vaccines were many months past the printed expiry date, had lost their potency and were toxic when injected into laboratory animals[2]. Moreover, the use of expired drugs is an established practice in many countries, such as Sierra Leone, that have no organized system for monitoring reaction to drugs[3]. Following the use of pre-tested blood for HIV with expired or improperly stored antibody screen reagents, the risk of HIV transmission in Zambia was at least six times as great as expected[4].

Such events would be the rule rather than the exception in the event of global warming because of climate change or the effects of El Niño. IVI should start field studies immediately to monitor different permutations of temperature, humidity, atmospheric pressure and air velocity in remote parts of Asia. These parameters should be monitored with appliances such as electronic loggers. Monitoring of vaccine storage temperature by such loggers in Adelaide, South Australia, showed inadvertent vaccine exposure to sub-zero temperatures as well as to temperatures of more than 22 °C (ref. 5).

The data compiled by IVI would be of immense value both to the institute itself and to its partners in the venture. For instance, the World Health Organization would be able to modify the established criteria for stability of vaccines, prophylactic and therapeutic, to ensure intact potency even in black-market sales of products past their use-by date. The manufacturers, in the West and elsewhere, could select products stabilized against the adverse environment described by IVI. Last but not least, the risk of an iatrogenic HIV spread during blood transfusion would be minimized through the availability of sturdy antibody assay kits. The frequent field exposure of IVI personnel before their premises are ready could significantly reduce the hostility of national/international manufacturers and funding agencies.

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