A WORLDWIDE ASSESSMENT OF MEDICAL JOURNAL EDITORS' PRACTICES AND NEEDS — RESULTS OF A SURVEY BY THE WORLD ASSOCIATION OF MEDICAL EDITORS

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Objectives. To identify editors interested in participating in a global organisation and communication network of medical editors; to assess current use of the peer-review process; and to determine current computer capabilities, needs, and interests of medical journal editors around the world.

Design. Mail survey of senior editors at 727 medical journals.

Setting. Fifty-seven countries worldwide.

Results. Two hundred and sixty-nine editors (37%) responded. Eighty-seven per cent of responding editors expressed interest in a global organisation of medical editors. Almost all editors (94%) reported using peer-review systems. Practices varied widely across journals, but in most cases were not highly correlated with the countries' level of development: 44% reported formal orientation for reviewers; 71% used specific instructions; 39% required reviewers to disclose conflicts of interest; 36% masked the identity of authors; and 42% graded reviews for quality. Seventy-eight per cent of editors reported using a computer in their work and 47% had Internet access; two-thirds of those without access expected to have Internet access within 18 months.

Conclusions. There was strong interest among respondents in a global organisation for medical editors. Peer review was widely reported by medical journal editors throughout the world, although specific practices varied widely. Half of the responding editors reported having access to the Internet, making participation in a worldwide computer network of editors feasible.

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The World Association of Medical Editors (WAME) was launched in 1995 at a conference of editors of peer-reviewed medical journals in Bellagio, Italy. The conference, supported by the Rockefeller Foundation, brought together 22 editors, physicians, and scientists from 13 countries to consider international co-operation among editors of peer-reviewed medical journals and to focus on the increasingly complex problems faced by editors in maintaining and improving the quality of published medical research. Poor knowledge of the peer-review process, varying standards in medical writing and editing, and inadequate support and training for new journal editors were thought to contribute to the obstacles and challenges confronting editors worldwide. Given that medical editors control the primary means for communicating the results of publicly funded research, WAME's objectives are to stimulate education and promote high editing standards and practices among medical journal editors, with the ultimate aim of improving the quality of medical science and practice.[1] A critical activity of the Association has been the development of an electronic communication network for medical editors, so that they may discuss goals and needs and share information, ideas, and solutions.[1,2]

As one of its initial activities, the Association surveyed medical journal editors around the world. The survey's primary objective was to identify medical editors interested in participating in WAME. Within this overall objective, the survey had three specific purposes: (*i*) to assess the level of understanding, awareness and use of the peer-review process in the conduct of biomedical research and publication; (*ii*) to determine the current computer capabilities, needs and interests of medical journal editors who might participate in a global communications network; and (*iii*) to assess the needs and concerns of medical editors in order to guide the structuring and function of WAME.

While other surveys have included limited populations of medical editors,[3-7] we did not find a previous report of a global sample of medical editors. Moreover, there seems to have been no attempt to assess either medical journal information needs and capabilities in developing countries, or the ability of medical editors to use electronic communication systems to advance peer review in these countries. We therefore undertook a worldwide survey of medical editors to determine their interest in a global organisation of medical editors and to describe the characteristics of the responding journals, their peer-review practices, and their computer and electronic communications capabilities.

METHODS

Sample design

While an estimated 16 000 medical journals are in publication,[8] no comprehensive worldwide list exists, making it impossible to use probability sampling to obtain a true representative

sample of our target population. We therefore used a two-stage convenience sample, employing a regional sampling strategy. In the first stage countries from major geographical regions were selected to represent broad cross-sections of the world geographically, culturally, linguistically, and socio-economically. Countries from the developing world, as defined by the World Bank,[9] included in the sample were selected because of their high level of development and/or importance as major regional influences in one or more of the following spheres: politics, economics, culture, technology, medicine, education, population size, and geography. Political and civil stability were also considered. A sample of industrialised nations, again using the World Bank definition,[9] was also included for purposes of comparison and because WAME's mission is to respond to the needs of all medical editors. Based on the above criteria, 37 developing countries in seven geographical regions, namely Africa, Latin and South America, the Middle East, Eastern Europe, South and South-East Asia, East and North-East Asia and the South Pacific, were selected for the survey, as well as 20 developed countries, making a total of 57 countries (see Fig. 1).

In the second stage, journals were selected from the 57 countries. The targeted sample size of journals was 700; this number was determined to provide a sufficient sample given the resource constraints of the project. Sample selection at the second stage was stratified according to level of development and population size of the country. The 37 developing countries comprised two-thirds of the targeted journal sample, with the remaining third consisting of journals from the 20 industrialised nations. We assumed a linear relationship between population size and the number of medical journals in a given country, and targeted for selection twice as many journals in countries with populations greater than 50 million than in those with populations under 50 million .

A global probability sample of medical editors would have been the most desirable method for selecting editors to participate in the survey. Since this was not possible, however, the driving rationale behind our selection method was the survey's overall goal of identifying and surveying editors who might be most interested in participating in WAME. Once the target countries were selected, therefore, we developed the final list of sampled journals from the following sources: (i) medical journals whose editors had expressed an interest in WAME in response to the Association's formation announcement; (ii) journals in the home country/region of each of the Bellagio conference participants; (iii) the ExtraMED Consortium list of journals and editors; (iv) databases of worldwide biomedical journals supplied by *JAMA*; and (v) journal holdings at the National Library of Medicine in Bethesda, Maryland, USA.
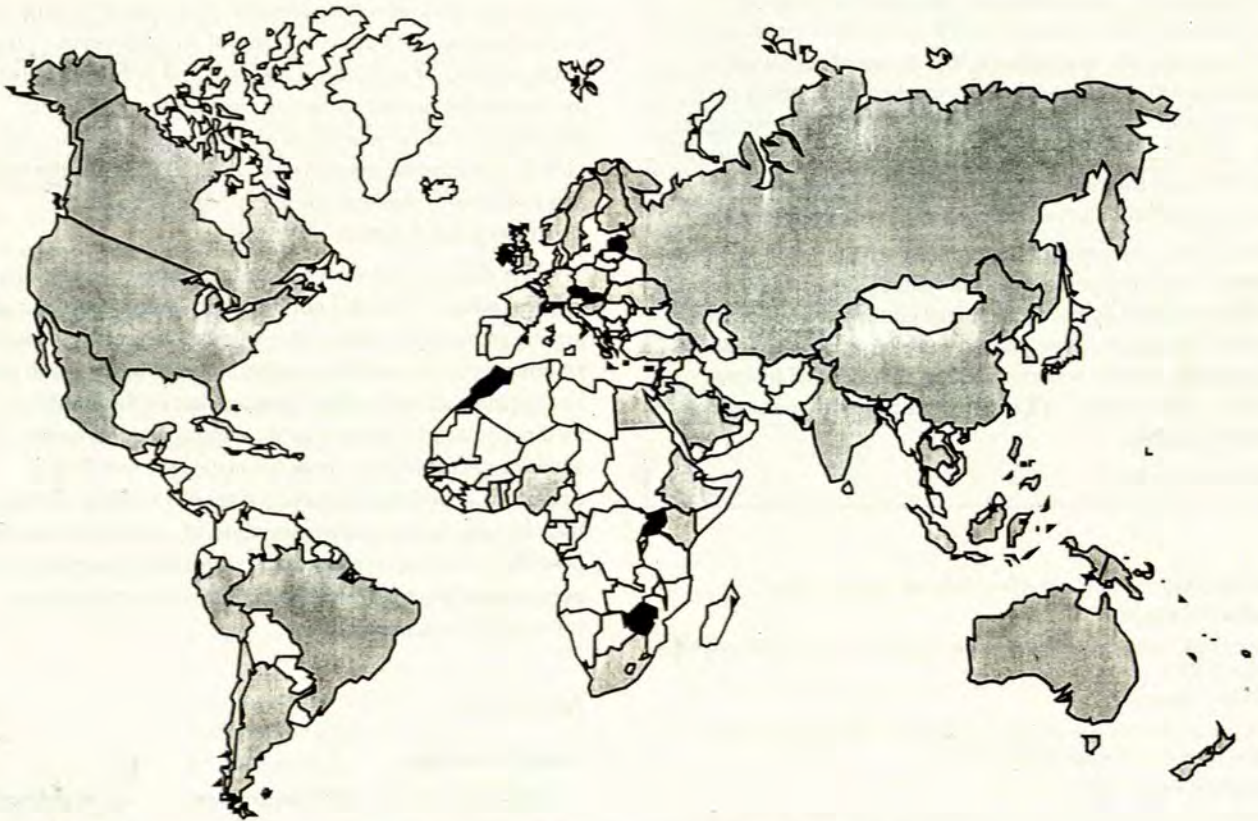

Fig. 1. Countries in survey sample (▨ = responding countries; ☐ = not surveyed; ■ = not responding).

We attempted to identify the targeted number of medical journals in each country and invited senior editors to participate in the survey. When unable to identify the requisite number of journals in a selected country, journal editors in similar countries from the same region were substituted where possible. The actual sample distribution varied somewhat from the targeted distribution owing to our inability to identify the exact number of targeted journals in each stratum. The actual sample contained 432 journals from developing countries (59%) and 295 journals from developed nations (41%), for a final journal sample size of 727.

Survey development and administration

In addition to questions about contact information and characteristics of the journal, the survey instrument was divided into three main sections: the editor's understanding, awareness, and use of peer review; the editor's computer and electronic communications capabilities, needs, and interests; and the editor's interest in an international association of medical journal editors. The final questionnaire contained 71 questions and was translated from English into Spanish, French, Russian, Mandarin Chinese, and German. (The final version of the survey instrument is available from the authors on request.) The questionnaire was distributed via first-class post mail to 93% of the sample and via e-mail to 7%.

Several methods were used throughout the data collection period to obtain a high response rate. A cover letter explained the background and purpose of WAME and the importance of participation in the survey. A second copy of the survey was sent to editors who did not reply to the first mailing. Seven WAME members in key geographical regions followed up with local non-respondents to encourage participation in the survey.

RESULTS

A total of 269 (37%) questionnaires were completed and returned: 79% of the completed questionnaires were returned by mail, 18% by fax, and 3% by e-mail. Six per cent of mailed questionnaires were returned by the post office as undeliverable. One hundred and twenty-five (44%) questionnaires sent to editors in developed nations and 144 (33%) questionnaires sent to editors in developing nations were completed and returned. While the response rate for developing nations was lower than that for developed nations, slightly more than half (54%) of the 269 responses received were from the developing nations, as they were sampled more heavily. Response rates among specific regions in the developing world represented by more than two journals ranged from 41% in the Middle East to 24% in Eastern Europe. Completed questionnaires were received from 78% of the developing countries and 95% of the developed countries in the sample (Fig. 1).

The majority of responding journals reported small

circulations, with 56% under 5 000 (65% in developing nations and 46% in developed nations) (Table I). Newer journals made up half of those who responded; 19% reported 10 years or less of regular publication. Approximately half of the editors reported publishing at last six times a year, with publication more frequent in the developed countries. Of 20 different publication languages reported, English was the most common.

Table I. Journal characteristics reported by editors (%)

Characteristic	All countries (N = 269)	Developing countries (N = 144)	Developed countries (N = 125)
Circulation size			
< 1 000	13	14	11
1 000 - 4 999	43	51	35
5 000 - 9 999	9	8	10
10 000 - 49 999	14	8	22
≥ 50 000	7	1	11
Years in publication			
≤ 10	19	19	18
11 - 30	31	31	30
31 - 50	23	26	18
51 - 100	17	16	18
> 100	9	4	14
Frequency of publication			
Weekly	4	1	8
Bi-weekly	4	3	5
Monthly	22	14	32
Bi-monthly	22	20	23
Quarterly	35	47	22
Bi-annually	5	7	2
Publication in English			
Abstracts	78	72	85
Full text	63	50	78
Solicits manuscripts for publication	60	60	60
Submissions published			
< 20%	8	4	12
20 - 39%	18	15	22
40 - 59%	28	24	31
60 - 79%	32	40	22
≥ 80%	13	16	10
Articles published			
New research	96	96	95
Reviews	94	94	94
Letters to Editor	76	65	88
Ownership			
Commercial	10	5	16
Society/association	70	68	73
Academic institution	5	6	4
Government/military	3	5	1
Other	12	17	6
Funding sources			
Advertisements	71	67	75
Subscription fees	77	71	84
Membership dues	39	31	49
Grants	17	24	10

Eighty-one per cent of editors in developing countries and 62% in developed countries published at least 40% of submitted articles. The vast majority of editors (95%) reported publishing new research and reviews, and 75% reported publishing letters to the editor. Most journals are owned by a society or an association. Advertisements and subscription fees were reported as being funding sources for 71% and 77% of the journals, respectively.

Peer-review systems were reported at 94% of journals. Peer-review practices varied widely across journals, but in most cases were not highly correlated with the countries' level of development (Table II). Forty-four per cent reported always offering formal orientation for reviewers, 71% used a specific set of instructions, 39% required reviewers to disclose conflicts of interest; 36% masked the identity of authors, and 42% graded reviews for quality.

Fifteen per cent of journals asked their reviewers to sign their reviews (25% in developing countries and 4% in developed countries). In both developing and developed countries, 41% of editors paid their reviewers. Seventy-five per cent of journals reported using editorial board members as reviewers, 75% used reviewers in their own country, and 55% used qualified reviewers in any country (68% in developing countries and 43% in developed countries). The extent to which external review was used varied according to submission type: 91% of editors stated that they used external review for new research, 64% used it for reviews, 22% for editorials, and 18% for letters. A higher percentage of journals in the developed nations used external review for all types of submissions than was the case in developing nations.

Access to external reviewers is easier in developed countries where 78% of editors reported easy access compared with 57% of editors in developing countries. Forty-four per cent stated that they always get statistical and epidemiological review when relevant, and an additional 45% said they get it some of the time. Overall, 95% of editors using peer review felt that the majority of their reviewers were competent. Journals reported that regular mail was by far the most common method used to send and receive manuscripts to and from reviewers, followed in order of use by fax, personal delivery, courier service and e-mail.

Seventy-eight per cent of responding editors reported currently using a computer in their work, while an additional 13% expected to acquire a computer within the next 18 months (Table III). In developing countries, 94% of editors reported either using a computer or expecting to obtain one in the near future and 61% reported that they were currently or soon to be connected to the Internet. Of those editors with access to the Internet, 99% reported access to e-mail and 82% reported access to the World Wide Web. Microsoft operating systems dominated both the developed and developing world.

Eighty-seven per cent of editors responded favourably to a global organisation of medical journal editors. Eighty-four per cent wanted access to a computer network through which they

Table III. Computer resources reported by editors (%)

Access	All countries (N = 269)	Developing countries (N = 144)	Developed countries (N = 125)
Currently use a computer	78	75	81
Expect to acquire a computer within next 18 months	13	19	6
Currently have Internet access	47	38	57
Currently accessible Internet tools			
E-mail	46	37	57
World Wide Web	38	27	50
Gopher	16	13	20
Foul transfer protocol (FTP)	14	8	20
Telnet	13	10	17
Expect to gain Internet access within the next 18 months	19	24	14

Table II. Peer-review practices reported by editors who have a peer-review system in place (%)

Practice	All countries (N = 245)		Developing countries (N = 134)		Developed countries (N = 120)	
	Always	Sometimes	Always	Sometimes	Always	Sometimes
Set instructions for reviewers	71	12	66	13	78	10
Structured reviewer checklist	67	10	60	13	75	7
Formal orientation for reviewers	44	21	52	19	36	23
Ask if reviewer is willing to review	29	38	33	46	25	31
Require conflict of interest disclosure	39	18	36	19	43	18
Mask identities of authors to reviewers	36	7	43	10	28	5
Give reviewers copies of other reviews of manuscript	25	30	14	30	37	30
Grade reviews for quality	42	34	44	36	40	32
Inform reviewers of manuscript fate	38	34	22	35	56	33

could communicate with medical editors from around the world, 76% wanted closer working relationships with other journals, and 75% wanted training for newly appointed editors. Editors in the developing nations were somewhat more receptive to international support than were editors in developed nations.

DISCUSSION

In this worldwide survey we found that a large majority of respondents (87%) indicated a need for a global organisation of medical editors such as WAME. Peer review is broadly practised, with 94% of editors reporting a peer-review system in place at their journal. However, specific peer-review practices varied widely and editors in developing countries reported less peer review than those in developed countries, as well as more trouble finding reviewers.

Most editors reported computer and Internet access, regardless of the region of the world. Seventy-eight per cent stated that they currently use computers and many others expected to have access in the near future. This level of access makes the feasibility of a virtual worldwide medical editor network promising.

The results of our global survey are similar to published findings of localised studies. We found a peer-review system among 94% of respondents, while a recent survey of North American medical journal editors found that 98% reported a peer-review system.[3] Despite widespread use of the term 'peer review,' however, there remains no universally accepted definition of the process in biomedicine.[3] It is important to note that the questionnaire did not provide a definition of 'peer review' — the interpretation of the term was intentionally left to the respondent for the purpose of gaining a better understanding of the varying ways in which the term is used by medical editors throughout the world. While the high percentage of journals with peer-review operations reported is encouraging, the varying standards of these operations is cause for concern. Our results suggest that variability in peer-review practices, documented by Weller for medical journals in the USA, is true worldwide.[7]

The major limitations of our study include the low response rate (37%) and the inability to use a probabilistic sample of editors. Survey research conducted at international level is extremely difficult because the targeted population is often not well defined, considerable language barriers exist, and it is difficult to make contact with survey subjects. To overcome these limitations we used multiple sources of medical journal lists, created a sampling frame that included all parts of the world, and translated the questionnaire into six languages. There were some inaccuracies and other problems in the sampling frame lists, which undoubtedly had a negative impact on the response rate. While 6% of the questionnaires were returned as undeliverable, we suspect that a much higher per cent of questionnaires never reached the intended recipient due

to out-of-date or incomplete addresses and poor mail systems in some countries. Moreover, at least 10% of the addresses obtained were those of the journal's publisher and not the editorial offices, and in another small percentage of cases we were not able to ascertain the name of the editor, only the journal office address. Additionally, language barriers may have adversely affected the survey's response rate, but the fact that 78% of the respondents reported publishing at least some of their text in English may have mitigated language problems. Finally, as with all surveys, self-report bias, recall error, and misinterpretation of question meaning may have affected our findings.

Because convenience sampling was used, findings from this survey cannot be generalised to all medical journals and editors. As stated above, however, the primary purpose of our investigation was not to survey a representative global sample of medical editors, but rather to use global sampling to identify medical editors interested in participating in WAME and in assessing the needs of the interested population. To this end, the survey results suggest that a sizeable number of medical editors around the world welcome greater interaction with other editors. The need for quick and easy access to information on all aspects of the complicated process of editing medical journals is critical for a successful, high-quality publishing operation. A global electronic network of editors may provide a low-cost vehicle to meet this need and improve worldwide journal quality.

The economic development of countries around the world is promoting increased medical research. In this atmosphere, new attention is needed to ensure that medical journal editing everywhere results in publication of the highest quality medical research. The WAME survey results demonstrate that many medical journal editors around the world are interested in collaborating to achieve this goal.

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