ICMJE Guidelines on Uniform Requirements for Manuscripts Submitted to Biomedical Journals:
Some practical problems and possible solutions

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A small group of general medical journal editors first met informally in Vancouver British Columbia in 1978 with the objective of establishing guidelines for the format of manuscripts submitted to their journals. Later on this became known as Vancouver Group. Its requirements for manuscripts including formats for bibliographic references developed by the National Library of Medicine were first published in 1979. With the passage of time this group expanded and became known as International Committee of Medical Journal Editors. It meets annually. International Committee of Medical Journal Editors (ICMJE) [1] is not an open membership organization. Over the years the ICMJE has broadened its concerns to include ethical principles related to publication in biomedical journals.

Since 1978, ICMJE has produced multiple editions of Uniform Requirements for Manuscripts submitted to Biomedical Journals. The entire uniform requirements were revised in 1997. Then sections were updated in 1999, and May 2000. In May 2001 the ICMJE revised the sections related to potential conflict of interest. In 2003 the entire document was again revised and reorganized by the ICMJE. The latest revision was prepared by the committee in July 2005.[2] These recommendations are based largely on the shared experience of some editors and authors and are a collective

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effort over the past many years. Primarily it was intended to help authors and editors in their mutual task of creating and distributing accurate, clear, easily accessible reports of biomedical studies. It can also be helpful to reviewers, publishers, the media, patients and their families, and general readers with useful insights into the biomedical authoring and editing processes. Journals which agree to use these Uniform Requirements are encouraged to state in their instructions to authors that their requirements are in ccordance with the Uniform Requirements and to cite this version. The objective of these uniform requirements was that it will improve the quality and clarity of reporting in manuscripts submitted for publication to any journal besides offering ease in editing.

Preparing a Manuscript: These guidelines provide adequate information for the authors how to prepare the manuscript for submission to biomedical journals. It covers general principles, details about the Title Page, Conflict of Interest, Abstract and Key Words, Introduction, Methodology, Results, Discussion and References. Details are also provided about Tables, Illustrations, and Legends for Figures or illustrations, Units of measurement, abbreviation and symbols. While submitting the manuscript to the biomedical journals, it must be accompanied by a covering letter and a Letter of Undertaking confirming its exclusive submission to that particular journal and willingness to pay publication charges if the respective journal has such a policy. If the manuscript had been earlier submitted to another journal and was rejected, it is helpful to include previous editor and reviewer's comments along with the author's response to those comments as it will help expedite the review process faster.

Authorship: These ICMJE guidelines have clearly laid down the criteria for authorship. The authorship credit, it says, should be based on the following:

1. Substantial contributions to conception and design or acquisition of data, or analysis and interpretation of data.
2. Drafting the article or revising it critically for important intellectual content.
3. Final approval of the version to be published. The authors are supposed to meet these criteria spelled in conditions 1, 2 and 3.

In case of large, multicenter group has conducted the study, the group is supposed to identify the individuals who accept the direct responsibility for the manuscript. These individuals should fully meet the criteria for authorship. Other members of the group are usually listed in acknowledgements.

All those who help in acquisition of funding, collection of data or general supervision of the research group do not justify authorship. Similarly all those whose contributions do not meet the criteria for authorship should be listed in acknowledgment.

Role of the Editor: The editor of a journal is the person responsible for its entire contents. Editors must have full authority for determining the editorial contents of the journal. The editors who make final decisions about manuscripts must have no personal, professional or financial involvement in any of the issues they might judge.

Problems faced by Editors: Editing a peer reviewed medical journal particularly in less developed countries is a very arduous and stressful job. The editors are faced with numerous problems which includes substandard quality of submissions, financial constraints, non-availability of good quality peer reviewers, duplicate submissions and so on. [3]

This 32-page guidelines prepared by the ICMJE is a the most comprehensive document. If any journal can follow them in totality it will be ideal but as we know, ideal is not all the time feasible and practical in less developed countries faced with lot of financial constraints and lack of other facilities, resources. The ground realities are absolutely different in this part of the world. Hence biomedical journals from these countries should strive to follow them as much as possible.

Medical Writing in most of these less developed countries is not so well established and majority of the writers do it under compulsion to meet the requirements of selection or promotion. This too has picked up during the last ten years when institutions like Pakistan Medical and Dental Council and more recently Higher Education Commission has made it compulsory for faculty selection and promotions.

As stated earlier, the main objective of these Uniform Requirements by the ICMJE is to improve the quality of the manuscripts. Many national organizations in various countries have similar objectives when it comes to scientific research and medical writing. For example in Pakistan, the Pakistan Medical and Dental Council has tried to do that but could not achieve the desired objective because of half hearted efforts. At present it has recognized over forty medical and dental journals but a large number of them are no more published regularly. It also produced its own guidelines for biomedical journals which is a copy of the ICMJE guidelines. Even the PM&DC website is not updated regularly as regards its policy for medical and dental journals. [4,5]

On the other hand, Higher Education Commission has a much stricter and most comprehensive Proforma which is used for recognition of biomedical journals. HEC website gives the necessary details regarding criteria for HEC approved journals. The journals are required to fill in this detailed Proforma and submit it along with list of editorial board, peer reviewers and latest copies of the journal for the past two years for scrutiny before the journal is approved. [6] HEC phrased definition of the HEC recognized journal/journal of international repute is as under:

"A journal published regularly, having diverse editorial/advisory board, peer reviewed by at least two reviewers (including one international) and abstracted/index internationally".

Ground realities and some solutions

In order to find a possible solution to some of these problems regarding lack of uniformity in the light of ICMJE guidelines on Uniform Requirements for Submission of manuscripts to biomedical journals, one has to know the ground realities and the practical problems which may be different in different countries. Based on our experience in Pakistan, we suggest the following measures which we hope can improve the situation to some extent.

1. Many biomedical journals published by various institutions have its head listed as the Editor-in-Chief though in practice, he or she may not be contributing anything. Similarly a critical look at the Editorial Boards of various journals will reveal that they have many names just as *"Show Pieces."* A journal is only as good as its Editorial Board and Reviewer's data base and how committed they all are. This is one of the main reasons for the not so good standard of many journals. This problem can be resolved by making the head of the institution as Patron while the Chief Editor and the Managing Editor should consist of committed individual with experience in this field. Similarly the membership in the Editorial Board may be made a tenure post and those who have no time or do not show any interest, may be replaced after two to three years. This tenure should be communicated to the members of the Editorial Board in writing to avoid any misunderstandings later.

2. Publishing and editing a journal is a team work. To ensure successful timely publication, it is essential that there is some minimum full time staff. Professional specialty organizations publishing their own jour-

nals after selecting an Editor should not think that their job is over. Members of these organizations must themselves contribute, help and assist the Editor in all possible ways to see that the journal is published on time on regular basis. If they won't contribute their own manuscripts to their journal, how they can expect others to submit manuscripts to such journals.

3. It is not uncommon to receive manuscripts with a long list of authors although it is not difficult to find out that the name of many such authors have been added just to oblige colleagues or please the unit, head of the department or institution. Editors are helpless even though they know that many among the authors do not qualify authorship criteria, but there is no way they can ask the authors to limit their number. This situation can be overcome to some extent. If the editor has strong suspicion that some of the listed authors in the manuscript do not meet the authorship criteria, he or she can ask the corresponding author to provide details of the contribution by each of the listed authors. It can also be suggested that those who cannot be authors but have helped and assisted in some ways, should be covered in the acknowledgement section.
4. Editors of various biomedical journals in respective countries can meet and formulate their own recommendations to have a uniform policy within the framework of Uniform Requirements by ICMJE. For example now it is considered essential to have a structured abstract for all original manuscripts. But a careful look at various biomedical journals published from Pakistan will reveal that they lack uniformity. Even in the structured abstract, different journals have different format. In view of the shortage of space and brevity, the structured abstract could consist of just four sections which are now being practiced by most of the renowned journals in various countries. It can cover objective, methodology, results and conclusions with appropriate Key Words. They can also formulate guidelines regarding categorization as well as length of manuscripts which they will accept for i.e. Original article, Reviews, Case Reports, Special or Brief Communications, Case Series, Letters to the Editors etc. At present every journal has its own policy and there is no uniform agreement. If these and other related issues can be discussed and resolved with mutual agreement at least among the leading national medical and dental journals, it will come as a great help for the authors as well.
5. Every country should have a National Body for recognition of biomedical journals to ensure quality of manuscripts and standard of the

journals. Its membership should consist of people who themselves have the experience of medical writing and editing. In case these bodies lack this expertise, they should not hesitate to seek guidance and assistance from some medical editors which will be helpful in formulating and implementing this policy. In Pakistan this job can be entrusted to Higher Education Commission if the PM&DC fails to overcome its shortcomings.

6. Some lectures on basic principles of medical writing and how to plan, conduct study should be included in the undergraduate medical curriculum. A few private medical institutions and private medical universities have already started that. Until this is accomplished, a few lectures on the subject of medical writing to final year medical students will go a long way in sensitizing them. Some of them may get interested and become good writers.
7. Government agencies should provide funding and logistic support in organizing seminars, hands on workshops on medical writing, research methodology, peer review and training of the editors. Most of the editors in these less developed countries including Pakistan have had on the job training over the years. Not many can afford to go overseas to attend training courses and workshops. Hence, holding such hands on workshops by utilizing the available local talent will be extremely helpful not only for the authors but reviewers and editors as well. Pakistan Medical Journalists Association has been active in this field and with its limited resources, it did organize seminars on medical writing in various institutions all over Pakistan besides Workshops on Peer Review system which were attended by a large number of editors, reviewers and referees affiliated with various biomedical journals. The Conference on Medical Editing was an activity, an effort in the same direction. Such academic activities needs to be further strengthened.[7, 8]
8. Better cooperation and coordination among the editors helping each other, learning from each other's experience through regular regional, national and international meetings will also be helpful in overcoming some of these problems.
9. If possible sponsorship for editors to attend training courses overseas should be arranged. For this financial assistance from various agencies like WHO, UNICEF, Pharma Industry and different Foundations can also be looked into. Many experienced editors, organizations and institutions organize such training courses overseas on regular basis.

International Network for the Availability of Scientific Publications (INASP) is one such organization. It has also published a manual for the Hands on Workshops for the workshop participants which the editors will find quite informative and useful.[9, 10.]

10. Once the above are accomplished successfully, it will definitely improve the quality and standard of biomedical journals published from these less developed countries besides achieving the objective of having some local uniform requirements for submission of manuscripts to their biomedical journals. It will then help in their Indexation with the reputed Indexing, Abstracting services which is the desire of every medical journal. This will automatically increase the visibility of these journals to a much wider international readership.

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