REVIEW

Successful publishing: How to get your paper accepted

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a Surgical Oncology, Editor
b Lung Cancer, Editor
c Cancer Treatment Reviews, Editor
d Critical Reviews in Oncology Hematology, Editor
e The Breast, Editor
f World Journal of Surgical Oncology, Editor

Abstract
Medical science is rapidly evolving and an incredible number of publications are being published. Are they all worth reading? Authors are deemed responsible for what they put down in writing; whether they are first or corresponding author, it really makes no difference. Editors of peer-reviewed international journals have agreed to share their views with the readership, in order to optimise the quality of contributions as well as to assist junior colleagues in their editorial efforts. Starting from an historical perspective, ethical issues in publishing are discussed and technical suggestions on how to get the final draft accepted for publication are outlined. Contributing towards medical science is a great pleasure to be experienced and shared.

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As science rapidly evolves more experience is being accrued in clinics, operating theatres and in the laboratories. It is our responsibility to keep the scientific community updated with the results and advancements in science, to avoid others repeating the same experiment, wasting time and public money and set aside the ground for further advancements of science. Summarising our experience in a biomedical article is our duty: research is not been completed until the results have been published. This is particularly relevant when the research has been publicly funded.

Besides, most academic institutions are inclined to reward those scientists who produce the best research with career advancements. Hence, publications play a crucial role in the allocation of grants and academic progress.

The rejection of a manuscript is a frustrating experience and is mostly due to poor experimental design (lack of hypothesis/aims, poor recruitment or small sample size, short follow-up, un-justified or lacking conclusions, or when the text is simply incomprehensible). Other frequent reasons for manuscript rejection are failure to conform to the target journal, insufficient problem statement, methods not described in detail, over-interpretation of results, inappropriate statistics, confusing presentation of tables and/or figures, conclusions not supported by data, and poor review of the literature.

Several other articles have been published addressing this point [1—9] and we would like to contribute to this debate in order to support the contributors’ efforts to get their scientific data considered for publication and remembered through out the years.

**Respect**

Clinical scientists are overwhelmed by 2 million biomedical papers published every year by almost 20,000 journals: reading 5500 new papers/day is certainly an impossible target. It is crucial to avoid wasting the reader’s time.

For this reason the publication of meaningless or previously published data should not be attempted; this is different from conducting confirmatory studies and sharing such findings with the bio-medical community. It was previously stated that ‘’You don’t write because you want to say something, you write because you have something to say’’ [10]. It is in the interests of Editors and Publishers to publish scientific articles, hence clinical scientists should feel encouraged to put their observations in black and white. Unfortunately, when the time comes to put fingers to the keyboard, young investigator tend to imitate their elders in a culture of ‘’bad writing’’ that is contagious and self-perpetuating [11]. Similarly, experience tells us that too many papers are written to serve the need to publish rather than the need to communicate new data [12].

**Ethical issues**

The Committee on Publication Ethics (COPE) published a document called Guidelines on Good Publication Practice [13] providing clarifications on study design, data analysis, authorship, conflicts of interest, peer review, redundant publication, plagiarism, duties of editors, media relations and advertising.

This is a must-read document for all those who are involved in any editorial activity. Similar suggestions have also been provided by the Committee on Publication Ethics (ICMJE) [14], the Swiss Academy of Medical Science [15] and the European Science Foundation [16].

It is unethical to make up the data and then submit it for publication. This is a relatively rare event: in the last decade, there have been about 50 cases of misconduct among basic science research sponsored by the National Science Foundation and 137 cases of misconduct among biological and medical research financed by the National Institutes of Health. The Foundation finances about 20,000 projects per year, and the Institutes finance twice as many [17].

On the other hand, the theft of someone’s words or thoughts (i.e. plagiarism) has long been a concern in medical literature. Several situations of plagiarism have been pointed out since the 17th century: there is the case of Cowper glands [18], and the discovery of lymphatics by Olof Rudbeck [19]. There is nothing new here as Ptolemy, Galileo, Newton, and Mendel have been accused of plagiarism by modern scientists re-examining their data. Pythagoras has been called a systematic plagiarist who stole all his knowledge from Egyptians. "One might say that it takes no courage to accuse the giants of the past. In contrast, it would take great courage for a victimized young academic to act against a senior who plagiarizes". "The phenomenon applies to unreferenced published or unpublished data that belong to someone else, including applications for grants and a publication submitted in a different language. Other acts of plagiarism are paraphrasing without crediting the source, using ‘‘blanket’’ references, ‘‘second-generation’’ references, and duplicate or repetitive publication of one’s own previously published work." [20].

Although fraud is a serious offence in scientific publishing, wasteful publication is more frequent and may be more damaging. Wasteful publication includes dividing the results in a single study into two or more papers (‘‘salami publications’’); republishing the same material in successive papers (in different format and content); and blending data from one study with additional data to extract yet another paper that could not make its way on the second set of data alone (‘‘meat extenders’’). Wasteful publication is extremely damaging because of its economic implications for publishers, readers, libraries, and indexes [21].

Clinical practice presents us with interesting cases; these might be presented and discussed—the discussion
may be enriched with a review of the literature. Generally speaking, case reports have little scientific interest as no evidence-based lesson can be retrieved. Some journals like Surgical Oncology have taken the editorial decision not to consider case reports or anecdotal observations because of the lack of scientific content and dilution of the impact factor (no. of papers cited/no. of papers published) [22]. Any case report submission listing a disproportionate number of authors is looked upon as suspicious.

The layout

Since its origin in 1665, the structure of scientific papers has undergone substantial changes (Table 1) because the form and the style were not initially standardised: the letter and the experimental report coexisted. Letters were usually single authored, written in a polite style, and addressed several subjects at the same time. The experimental report was descriptive and the events were often presented in chronological order. Reporting experiments evolved to a more structured form in which methods and results were incipiently described and interpreted, while the letter form disappeared [23].

Method description developed during the second half of the nineteenth century and an overall organisation known as “theory—experiment—discussion” appeared. In the early twentieth century, norms began to be standardised with a decreasing use of the literary style. The formal established Introduction, Methods, Results, and Discussion (IMRAD) structure was adopted [24,25].

Every Journal showed slightly different patterns of compliance but, starting in the 1960s, the British Medical Journal, Lancet, JAMA and New England Journal of Medicine almost entirely adhered to the new format, leading the way for other medical journals to follow.

The IMRAD structure facilitates modular reading, because readers usually do not read in a linear way but browse in each section of the article, looking for specific information, which is normally found in pre-established areas of the paper [23].

Table 1  Origin of the scientific paper

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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<tr>
<td>1665</td>
<td>First “modern” scientific papers</td>
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<td></td>
<td>Form and Style not standardised:</td>
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<td></td>
<td>• Letter: single authored, polite style, addressing several subjects</td>
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<tr>
<td></td>
<td>• Experimental report: purely descriptive, events presented in chronological order</td>
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<td></td>
<td>Papers evolved to a more structured form; Methods and Results were incipiently described and interpreted, while the letter form disappeared</td>
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<tr>
<td>1850s</td>
<td>The ‘Methods’ description developed, an overall organisation known as “theory—experiment—discussion” appeared</td>
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<tr>
<td>1900</td>
<td>Norms began to be standardised, decreasing the use of the literary style</td>
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<tr>
<td>1980s</td>
<td>The formal established Introduction, Methods, Results, and Discussion (IMRAD) structure was adopted:</td>
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<tr>
<td></td>
<td>• facilitates modular reading</td>
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<tr>
<td></td>
<td>• readers may not read in a linear way but browse in each section</td>
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<tr>
<td></td>
<td>• looking for specific information</td>
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<td></td>
<td>• found in pre-established areas of the paper</td>
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More recently, with the advent of electronic submission and publication, editorial activity has been significantly revolutionised. As migration from print to electronic is taking place at an ever increasing pace, English has become the universal language for international medical journals. Electronic publication does offer several substantial advantages: (a) the whole literature can be reached globally and (b) can be assessed when and where most convenient to the reader; (c) searches through the content are extremely simple and less time consuming; (d) articles are rapidly published (average of 6 weeks for Elsevier Journals) and the dissemination of new data through the community is fast; (e) concurrent utilisation is now made possible and several readers can assess the same piece of literature at simultaneously.

Taking this short historical background into account, there is no right way to write a biomedical paper, but it is absolutely crucial to respect this well established format. Whether the authors like to start on a piece of paper or straight from the PC is up to personal preference. Extensive editing is better avoided at this early stage: polishing up notes clashes with the flow of thoughts. Editing will come next: it is surprising how many drafts will be produced by the end of the process, bearing in mind that the shorter and more concise is the paper the more likely it will be considered for publication; most Journals will not accept papers that are longer than 2500—4000 words.

Randomised clinical trials are in high demand by scientific journals as they are consistent with the highest level of evidence (level 1i double blinded; 1ii non double-blinded) [26].

Unfortunately, such reports are scanty because they are often expensive or not always feasible, limited by ethical issues, or biased. Most published papers can be included in category 2 (nonrandomised controlled clinical trials) or level 3 (case series: 3i population-based, consecutive series; 3ii consecutive cases—not population-based; 3iii non consecutive cases). In any case, the criteria set out by Sir A. Bradford Hill, the godfather of controlled clinical trials, are relevant here as well. The key questions are: why did you undertake your investigation? What did you do? What was your finding? What does it mean? This translates
into Introduction, Patients (or Material) and Methods, Results, and Discussion, respectively (see Table 2). The Introduction should be straight to the bone and should substantiate why the investigation was worth undertaking. Excessive introductions usually mean that the author is anticipating the discussion or part of it.

The Patients and Methods section should state all the details of the observed population and the methodology the authors have used, but nothing more. Usually, some of these data can be presented in a table for the sake of clarity; however duplication of observations in text and tables should be avoided. This section often presents the Inclusion Criteria which reassure the reader that the findings are not biased by an uneven selection; the Exclusion Criteria are needed to justify that the selection was safe. If reporting on randomised or blinded trials, the method of randomisation and/or blinding (single/double) should be reported here. A Statistical paragraph is often part of this section. The increasing statistical complexity of research published on surgical journals [27] can frustrate the reader; nevertheless, basic knowledge about biostatistics and study design is pivotal in the assessment of scientific findings. Authors should be familiar with caveats relevant to the proper interpretation of surgical research [28].

Results should be stated as clearly as possible; once again one or more tables (or figures) can be useful to assist the reader (and the reviewer) in better grasping the message. Tables and figures should stand on their own and their titles (or legends) should be self-explanatory. Abbreviations should be spelled out individually and added at the bottom of the table (footnote). Please make sure that individual figures are associated with percentages (%). The lack of statistical significance ($p < 0.05$) should be spelled out and the exact $p$ value should be given rather than quoting

<table>
<thead>
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<th>Table 2</th>
<th>Reasons for rejection</th>
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<td><strong>The Issue</strong>—study did not examine an important issue</td>
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<td>• Review literature thoroughly before getting started</td>
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<td>• Introduction: describe background and clearly state the research question</td>
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<td><strong>The Journal</strong>—study is of no interest to the targeted Journal</td>
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<td>• Carefully read the Journal’s aims</td>
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<td>• Target Journals with a specific interest in the subject you analyze</td>
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<td><strong>Originality</strong>—same or similar study already done</td>
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<td>• How your research adds to the literature?</td>
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<td>• Bigger sample size, better methods, different population (e.g. ethnic/age groups, gender)</td>
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<td>• One or two confirmatory studies might be of interest; any others are superfluous</td>
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<td><strong>Layout</strong>—sloppy draft</td>
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<td>• Check spelling of names, and format</td>
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<td>• Check consistency of tables with text</td>
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<td><strong>Poor English</strong>—paper unreadable</td>
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<td>• Keep sentences short</td>
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<td>• Run a spell check</td>
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<td>• Involve a medical writer (an English speaking colleague would be even better) when drafting the final version</td>
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<td><strong>Study design</strong>—inappropriate study design was used</td>
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<td>Use the study design as appropriate to your research question and apply the traditional evidence hierarchy:</td>
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<td>• Level of evidence 1: Systematic reviews &amp; metaanalysis</td>
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<td>• Level of evidence 2: Randomised Clinical Trial (RCT)</td>
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<td>• Level of evidence 3: Cohort study</td>
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<td>• Level of evidence 4: Case-control study</td>
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<td>• Level of evidence 5: Cross-sectional survey</td>
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<td>• Level of evidence 6: Case report</td>
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<td><strong>Sample size</strong>—size is too small</td>
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<tr>
<td>Before study begins, perform power calculation to determine sample size needed to detect a statistically significant effect</td>
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<td><strong>Control</strong>—Study was uncontrolled or inadequately controlled</td>
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<td>Clearly explain how systematic bias was avoided or minimised</td>
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<tr>
<td>• Selection bias: Intervention &amp; Control Groups were evenly selected</td>
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<td>• Performance bias: Intervention &amp; Control Groups were/were not exposed to same intervention</td>
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<tr>
<td>• Exclusion bias: Intervention &amp; Control Groups were exposed to the same follow-up</td>
<td></td>
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<tr>
<td>• Performance bias: Intervention &amp; Control Groups were evenly monitored for same outcome</td>
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</table>
NS (non-significant). As G.D. Murray stated "non significant findings often reflect a lack of evidence rather than a lack of difference" [29]. More tips on this can found in a recent contribution by D.L. Steiner [30].

The Discussion should be clear, sharp and direct. Length does not translate into quality, rather it translate into confusion. Remember that the DNA discovery was summarised and published as a one page letter [31].

The Conclusion is the most challenging section to write and it should only be attempted once the rest of the manuscript is complete. It is at this stage that a patient process of editing and polishing may take place. If in doubt, try applying the Gunning Fog Index as follows:

1. Take a full passage that is around 100 words (do not omit any sentences).
2. Find the average sentence length (divide the number of words by the number of sentences).
3. Count words with three or more syllables (complex words), not including proper nouns (for example, Dji-bouti), compound words, or common suffixes such as -es, -ed, or -ing as a syllable, or familiar jargon.
4. Add the average sentence length and the percentage of complex words (e.g., +13.37%, not simply +0.1337).
5. Multiply the result by 0.4.

The complete formula is as follows:

\[ 0.4 \times \left( \frac{\text{words}}{\text{sentence}} + 100 \left( \frac{\text{complex words}}{\text{words}} \right) \right) \]

While the index is a good indication of reading difficulty, it still has flaws; never the less scores may range between 5 (very easy) or 6 (easy to read) to 14 (difficult) or 16 (very difficult to read) [32]. As an example, the following two paragraphs add up to 9 according to the Gunning Fog Index.

Language should be simple and plain. Communicate clearly and succinctly to assist your reader in understanding and remembering your article. Concentrate only on hard findings and never bring your personal thoughts into discussion if they are not directly generated by your analysis.

It is crucial to avoid misunderstanding: every single sentence should be carefully appraised. An enlightening read is the booklet by Lynne Truss, *Eats, Shoots and Leaves: The Zero Tolerance Approach to Punctuation*. It will definitely assist you to challenge your writing [33].

It is highly advisable to complete the discussion (and the whole paper) with a strong and clear bring-home message. Ambiguous comments such as "further experience is needed..." are usually not well received by the reviewers, although they may actually be conclusions at times.

Reference list: This should include sufficient information regarding the current knowledge, in order to support the authors attempt to move forward with their investigation. The list of referenced articles needs to be absolutely relevant. This may also assist the authors to identify the journals which are more likely to be interested in publishing the final paper.

Authors list: It has been noted that the number of authors listed in articles reporting on randomised and nonrandomised studies has increased over time, even after adjusting for the topic, size, and visibility of a study. The academic income of authorship may be suffering from this inflation [34]. Issues of authorship include multiple authorship, misconduct among co-authors, guest and honorary authorship, order of authorship, and credit for those not qualifying for authorship.

Conflicts of interest, in which financial and personal considerations may affect the investigator’s personal judgment and bias the paper, can seriously damage the integrity of the author and of the journal [35]. Many journals, including *Surgical Oncology*, now require authors to submit a statement disclosing any actual or potential conflicts of interest, which is published as part of the paper.

Signing a scientific paper is like patenting your thoughts. Clinical and scientific progress, as well as grant funding, has become extremely competitive and the number of publications is often taken into account. Appropriate assignment of authorship is crucial for researchers and the public. A lack of knowledge is confirmed by Dhaliwal [36] who clearly demonstrated how the majority of authors from an academic institution were not fully aware of basic criteria of authorship. All persons designated as authors should qualify for authorship and should be listed as having taken responsibility for appropriate segments of the final manuscript. For this reason, several biomedical journals have introduced statements which disclosure the contribution of each author as a way to limit irresponsible authorship [14]. A significant difference in the number of named authors who do not meet ICMJE criteria for authorship has been reported in journals with different contribution disclosure practices [37].

Interestingly, the structure of the contribution disclosure form seems to significantly influence the number of contributions by authors of submitted manuscripts and their compliance with the ICMJE authorship criteria [38]. It is for this reason that *Surgical Oncology, Cancer Treatment Reviews, Critical Reviews in Oncology Hematology, Lung Cancer, World Journal of Surgical Oncology and The Breast* have chosen to accept only those manuscripts which are prepared in accordance with ICMJE guidelines.

This is not to condemn extensive lists of authors in principle, as the increase in the number of authors per article is apparent all across scientific journals in relation to complexity of research [39].

It is important to be aware that the authors commit themselves to what appears in the text and their statement stands in the present as well as in future years (either for or against them). After publication the authors expose themselves to the appraisal of the scientific community; it is not infrequent for the Editors to receive letters from expert readers which discuss the paper and may also be published.

It is advisable to take great care in providing accurate affiliations and contacts: these few details will be published on PubMed and will be the link with the scientific community for future. Adding an e-mail address will allow scientists from all over the world to contact the authors for consultations, peer reviewing, lecturing and so on.

The authors will now have to summarise the whole paper into a sharp and convincing Abstract. This usually has a word-count limit. Words must be finely chiselled and the structure finished with the greatest care. The abstract is what most readers will scroll through and reviewers will
base their decision primarily on this section. An interesting paper with a bad abstract may be rejected.

Finally, a great effort should be made to phrase the Title. This should clearly and accurately address the content and be as eye-catching as possible. A similar level of care should be devoted to stating the key words list, in order to facilitate retrieval between the huge number of published papers and pin-point the literature search.

Selecting the right Journal is crucial. This decision should be based on the type of research (experimental, clinical, epidemiological) presented, on the intrinsic value of the paper and on what the authors want to achieve. If the material presented is absolutely original, innovative and methodologically outstanding the authors might prefer a high impact factor journal; on the other hand, if they wish to have their findings quickly published, they might consider a journal with a lower impact factor and a lower rejection rate.

Other criteria for selecting the right journal are specific journal’s interest on the topic or methodology and specific expertise of the editorial board on the topic; when similar articles were recently published on the preferred Journal the authors might be discouraged to pursue this.

Unless the article is extremely poor, it would seem meaningless to publish it in a journal with no impact factor or which is neither indexed in international databases like PubMed, Embase or Scopus etc., nor in national or regional indexing services like Indmed, African Index Medicus, Helis, JSTOR etc.: such an untraceable and invisible publication would never reach the scientific community and would probably not impact on future research.

The English

Complying with the home style and strict regulations of the modern electronic submission may help authors to homogenise their submissions; this is intended to make the final issue more clear and pleasant to read. Electronic submission guidelines are to be religiously followed simply because the article will never reach any reviewer if not structured as requested.

Accurate editing is crucial: sloppy submissions with substandard layout, grammatical and punctuation errors, inaccurate referencing and confusing format are considered with suspicion.

Between 1992 and 2001 4061 journals published 3.5 million publications in 23 different languages: of which 96% were in English [40]. Writing in English enhances the visibility of your research.

Numerous suggestions for better scientific English have been summarised by Tychinin [41] and a mini-guide to better English presented. There is redundant literature on this topic and it is worth reading such recommendations [42–44].

A catalogue of suggestions is presented by Derish [45,46] to assist the English-speaking writer, but non-English speaking authors will take little advantage out of it.

Most non-English speaking authors are able to read and understand the English scientific literature. The opposite is more difficult: writing in good English is crucial in delivering the message clearly and un-ambiguously. To this purpose translators have often been employed. Although their English may be excellent, their scientific knowledge relative to the subject is often limited; hence, the final manuscript is not sufficiently clear. Some translators have a scientific or medical background and specialise in medical writing. As their expertise often comes at a high price, it is reassuring that some publishers are prepared to assist authors from non-English speaking countries by editing the manuscript, provided this is considered worthy of publication by the Editorial Board.

Non-English speaking authors should not be discouraged as their efforts are not pointless: Hayden recently proved how the readability of articles published by the British Journal of Surgery was lower when English was the first language of the principal author [47].

A revolutionary modern approach, only theoretical so far, was recently presented: constructing papers using substantial numbers of direct quotations from already published biomedical literature; a patchwork of quotations from the literature, linked and extended by few sentences presenting the new data and findings [48]. This “component-oriented” method of constructing scientific articles is advocated by Bruce G. Charlton, Editor-in-Chief of Medical Hypotheses.

It is the reviewer’s job to find the quickest way to drop the submission into the reject pile and not coping with the format facilitates his/her job.

Bring home messages

Write with your readership in mind—undergraduates, nurses, PhDs etc.

Imagine you have to pay for every single word you write: keep it short. Content comes first, lay out second: on special occasions, when the submission is exceptionally valuable, Elsevier may be available to amend the text and improve the final layout.

The process of conducting clinical/basic research can only be fully understood after experiencing the process of writing a scientific paper; oncologists are very good at that.

Choose your journal wisely and carefully.

Take advantage of the reviewers’ constructive criticisms and be prepared to reshape the manuscript from A to Z, even if this entails re-writing it or even re-conducting statistical evaluations.

Don’t get frustrated if the manuscript is rejected. Any attempt to reshape the draft and re-submit it to a different journal is always better than dropping it into the bin. Try, try and you will succeed.

Happy writing!

Acknowledgement

The authors would like to thank Sarah Jenkins, Publishing Editor, Elsevier Ltd., for her valuable comments and continuous support.

References

[34] Papatheodorou S, Trikalinos TA, Ioannidis JP. Inflated numbers of authors over time have not been just due to increasing research complexity. J Clin Epidemiol 2008;61(6):546–51.