

## GUIDES TO UNDERTAKING RESEARCH

### 6.1 Manuscript Writing Skills

The findings and insights gained in the course of a project have to be communicated to others in an acceptable style and format, which is why scientific manuscript writing is an essential skill. While there is some room for creativity, manuscripts are for communication and (despite appearances) are not fun to write. The conventions of the published scientific manuscript have evolved over centuries and gained universal acceptance as a superbly flexible vehicle for describing all the relevant aspects of piece of scientific work in a compact manner. The only sure way to master this writing skill is through many hours of practice and constructive criticism. While that is happening, here are some useful points to consider.

#### *Styles of writing used in a manuscript*

It is useful to think about a piece of medical or scientific writing in terms of its style characteristics or parameters. There quite a few of these, but the most important would include:

- **Journalistic vs dry scientific style.** A highly journalistic piece of text has a colloquial or even gossipy style, with interjections of opinion, interesting diversions, human interest points and phrasing chosen for colour and impact; it is easy to read. A dry scientific style has none of these features, so has tightly linked sentences and focuses directly on factual detail and interpretations directly arising from these details. It has high precision, but can be hard to read. Most scientific manuscripts are towards the dry end, whilst narrative reviews may flirt with the journalistic style in parts.
- **Text density.** Highly dense text, particularly used in abstracts, packs in as much as physically possible and shaves off any non-essential words. Comprehension suffers with high density so structure and clarity are crucial. High density text is often but not always seen with a dry scientific style. Scientific manuscripts, aside from abstracts, need to be in the middle of the density scale.
- **Degree of specialism.** How many jargon and technical words to use without definition is important and needs to be matched to the expected audience. In addition, specialist fields have common conceptual assumptions and accepted types of phrasing and description that must be adhered to, but they do make it hard for the non-specialist.
- **Text complexity.** This is usually defined as reflecting the number of long words in the text. As a rule this should be reduced as much as possible in medical/scientific text, but is usually high.

#### *Starting manuscript development*

To decide roughly on the style needed it is important to read articles from the journal where the manuscript is targeted. Most strictly scientific

original research articles have a similar style and structure, but outside this category there is a lot of variation. Once the style details are decided, the first step is to define the focus of the article, which

for an original research article or systematic review is a specific and tightly defined research Question. If data analysis is involved this must be prepared first as everything else hangs around its interpretation.

Once the writing is underway it can first be sketched out in a rough way, then gradually that text must be fleshed out, clarified and revised many times until it approaches something readable. At that point ask others to give criticism and, when it is given, accept it with grace and take it seriously as an opportunity to improve the manuscript.

### *The story*

Having a narrative that gives a structure to the central points of your manuscript will help give it clarity and make it more engaging and easier to read, all major objectives. The components of the work should be described in a sequence that brings out that story, but note that this is not usually in a rigidly chronological order of events as they happened at the time. Bear in mind that a narrative can be powerful for what it leaves out, as much as what it includes, so omitting trivial detail and relegating extra or negative information in the supplementary sections can help greatly.

### *Figures*

If the manuscript is based on data shown in figures, the construction of those figures and the sequence they are put will determine the structure of the manuscript, so it is good to decide that early on.

### *Clarity*

A manuscript is an exercise in communication, above all. Thus, care is needed with grammar, sentences that are short with consistency of descriptors, preference given to concrete words (rather than abstract highfalutin' Latinate circumlocutions) and without undue overuse of adjectives. In the end, other people are the arbiters of clarity, so it is wise to have this checked by other people.

### *More about clarity*

Keep sentences below 3 lines, if single column A4 is used. Use reasonably short paragraphs that contain linked ideas and link paragraphs where possible to keep the flow of the narrative. Try to sound precise and slightly fussy in details. It is best to avoid being long-winded without very good reason.

### *Data*

Data presentation is an art itself and should be carefully thought through and discussed with mentors. Again, the key is good communication, so if a table or graph does not help the interpretation (i.e., if it does not bring out the feature of interest) then it should be changed or perhaps dropped. However, high impact always trumps fancy presentation, so a boring bar graph is often good enough if it makes a simple point. Data tables have the advantage of range and completeness of data presented, but this is more accepted in some fields than others. Where complex data does not inform it is often best to move it out of the way to a supplementary data section and accessible to those interested.

### *Repetition*

Repetition (with rephrasing) is a useful writing tool in manuscripts, where a major topic or factor is introduced, then discussed, then a conclusion is achieved. Nevertheless, repetition must not be overused, so points and arguments that are not central to the enterprise should not be repeated.

### *Be mindful of who will review it*

Any manuscript will be reviewed by a peer or editor of the journal. Experience here is really the key, so help is required from someone who has it. Answering reviewer critiques is an art in itself which takes time, much suffering and good anger management. Key points to remember with reviewer replies are to be unfailingly polite, answer questions directly and do not take too much

nonsense even if you must courteously maintain a pretence that the reviewer is not a complete clown.

*Publication and manuscript submission*

This is a complex process and always takes much longer than you think. Always rigidly adhere to the journal Guide for Authors regarding subject scope, length, structure and formatting. A letter to the

editor is required when submitting to explain why they should publish your work, and this letter writing should be taken seriously.

*The pat on the back*

If your manuscript is accepted for publication, well done. It is no small feat even for a small paper.

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