How to make a scientific poster: a guide for medical students

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What is a poster?

A scientific poster is a popular method of presenting research findings succinctly at meetings and conferences. On a poster, which is usually designed on a computer using a programme like Microsoft Powerpoint, you summarize your research project using a mix of text and diagrams/images. You will then need to get your poster printed and take it to the meeting where it is to be presented.

Why should I make one?

A poster allows you to condense the aims, methods, results and conclusions of your research into a portable form of presentation. It also allows interested peers to understand your research in your absence, simply by reading through your poster.

Presenting your research in the form of a poster at meetings or conferences can also boost your CV as it shows potential employers that you are motivated and creative.

Before making a poster

Posters are usually made specifically for presentation at certain conferences or meetings after submitting an abstract of your research to the meeting organizers. Therefore you will know the audience you will be presenting to, which should give you an idea of the level of detail you should include.

Before making a poster, check with all the colleagues with whom you did your research whether they are happy for you to make a poster about it, if they are happy for their name to be included on it and if they have any suggestions for the poster. Keep them involved when designing the poster – if you ask nicely they may even let you use their diagrams/figures.

How do I make a poster?

Specifications

Start by checking what the conference organizers want – they will usually specify what format your poster should be in for their conference e.g. **A1 portrait** or **A0 landscape**. It is important to adhere to these specifications as organizers may refuse to let you put your poster up if it does not match their

specifications. Also, if the posters are being judged, you don't want to be disqualified from the competition simply because your poster was the wrong size or orientation!

In Powerpoint, you can make the poster on a single slide. You can set the slide according to the specification by clicking on the 'Design' tab and clicking on Page setup. If you need to make A0, A1, or A2 posters, you will need to enter the length and width measurements manually.

Layout

Now that you have the correct size and orientation, you can think about the layout that you want. At their simplest, posters should contain a title, a list of author names and all the sections you might expect to see in an abstract or a standard scientific paper: background, aims, method, results and conclusions.

But a scientific poster is more than simply a condensed version of a paper. The poster will need to catch the reader's eye, be laid out in an intuitive way, contain enough detail to leave the reader with a sense of having understood the subject yet not excessive text so as to bore them and have diagrams to allow the reader to visualize concepts.

Think carefully about how you want to arrange the sections of your poster: will your information flow better if you arrange it horizontally (i.e. in rows) or vertically (i.e. in columns)? Where will the figures go?
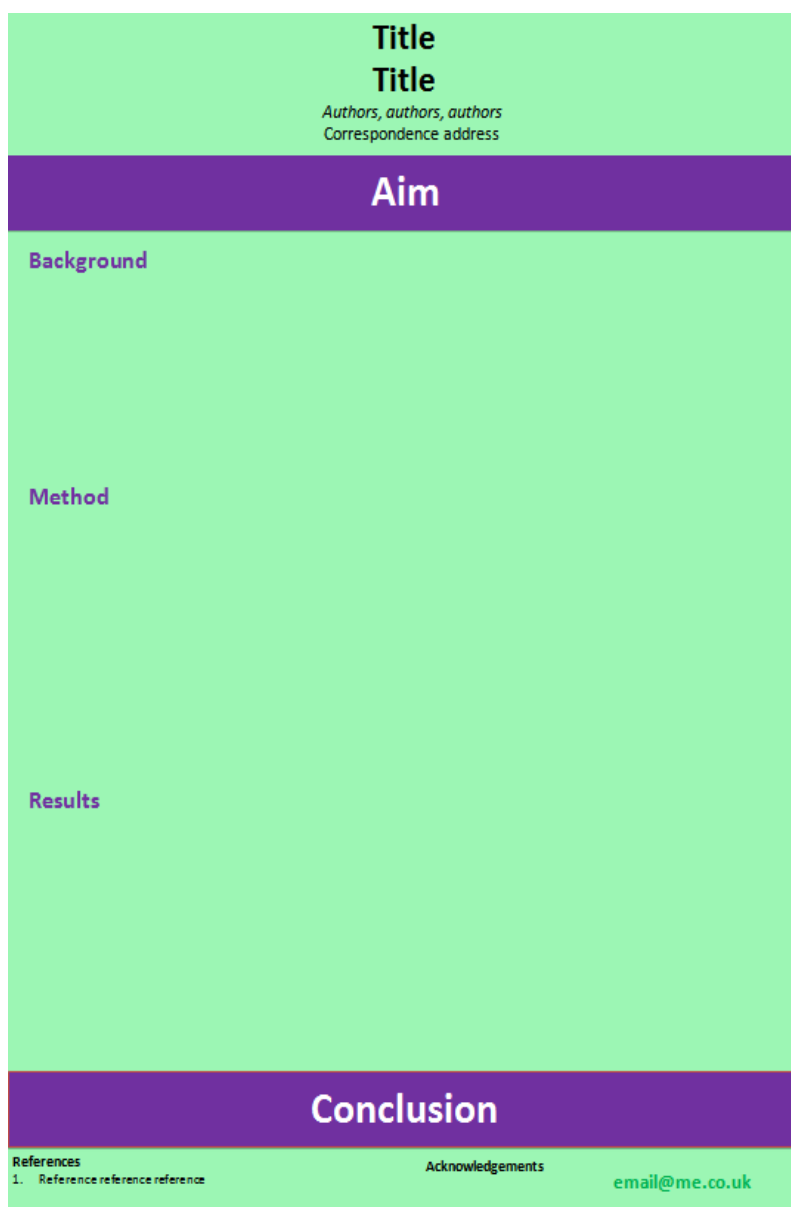

Figure 1 An example of a poster layout. The designer has made the aim and conclusions section of the poster stand out clearly in order to allow the reader to quickly skim through the information.

Title

Title

Authors, authors, authors
Correspondence address

Background

Method

Results

Aim

Conclusions

References
1. Reference reference reference

Acknowledgements

email@me.co.uk

Figure 2 In this example, the orientation is landscape. This orientation can be complemented by arranging the information in columns; however this is not necessary.

It is not good practice to use dark backgrounds since this uses up a lot of ink and adds in the extra task of adjusting text and figures to contrast with the background in order to make them legible.

Similarly, extremely bright font colours and odd font types can be difficult to read quickly and are therefore best avoided. It is best to use tried and tested font types such as Arial, Verdana, Calibri, Tahoma, etc. (but NOT Comic Sans!). A black (or dark) font on a light background is perfectly acceptable and involves little or no extra effort towards making the poster legible.

Content

Perhaps even before you have thought about the layout of the poster, you may have thought about what you want to put into the poster.

It may be important to think about your audience before you start selecting the content of your poster. Will your poster need to be detailed (for an audience that is more familiar with the subject of your poster) or will it need to explain the subject with a more general approach? Will the posters be marked (i.e. for a competition), and by whom?

For general scientific meetings or student conferences, it may be appropriate to reduce the

amount of fine detail that you put into your poster and focus on giving a clear explanation of the background of the research, so as to make it more accessible to the delegates. You might also want to re-christen long scientific names with something simpler (e.g. "Reverse transcriptase 3421-X" becomes "Rev"). In contrast, for meetings which are specifically about a niche subject, you could include details about exact methods and results at the expense of the background that delegates may already be familiar with.

Putting yourself in your audience's shoes, think about how they might like concepts explained to them. Posters are ways to get ideas across and while some people may prefer to *read* these ideas, a lot of people consider figures a better way to transmit information efficiently.

So even if writing elaborate descriptions of your background or methods may seem easier than designing artwork to illustrate them, you might do your research a disservice if all that your poster contains is text! Creating artwork will help you not just for your poster; you could also recycle the same artwork for any oral presentations or papers that might come out of your research.

Figures should match the description or any agreed definition of the concept that you are trying to depict. You can check if your figure is an accurate depiction by asking your supervisor to review it.

In order to allow people to skim through your poster and get an idea of your research, text should be kept to a minimum – summarizing what you want to say into a few words can be very difficult, especially if you think excluding certain crucial pieces of information may leave readers confused about the subject. However, your figures should help clarify the subject – what the text doesn't specify, the figure should, and vice-versa.

Background/Introduction: This can consist of a few sentences about the subject of your research. Consider including a figure or two explaining your background in pictorial form.

Aim/Objective: This is probably the most important part of the poster as it will tell the reader what you were hoping to achieve from your research. Make this as clear as possible.

Method: This section may often take up a lot of precious space, especially if you have to describe novel tools or tests. At the very least, the *process* of your project (i.e. the sequence of events, number of trials etc.) can be summarized in a flow diagram – this may take some effort to design but it will save you space and may actually be easier on the eyes.

Results: This is the 'juicy' bit of the poster that everyone looks at first(!). This is where you would include any graphs or results tables. All graphs, including the axes, need to be adequately labelled – the vertical axis is best labelled with a horizontal-reading label rather than a vertical-reading one which would require one to tilt one's head to understand it. It may also be a good idea to redo your graphs in Microsoft Excel or any other program that lets you keep the background of graphs clear and gives you the option of removing grid lines which can be a hindrance when trying to interpret a graph. p-values that are relevant to the graphs can be included directly on graphs (as a text box) rather than within the caption or elsewhere, in order to make it easier for the reader to spot them.

Conclusion and implications: This should typically be one or two sentences. When presenting your poster, you should spend some time explaining the implications of your findings to the listeners as your ideas may help change practice or generate further research. You might even consider including a section on the limitations of your study, but again this will take up space and are probably best included in the verbal discussion with the listener that you will have whilst standing next to your poster.

Don't forget to include a list of references and acknowledgment (of funding and other support, and also the names of people whose work your study may have been based on). Also, remember to include your e-mail address in a clear large font somewhere on the poster, so people can e-mail you questions/comments if you were not physically there to speak to them. It may also be a good idea to print several copies of your poster on A4 paper and pin these up beside your poster, for interested peers to take home with them for further perusal.

After your poster is finished

After you have completed a draft of the poster (and before you send it for printing), ask a friend or colleague to review it. This is crucial as what you think looks good may not be easy on someone else's eyes or read as clearly as you had hoped. Ask your reviewer to specifically comment on the design, layout, legibility of information and clarity of the poster.

Also try to practice presenting your poster orally to anyone who will listen – usually, the presentation should be about 5-7 minutes with a further five minutes for questions. This is important because it is your verbal discussion of your project that will leave a lasting impression on listeners (including judges!) more than your poster itself.

Printing the poster

Printing companies can offer a range of options which may be confusing at first. After you have selected the size and orientation that you want your poster in (double-check that your poster has also been designed with the same specifications!), the printers may ask you whether you want it laminated and/or encapsulated.

Lamination adds a plastic sheet to the poster to give a shining effect. There are two main types of lamination – matte and gloss. **Matte** finish is useful if your poster has images that need to look clear. There is less of a glare; however the poster as a whole may look 'dull'. **Gloss** finish is shinier (similar to magazine paper) and may be better for fine detail. Lamination does not protect your poster from fingerprints, scratches or the weather.

Encapsulation is what we colloquially refer to as 'lamination' i.e. encasing the poster in plastic in order to protect it from wrinkling and from rain.

Key points

- Check with your project supervisor and research colleagues before submitting an abstract for a conference or meeting.
- Check the conference's rules/guidelines on posters – are there any specifications you need to be aware of?
- When designing your poster, avoid brightly coloured text, dark backgrounds, unnecessary images or animations.
- When planning your poster's content, minimize the textual descriptions. Use figures to explain concepts if possible.
- Make your aim and conclusions very clearly visible and understandable.
- Ask a friend to review your poster after you have made it. Practice giving a short oral presentation of your work.

Suggested external resources

1. How to make a Scientific Poster by Fiona Tasker:
   http://student.bmj.com/student/view-article.html?id=sbmj.f297
2. http://www.posterpresentations.com/html/helpdesk.html
3. Example of a bad scientific poster: http://colinpurrington.com/2012/example-of-bad-scientific-poster/