How to make a successful poster?

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A poster is a visual way of presenting your results. However, it is NOT an abstract of your work or a part of a full-published paper. The content of a poster must correspond to the abstract you submitted to the conference or congress. Your poster should address a single problem or issue.

The information in your poster:

- should be concise, consistent, factual and comprehensible – the content should be self-explanatory
- need not discuss the whole issue in detail
- should be presented mainly through images – graphs, illustrations, tables.

Reduce your text to the minimum sufficient to introduce the topic, explain the graphics and state your conclusion(s). The poster should not be overloaded. A good balance is about 40% free space, 30% text, and 30% figures and tables. Keep the number of colours down to the minimum you need to distinguish the different groups/treatments.

If you want to include anything that has been published elsewhere you will need to obtain permission from the copyright holder. If you want to include references in your poster, check the Instructions to Authors. Some congresses or conferences prohibit the use of references on posters. If you are allowed to include references (and you think it is necessary), keep them to a minimum (5 should be enough).

The congress/conference will probably tell you how to present the poster number, the title, the authors and their affiliations. It is a good idea to include the name and date of the conference, especially if you intend to display the poster in your own institution after the conference. You should also make sure that your e-mail address is somewhere on the poster. Do not include the Abstract on the poster unless the organisers insist that you do. Including a photograph of yourself or co-authors can help people identify you if they want to ask questions. Your poster should attract participants' attention, but in a balanced, moderate way – it's a scientific poster not an advertisement.

Elements of the poster

Important! All the elements should be clearly visible and legible from a distance of two metres.

Arrangement of a poster

Before you start you will need to know the dimensions of the poster and what the orientation will be – portrait (vertical) or landscape (horizontal). Check the Instructions for Authors. European congresses usually specify portrait and American congresses landscape.

Text boxes on a poster

Write the text in simple, plain language, without needless adjectives – it's a scientific poster not a work of high literature. Keep the number of words to a minimum. Make sure that your vocabulary is consistent and precise throughout. There is no need to repeat in the text information what you present in Tables or Figures. Simply indicate where the information is, e.g. '…the study included 267 patients (Table 1)…' You do not have to use complete sentences – bullet-point lists are very useful. Bullet-point lists:

- are easy to read quickly
- simplify comparisons
- provide a logical structure.

A bullet-point list comprises a 'stem' followed by a number of short phrases, each of which is preceded by a symbol called a 'bullet'. Make sure that each statement makes grammatical sense after the stem.

Using Abbreviations

- Keep the number of abbreviations to a minimum.
- Some commonly used abbreviations can be used without defining them (e.g. SI units).
- Always define an abbreviation the first time you use it, e.g. by giving the full name followed by the abbreviation in brackets.

Text Format

- Your word count should not exceed 500 –even 250 could be sufficient.
- Your body text should be legible from 2 m – letters 1 cm high should work.
- Some people say that sans serif fonts, e.g. Arial or Helvetica, are more legible than serif fonts such as Times New Roman.
- You can use bold or italics to emphasise important elements. Avoid using underlining or capital letters for emphasis (note that some congresses specify that the name of the presenting author be underlined).
- Make use of text boxes – these can have coloured ('tinted') backgrounds.
- Use a single line space between paragraphs.
- Regardless of the size and orientation of the poster, text should have about 50–60 characters per line and 6–8 lines per paragraph. Reading very long or short lines can be tiring and uncomfortable.
- Use left justification ('ragged right') rather than full justification. Ragged right may look more untidy than fully justified text, but is easier to read.

Tables

Tables are excellent for presenting large amounts of detailed numerical data, e.g. when characterising groups or summarising several outcomes.

- You should think carefully about which data are best presented in tables and which in graphs or charts.
- Keep your tables as simple and clear as possible.
- If you want a table to describe the groups under investigation, it is probably best to present the outcomes in columns, with the group names in rows.
- If you want the table to describe outcomes, list the variables you measured in the rows and present the outcomes in columns.
- It is easier to understand tables if you present the outcomes from the study group(s) first and the outcomes from the control group next.
- A table with group characteristics does not necessarily need statistics of significance.

- When you are comparing values between groups, always give the probability. It is sufficient to summarise these to p<0.05, p<0.01 or p<0.001 rather than reporting the exact probabilities. Arrange these as close to the values they refer to as possible.
- Arithmetic precision (number of decimal places) depends on the magnitude of the variable under investigation. For example, HDL-cholesterol concentrations can be rounded to two decimal places, whereas height (in cm) can be rounded to a whole number). Similarly it is pointless to report a value as 14,193,201 – 14.2 million is usually sufficient. It also depends on the topic of the study and the sizes of the differences between groups. The smaller the differences, the more precisely the results should be reported.
- Outcomes should usually be presented with greater precision than the descriptions of the groups under investigation.
- By convention, standard deviations and standard errors of the mean are usually given to one more decimal place than the means they refer to.
- Remember to:
  o either give the sizes of groups in tables describing the groups or give the group sizes in brackets under the names of the groups e.g. (n=XXX)
  o include the units for the variables (using the correct SI abbreviations)
  o explain how the data are presented, e.g. mean (standard deviation, standard error of the mean or 95% confidence interval), or median (90th percentiles)
- Keep lines ('rules') to a minimum. Avoid vertical lines to separate cells and only use horizontal lines if necessary to separate different blocks of rows. It's a good idea to type the titles of the rows and columns in bold or in a slightly larger font than the data.
- You can highlight important data by using a different font colour or background colour
- Titles of rows should be left-justified, especially if they are of different lengths, while columns names and data in the table should be centred. It's a good idea to centre the text vertically in cells
- The table legend should start with a title that describes the table clearly and comprehensively.
- You can provide further information to help the reader interpret the table in a footnote underneath the table, e.g. probabilities (by convention it is usual to use * to represent p<0.05; ** to represent p<0.01 and *** to represent p<0.001).

Table describes examined groups.

	N	Age (years)	Weight (kg)	Height (cm)
Women with Nanism	45	44 (8.9)	46 (3.2)	138 (8.2)
Healthy women	67	48 (10.2)	68 (6.4)	164 (15.1)
Men with Nanism	69	51 (9.0)	62 (10.1)	154 (7.0)
Healthy Men	86	54 (11.4)	92 (15.1)	181 (18.2)

Outcomes are given as an average (standard deviation).

Table presents outcomes (comparison between healthy population and group of patients).

	Women with Nanism	Healthy women	P	Men with Nanism	Healthy Men	P
Age (y)	44	48	NS	51	54	NS
Weight (kg)	45.8 (3.23)	68.1 (6.38)	<0.001	61.9 (10.08)	92.4 (15.14)	<0.001
Height (cm)	138.1 (8.23)	163.9 (15.12)	<0.001	154.3 (7.03)	181.4 (18.19)	<0.001

Table presents outcomes (comparison between healthy population and group of patients).

Graphs

- Graphs are an excellent way of presenting important results
- Graphs are not particularly good for presenting detailed information – tables are better
- Graphs should be as simple as possible.

The choice of graph type depends on:

- The type of statistical variables, e.g. nominal (categorical) or ordinal (discrete or continuous)
- The importance of the results – the most important results should be presented in the clearest manner

The most common types of graphs:

- Bar charts are ideal for showing frequency distributions of nominal or discrete data, e.g. gender distribution in different experimental groups: in absolute terms (i.e. numbers of women and men), in relative terms (i.e. the proportions or percentages of women and men). Remember that if you use percentages, the sum must be 100%, and that the maximum on the y-axis is 100%. The numbers or percentages go on the y -axis, and the categories on the x-axis.
- Pie charts are a good alternative to bar charts for showing relative values or ratios
- Histograms are a useful way of showing frequency distributions of continuous variables, e.g. the numbers of patients in different age groups.
- Cumulative frequency plots make it easy to assess the proportion of the group relative to the whole sample. For example, multistage subjective clinical assessments of outcome (pronounced deterioration, deterioration, no change, improvement, pronounced improvement).
- Line graphs are the best way of showing how one variable changes with respect to another (usually time). You can display several lines on one pair of axis – use a different colour for each line and make sure there is a clear key to explain what each line represents.
- Sometimes it can help the viewer if you add numerical values to your graphs. You can also show groups sizes, but be careful that you don't over-complicate the chart
- More detailed information about the selection of graph types can be found in many statistics textbook.
- Label the axes – horizontal labels for both the x- and y-axes are best for posters.
- Show statistical probabilities – by convention, *represents $p<0.05$, ** represents $p< 0.01$ and *** represents $p< 0.001$. Make sure that you explain any symbols in a key or in a footnote under the figure.
- Use the same colours for the same groups in all your graphs.
- Choose your colours carefully and make sure that they are compatible with but distinct from the background colour.
- Avoid unnecessary lines, e.g. borders round legends or keys.
- The title of the graph should describe the graph clearly and intelligibly.

Figures

- Where you place your figures is important; badly placed figures can make a poster difficult to understand.
- The legends to figures should be concise, but provide all the information a reader needs to understand the figure without having to read the body text.
- Figures should be as large as possible and of high quality – you should be able to read the essential details from 2 m
- Pictures should be cropped to eliminate irrelevant elements.
- Key details should be identified with arrows, circles, or line boxes in a contrasting colour.
- Make sure the quality of pictures is the highest possible, but avoid extravagant designs.
- It's a good idea to leave a free margin (about 2 cm) around figures to make them stand out from the rest of the poster.
- The format, colour and graphical elements should not distract the observer from what you want to communicate.
- Remember, however, that if you include a figure, graph or picture that has already been published you must obtain permission from the copyright holder (even if it's from one of your own publications), and you must cite the reference or the author (e.g. reproduced with permission of XXXX; Smith AB, J Unexpected Results 2010;12;123–5).
- Use a light background for dark pictures and a dark background for light pictures. Remember that white backgrounds decrease the impact of colours – a light grey (neutral; e.g. 40%) background is good for colour pictures.
- Rooms for poster sessions often have strong fluorescent lights that can make your colours look different. If colours are crucial for showing your result(s), test your poster first with similar lights and adjust the colours until they look right
- Some colours can be strengthened by fluorescent lights. Bright, saturated colours (pure colours with no admixture of white or grey) can look unpleasant. Try to avoid them.

Background and layout

- Many institutions have a standard template for posters (layout, fonts and colours and weights of fonts, background and lines, and logo). If your institution has such a template, use it.
- If there is no template, when you design your poster you should take account of the type and amount of information you want to display, aiming to make the most important information stand out from the rest.
- A uniform, restrained colour scheme with clearly contrasted elements works best.
- The background (dark or light), however, must not predominate. The background should be uniform and should not contain any distracting patterns or images. If it is essential that you include some element in the background (e.g. a watermark showing a logo), it should be toned down (no more than 10 or 20%).
- Use dark font colours on light backgrounds and light font colours on dark backgrounds.
- Use light backgrounds for dark pictures and dark backgrounds for light pictures. Remember that white backgrounds decrease the effect of colours in pictures – a light grey (neutral; e.g. 40%) background is good for colour pictures.
- If you intend to include a log, it's best to put it in the upper right or upper left corner, but there are no clear rules (but check the conference organiser's Instructions to authors).
- It is a good idea to stick to one design for all your posters – you will find it gets easier to make posters as you get more familiar with the template and visitors to congresses will learn to recognise your posters.

Parts of a poster

Title

- The title should be clear and concise and should contain your most important conclusion. It need not describe how or what you did. Instead of "Evaluation of the effectiveness of drugs A and B in the treatment of coronary artery disease" it would be better to use "Drug A is more effective than drug B in the treatment of coronary artery disease" or even "Is Drug A better than Drug B in coronary artery disease?" The title is often the only part of a poster that is read by participants of the congress.
- The title should be written in a simple, large font (about 5 cm high) and should be legible from 5–7 m. This is Times New Roman 220 points: Text.
- Before you decide on the font and point size, check the conference organiser's Instructions to authors as they usually stipulate the size of font for the title and authors' names.
  - o You can centre the title or left-align it. However, avoid using the full width of the poster to get the whole title on one line; it's better to use two or more lines leaving reasonable margins (but check the Instructions to authors).
  - o If the title is short (not more than one line of text), it can be written in upper case (capital letters – TITLE OF MY POSTER). If your title is more than one line always use lower case (sentence case – Title of my poster) or mixed upper and lower case (title case – Title of my Poster), but check the Instructions for authors.
  - o You can make the title stand out by using a bold font but avoid underlining.

Authors

- List the authors in order in which they appear in the study. List them one after another, on one or more lines. The first author is usually the one who has done most of the work, and the last is usually a senior professor who consults and advises.
- The name of the presenting author should be highlighted (e.g. underlined), especially if not the first author.
- It is usual to just give the names of authors but not their professional titles. Sometimes conference organisers ask you to include the most advanced qualifications of authors.
- After each name you should include a superscripted number that corresponds to the author's affiliation (see below). Authors from the same institute should carry the same number.
- The names of authors should be written in a smaller font than the title.

Affiliations

- The affiliation is the department and/or institution from which the authors come.
- The list of affiliations should be in the same order as the list of authors and should appear below the list of authors, after a suitable space.
- The institutions should be numbered consecutively: the numbers corresponding to the number after each author's name.
- You do not have to give full postal addresses – all you need is the city (and country for international conferences).
- It's a good idea to include the e-mail addresses of the presenting author so that interested people can contact you after the conference. Print this in a small font at the bottom of the poster.
- You only need to list each affiliation once – the affiliations of all the authors from the same institution will be indicated by the same number.

For example:

John Smith[1], Jan Kowalski[2], Justyna Zajączkowska[1], Michał Poraziński[2]

[1]Department of Internal Medicine, Medical University of Warsaw, Warsaw, Poland

[2]Institute of Physics, Jagiellonian University, Krakow, Poland

A typical font size for the list of affiliations is 36–48 points (about 1.5–2 cm).

Introduction

- The Introduction should be a short paragraph (3–4 sentences) describing the essence of the problem, what the study was about, and justifying why the study was carried out. Alternatively, you can add one sentence about the choice of methods.
- It is a text field.

Aim of the work

- This should comprise one or two sentences clearly specifying the aim(s) of the study. If the work has more than one aim, it is a good idea to use a bullet list.
- Put your aim(s) in a text box – you can differentiate it from the rest of the poster by using a background colour

Methods

- You should describe applied methods concisely in the study with consideration of statistical methods.
- The description of the patient population or studied sample can also be found in the method section (or in the results, it depends on the aim of the study). Typically, demographic data is given in the methods, but e.g. averages of compared parameters should be described in the results.
- If a special previously published methodology was used in the study, you should use a reference mark.
- Less relevant details can be ommited.
- It is a text field, but if necessary, parts of it can be presented in tables.

Results

- This is one of the most important parts of the poster!
- The Results section should present:
  - the most important outcomes from which your conclusions were drawn
  - outcomes directly related to those on which your conclusions were based. For example, if you compared the concentrations of cholesterol in two groups of patients, you should indicate the absolute values of cholesterol concentration and the mean ages of patients in the two groups.
  - outcomes without unnecessary details – remember that participants usually only devote a few minutes to any one poster and so need to be able to find and remember what is most important - they won't bother to uncover the essentials from a mass of unnecessary details.
- Keep your text to an absolute minimum – graphs, figures or tables are best (in that order of preference).
- Use the legends below your graphs, figures and tables to explain the outcomes – you don't have to use legends to simply describe the contents of the graphs, figure and tables.

Conclusions

- Your Conclusion(s) is(are) the most important part of the poster!
- The Conclusion(s) section is often the only part of a poster that is read (except perhaps for the title and authors).
- It's a good idea to put your Conclusion(s) at the top of the poster (just under the title, authors, and affiliations) – it can be seen from a distance above the heads of attendees crowded round your poster
- To highlight your Conclusions, you can use:
  - a coloured text box
  - a different font
  - bold or italics
  - a slightly larger font.
- Keep your Conclusion(s) to one or at most two sentences.
- Use simple and transparent language.
- Avoid graphs, figures or tables – these go in the Results section.

Poster session – practical advice

- Before the Congress check when your poster session is scheduled, when you have to mount your poster, when the presenting author must be by the poster, and when you must remove it. At some congresses posters are displayed throughout the congress, at others they are displayed only at a specific time, and at some congresses there are several poster sessions using the same display boards. If you don't remove your poster the organisers will dispose of it.
- Equip yourself with a tube to transport the poster to the Congress – carry it as hand-baggage and do not check it in as hold-baggage.
- Have a copy of your poster on your laptop or on a memory stick so that you can have it re-printed in an emergency.
- It's a good idea to take handouts; 100–200 copies should be enough (50 may be enough). Keep the copy to one side of paper – A3 is best, but you may be able to show everything on an A4 sheet.
- You could also have a set of business cards with the poster title on the back.
- Another useful tip is to bring a file with you containing extra information about your research so that you can deal with more detailed questions.
- Organizers sometimes provide adhesive tape, pins, clasps, or other materials for hanging posters. Do not rely on this - take your own material. Note that some display boards are so hard that you cannot use pins. Make sure that you have adhesive tape (perhaps double-sided), Velcro tape, buttons or suitable clips.
- During the poster session stand beside the poster not in front of it – people may want to read it!
- Answer questions in a friendly manner, without going into details, and try to not get involved in emotional debates. Accept criticism kindly and with respect. Maybe this person is right, and their remarks will help you in your further work. Remember the comments may come from a potential future employer!
- Put your handouts in a conspicuous place, so that interested parties can take them easily.

Do you need help?

If you do not know how to prepare a manuscript, poster or slide show or you do not have time to do it yourself, why not take advantage of our services – proper medical writing – provided by our team of specialists? Please contact us to receive a free, no-obligations quotation.