Creating Posters for Effective Scientific Communication

Sandeep B Bavdekar1, Shruti Vyas2, Varun Anand3

Abstract
A scientific poster is a summary of one’s research that is presented in a visually engaging manner. Posters are presented as a means of short and quick scientific communications at conferences and scientific meetings. Presenting posters has advantages for the presenters and for conference attendees and organizers. It also plays a part in dissemination of research findings and furthering science. An effective poster is the one that focuses on a single message and conveys it through a concise and artistically attractive manner. This communication intends to provide tips on creating an effective poster to young scientists.

Introduction
Scientific poster exhibitions are an integral part of medical conferences and scientific meetings. Although considered as poor cousins of published papers,1 scientific posters do serve important functions for the presenters, viewers and conference organizers (Table 1). They are a good medium to disseminate salient findings of a recently-completed research project expeditiously. They allow the conference delegates to have a ‘snap shot’ of the findings2 and know what is current research focusing on. The findings are presented in a relaxed environment with greater opportunities for exchange of ideas.3 Through feedbacks and discussions, the presenters gain greater understanding of appropriate methodology, analysis and interpretation. This helps them in writing a better research paper for publication. They are able to practice and improve upon their public speaking skills and their abilities of defending their work. Planning a poster, executing the design, and presenting it to the viewers require managerial, coordinating and organizational skills. Poster presentations provide opportunities to hone these skills. Through interactions with conference attendees, the presenters can network with experts in the field, which in turn, can provide openings for advancement of career and for research collaborations in future. They also improve one’s curriculum vitae (CV) and help develop national reputation.4

The poster exhibitions are organized in many different ways:

i. The presenters are requested to put up the posters at a pre-designated place or room. The organizers encourage the attendees to visit the exhibition to view the posters at their convenience.5 They also urge presenters to make themselves available near their poster at least during ‘breaks’ to interact with the delegates.

ii. Some organizers arrange a formal session assigning 4-6 minutes for every poster to be presented in a conference room in presence of a moderator.

iii. A team of (two or three) experts visits the exhibition and interacts with the poster presenters at a pre-designated time. Many other delegates present there interact with the presenter.

Making of an Effective Poster: The Basics

Once your research project is complete, you should plan to present it at a conference for the obvious advantages discussed earlier. However, making an effective poster is not akin to sticking any research paper on a board. An effective poster is a source of information, a summary and advertisement of your work and a conversation starter. It is focused on conveying a single message in a simple language with textual elements, figures and charts arranged in a sequential and aesthetically pleasing manner.7 This requires planning, coordination and discipline. The following description can help the newly-initiated scientists on how to create and present an effective poster:

**Step 1: Identify the key message in your research**

The first step is to identify one key or core message that you would...
like to focus on. With the limited space available in a poster, it is not possible to convey multiple messages and in fact, trying to do so could result in a cluttered poster that confuses and obfuscates the prime message. With the core message identified, you are in a better position for the next step, viz. identifying the conference that would be attended by the delegates to whom that message would be most relevant.

**Step 2: Select the right conference**

The choice of conference should primarily be decided on the basis of who the message is for (generalists, specialists, super-specialists), whether the research is of regional, national or international import and the time period between the completion of interpretation of results and the conference dates. If these are too close, you may not be able to do justice as the time available may not be sufficient for creating an effective poster. If the conference is several months away, there is a danger of the findings getting outdated or some other researcher presenting findings of a similar research project in the intervening period. In addition, to these factors, logistical factors such as your commitments and expenses likely to be incurred (registration fees, travel and lodging) among others may influence the decision.

**Step 3: Visit the Conference website and contact the organizers**

The next step is to get all the details pertaining to poster presentation from the conference website or from conference brochure. You would definitely want to know about the last date of submission and expected format of the abstract, layout (landscape or portrait) and dimensions of the poster, whether formal presentation would be allowed, criteria for ranking posters, what assistance (in terms of material and services) would be available at the poster exhibition, etc. If sufficient information is not available regarding any aspect, do not hesitate to contact the conference organizers for clarifications and additional information.

**Step 4: Define milestones and specify time lines**

You should be aware of the different tasks involved in converting an idea into a concrete and effective poster. It is always better to define and list these tasks or milestones and specify the time that you would assign for each of these milestones. While assigning timelines, you should be reasonably sure that it will be feasible to attain the milestone in the time period provided. It is better to work backwards. A suggested “time table” is provided in Table 2, which can be suitably modified. If the poster is authored by many, additional time will be required for coordinating with other authors.

**Step 5: Prepare and finalize Abstract**

The importance of a good abstract cannot be over-emphasized. The poster is accepted for presentation on the basis of abstract submitted. Abstracts are published in the conference proceedings booklet or book of abstracts. Several delegates decide which posters to view after reading the abstracts published. Abstracts are also posted on the conference website. These can be picked up through search engines enabling others to know the work that you are doing. Similar to abstracts of published research papers, poster abstracts should be an honest, accurate, succinct and complete summary of the research presented in the poster. Abstracts can be unstructured or structured (with sub-headings such as background or rationale, objectives, Methodology, Results

<table>
<thead>
<tr>
<th>Table 1: Advantages of poster presentation²⁻⁴</th>
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<tbody>
<tr>
<td><strong>General</strong></td>
</tr>
<tr>
<td>• An opportunity for early dissemination of research observations to the scientific community. Enhancement of understanding and furthering science</td>
</tr>
</tbody>
</table>

**For the presenters**

• As compared to a research publication in a peer-reviewed journal, lesser details of results and discussion are expected. Shorter preparation time
• Selection and acceptance criteria not as vigorous as for a research publication: Easy access to showcase your research
• Enhancement of cognition: Interpretation of results, critical thinking, organization of thoughts and arguments
• Enhancement of skills: Writing abstract, editing content, presentation skills and public speaking
• Interactions during presentation can inform the presenter about the flaws in methodology, errors in results and gaps in arguments
• Catalyst for manuscript preparation and publication
• Feedback provides ideas for improving manuscript: presentation of methodology and results, interpretation of observations and defending arguments related to purpose, methodology used, and proposed impact
• Improved arguments for supporting the hypothesis and methodology
• Networking: For research collaboration in future, invitations for Guest Lectures and submission of manuscripts, and offers for sitting on a sub-committee
• Recognition as an expert on the subject
• For young presenters: New ideas about related research topics and better insights into the subject
• Career Advancement: Improved CV, publication of abstract in the Abstract book, inning prize at the Poster exhibition
• Fulfillment of Criteria: Certain universities prescribe that a post-graduate student should present a paper at a conference before appearing for the qualifying examination
• Reimbursement: Many employers and institutions reimburse delegate fees (and/ or travel expenses) only if the researcher is presenting a paper/poster

**For the viewers and readers**

• Get to know “what research is going on” in one’s field of interest
• An opportunity to clarify doubts through face-to-face interaction
• Get novel ideas for future research
• An opportunity to learn better methods and methodologies for research topics
• Interact and network with researchers working in the area of interest

**For the conference organizers and scientific community**

• An added attraction for the young scientists to register for the Conference
Table 2: An example of a working “time table” for preparing and presenting a poster

<table>
<thead>
<tr>
<th>Week Preparation</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5 Prepare a draft abstract</td>
<td>The most important aspect of the content is the core message. You should state the main purpose and the core message of the poster in a lucid, plain and comprehensible manner. The information provided in the poster should be significantly novel and valuable for those attending the conference. Due to limited space available, you should include only the vital and essential information and dispense with unnecessary details. You will have to edit the successive drafts ruthlessly to ensure that only critically important material finds place in the poster. You should present the information in a clear and concise manner by using vocabulary that delegates would understand easily. It is preferable to use bulleted short sentences or phrases rather than complete sentences. The content is divided into various sections not very dissimilar to a research manuscript. The sections include Banner, Introduction (or Background or rationale), Aims and Objectives (or Research Questions or Hypothesis), Material and Methods (or Methodology), Results (or Observations), Discussion, Conclusions and Lessons learnt and optional contents (References, Acknowledgments and contact details).</td>
</tr>
<tr>
<td>-4 Plan out poster</td>
<td>The banner includes the title, names of authors and their institutional affiliations. Many researchers in addition, put institutional logo in the banner. The title is important as is the only thing that the delegates see. It should make them want to come and read. The title can pose a key question, define the scope of the research study or suggest a new finding, but it should be drafted in a way to effectively and succinctly communicate the topic and significance of the research project. Use of two-part titles with colon between the two parts are quite common. This is done to provide additional details or add humor. However, it makes the title a bit long and this runs contrary to the common advice that the title should be short, sharp and compelling like newspaper headlines.</td>
</tr>
<tr>
<td>-3 Distribute poster to peers inviting comments and suggestions (Round 1)</td>
<td>The content of the poster must conform to the norms of sound scientific reporting: clarity, precision of expression and economy of words. The total word count of a poster (excluding banner, references and legends) should not exceed 600-1000 words. Use figures, graphs or charts to explain complex methodology and intricate data and not just to impress viewers with complex artistry. They also help reduce the amount of text material (word count). The poster looks better with the right mix of textual matter and figures.</td>
</tr>
<tr>
<td>-2 Distribute pre-final version of the poster to peers for comments (Round 2)</td>
<td>“Introduction” (or Background or rationale) should inform the viewers about gaps in knowledge and justify the need to conduct the study. State the objectives with greatest clarity under the heading titled Aims and Objectives (or Objectives or research questions or hypothesis). Describe the population studied, recruitment procedure, the study design, the interventions, parameters studied, outcome measures and statistical plan under the section of Methodology (or Material and Methods). You may not be able to present all the details of methodology for want of space. Describe observations under the section entitled “Results” (or observations). This section may have the highest number of graphs and tables. Use the “Discussion” section, to compare results with those obtained in earlier studies and describe the strengths and limitations of the study. Use the “Conclusions (or Lessons learnt)” section for stating the impact and significance of the study and future plans on further research. Many a times, the sections entitled “Discussion”</td>
</tr>
<tr>
<td>-1 Final print</td>
<td></td>
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<tr>
<td>Finalize answers to probable questions</td>
<td></td>
</tr>
<tr>
<td>Finalize Presentation (what you would speak)</td>
<td></td>
</tr>
<tr>
<td>Make changes suggested by peers (Round 1)</td>
<td></td>
</tr>
<tr>
<td>-0 Present Poster</td>
<td></td>
</tr>
<tr>
<td>Practice Presentation</td>
<td></td>
</tr>
<tr>
<td>Practice answers to questions</td>
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and “Conclusions” are merged into one. Most organizers do not ask for an “abstract” or a “summary” to be included in the poster, as a poster itself is an abstract of the research done. The other sections are optional: It is always a good practice to acknowledge the assistance provided by funding sources and gratefully acknowledge the contributions of individuals who provided guidance or technical assistance in the section entitled “Acknowledgment”. Since, networking is one of the primary aims of presenting posters; it is worthwhile providing your “Contact Information” (email and telephone numbers). The delegates can use this for seeking clarifications or additional information about your research or for inviting you for a collaborative research project or a guest lecture.

The list of references referred to in the poster can be cited. For want of space, you may just cite the name of the first author and journal details. One may also include the title of the cited article if space is available. Some researchers prefer to position institutional logo in the lowermost section of the poster (where its size can be adjusted) than to include it in the banner (where a large-sized logo needs to be put up for ensuring balance with large-sized letters in the banner). It becomes almost imperative to include logos in the lower portion if multiple logos are to be depicted.

Design and Layout

Whether the poster layout is portrait or landscape, the banner runs across poster’s full-length, just below the top margin. It should stand out and be large enough (10-12 inches in height) to be easily read from a distance of 12-20 feet. The rest of the content needs to be divided into columns. This facilitates reading.

Alignment, balance and spacing are crucial aspects of designing a poster. Align headings, columns, graphs, figures and diagrams. The text should be left-aligned. Distribute the text and figures in a balanced manner so that the poster is aesthetically pleasing. Use only one or two font styles. One can use serif (for example, Times New Roman, Cambria) or non-serif/sans serif (for example, Arial, Calibri, Tahoma, etc.) fonts for the title. You should, however, use a serif font for the main body of the poster; as serif fonts are easier to read when the font is smaller than usual. Do stay away from fonts that are too distinctive, clichéd or hackneyed. Print title, section headings and sub-headings in boldface; but not the whole poster content. Underlining the content for emphasis makes the poster look cluttered. Instead, use boldface or italics or a combination of both. But use this sparingly. Avoid using ‘all capitals’ (all letters in upper case) even for the title, as they are difficult to read.

Ensure enough ‘white space’, use a margin of about an inch along all sides of the poster and employ adequate line-spacing. These will make the poster look neat and organized. White space (also called negative space) is an area that is not covered by any design element such as a word or a picture. Its importance cannot be over-emphasized. It guides the eye and ensures that other elements stand out. Too little white space makes the poster look jumbled and too much white space makes the poster look empty and viewers’ eyes start to wander. Consistency in use of font and in dimensions of illustrations, diagrams and figures provides a better look to the poster. Patterns or complex images should not be used in the background for scientific posters, as they tend to distract viewers. A colored poster definitely looks better than a ‘black and white’ or ‘grey’ poster. Colors help create contrast between the text and background and this should be considered while choosing colors. Use a light color for the background and dark color for text. Overly bright colors help attract attention, but then wear out viewers’ eyes. Restrict to two or four colors, usually white, black red, blue and green. Text printed in yellow usually is not seen well. Overuse of colors mars the visual appeal and is distracting and annoying. In addition, it does not comply with the sobriety expected of a scientific communication. Viewers, by force of habit, tend to read from left to right and from top to bottom. Use arrows, numbers or headings to assist the readers’ direction of reading.

Illustrations

Diagrams are used for showing complex methodological details and for explaining concepts, structures, processes and procedures. Charts or graphs are used for depiction of observations. The type of data determines the type of graph used. For example, frequency of different categories is depicted by a bar chart, while changes in levels of a parameter over a period of time are best shown using line diagrams. Providing a grey background to charts consumes costly ink and looks unsightly. Including gridlines in graphs is meaningless because the viewers are not interested in knowing exact values, anyway and they make the graph look “too busy”. The novelty of once popular 3-D charts has waned over a period of time. Avoid using 3-D charts, as they decrease the clarity and are viewed by most as a mere “gimmick”. Make sure that the graphics are simple, consistent in scale, properly labeled and large enough in size to be easily viewed from a distance of about four feet. Photographs are not commonly included in research posters, but are more commonly included in posters describing novel cases (Case Reports). Use photographs only if they contribute in explaining or emphasizing the message. Label every diagram, photograph and graph. Refer to every figure in the text for providing context. The illustrations should be clear...
and properly proportioned. Avoid using images downloaded from the internet. Images that look good on computer screen, do not necessarily look good in a poster and may look distorted on an internet. Images that look good on a computer screen may result in a distorted image. They may also raise copyright infringement issues. High resolution images (200 dpi or higher) should be used; TIFF (tagged image file format) or GIF (graphics interchange format) images are the best. It is important to note that using drop-and drag method for adjusting the image size can result in a distorted image.

Many software programs can be used for creating posters: Microsoft PowerPoint, Adobe design programs such as Illustrator, InDesign and Photoshop, Impress and LaTeX. Having decided on the content and software program, create the poster on the computer. Make sure that your page size is the same as the final print size. Take print outs of the draft and edit it thoroughly and ruthlessly to cut the jargon, reduce sentence complexity, and get rid of non-essential details. The salient issues are reiterated in Table 3.

Step 7: Seek feedback from peers regarding all aspects of the poster

Once you are satisfied with the draft share its printouts with your peers and request for feedback, comments and suggestions regarding the content of the poster as well as design. Share the printouts even with non-experts, whose suggestions regarding the designing aspects (free space, color combinations, clarity, ease of reading, etc.) can be helpful in improving the poster. Multiple checklists are available. You can use any one of them or prepare a composite checklist. Share it with your “assessors”, so that you get a more objective and structured feedback. Mount the draft poster and let your colleagues have a look at it. This may elicit a more honest critique. Study the comments received and implement the sensible suggestions. Ensure that the revised version meets the criteria set earlier for an effective poster. Take printout and repeat the process once more before you finalize the poster. Use spellchecker and proofread the material before the final printout. Complete the entire poster on a single platform. Switching from PC to Mac or vice versa invites disaster in the form of lost image files, changes in layout, alterations in font and garbled graph axes. To guard oneself from formatting trouble when transferring to another computer or platform is inevitable, convert your poster file into pdf or portable document format before transferring to the computer from which you will print.

Step 8: Prepare and finalize the presentation talk. Plan on how to encourage interaction

While the poster content is being finalized you need to simultaneously work on how you are going to present your poster to the attendees. You know a lot on the subject and especially about your own research project.

Table 3: Making an Effective Poster

<table>
<thead>
<tr>
<th>Content</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>State the purpose of the poster in a clear manner taking into consideration the needs and general level of understanding of the conference delegates.</td>
<td>Banner: Includes title (with large font size), author names and institutional affiliation. Should be large enough to be readable from a distance of 12-20 feet. The title should be 4-5 cm in height.</td>
</tr>
<tr>
<td>Include information only if it is novel and of value to the delegates.</td>
<td>Columns: Breaking the text into columns increases the ease of reading.</td>
</tr>
<tr>
<td>Desist from providing unimportant or non-essential details.</td>
<td>Alignment: Align Headings, columns and graphs and figures. For example, the tops of columns should be aligned and the sections should be left aligned.</td>
</tr>
<tr>
<td>Ensure that your central or core message is not tucked in margins or in an insignificant place. Put it in a central place so that viewers do not miss it.</td>
<td>Make efforts to align the graphs, diagrams and figures (e.g. top edge of a figure in one column may be aligned with the bottom edge of a graph in another column).</td>
</tr>
<tr>
<td>Use active voice.</td>
<td>Balance and Spacing: Distribute text, images and diagrams in a balanced manner.</td>
</tr>
<tr>
<td>Avoid jargon. Use words, terms and expressions that the conference attendees would understand with ease.</td>
<td>Ensure uncluttered look: Use margin along poster edges, adequate line spacing, enough white space.</td>
</tr>
<tr>
<td>Keep text elements fewer than 10 lines long. Do not exceed the 50-word limit.</td>
<td>Create a logical visual flow: Use headings, arrows or numbers to direct the viewer where to look next.</td>
</tr>
<tr>
<td>Avoid use of complete sentences. Use phrases as bullet points. Reduce sentence complexity.</td>
<td>Other Aspects:</td>
</tr>
<tr>
<td>Avoid using images downloaded from the internet. Images that look good on computer screen may result in a distorted image. 10</td>
<td>Most prefer a serif font for the main text. Title can be written with serif or sans serif font.</td>
</tr>
<tr>
<td>Many software programs can be used for creating posters: Microsoft PowerPoint, Adobe design programs such as Illustrator, InDesign and Photoshop, Impress and LaTeX. 10,11 Having decided on the content and software program, create the poster on the computer. Make sure that your page size is the same as the final print size. 17</td>
<td>Title and headings should be bold. Text should not be bold.</td>
</tr>
<tr>
<td>Take print outs of the draft and edit it thoroughly and ruthlessly to cut the jargon, reduce sentence complexity, and get rid of non-essential details. 7</td>
<td>Text: Left justify, preferably bulleted. No bullets for headings.</td>
</tr>
<tr>
<td>and properly proportioned. Avoid using images downloaded from the internet. Images that look good on computer screen, do not necessarily</td>
<td>Color: Use of one or two colors enhances visual appearance and appeal.</td>
</tr>
<tr>
<td>look good in a poster and may look excessively pixilated. 9 They may also raise copyright infringement issues. High resolution images (200 dpi or higher) should be used; TIFF (tagged image file format) or GIF (graphics interchange format) images are the best. It is important to note that using drop-and drag method for adjusting the image size can result in a distorted image. 10</td>
<td>Use charts and diagrams, whenever necessary. They help make the poster less text-heavy and more visually appealing.</td>
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<td>Many software programs can be used for creating posters: Microsoft PowerPoint, Adobe design programs such as Illustrator, InDesign and Photoshop, Impress and LaTeX. 10,11 Having decided on the content and software program, create the poster on the computer. Make sure that your page size is the same as the final print size. 17</td>
<td>Use photographs only if they are relevant to the purpose and help explain the message. Photographs, when used should be aesthetically pleasing, have proper exposure, focus, contrast and resolution.</td>
</tr>
<tr>
<td>Take print outs of the draft and edit it thoroughly and ruthlessly to cut the jargon, reduce sentence complexity, and get rid of non-essential details. 7 The salient issues are reiterated in Table 3. Step 7: Seek feedback from peers regarding all aspects of the poster.</td>
<td>Be consistent in font (type and color), dimensions of diagrams and figures and color design.</td>
</tr>
</tbody>
</table>

Step 7: Seek feedback from peers regarding all aspects of the poster

Once you are satisfied with the draft share its printouts with your peers and request for feedback, comments and suggestions regarding the content of the poster as well as design. 14 Share the printouts even with non-experts, whose suggestions regarding the designing aspects (free space, color combinations, clarity, ease of reading, etc.) can be helpful in improving the poster. Multiple checklists are available. 7,9,11,12,18 You can use any one of them or prepare a composite checklist. Share it with your “assessors”, so that you get a more objective and structured feedback. Mount the draft poster and let your colleagues have a look at it. This may elicit a more honest critique. 12 Study the comments received and implement the sensible suggestions. Ensure that the revised version meets the criteria set earlier for an effective poster. Take printout and repeat the process once more before you finalize the poster. Use spellchecker and proofread the material before the final printout. Complete the entire poster on a single platform. Switching from PC to Mac or vice versa invites disaster in the form of lost image files, changes in layout, alterations in font and garbled graph axes. 11,12 To guard oneself from formatting trouble when transferring to another computer or platform is inevitable, convert your poster file into pdf or portable document format before transferring to the computer from which you will print.

Step 8: Prepare and finalize the presentation talk. Plan on how to encourage interaction

While the poster content is being finalized you need to simultaneously work on how you are going to present your poster to the attendees. You know a lot on the subject and especially about your own research project.
However, remember you are not preparing for a 30-minute talk on the subject. The time available for you to introduce your research to an attendee is going to be very short. It is better to prepare a two-minute speech (something akin to the “elevator talk”). To make it effective, you need to know the general profile of the attendees: would they be specialists in the field, generalists, specialists in another field, students or fellows. However, for most large meetings, the delegates would be a mix of different categories. You may, therefore have to prepare two-three levels of presentations (with different content and emphasis). You may prepare a one-minute talk (consisting of information about background delivered over 45 seconds and take-home messages given over 15 seconds) for those with general knowledge about the topic. Details should be provided only if explicitly asked for. Prepare a 3-5 minute presentation consisting mainly of methods and results for those with advanced knowledge about the subject. They are unlikely to require background information. Think about possible questions that the attendees may ask and formulate the answers. Show the script of the presentation-talk to colleagues and peers and invite their comments and suggestions.

Table 4: Items to carry for last minute challenges that may arise

- Poster
- Protective cardboard or plastic tube: Useful if you wish to save the poster for later use or repeat presentations
- Soft copy of the poster in pdf
- Poster holders: Clips, pins, push pins, heavy duty pins, velcro strips, single/ double-sided masking tapes, adhesive putty, tapes to attach, secure or stick the poster to the surface (cork boards, wooden boards, fiber boards, fuzzy fabric surfaces, glass surfaces, metal plates or wall) provided
- Pair of scissors
- A black pen and correction fluid for correcting the embarrassing typographical mistake discovered after putting up the poster
- A sign to hang on poster that reads “Will be back shortly” or “Will be back in 5 minutes”, when you are away
- A sign-up sheet for interested visitors for providing their email addresses for further interaction or receiving pdf of poster
- Printed copies of your Abstract and poster on A4-sized paper for distribution
- A note pad and pen: To jot down visitors’ unanswered questions, contact details of visitors worth contacting
- Business cards
- A clear cup full of candy

Practice the “talk” and “question-answer sessions” with your friends, family, colleagues and peers. Devise a strategy for beginning the conversation when people visit your poster area.

Step 9: Printing the poster

Decide whether you will create poster yourself or outsource the work. Decide if you intend to print the poster on standard sheets of paper, matte finish bond paper, glossy paper or polyester fabric. Poster made of multiple sheets of paper is now outdated. Most scientific posters are now printed as large single glossy prints. Matte paper is water resistant in the sense that image won’t run, but the paper will become soggy in the rain. Polyester fabric is wrinkle-resistant, fade-resistant, tear-resistant and waterproof. The text appears crystal clear and colors look more vibrant. The material can be folded and ironed. This is probably the best material for printing scientific papers, but is also quite expensive.

You will have to decide if you intend to take a printed “all-ready” poster to the meeting site or you wish to print it at the meeting site. The former option seems generally preferable. If you are not traveling far with your poster, it is sufficient to roll it up, secure it with a couple of rubber bands and take it to the conference venue. If you are traveling long-distance, it is better to put the rolled up poster in a cardboard or plastic tube. The plastic tubes are sturdier and come with straps that make them easy to carry. Another option is to ship the poster separately. Even when a ready-poster is being carried to the conference venue, it is prudent to carry a soft copy of the final version of the poster. The onsite printing option eliminates travel hassles, but is fraught with limited options and time for corrective actions, if any problems arise.

Step 10: Putting up and discussing the poster

In addition to your poster, it is better to carry other materials to ensure that you are not inconvenienced while putting up the poster. Although, you may have prepared the poster as per the instructions provided, there can always be last minute challenges. Many presenters go an extra mile to try to make it foolproof, provide additional service to visitors and optimize the potential benefits (Table 4).

You should be wearing a professional attire. Your clothing and shoes should be comfortable, as you will be required to stand for a long period of time. When attendees come to view the poster have an eye contact and wish them. There are multiple ways of starting the conversation. You may start with introducing yourself and requesting for their names, affiliation and field of interest. This will give you an idea about the nature of their expertise. Then offer to explain the salient features of the research study in a minute or two. Almost always, they would accept the offer rather than trying to figure out what has been depicted on the poster by themselves. If you are uncomfortable with this strategy or think that this is intrusive, you may allow them to read the poster and then offer to introduce your work.
in 10 seconds and offer to answer questions.  

While speaking, make an eye contact with the visitors. Talk to them (without referring to the notes) and not to the poster. Point to important figures and charts on the poster. Intermittently, check if they have understood what you have said (especially regarding the technical aspects) and offer to answer questions. Work all the visitors at once, don’t leave visitors waiting for your attention.

You know the most about your research and your subject. And your knowledge, passion and excitement should be evident. When the attendees ask questions, take time to understand them before beginning to answer. If you do not know the answer, just admit it and speculate with the person or ask what he might do. You may even take down the individual’s contact information and promise to get back to him. Remember, the visitors who ask questions are not checking your knowledge or challenging your expertise. So there is no need to be combative. They may be attempting to gain information or seeking clarifications. These interactions can provide you with new insights.

During interactions, speak with confidence with a voice that is a bit high on volume. You need to be heard in a busy, crowded place. Speak at low speed (tendency to speak quickly is interpreted to indicate nervousness) without fillers (“um”, “uh”, “you know”, etc. which detract your message) and without vague or meaningless phrases. Do not chew tobacco or gum while explaining the poster. Many people find these habits repulsive.

After the presentation ask for feedback. Based on the comments, make the changes for the next presentation. If there is a possibility of collaboration, hand over your business card and also ask for the visitor’s contact details. Hand over a copy of the printed abstract or printed poster to interested visitors. Thank everyone for their interest in your research work.

**Step 11: Picking up the threads after the scientific meeting**

Your work isn’t over once the poster is folded and brought back at the end of the meeting. Remember the objectives when you decided to present the poster. Go over the notes that you have taken while exhibiting the poster. Thank experts and others who viewed your poster and offered insightful comments. Write to people who asked for additional information or clarifications. Write to those, whose questions remained unanswered. Dissemination of research findings was one of the main aims of presenting the poster. With presentation, this aim has only partially been met. You now need to take steps to publish the paper in a reputed peer-reviewed scientific journal. Do not forget that published papers always carry a greater value as they undergo a much more thorough formal review process, are available as a permanent record and are widely read and distributed. Go over the feedback and suggestions that you received during presentation and implement those that will help you improve the manuscript. These actions will help build your reputation in the scientific community as a serious, sincere and committed scientist.

**References**

2. Rowe N, Ilic D.  What impact do posters have on academic knowledge transfer? A pilot survey on author attitudes and experiences. *BMC Medical Education* 2009; 9:71