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Introductory lecture: Why and how to publish results of scientific research?[1]

KEYWORDS: Writing; Research; Science; Communication; Publishing

Writing a scientific article is one of the major and final products of all scientists. Science is not a private thing. Scientific work is doing its job only when it is published, when belongs to other people. The highest value is reached when scientific information, as published material, becomes a part of the world fund of knowledge. Keeping scientific "results" unpublished indicate two possibilities: research is not finished or is finished but unsuccessfully. If you do not publish the results of scientific research it is the same as you did not work at all.

Why to publish?

There are many reasons why it is necessary to publish the results of scientific research. The most important one is the consequence of the fact that publication is an integral part of the scientific method of research. Scientific method is the best thing thought out up to now to get new and true knowledge or information. Researchers using scientific method, in short, begin by formulation of hypothesis and its verification in practice (experiment). The final phase of all scientific processes is publication of the obtained results in the form of scientific information (1,2). Values of this information can be established only when they are published.

Teaching about truth. The aim of science is truth. New information (knowledge) obtained by a scientific method is objectively true. One of the criteria of the objectivity of the scientific results is their intersubjective reproducibility. Namely, any scientist or competent person, if hypothesis and condition of its verification are clearly defined should, in repeated experiment, obtain nearly identical results. But to check this, scientific results must be published.

Scientific information as a resource. Today, any society can be viewed as economically rich, military powerful, cultural progressive and so on depending of how much available information possesses. Beside matter end energy, information is third entity for existence of life. But, contrary to matter and energy, information during communication elicit special quality: by use its value does not decline, by distribution its value does not decrease. On the contrary, its value in the process of communication increases.

Ethical character of scientific information. Science does not know for frontiers between states and differences in social, religious, race, sex and economic status, differences between groups and individuals. Scientists publish their results in international journals making them available to all interested in. In this way science has the widest ethical character, greater than a simple moral code based by political or religious bodies. The nature of the scientific work Faraday expressed in a sentence: To work, to finish, to publish.

How to publish?

It is not only enough to publish a scientific article. Writing is communicating. The main purpose of the scientific writing is to transfer ideas and information to other people. Or better to say, to transfer information to the person who needs them. This is best done through an original scientific article published in scientific journals. The job of the scientific article is to communicate information.

Definition. Scientific communication represents the whole process of publication, transfer and reception of scientific information. This is the basic mechanism of existence and development of science.

Transfer of information. If information is published but not transferred to person who needs them it is as a half bridge is built - information is published but fails to communicate. The model of communication (diagram) represents the way in which information is transferred to other people.

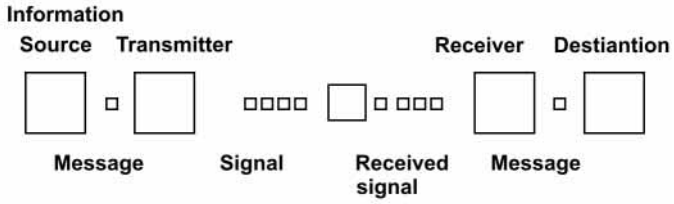

Figure 1. Communication diagram

In this system, like other systems (radio, language-lecture), information is encoded, transmitted, received, decoded and stored. In written communication the message is transferred from facts to language, from language to written words, from written words to language in another mind, and out of that language into stored information (3).

Feedback. The response of other persons to our information (feedback) is very important in scientific communication. In language communication or in everyday conversation, for example, a person who is listening to a lecturer gives feedback by nod, smile, saying "yes" or "no" and so on. This indicates that communication, and not only transmission, is taking place. In written communication, feedback is less obvious. But written response of the editor, when the manuscript is sent back, response of the head of the department or data about the citation of our article could be clear indicator for effective communication.

Effective communication

First principle: To define aim of writing and to know who the readers are. As we already said, if information is to be communicated effectively, it must be more than only scientifically accurate and grammatically correct. Effective communication is a transfer of information to other people, or to person who is interested in. Two questions are of the primary importance here and must be clearly defined. First, what is the aim (purpose, task) of writing? It may be to describe, to explain, and to instruct, to teach a method and so on. Each aim will begin with different information! Second, who are the readers? Are they the same as we are? Are they alike or are they a mixed group? What do they already know about the topic? What do they need to know and so on? The presentation of scientific information must be in terms that they will understand.

Sufficient information and basic structure of article (4). Scientific article is a document that contains sufficient information to enable readers to critically assess information and to repeat the experiment. The basic structure of such a scientific article is given by the acronym IMRAD, which stands for

Introduction (What question was asked?)

Methods (How was it studied?)

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Results (What was found?)
And
Discussion (What do the findings mean?)

Selection and arrangement of information. Whenever we have something important to say, e.g. at least one new and important information we should publish it. Very important for efficient communication is the selection of really relevant information from the obtained available material. Selection must be made in favor of the needs and interests of the reader. Selected information must be arranged. The most attractive scientific article is when new information is arranged in order of importance from the readers' point of view. The best organization is in a pyramid structure: at the top of pyramid are title and new information in short (abstract) and at the base are methods with most detailed information. This arrangement enables the majority of readers to get a quick, clear version of the essence of new information and the story that is to come. Today, nobody will show interest and read published material, which is not selected and arranged in order of importance. As in fundamental or basic science, effective communication is very important in clinical medicine. Writing and publishing is an obligation of every modern medical doctor. For those who read scientific and professional journals, who systematically and prospectively organize his or her everyday professional work or investigation, publication of obtained results will not be difficult at all. So it would be easier to evaluate the values of every single physician, group or institution.

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[1] Editor-in-chief of *The Annals of the Academy of Studenica* permits the reprinting of this article.

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Titles, abstracts and key words in biomedical articles

KEYWORDS: Medicine; Research; Writing; Abstracting and Indexing

Original scientific papers, being the basic source of information concerning the latest scientific knowledge and achievements, must be structured. Thus, authors of scientific professional and conference papers must respect certain rules when writing their articles and presenting results of their investigations. This often poses limitations for scientists whose work is complex and creative. Bearing in mind that establishing rules means freedom for all, application of certain schemes when writing scientific papers provides an opportunity for researchers to find certain information in a great deal of available information.

Titles. One of the greatest intellectual skills is accurate, concise and precise ability in written expression, and it is especially necessary when constructing a title. Researchers know only too well the importance of a title, as the most transparent and most often read part of a paper, and how much time they need to write these "most complex sentences of the article". The title is the first thing that editors and editorial boards, as well as organizational committees of scientific or professional congresses see. Very often their decision whether the paper is going to be accepted for publication or not depends on the title itself. When the paper is published, it is the title that the readers see first. The title should attrract the researcher's attention in order to be included in interesting literature. Sometimes, relevant papers might be missed on "first pass" because they were not written by certain generally accepted rules. "A title is a distinguishing form that cannot be shortened conatining notions accurately describing the contents of the article" (1). The title must indicate the contents and the problem - that is object of the paper providing its inclusion into certain scientific disciplines and areas. There are indicative and informative titles: indicative reveal the area of investigation, and not answers the paper might offer, whereas informative titles convey messages of the paper on all its relevant elements (1).

There is not much guidance how to construct a title. The Uniform Requirements for Manuscripts Submitted to Biomedical Journals of the Vancouver Group indicate that titles should be concise and informative, while New England Journal of Medicine states that they should be concise and descriptive, but not declarative. This means that authors should resist the challenge of trying to condense the whole of their paper into the title. Authors are expected to construct concise, short, informative, explicit and attractive

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titles. Here are some recommendations how to do it:

- the title should contain a few key words;
- be brief, do not use more than 12 words, or up to 100 letter characters;
- use easily understandable terms, not too technical;
- the title should be written using noticeable letters, do not underline it and use no full stop at the end;
- avoid subtitles;
- do not say why the paper was written, what the findings were, or what conclusions were drawn;
- use a temporary title while writing the paper; final title should be constructed at the end, when all phases of scientific work are finished;
- do not use abbreviations, chemical formulas, generic names
- avoid sensational and trendy jargon;
- avoid phrases such as: Special approach..., Some characteristics..., Our experiences..., On some aspects... and so on. (2)

Abstracts. An abstract is a short summary of the article. There are two types of abstracts: indicative and informative. Indicative or descriptive abstracts deal with the contents of the paper, whereas informative abstracts inform readers about the objectives, methods, results and conclusions of a scientific article. Abstracts are written in the same language as the article, but are also translated into one of the world languages. They should be written after the investigations and the whole article are completed. Abstracts should stand alone, below the title or at the end of the article.

How to write abstracts: the language should be familiar to the reader, easy to understand and without ambiguities; use full, connected sentences in a single paragraph (structured abstracts have more paragraphs); do not repeat information that appear in the title of the article; the abstract should never give any information or conclusions that are not stated in the paper; abstracts should be written in the past tense and in third person singular; omit all references to the literature and to tables or figures, abbreviations and citations; omit obscure abbreviations and acronymes even if they are defined in the main body of the paper.

Structured abstracts. Abstracts intended to be informative, with a detailed structure, which do not exceed 250 words are called structured abstracts. Structured abstracts are used for original articles, review articles and conference papers.

Since the beginning of serious scientific publications in 1665, there has been a constant attempt to improve the content and structure of articles (3). After World War II, scholarly journals started using peer reviews and in order to standardize the presentation of sholarly papers, journal editors recommended that writers adopt explicit formal structure called IMRAD - Introduction, Methods, Results and Discussion (4). The IMRAD formula does allow authors to give answers to the following questions: Why did you start? What did you do? What answer did you get? What does it mean? In the early 1960s, the Journal of the American Medical Assotiation took an innovative step toward improving biomedical communication by moving the summary and conclusions of articles to the beginning. In 1978 Vancouver Group of editors from various biomedical journals made uniform instructions to authors on how to prepare scientific papers for manuscripts to be submitted to their journals. The Vancouver Group requirements published in 1997 (5th edition) are being applied since (5). A traditional abstract presents information in four general sections: introduction, methods, results and conclusions. At the end of 90s of the twentieth century, requirements for writing structured abstracts were accepted for papers reporting clinical investigations and papers submitted for publication to some journals, such as British Medical Journal, Annals of Internal Medicine (6). The primary purpose of structured abstracts for original research articles and overviews has been to enhance readersž ability to quickly appraise the applicability, importance and validity of journal articles. Many researchers have noticed that most abstracts are uninformative and even misleading. Ad Hoc Working Group for Critical Appraisal of the Medical Literature has suggested authors of articles with direct clinical implication to write their abstracts with seven explicitly marked headings: Objective, Design, Setting, Patients, Interventions, Measurements and Main Results, and Conclusions using a partially controlled vocabulary (7). The structured format was proposed to make literature searches and literature more accurate. Guidelines have been suggested for review article abstracts (8) with six headings: Purpose, Data Identification, Study Selection, Data Extraction, Results of Data Synthesis, and Conclusions. Structured abstracts received significantly higher quality scores than nonstructured abstracts, which suggests that a structured format is preferable to the conventional, nonstructured format in providing complete information. An unstructured or a poorly structured text is more difficult to understand than a well-structured one, whether it is implicitly or explicitly structured.

Key words. Key words, characteristic for the original document and adequately identifying its key ideas, should be provided and identified as such, below the abstract. The number of key words is not strictly defined (at least one, 5 - 10 on average), but they should represent the content of paper in the best possible way. Standardized key words which clearly identify certain items of certain scientific fields are called descriptors. They have two roles. Firstly, they assist indexers in cross-indexing scientific articles, and secondly for searching corresponding data-bases.

The most important thesaurus in the field of biomedicine is the Thesaurus of the American National Library of Medicine: Medical Subject Headings (MeSH) (9) used for indexing articles published in most eminent world biomedical journals. According to Vancouver Requirements it is necessary to use these descriptors as key words in biomedical articles. They accurately define and identify every item, as well as certain rules how to write these words, their order and punctuation marks. These descriptors are important for many reasons, such as: 1. they are the world standard for biomedicine, 2. they are important for indexing and processing publications in data bases, 3. for authors and librarians searching data bases in literature about certain topics, 4. the article can be identified all over the world in the same way, 5. all descriptors are in English and thus uniform, 6. they are important for journals because they are used for creation of Key Word Index, 7. for various scientometric researches and scientometric analyses. This standard must be recognized and applied by authors, editorial boards, reviewers, indexers and all researchers. Below the abstract in Serbian language authors should provide descriptors in Serbian language. A Serbian thesaurus of key words does not exist, so they should be identified as in MeSH, but in Serbian language.

Conclusions. Results of scientific and professional research in the biomedical field appear quickly in public as publications at disposal to the world of science. The title, abstract and key words are of great importance when providing fast, precise and quality selection of literature. That is why these parts of articles must be conceived and written according to established principles in order to present the whole paper in the best possible way. These parts of articles have a significant role in scientific communication.

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COMMUNICATIONAL COHESION IN MEDICAL PUBLICATIONS

KEYWORDS: Communication; Writing; Linguistics Medicine

In order to create sentences in communication it is very important that their parts are adequately connected with linguistic context and communicational situation. Communicational cohesion makes possible for good semantic communication and simplifies the linguistic form of a sentence. This economical form of a sentence is more suitable for creation of databases similar to the one of the National Library of Medicine of USA, which adapted the style of the American National Standards Institute. It was used as a base for the creation of the Uniform Requirements for Manuscripts Submitted to Biomedical Journals, Vancouver (1).

The contracted expressions (N.B.: avoid abbreviations and jargon) in medical publications could be applied in so-called coherent text. In this case, when speaking about the rationale for using certain therapy in the treatment of a patient it is possible to use sequence of sentences connected by a certain situation.

Example:...Ovakva terapija se u navedenih bolesnika pokazala uspešnom. I odabir bolesnika je u ovom slučaju usledio ranije, što je, takođe, bilo značajno. (Such therapy was effective in a mentioned group of patients. The selection of patients had been made earlier and that also proved to be important).

Contrary to this, the stated example would have different form and meaning:...Terapija se pokazala uspešnom. Odabir bolesnika je usledio ranije, što je bilo značajno (The therapy was effective. The selection of the patients had been made earlier, which was important).

Demonstrative adjective "such" in the first example has a presentational perspective of a sentence indicating the quality of the applied therapy. The sentence also informs only about mentioned group of patients whose selection was significant because it had been, only in this case, made earlier. The chosen vocabulary made a direct connection with previously stated facts and thus became concordant to the context of the statement. Anaphoric connection with the context, where the meaning of subsequent sentences is interpreted on the basis of previously uttered sentences, is frequently used in the checking of the results obtained in scientific research.

The sentential perspective may also be of syntactical character, which implies anaphoric interpretation. There are conjunctions between independent simple clauses within a main clause, which bear the meaning of consecutiveness and successiveness. These conjunctions are: "i, "pa", "te", "ni" and "niti", and they are used for enumeration of the elements and are characteristic for copulative predicative clauses (2). Conjunctions are also used in other coordinating predicative clauses pointing to the concluding on the basis of previous context (Concluding: "dakle", "prema tome", "znači", "zaključujem"; Excluding: "samo", "jedini", "osim", "osim što"; Disjunctive: "ili", "bilo da"; Adversative: "a", "ali", "nego", "već", "dok") (3). All mentioned conjunctions have the main purpose to connect one communicational clause with previous context because among them there is a copula with previous text.

Many adverbs, pronouns and particles can also make a connection between a clause and the context ("onda", "koji", "ako", "ukoliko", "još"), in their own way. Some of them help to make conclusion, other relate to something specific from the previous context. Personal pronouns at the beginning of a sentence may (intentionally or unintentionally) emphasize the subject of the sentence. Some of these words may imply possibility or a condition for the realization of an action from the context and other imply previous continuation of given situation.

Communicational cohesion is imperative if we want to interpret a sequence of clauses as a coherent text or to connect a sentence and its parts with a communicational situation. The use of above stated cohesive linguistic modes is always standardized, but the implementation of communicative cohesion, especially in written communication, is also a question of style.

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Medical English

KEYWORDS: Language; Medicine; Science; Writing; Linguistics

Medical English expands constantly to meet needs of a complex and rapidly evolving discipline. In its broadest sense it includes not only the official nomenclatures of the basic medical sciences and the clinical specialties but also a large number of less formal expressions, a sort of trade jargon used by physicians in speech, correspondence, and record-keeping. Medical terms currently used may be grouped in eight classes:

- Words borrowed from everyday English;
- Greek and Latin words;
- Modern coinages;
- Words based upon proper names;
- Words borrowed from modern languages;
- Trade names;
- Argot and figurative formations;
- Abbreviations.

The English language is said to have 200,000 - 300,000 words. How do you find the right ones among that many to convey your ideas?

A study by Yale University researchers was done to find which words are most powerful in terms of getting and holding the attention of the readers or the audience. These words are:

* discovery, love, ease, guarantee, health, money
* new, proven, results, safety, save, you

The first we notice is that these words are simple and common. Many of them refer to things that are important to us personally. Both readers and audience, like the rest of us, will appreciate the directness and simplicity of such words.

Some authors think that formal English, suitable for scientific communications, must use polysyllabic, Latin-derived words and an "elevated" tone if it is to be effective. This advice is wrong. The biomedical sciences are complex enough without being "explained" in vague language. The most effective language in a scientific communication is simple, clear, and precise one. If you want to write or to speak effectively, search for the simplest, most direct way to express your thoughts. The accuracy in writing or speaking, as well as in experimenting, should be every scientist's aim. Always have in mind that simple, short words are usually better than long, unfamiliar words.

Concrete terms refer to things we know by one or more of the five senses. Abstract terms refer to things we know only through our mental processes. Jargon, redundancies and stereotyped expressions are usually identifying marks of those who have little to say and want it to put it into as many words as possible. The use of figurative terms in scientific language may obscure the message or very often cause misunderstanding when translated to another language.

Wordiness is one of the most common problems in medical English and the most common type of wordiness is jargon, which does not always mean the use of specialized word but in extreme cases is characterized by the total omission of one-syllable words. In this case you will choose "perform" instead of "do" or "at this point of time" instead of the three-letter word "now".

Make sure that you know the exact meaning of every word and how to use it. Get and consult good dictionaries including both a dictionary from your own language into English and a large English-language dictionary. Cross-checking of words is often worthwhile and the results can sometimes be astonishing. Reading of good writing - professional textbooks and journals but also reading of good fiction - will also, over time, help you to choose better words.

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Oral presentation[1]

KEYWORDS: Congresses; Science; Research; Communication; Speach

"*Education and scientific progress are so closely allied with personal communication that everyone involved needs to develop an ability to communicate well*".

Martha Davis (1)

When you have obtained the results you think they might be of interest for scientific community and merit reporting, you will probably apply for the presentation at suitable scientific meeting. This presentation serves two goals - to communicate your results to your peers, and to obtain the criticism that will improve both your research and subsequent paper(s); thus, you follow the general rule - talk before you write!

After your application has been successful (that means that it has been accepted for presentation by scientific committee of the meeting), you will receive information about how your results will be presented - orally or in poster.

Should your presentation be given orally, you are expected to prepare it (well in advance!) according to the general rules and specific requirements of the organizers of the meeting. The preparation consists of three main items: selection of material to be presented, organization of the presentation, and preparation for the question-answer section.

Preparation phase starts with selection of results to be presented. It is important to limit the amount of material and to explain fully this limited number of points. These two rules enables the speaker to concentrate to main results and adjust his talk within allotted time - which are prerogatives for an effective communication.

Organization of the speech basically follows the logical pathway of a written article, i.e., using the IMRaD formula (Introduction, Methods, Results and Discussion), with two important exceptions.

Firstly, the Methods section usually lacks details required for written paper (reproducibility), or even may be completely ignored. Secondly, it is not necessary to provide a long list of references; you probably shall mention a couple of authors while presenting (and simultaneously discussing) your results, thus relating your study to that of other researchers.

An effective presentation is achieved by connecting audience via all communication channels.

At the very beginning, try to attract the attention of the audience with a couple of introductory sentences, which should explain why the study was undertaken. Keep this attention by clear explanation of the aim of your investigation, e.g., what problem you are addressing. How you did the study would be rather shortly explained (see above), details of which you may give in the Questions and answers section, should it be needed.

The Results section (what you found) is the most important part of presentation: it usually takes approx. 80% of allotted time. During presentation of results, discuss them simultaneously, i.e. explain how your results fit (or not) with other people's published evidence. This is the best way to keep the attention of the audience alive. Finally, you shall clearly state the conclusions (one or two, no more!) you have drawn from your investigation; in the same time, you may emphasize whether or not your prior hypothesis stood up to your test, should it be modified or even abandoned.

In short, it is important that you orient your talk around one central idea; therefore, the scope of your subject should be restricted. The amount of material you present should be limited. You are expected to distinguish between big points and the little ones; basic points should be emphasized, explained thoroughly and presented vividly.

Visual aids. You will probably facilitate your conveying the message by using slides. The slides are one of primary communication tools; they enhance verbal communication and enable the audience to concentrate on important items. To be effective, your slides must be brightly lit and convey a simple thought. Bad slides can ruin your speech; few simple rules will help you to make a success of your presentation:

- One slide - one message
- One slide - one minute
- Textual slide - no more than six lines (less is better!)
- Legibility - must be visible and legible from the last seat in the hall!
- Simplicity - success
- Coordination with the speech
- Good composition of word slides, photographs, figures or tables.
- Avoid tables, unless they are necessary and simple
- Quality - clear, attractive, and aesthetically pleasing

The slide presentation must be coordinated with the speech: the slide supplements what the speaker is saying at the time the slide is on the screen. The text on the slide should never be read verbatim, but explained with other words. Coordination of the speech and visual aids reinforces main points of presentation: the same message, received by two senses (eye and ear) is better understood. Visual aids also help compensate for language barriers on international meetings.

The audience. It is important to consider in advance whom you are talking to. The audience may consist of experts in a specialized field, or be more heterogeneous; you should prepare your presentation accordingly. This means that your presentation should be pitched at a more general level if you are speaking to a diverse auditorium. Anyone who listens has right to understand your words; therefore, unless you are addressing a small group of your own research peers, try to avoid technical jargon. The same is true for the use of abbreviations.

You are obliged to respect and to be considerate to your audience. Many of them have traveled long and spend money to attend the meeting - and to hear you, among others. Do not waste their time. First of all, give your speech within the allotted time (typically, no more than ten minutes); several minutes overtime is inexcusable. Do not speak too fast; slow down is a leading rule. This will facilitate the conveyance of your message to persons whose native language is other than the official one.

The question and answer session is often the best part of an oral presentation. It serves the audience to clarify points or add to their knowledge of your subject. It is also an opportunity for the speaker to surmise the strengths and weaknesses of his research; in addition, the questions posed by the interested and knowledgeable colleagues will certainly improve his communication skills.

During the preparations, try to predict what questions might be asked

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Poster presentation[1]

KEYWORDS: Congresses; Science; Communication

Apart from oral presentation, poster is another way of communication at scientific meetings. By definition, posters are display boards in which scientists show their data and describe their experiments (1). In fact, poster represents a combination of characteristics of oral and writing form of presentation of research data, which enables interaction between the author and qualified audience (2,3).

This way of presenting data is developed as a result of increased interest for attendance at scientific meetings and thus the pressure of an increased number of papers for presentation, and lack of time for oral presentations. Although the poster display was, and still is, viewed as a medium for presenting results of reduced scientific importance, it has become more common and meaningful part of many meetings. It is currently accepted that poster can be an efficient way of presenting information and data (2); moreover, many people have now come to believe that some types of research data can be presented more effectively in poster graphics than in the 10 minutes-confined oral presentation (2). Furthermore, the poster exhibit can be an effective means of facilitating informal dialogue and communication between interested scientists.

This way of communication is less formal than oral presentation and offers other distinct advantages (3) presented in Table 1.

Table 1. Characteristics of two different ways of communication at scientific meetings

	Oral	Poster
Audience	greater heterogenic	small, with specific interest
Time for presentation	strictly confined	flexible
Moderator	yes	no/yes
Presentation	oral+slides	writing+graphics
Discussion	short	unlimited

As poster sessions became normal parts of many scientific meetings, the rules governing the preparation of posters have become much stricter. Because of that, the general principle is not to commence the actual preparation of poster before reading the instructions and requirements specified by the meeting organizers.

Content. During the preparation of poster, it should be kept in mind that poster, like other published papers, must have all parts of a scientific paper, about your report; these might be the same posed on previous occasions you have used to discuss your results (departmental seminars, discussions with collaborators, job interviews, grant proposals); prepare your answers accordingly.

When answering the questions, it is important to maintain a professional attitude. That means that you listen closely to the question, repeat it aloud if it is not heard or understood, pause few seconds to think, then answer briefly and directly. Your clear and concise answers allow others to ask about something else. If you think that the question deserves answering beyond reasonably short time, you can suggest colleague to meet after the session in order to discuss the matter further. Make use of these discussions: constructive, professional criticism is always beneficial for both the beginning scientist and the experienced professional.

Since the communication is a two-way process, the audience itself has its own responsibilities: to be quiet and attentive are the first of them. To listen is a matter of both courtesy and professionalism.

Do not be afraid to say, "I don't know", if the question is unrelated to your subject. You can refer to the literature as a source for an answer, but don't guess!

Conclusion. It is not easy to give a good oral presentation, but good planning, serious preparation and training, will make you a good speaker. Such a speaker avoids cardinal sins that make a boring presenter: running long minutes overtime, reading the text, showing unreadable slides, mumbling, underrating the audience...After having gained experience, you will soon become an accomplished speaker. Providing that you are committed to get the most from attending professional meetings (including learning from memorable presentations and presenters), you will gradually improve your communication skills.

With time, you shall learn to fit the occasion properly: to condition yourself, to look alive and enthusiastic, to maintain good eye contact with audience throughout the talk, to speak clearly and loudly, not letting the words get lost among physical distractions, to coordinate speech and visual aids, to use body language, to please the audience by your physical appearance, dress, mannerism and personality. You may argue that you are a scientist, not an actor. I disagree: when on stage, you are not only an actor, you are (or should be) a star!

Should you keep in mind these simple rules, you certainly shall be able soon to move from good speaker to a position of excellence. We demand excellence in scientific writing - there is every reason to expect it for presentations at scientific meetings too!

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i.e., the organization of poster should follow the IMRAD format (Introduction, Materials and methods, Results And Discussion) (1,4). The introduction should present the problem concisely; a clear statement of purpose right at the beginning will be enough to describe the type of the approach used.

The chapter Materials and methods must be brief; no detailed description of methods is needed.

The Results is an essential part of a well-designed poster; most of the available space should be used to illustrate results.

The Discussion should be brief and concise and might be finished by conclusions in the form of numbered short sentences. Some authors do not even use the heading Discussion; instead, the heading Conclusions appears in the panel.

The literature citation should be minimal and limited to 2-3 essential references only. Generally, the essence of good poster is to be concise, simple and visually appealing; it should be comprehensible in less than five minutes (2). Poster must be created in such a way to focus on issues that are most relevant to target audience. It should be self-explanatory; if the author has to spend most of his/her time merely explaining the poster rather than responding to scientific questions, the poster is largely a failure.

Organization

Title. The title is very important since a first impression is a strong impression (5). Because of that, it is necessary to be well studied. It should be short, clear and attractive; it must adequately describe the content of the paper with fewest possible words.

Text. Generally, the text should be used to augment and support graphical illustrations; most of the space should be used for illustrations. The main reason for bad posters in the majority of cases is simply trying to present too much; huge blocks of typed materials will not be read, especially if the type is small. In contrast, the simple, well-illustrated poster will attract many viewers.

Illustrations. The variety of illustrations can be used for data presentation at poster display: graphs, photographs, paintings, tables. It is generally recommended that the graphics and photographs are better for poster presentation than tables. If tables must be used, they should not include too many details. All non-essential information should be removed, so that no more than four columns and four data are presented on each of them. Graphics should be simple with maximum three lines; symbols should be replaced with direct labeling of lines or bars. Bold data lines should be used, and confusing patterns and open bars should be avoided. Each illustration should have a title. It should be clear, visible and readable. Legends, if any, should be very short.

Poster should contain highlights which will enable viewers to easily discern whether the poster is something of interest to them, i.e., the highlights of the several threads well enough give informed viewers the chance to recognize what is going on. If they are interested about the details, there will be plenty of time for asking the questions.

Text type. The used font must be clear; too many typefaces should not be used. The text type needed for clarity in poster is done in Table 2.

Table 1. Text characteristics for clarity on posters

Content	Reading distances (meters)	Type size (mm)	Type weight
Title	5	30	bold
Headings	2-3	10	bold
Subheadings	2	8	bold
Text	1	5	regular

Lot of white space throughout the poster is important; the best proportion recommended is reading material 50% and 50% blank space (1,2).

The title may be pointed using typeface bold and black and color as well; strong contrast is essential. Typeface and color should also point other parts of poster; color may be used to "dress" a poster, but it should be kept in mind that too much color distracts the reader. The color should be used consistently and wisely. It is recommended to prepare distinct parts of the poster in separate sheets; in such a way transport of the poster is facilitated, and much more importantly, the viewers' attention may be attracted on particular part of the poster. They should be organized on the display stand to allow ideas to flow logically, to emphasize aspects of greater importance and to subordinate items that are less important (2). Numbering of poster sheets might be useful during poster organization. It is a good idea to prepare small size copies of the poster and abstract with the author's address, which will be on disposition to interested colleagues. This enables later communication with the author, in order to obtain more details.

In some scientific meetings collective viewing and discussion of posters is organized; author is expected to exhibit briefly the problem, essential results and conclusions. Therefore, it is useful to prepare in advance 2 to 3 slides for eventual poster session. Such an approach combines the best characteristics of oral and poster presentations.

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Slide presentation

KEYWORDS: Congresses; Science; Communication

Slides that are thoughtfully designed and well prepared can greatly enhance the value of a scientific presentation. Poor slides would have ruined Cicero.

(Robert A. Day)

Speakers at scientific meetings should present their material clearly and effectively, so that the audience can understand and learn from the information being communicated. To achieve this goal, a good presenter uses all communication channels to convey the message(s).

The oral presentation can be greatly enhanced by visual aids, usually by slides. Slides are one of the primary communication tools in the presentation of data. Therefore, every scientist should know how to prepare effective slides. Such effective visuals can be made if several simple rules, based on the optometric and psychometric investigations, are applied. The most important of these are:

- **Simplicity.** A good slide is the one that communicates only one message. It must be brightly lit and convey a simple thought; therefore, any too complicated, too crowded or difficult to comprehend table, figure or scheme should be avoided. As a rule, the slide that cannot be understood in four seconds, is a bad slide.

Clear, simple slides are especially important for the members of the audience for whom the presentation is not in their native language.

- **Readability.** The slide must be read at a distance: even the people in the last row of chairs should be able to read the text. Therefore, to be legible, the text on slide should not exceed six lines (less is better!). The main heading should be at least 24 points, with subtopics (again no more than six!) at least 16 points. Horizontally oriented slides are usually preferable.

- **Timing.** The message conveyed by visual aid should be understood at a glance. The coordination of visual aids with the speech (always!) enables the audience to receive the message by two senses - eye and ear, which greatly enhances the perception. Therefore, the slide should be on the screen while the speaker explains it - no longer, no shorter a time. It usually means that a slide with main results should be on the screen about one minute: too short a time will make the message unperceived, too long one is distracting.

- **Composition.** The word slides serve as the outline for the speaker and reinforce what is to be said to the audience. Good slide composition is a mixture of textual slides, graphs and photographs, thus helping the conveyance of the message and providing relief from the word slides.

- **Esthetics.** A good slide is also esthetically pleasing. Readability is all-important: the text should stand out of the background, and good contrasts between the background and the text will allow to that. The good color composition is important, but colors must be used with caution. Below are several general rules of color composition:

1. Harmonious effects are achieved if two colors are complementary, that is, if they lie opposite each other in the color circle (the same principle holds for groups of three colors). Examples:

Groups of two colors
- Yellow - violet
- Yellow orange - blue violet
- Orange - blue
- Red orange - blue green
- Red - green

Groups of three colors
- Yellow - red - blue
- Yellow orange - red violet - blue green
- Orange - violet - green
- Red orange - blue violet - green

2. Subdued colors are more pleasing than pure colors. Psychological color perception always tends in the direction of composing complementary colors. Relationship exists between color intensities and area dimensions: the purer and richer a color, the smaller area it should be.

3. Pure, bright or very strong colors have unbearable effects when stand unrelieved over large areas adjacent to each other, but extraordinary effects may be achieved when they are used sparingly on or between dull background tones.

4. Light, bright colors next to each other produces unpleasant effects. Large area background demands mute, grayish or neutral color, thus allowing the smaller, bright areas to stand out most vividly.

Conclusion. The visuals will only be evaluated as good in the scientific and didactic sense when they set forth simply and clearly what the speaker wishes to express, help to convey his ideas and add focus and emphasis. For the benefit of the audience, the presenter should keep in mind that clarity and beauty are closely related concepts: a clear slide is beautiful, an unclear is ugly. A good slide composition, together with coordination of the words with visual aids, can make an oral presentation a success; a bad one can ruin it.

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How to write a conference report[1]

KEYWORDS: Congresses; Writing; Research

In recent years, the conference report literature has become a substantial part of the total literature in many areas of science, helping scientists to keep up in active areas of research.

However, both conference abstracts and conference reports, commonly called extended abstracts, are still considered as not validly published primary data.(1-4)

There are several reasons supporting this opinion:

- Science libraries do not purchase conference proceedings widely and therefore their circulation and availability are limited;
- Conference reports are mostly review papers or preliminary reports;
- Conference reports are usually not subjected to peer review or to more than minimal editing.

This last consideration - lack of any real quality control - is referred as the most important one in defining the volumes of conference proceedings as nonprimary literature.

Fortunately, more and more conference proceedings are rigorously edited (e.g. 2002WSEAS International Conference on Nanoelectronics and Nanotechnologies) and their importance is equal to primary journals. Some conference proceedings appeared as special issues of journals. For example -one issue of the Archive of Oncology (1997;5:3) contains papers presented at The First Yugoslav Seminar - Fullerene C60 in Biomedicine, and other issue (2001;9:4) contains articles on depleted uranium discussed at The First International Conference of the Environmental Recovery of Yugoslavia (ENRY 2001).

Thus, the content and quality of the conference report will mostly depend on whether the proceedings volume will be defined as primary or nonprimary one. Scientists should keep in mind that valid publication (in proceedings volume) of previously unpublished data, presented at the conference, might preclude later republication in a primary journal. If the proceedings volume is judged primary, editor will precisely indicate to prepare the manuscript in journal style. Then, you should give full experimental details; present both data and discussion of the data, as it would be in a prestigious journal. If the proceeding volume is nonprimary publication, the style of writing may be quite different. Conference report should be designed to give the news and the speculations, without experimental details and the usual literature review.

The conference report can be relatively short. It is often limited to one or two printed pages, or 1000 to 2000 words. Authors are usually provided with a simple formulation such as: up to six manuscript pages, double spaced, two columns, not more than four illustrations (any combination of tables, graphs or photographs).

The conference report should serve the purpose of a true preliminary report. It should present and encourage speculation, alternative theories, and suggestions for future research. Therefore, the typical conference report needs not to follow the usual IMRAD (Introduction, Materials and Methods, Results and Discussion) formula. Instead, abbreviated approach may be used:

- The problem is stated;
- The methods and techniques used are stated but not described in detail;
- The results are presented briefly, with a few (one to three) tables or figures;
- The meaning of the results speculated about should be given in considerable length;
- The literature review mostly includes the results from the author's laboratory or of the colleagues working on related problems.

It should be always kept in mind that the editor of the proceedings is usually the conference organizer as well and the only person responsible for questions relating to manuscript preparation. If the editor has distributed Instructions to Authors you should follow them whatever the rules are. Following the rules, the resultant volume is likely to be of consistent value and be a credit to all concerned.

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Communication with cancer patients

KEYWORDS: Communication; Patient Education; Physician-Patient Relations

Communication is defined as a process in which messages are delivered from one person to another, and is made by uttered, or written word, gesture, action, sound or visual image.

Communications, in words of oncologist, can be, like tumors, "benign" and "malignant"- invasive; similarly, the effects of bad communication with cancer patient can metastasize in his/her family (1).

Correct communication between a cancer patient and an expert taking care of him/her enhances adequate assessment of patient's health and his/her accomplishment as a psychosocial being. It makes easier an adequate decision- making and improves the efficacy of the treatment. The quality of life of the cancer patient and of his/her family is also improved by good communication.

The aims of communication are:

- Gaining the trust of cancer patients and their families, maintenance of good cooperation, providing information and specific knowledge;
- Decreasing of emotional tension, confusion, insecurity and fear;
- Promotion of mutual relations among the cancer patients, members of the family and the professional team.

Communication principles. The confidence between the team of experts and cancer patients is made with mutual respect of each other's personality, sincere approach and understanding of complete situation of the diseased and the family.

Truth is one of the most powerful therapeutic means in the communication with cancer patients and their families. However, it is important that the time, method of approach and "dosing" of communication are chosen properly. Two parallel principles of correct communicating the truth should be kept in mind:

- Cancer patient has right to know the truth,
- Thoughtless openness should always be avoided.

Non-verbal communication: Non-verbal communication should always be consistent to the meaning of the words. The non-verbal communication includes:

- Making eye-to-eye contact, face expression, smiling
- Shaking hands with the diseased, touching,
- Attitude and body position, movements, gesticulation.

Experts taking care of the cancer patient should learn principles of "hearing" the non-verbal communication. They should "learn to hear what is not heard", since cancer patients often cannot utter their sufferings.

Skill of making correct communication: Good communication comprises skills of active hearing of the cancer patient, conducting therapeutic dialogue, knowledge and application of strategies of delivering bad news.

Satisfying physical conditions for conversation, application of support techniques and emphatic attitude to the cancer patient makes essence of the skill of hearing of the cancer patient.

Satisfying physical conditions of the interview includes relaxing atmosphere, pleasant ambient, adequate non-verbal communication and acquaintance of the patient with members of the professional team and their role in treatment.

Supportive techniques in conversation challenge the patient to talk openly about his/her problems. The experts should convince the patient that they really want to help to solve his/her problems.

Empathic attitude towards cancer patient, who is in the state of psychological distress, shows that the experts understand and recognize his emotions.

Protocol of delivery of the bad news. Bad news is information that drastically and unfavorable changes the patient's attitude towards his future (2). What can mostly hurt the cancer patient concerning delivery of bad news is not content of the talks, but the manner of the news delivery. Protocol of delivery of the bad news includes several steps:

- Providing the physical conditions for the interview
- Assessment of the patient's knowledge about the disease and its treatment
- Finding out the kind and quantity if information the patient needs and wants to learn
- Delivery of information (systematized and instructive),
- Reaction to the patient's feelings by taking empathic attitude
- Summarizing the essential, planning the content and time for the next interview.

A person delivering bad news cannot make them more pleasant, but, if the truth is delivered with realistic optimism, he can provide psychoemotional support and enhance the patient's self-confidence. So, the cancer patient is convinced that there is always way to help him and that any situation may have positive outcome (3).

Our experiences in communication. The investigation about cancer patients' education indicates that our approach in application of protocol in delivery information and specific knowledge was correct, but there were lacks in communication (4). More than 80% of the patients had positive attitude to learning, and 40% were highly motivated for acquiring more knowledge. Obtained data show readiness of the patients for learning, which could be realized in conditions of open communication. When assessing the needs for information contents, we found that 90% and 70%patients wished to be informed on biomedical aspects of the disease and treatment and on the psychosocial aspects of active adaptation to life with malignant disease, respectively.

Seventy percent of the patients expressed their trust in possibility of alternative medicine to cure cancer. Their bias and mistakes indicate mistrust in experts and possibilities of contemporary medicine. These may point up on barriers in the communication between the cancer patients and health professional team.

Knowledge of good communication is necessary for elimination of the patient's mistakes and wrong conceptions on cancer. Good communication should satisfy needs, wishes and demands of the cancer patients for information, which would influence their attitudes, decisions and behavior. Good communication gives psychoemotional support during the treatment, within health care and rehabilitation, and often it is the only help given in the palliative care to the patient and his family. Communication skill should be learned during regular education. Research and the training of health professional staff for communication with cancer patients are justified.

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Professional ethics

KEYWORDS: Science; Communication; Publishing; Ethics Professional

"*We attempt to achieve excellence of written presentation in our journals. We can require no less in our conferences.*"

Jay H Lehr (1)

An investigation, no matter how spectacular the results might be, is not completed until the results are communicated to the scientific community. For the scientists, this is a "must": without being communicated, the results simply do not exist [1] (2).

To communicate the results of research is not only a working obligation - it is also an ethical one. In biomedical sciences, it is even more important. This is because the publication of clinical research is the ultimate basis for most treatment decisions and the development of comprehensive guidelines (3). Failure to communicate the results of research devoids medical science of possibly valuable facts that might add considerably to the current medical knowledge. Therefore, underreporting is unethical not only in relation to the science, but also to the medical ethics.

Communication of the research usually starts by presentation at scientific meetings. Apart from the communication skills the scientists are obliged to learn and practice, they are equally obliged to strictly adhere to the principles of Good scientific practice relating to the reporting of science.

The co-authors' list. The ethical problems may arise at the very beginning of preparing the presentation, namely, when decision is made about who does and who does not appear on the author list. Similarly to the demands for a written scientific article, all persons that satisfy the Vancouver criteria for authorship (4) should be listed as authors of the presentation. Their position in the list may vary (for example: a co-author can move to the first position providing that he/she is the presenter at a meeting), but all co-authors are bound to take public responsibility for the content of the presentation.

The presentation. In order to achieve the main goal of communication - to make his audience understands and learns from the information being communicated -, the presenter must pitch his talk accordingly. The speech should be prepared and planned well in advance. Several cardinal sins should be avoided: too many slides, too much text, mixed quality slides, large tables, color mania, and no references. Any of these will certainly ruin the presentation of otherwise most interesting and exciting results.

Above all, the audience should never be insulted by the speaker's reading

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the written text. Reading, mumbling, showing unreadable slides, and running long minutes overtime - these are the characteristics of boring speakers. The lack of concern for the desire of hundreds of scientists to enhance their professional developments by attending scientific meetings is certainly unethical and therefore unacceptable (1,5).

The audience. The speaker at a meeting must consider whom he/she is talking to - the audience for an oral presentation is much more diverse than the readership of the scientific paper. Therefore, a good speaker prepares his speech according to the needs of the listeners. The vivid, enthusiastic presentation, use of body language, eye contact with the audience and constant audience-friendly attitude - all these make the good speaker a memorable one (6).

The audience itself has certain obligations. The quiet, attentive audience is inspirational, the noisy or asleep one is disaster!

Question-and-answer section. During this section, which can be the best part of an oral presentation, the speaker and his audience have the option to discuss the matter; when doing so, both are obliged to behave courteously and professionally. The communication is a two-way process; both parties have several obligations, the basic one being - to respect each other. Anybody has right to disagree, but nobody is allowed to be disagreeable (5)!

And, finally, proceedings... The communication at meetings is only an interphase between experiments and full publication in peer-reviewed scientific journals. Therefore, after the research had been presented and discussed at a scientific meeting and, hopefully, useful comments and suggestions collected, the scientist should prepare a manuscript for publication in scientific journal. This is the best way for results to reach a larger audience (2).

However, a great number of scientists fail to publish in due course (the research should appear in print two years after the presentation at a meeting) (7,8). Such behavior is considered as highly unethical: if the scientist had thought that his research was worth presenting, he must try to publish it (9). Otherwise, he had wasted not only his own time and money (remember: research is expensive!), but also that of other attendants. These people deserve better. They had traveled perhaps from long distance and spent money to learn from speaker; instead, they were forced to listen the research that even his author thought to be unworthy listening!

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[1] "*In fact, the cornerstone of the philosophy of science is based on the fundamental assumption that original research must be published; only thus can new scientific knowledge be authenticated and then added to the existing database that we call scientific knowledge*" *(5).*