

Using evaluation grids for scientific publications. A method for objectifying the evaluation process

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ABSTRACT

For validity and credibility purposes, the presentation of scientific publications in a report form requires a certain layout that we could call the “anatomy of the report,” as well as the dynamics of it, considered the “physiology of the report.” But how are conference scientific publications evaluated? What are the criteria used to determine whether a report is accepted or not? The Research Committee of the Argentine Association of Orthopedics and Traumatology (AAOT) developed evaluation grids with the aim of publishing them to offer an objective tool for the qualitative and quantitative evaluation of all types of publications submitted. These grids could be used by evaluators to present their feedback, as well as an unbiased evaluation tool. Authors could use them as a guide to prepare the report of their research work.

Key words: Grids; scientific publication; orthopedics; traumatology.

Grillas para evaluar trabajos científicos. Un modo de objetivar procesos de evaluación

RESUMEN

La presentación de trabajos científicos a través de un informe requiere de un armado que podemos llamar “anatomía de un informe” y una dinámica en su interior a la que consideramos “la fisiología del informe” para que tenga validez y credibilidad, pero ¿cómo se evalúan los trabajos científicos presentados en nuestros congresos? ¿Cuáles son los criterios para determinar que un trabajo sea aceptado o no? El Comité de Investigación de la AAOT elaboró las grillas de evaluación. El objetivo de publicar las grillas es poder contar con una herramienta objetiva de valoración cualitativa y cuantitativa de todos los trabajos presentados en sus diferentes géneros, que podrá ser utilizada por los evaluadores de trabajos como elemento de *feedback* y como elemento de evaluación objetiva, y por los autores como guía para el armado del informe de su trabajo de investigación.

Palabras clave: Grillas; trabajos científicos; ortopedia; traumatología.

INTRODUCTION

How are conference scientific publications evaluated? What are the criteria used to determine whether a report is accepted or not?

Doctors Ernesto Bersusky and Lidia Loterzo have been working since 2006 on the Research Committee to develop objective guidelines aimed at evaluating different types of publications submitted to be presented at AAOT Scientific Conferences. During 2012, Dr. Loterzo, working at the Scientific Subcommittee of the 49th AAOT Conference, began using evaluation grids with a scoring format that allowed classification of publications into “award recipient,” “accepted” or “rejected.” These grids were applied in 2012, 2013 and 2014 by the Conference Scientific Subcommittee. During the following years, they were discontinued.

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During 2017, based on the previous work and incorporating a certain methodology, the members of the Research Committee resumed the design of the evaluation grids, which have the potential to objectify the criteria under which scientific publications are evaluated, assigning a score to each section required by the paper submission guidelines.

This way, the aim is for evaluators to be as objective as possible when grading a scientific publication, whether it be free-topic papers, case reports or scientific posters. Each grid tries to assess the unique discourse features of each genre. The free-topic paper evaluation grid considers the title, the abstract, the introduction, the Materials and Methods section, the level of evidence, the results, the discussion, the conclusion and the references included in the paper. This grid might be used for papers submitted for the Interns' Congress and the Research Forum, award-recipient papers, and papers submitted for acceptance as a Full Member of the AAOT. It can also be used as a grid and guideline for the preparation of monographs submitted for the National Biennial Certification Program (*Curso Oficial Nacional Bianual de Certificación, CONBC*) (Grid no. 1).

Likewise, the grid for evaluation of scientific posters considers the same sections, although, given that approved posters will be exhibited in printed form during the conference, it also includes a section for evaluating the digital images submitted by the authors (Grid no. 2). In contrast, the evaluation grid for case reports considers the title, the abstract, the rationale (relevance and interest of the case), the case presentation (medical history, examinations and diagnosis), the treatment plan, the discussion, the images included, and the references to literature. These sections, not included in the other grids, are relevant in this genre because case reports present a detailed record of the symptoms, signs, examination results, treatment and follow-up of an individual patient (Grid no. 3).

Publication in this Journal of the evaluation grids prepared by the Research Committee of the AAOT aims to provide an objective tool for the qualitative and quantitative assessment of publications pertaining to these three genres. At the same time, they can be used as guidelines for the preparation of said publications. We also believe they will promote a higher degree of transparency in the evaluation process of scientific contributions.

Conflict of interest: Authors claim they do not have any conflict of interest.

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Grid 1. FREE-TOPIC PAPERS**GUIDELINES:**

Required format: Arial typeface, 11-point font size, 1.15 line spacing.

Word count: Abstract: up to 600 words; full paper: up to 2,500 words (excluding references)

Paper subspecialties: Arthroscopy and Sports; Hip and Knee; Basic Sciences; Spine; Shoulder and Elbow; Hand and Wrist;

Pediatric Orthopedics; Leg, Ankle and Foot; Trauma; Tumors

EVALUATOR'S NAME:

PAPER'S TITLE OR No.:

Item	Item description and highest score	Excellent	Good	Fair	Poor	Total
1	TITLE Highest score: 5 points Paper title: The title should be clear, accurate and complete. It must reference the main research topic or the units of measurement (variables). It is recommended not to exceed 15 words	It clearly describes the content of the paper and matches the research objectives. Uses keywords 5 points	It describes the chosen topic, but it does not explain it, or it does not match the research objectives 3 points	The paper chosen topic is only vaguely described 1 point	The paper chosen topic is not stated or is confusing 0 points	
2	ABSTRACT Highest score: 10 points Abstract: It presents the main paper information: introduction, materials and methods, results, conclusion. Keywords are used	It presents the main paper information: introduction, materials and methods, results, conclusion. Includes keywords 10 points	It includes relevant information, but excludes some aspect of the research (introduction, materials and methods, results, conclusion) 6 points	It includes information about the research, but excludes two or more aspects of it (introduction, materials and methods, results, conclusion) 3 points	There is no abstract 0 points	
3	INTRODUCTION Highest score: 15 points Research problem and relevance: Description of the problem. Background (previous studies). References (supporting literature). Theoretical and practical relevance Highest score: 10 points Objectives: Objectives are clearly specified Highest score: 5 points	It clearly defines the research problem, referencing and citing supporting literature, and areas in need of endorsement. It explicates the theoretical and practical relevance of the chosen topic 10 points Objectives are clearly stated and related to the research problem 5 points	It defines the research problem and references supporting literature, but does not establish areas in need of endorsement. It explicates only the theoretical or the practical relevance of the chosen topic 6 points Objectives are stated, but they are unrelated to the research problem 3 points	The research problem and background are vaguely stated, without any supporting literature. It briefly or vaguely explicates the theoretical or the practical relevance of the chosen topic 3 points Objectives are stated, but they are unrelated to the chosen topic 1 point	There is no topic background. It does not explicit the theoretical or the practical relevance of the chosen topic 0 points There is no objectives statement 0 points	
4	MATERIALS AND METHODS Highest score: 20 points Materials and methods: The paper describes the research design: materials and methods used, population, sample selection criteria, data collection and analysis strategies, study validity criteria	It clearly states the information necessary for the Materials and Methods section. Methodology is adequate for the chosen topic 20 points	It states only part of the information necessary for the Materials and Methods section. The Methodology is adequate for the chosen topic 12 points	It states only one aspect of the information necessary for the Materials and Methods section. Therefore, Methodology is not sufficiently described and it cannot be concluded whether it relates to the chosen topic or not 6 points	None of the aspects necessary for the Materials and Methods sections are stated 0 points	
5	LEVEL OF EVIDENCE Highest score: 5 points Level of evidence: Complies with the requirements of the Oxford Centre for Evidence-Based Medicine (CEBM)	The level of evidence for the paper is adequately classified 5 points	The level of evidence for the paper is incorrectly classified 1 point	The level of evidence for the paper is not established 0 points		
6	RESULTS Highest score: 20 points Results: The presentation of results is consistent with the research objectives. Supporting evidence of research claims Highest score: 15 points Means to present results: Tables (display numerical values) and figures (illustrations, such as boxes, graphs, photographs, drawings or other forms of presentation). Short, clear and explanatory titles Highest score: 5 points	Results are clear, accurate and consistent with the research objectives. Results are detailed and supported by evidence 15 points The paper presents the data by means that are consistent with the results, and the titles are short, clear and informative 5 points	Results are consistent with the research objectives. Results are described broadly and supported by evidence 10 points The paper offers a means to present the data that is consistent with the results, but the titles are not short, clear or informative 3 points	Results are consistent with the research objectives, but there is no supporting evidence 5 points The paper offers a means to present the data, but it is inconsistent with the results stated 1 point	No results are stated, or the ones stated are inconsistent with the research objectives 0 points Data are not presented in tables or figures 0 points	
7	DISCUSSION Highest score: 15 points Discussion: Discussion of results from other studies. Study limitations. Future research and lines of action	Discussion of results is clear and adequate. Study limitations are acknowledged. Future research and lines of action are described 15 points	Results are briefly discussed. Only research limitations are stated, not establishing any future research or lines of action 10 points	Results are briefly discussed. No limitations or future lines of action stated 5 points	Results are not discussed 0 points	
8	CONCLUSION Highest score: 5 points Conclusion: Conclusion statement (answers to research objectives)	Research conclusions are clearly and thoroughly stated 5 points	Research conclusions are briefly stated 3 points	Conclusions are inconsistent with the research objectives 1 point	Research conclusions are not stated 0 points	
9	REFERENCES Highest score: 5 points References: Citation of references used. Compliance with Vancouver citation standards	The paper includes all references, cited as per required citation standards 5 points	The paper includes references, cited as per required citation standards, but there are some references missing 3 points	The paper includes references, but they are not cited as per required citation standards 1 point	The paper does not include any references 0 points	
HIGHEST SCORE: 100 points	Scale: Award-recipient paper due to higher score and level of evidence (highest scores, between 80 and 100 points) Distinguished paper (scores between 40 and 80 points) Rejected paper, not to be included in the Conference Schedule (low score, between 0 and 40 points)					

Grid 2. SCIENTIFIC POSTER

GUIDELINES:

Required format: Arial typeface, 11-point font size, 1.15 line spacing.

Word count: Abstract: up to 200 words; full text: up to 1,000 words (excluding references)

Poster specialties: Arthroscopy and Sports; Hip and Knee; Basic Sciences; Spine; Shoulder and Elbow; Hand and Wrist; Pediatric Orthopedics; Leg, Ankle and Foot; Trauma; Tumors

EVALUATOR'S NAME:

POSTER'S TITLE OR No.:

Item	Item description and highest score	Excellent	Good	Fair	Poor	Total
1	TITLE Highest score: 5 points Poster title: The title should be clear, accurate and complete. It must reference the main research topic or the units of measurement (variables). It is recommended not to exceed 15 words	It clearly describes the content of the poster and matches the research objectives. Uses keywords 5 points	It describes the chosen topic, but it doesn't explain it, or it does not match the research objectives 3 points	The chosen topic for the poster is only vaguely described 1 point	The chosen topic for the poster is not stated or is confusing 0 points	
2	ABSTRACT Highest score: 10 points Abstract: It presents the main poster information: introduction, materials and methods, results, conclusion. Use of keywords	It presents the main poster information: introduction, materials and methods, results, conclusion. Includes keywords 10 points	It includes relevant information, but excludes some aspect of the research (introduction, materials and methods, results, conclusion) 6 points	It includes information about the research, but excludes two or more aspects of it (introduction, materials and methods, results, conclusion) 3 points	There is no abstract 0 points	
3	INTRODUCTION Highest score: 20 points Research problem and relevance: Description of the problem. Background (previous studies). References (supporting literature). Theoretical and practical relevance Highest score: 10 points Objectives: Objectives are clearly stated Highest score: 10 points	It clearly defines the research problem, referencing and citing supporting literature, and areas in need of endorsement. It explicates the theoretical and practical relevance of the chosen topic 10 points Objectives are clearly stated and related to the research problem 10 points	It defines the research problem and references supporting literature, but does not establish areas in need of endorsement. It explicates only the theoretical or the practical relevance of the chosen topic 6 points Objectives are stated, but they are unrelated to the research problem 6 points	The research problem and background are vaguely stated, without any supporting literature. It briefly or vaguely explicates the theoretical or the practical relevance of the chosen topic 3 points Objectives are stated, but they are unrelated to the chosen topic 3 points	There is no topic background. It does not explicit the theoretical or the practical relevance of the chosen topic 0 points There is no objectives statement 0 points	
4	MATERIALS AND METHODS Highest score: 20 points Materials and Methods: The poster describes the research design: materials and methods used, population, sample selection criteria, data collection and analysis strategies, study validity criteria	It clearly states the information necessary for the Materials and Methods section. Methodology is adequate for the chosen topic 20 points	It states only part of the information necessary for the Materials and Methods section. The Methodology is adequate for the chosen topic 12 points	It states only one aspect of the information necessary for the Materials and Methods section. Therefore, Methodology is not sufficiently described and it cannot be concluded whether it relates to the chosen topic or not 6 points	None of the aspects necessary for the Materials and Methods sections are stated 0 points	
5	LEVEL OF EVIDENCE Highest score: 5 points Level of evidence: Complies with the requirements of the Oxford Centre for Evidence-Based Medicine (CEBM)	The level of evidence for the poster is IV and adequately classified 5 points	The level of evidence for the poster is incorrectly classified 1 point	The level of evidence for the poster is not established 0 points		
6	RESULTS Highest score: 15 points Results: The presentation of results is consistent with the research objectives. Supporting evidence of research claims	Results are clear, accurate and consistent with the research objectives. Results are detailed and supported by evidence 15 points	Results are consistent with the research objectives. Results are described broadly and supported by evidence 10 points	Results are consistent with the research objectives, but there is no supporting evidence 5 points	No results are stated, or the ones stated are inconsistent with the research objectives 0 points	
7	IMAGES Highest score: 5 points Images: Digital images to illustrate the research done (X-rays, clinical images). Correctly labeled and numbered within the text. Clear slides (oblique, axial or other)	Relevant images are included, correctly labeled and numbered. Consistent with the presented case 5 points	Relevant images are included, but some of them are incorrectly labeled and numbered. They are related to the case, but correspond to similar cases, not the one reported 3 points	Images are included, but they are irrelevant for poster comprehension 1 point	The poster includes no images 0 points	
8	DISCUSSION Highest score: 10 points Discussion: Discussion of results from other studies. Study limitations. Future research and lines of action	Discussion of results is clear and adequate. Study limitations are acknowledged. Future research and lines of action are described 10 points	Results are briefly discussed. Only research limitations are stated, not establishing any future research or lines of action 10 points	Results are briefly discussed. No limitations or future lines of action are stated 5 points	Results are not discussed 0 points	
9	CONCLUSION Highest score: 5 points Conclusion: Conclusion statement (answers to research objectives)	Research conclusions are clearly and thoroughly stated 5 points	Research conclusions are briefly stated 3 points	Conclusions are inconsistent with research objectives 1 point	Research conclusions are not stated 0 points	
10	REFERENCES Highest score: 5 points References: Citation of references used. Compliance with Vancouver citation standards	The poster includes all references, cited as per required citation standards 5 points	The poster includes references, cited as per required citation standards, but there are some references missing 3 points	The poster includes references, but they are not cited as per required citation standards 1 point	The poster does not include any references 0 points	
HIGHEST SCORE: 100 points		Scale: Poster with higher score and level of evidence (award-recipient poster) Poster selected to be exhibited at the conference (high score, between 70 and 100 points) Poster to be included in the Conference Schedule, but not printed for exhibition (middle score, between 41 and 69 points) Rejected poster, not to be included in the Conference Schedule (low score, between 0 and 40 points)				

Grid 3. CASE REPORT**GUIDELINES:**

Required format: Arial typeface, 11-point font size, 1.15 line spacing.

Word count: Abstract: up to 300 words; full text: up to 1,500 words (excluding references)

Subspecialties for case presentation: Arthroscopy and Sports; Hip and Knee; Basic Sciences; Spine; Shoulder and Elbow; Hand and Wrist; Pediatric Orthopedics; Leg, Ankle and Foot; Trauma; Tumors

EVALUATOR'S NAME:

CASE REPORT TITLE OR No.:

Item	Item description and highest score	Excellent	Good	Fair	Poor	Total
1	TITLE Highest score: 5 points	Case Report title: Describes de case reported in a clear, accurate and concise way.	The case is appropriately described to the reader 5 points	The reader is introduced only to one aspect of the case reported 3 points	Does not describe the case reported, or the information given is not enough to understand it 1 point	The case report has no title 0 points
2	ABSTRACT Highest score: 5 points	Abstract: Case diagnosis. Rationale for reporting the case (e.g., low prevalence, severity of the lesion, complex diagnosis or treatment, etc.). Resolution. Case originality (if appropriate)	Complies with the required format in full: diagnosis/rationale/resolution 5 points	Complies with the required format, although one aspect is missing (diagnosis/rationale/resolution) 3 points	Complies with the required format, but there are two aspects missing (diagnosis/rationale/resolution) 1 point	The case report has no abstract 0 points
3	RATIONALE Highest score: 20 points	Rationale behind the relevance or interest of the case: - New condition or disorder. - Rare, uncommon or underreported condition. - Unusual presentation of a common condition. - Unforeseeable relation among uncommon signs or symptoms. (Chekvarajah et al., 2004)	Offers a detailed rationale, stating the relevance and/or interest of the case 20 points	There is a certain degree of rationale behind the relevance and/or interest of the case, although it is not enough to support it 12 points	Offers a rationale, but it doesn't show the relevance and/or interest of the case 6 points	It does not offer a rationale showing the relevance and/or interest of the case 0 points
4	CASE DESCRIPTION Highest score: 30 points (*If the Case Report does not include a Treatment plan due to a rare diagnostic, scores from this item will be redistributed. See below)	Medical record: Patient's history related to the current condition that allows for a thorough medical record. Highest score: 10 points	Offers a patient's history that is clearly related to their condition and thoroughly detailed 10 points	Vaguely or briefly presents a medical history related to the present condition 6 points	Presents a confusing medical history or one that is unrelated to the present condition 3 points	Does not present a medical history related to the present condition 0 points
		Examinations: Physical exam (describes relevant findings of physical exam) and supplemental examinations. Highest score: 10 points	Clearly describes the physical exam, and the supplemental examinations are appropriate 10 points	Describes the physical exam and the supplemental examinations, but some of them are not clear enough or are inappropriate 6 points	Only the physical exam is described, not the supplemental examinations 3 points	The case report does not describe the physical exam or the supplemental examinations 0 points
		Diagnosis: Presumptive and differential diagnosis (if appropriate). Details of diagnostic methods used. Highest score: 10 points	Clearly describes the diagnosis and the diagnostic methods used 10 points	Diagnoses are given, but the methods used to reach them are not clearly described or are inappropriate 6 points	Only the diagnosis is described, not the methods used to reach it 3 points	The case report does not describe any diagnosis or diagnostic methods 0 points
5	TREATMENT PLAN Highest score: 15 points	Treatment plan: Description of the treatment and the route of administration.	Describes the treatment plan (type of treatment and route of administration), which allows the reader to fully understand the case reported 15 points	The treatment plan is described, but there are details missing to fully understand the case reported 10 points	The treatment is mentioned in the report 5 points	The treatment is not mentioned in the report 0 points
6	DISCUSSION Highest score: 15 points	Discussion: Summary of similar published cases. Organized around the specific challenges of the case reported.	Case discussion is clear and adequate, and summarizes similar published cases and all the specific challenges of the case in point 15 points	There is some degree of results discussion, including only one of the required aspects (summary of similar cases or specific challenges of the case in point) 10 points	There is a certain degree of discussion that does not comply with the required aspects 5 points	The reported case is not discussed 0 points
7	IMAGES Highest score: 5 points	Images: Digital images to illustrate the case (X-rays, clinical images). Correctly labeled and numbered within the text. Clear slides (oblique, axial or others). Must be consistent with the case reported.	Relevant images are included, correctly labeled and numbered. They are consistent with the case reported. Includes a picture of the final treatment result 5 points	Images are included, but they are incorrectly labeled and numbered. They are related to the case reported, but correspond to similar cases, not the one in point 3 points	There are images regarding classifications of the case reported, but they do not illustrate the case in point 1 point	The report includes no images 0 points
8	REFERENCES Highest score: 5 points	References: Citation of references used. Use of required citation standards. Supporting literature (if a Treatment plan is presented).	The report includes all references, cited as per required citation standards, to support the Treatment plan 5 points	The report includes references, cited as per required citation standards, but there are some references missing or that do not support the Treatment plan 3 points	The report includes references, but they are not cited as per required citation standards 1 point	The report does not include any references 0 points
	*CASE DESCRIPTION (if the Case Report does not include a Treatment plan) Highest score: 45 points	Examinations: Physical exam (describes relevant findings of physical exam) and supplemental examinations. Highest score: 15 points	Offers a patient's history that is clearly related to their condition and thoroughly detailed 15 points	Vaguely or briefly presents a medical history related to the present condition 10 points	Presents a confusing medical history or one that is unrelated to the present condition 5 points	It does not present a medical history related to the present condition 0 points
		Examinations: Physical exam (describes relevant findings of physical exam) and supplemental examinations. Highest score: 15 points	Clearly describes the physical exam, and the supplemental examinations are appropriate 15 points	There is a description of the physical exam and the supplemental examinations, but some of them are not clear enough or are inappropriate 10 points	Only the physical exam is described, not the supplemental examinations 5 points	The case report does not describe the physical exam or the supplemental examinations 0 points
		Diagnosis: Presumptive and differential diagnosis (if appropriate). Details of diagnostic methods used. Highest score: 15 points	Clearly describes the diagnosis and the diagnostic methods used 15 points	Diagnoses are given, but the methods used to reach them are not clearly described or are inappropriate 10 points	Only the diagnosis is described, not the methods used to reach it 5 points	The case report does not describe any diagnosis or diagnostic methods 0 points
	HIGHEST SCORE: 100 points	Scale: Award-recipient report due to higher score and level of evidence (scores between 80 and 100 points) Report selected to be included in the Conference Schedule (scores between 40 and 80 points) Rejected report, not to be included in the Conference Schedule (low score, between 0 and 40 points)				