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THOUGHTS FROM AUTHORSHIP TO AUTHOR

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ПРОБЛЕМЫ АВТОРСТВА В НАУЧНОЙ РАБОТЕ

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In the review consider of questions about research activities, including publications of clinical research in pediatric surgery and pediatric urology. In most cases requires a multidisciplinary cooperation, which results in dramatic increase in the number of authors in an article. The International Committee of Medical Journal Editors (ICMJE) includes suggestions and recommendations for co-author. Also in the article bring to conformity with collective-authorship as possibility to getting of the result of the multinational and interdisciplinary medical care.

Key words: clinical research, ICMJE, pediatric surgery, multidisciplinary cooperation

В обзоре рассматриваются вопросы научно-исследовательской деятельности, в том числе публикации результатов клинических исследований в области детской хирургии и урологии. В работе отмечается, что использование мультидисциплинарного сотрудничества ведет к резкому увеличению числа соавторов в научных статьях. Приводятся рекомендации Международного комитета редакторов медицинских журналов (ICMJE) по количеству соавторов и написанию научных статей, которые соответствуют мировым требованиям. Кроме того, указаны данные по междисциплинарному соавторству в исследованиях как возможность публикации научных результатов в рейтинговых медицинских журналах.

Ключевые слова: клинические исследования, ICMJE, детская хирургия, многопрофильное сотрудничество

Objective

To determine how many authors should be included in a medical article and to attempt to find an answer to this widely disputed debate.

Background

The medical community is no exception to the world of financial interest and success-oriented professions. The professional progress, the resulting material and moral benefit depend on a number of factors, all of which are easily measurable in the publishing activity (1).

After graduating from the medical school, those young doctors have great advantages who were involved in undergraduate scientific works, attending student conferences, giving presentations and achieving awards, or joined a research groups of an institute and featured as a co-author in an article. These doctors continue to remain ahead of con-

temporary colleagues whom have shorter scientific CV. After graduating, colleagues with publications are more likely to receive scholarships, academic grant, more often take part in national and international congresses, acquire a PhD degree and faster progress through the professional ladder.

In the USA the candidates entered paediatric surgery residency programme had twice as much publications as those who were not recruited [2]. Doctors must have general (adult) surgery specialty before entering paediatric surgery programme.

In addition, the employer (academic institutions, national institutions, clinics, hospitals) expects its employees to have more publications and achieve higher academic qualifications. For the employ this is not only a prestige matter, but also a financial issue, as the institution budget is based on its scientific achievements. The aforementioned

reason resulted in dramatically increase in number of publications and the number of authors in recent decades.

In 1980 Hofmann reported that not only the number of publications, but also the number of authors increased significantly between 1960 and 1980, from 1.67 to 2.58 [3]. According to data from 2006 in one year in 23 750 medical journals, 1.3 million articles were published [4].

In this article the key factors analysed that modify the former publishing habits and practices. To achievement this goal besides review of medical literature, I have utilized decades of personal experience gained during my activities as reported in the Journal of Pediatric Surgery and European Journal of Pediatric Surgery [5, 6].

Thoughts from authorship to authors

The above mentioned requirements have significantly changed in respect to the earlier publication habits, practices and the ethics. All these striking changes inevitably appeared in paediatric publications including paediatric surgery and paediatric urology.

To prove this, I examined the authors of Journal of Pediatric Surgery in 3 five years periods (1981–1986, 1991–1996 and 2006–2010). In this 3 five years period 4584 articles published (3740 clinical or experimental studies, 844 case reports). The number of authors have significantly increased, in clinical studies from 3.7 to 5.3 ($p < 0.001$) and in case reports from 3.1 to 4.5 ($p < 0.001$) (Table 1).

Table 1
Statistical characteristics of number of authors per article according to the type of publication from 1981–2010

Period	N	Mean	Std.	Mode	Min	Max	K-W* Sign
In original papers							$p < 0.001$
1981–1986	760	3.7	1.7	3	1	12	
1991–1996	1405	4.4	1.9	4	1	15	
2006–2010	1575	2.3	2.3	5	1	15	
In case reports							$p < 0.001$
1981–1986	163	3.1	1.3	3	1	7	
1991–1996	335	3.8	1.8	3	1	13	
2006–2010	346	4.5	2.0	4	1	13	

N= Number

*Kruskal-Wallis test

When the publications according to the number of authors were divided into 3 groups (1–3 authors, 4–5 authors and 6 or more authors), it was found that during 30 years' period the low authors (1–3) publications decreased and the 4–5 authors articles remained unchanged. Whereas the 6 or more authors publications have markedly increased in both clinical studies and case reports (Fig. 1 and 2).

Fig. 1. Percentage distribution of original papers according to the number of authors in the 3 periods. Increase in number of authors according to the type of article

Fig. 2. Percentage distribution of case reports according to the number of authors in the 3 periods

I did a similar analysis in the European Journal of Pediatric Surgery. Examination of number of authors in a 10-year period (01 Jan 2003 – 31 Dec 2012), I found that the smaller number authors publications were low and 6 or more authors articles were quite high [5].

The International Committee of Medical Journal Editors (ICMJE) suggestion for co-author

The International Committee of Medical Journal Editors only generally defines the criteria for co-authors as follows [7, 8]:

- the article concept wholly or partly belongs to them, are involved in the research, participate in the study plans, data collection and data analysis
- writing of the article
- actively involved in correcting and finalizing the manuscript.

Frankly speaking, the above criteria for co-authors is partly or not at all implemented in most of the cases.

Acceptable and unacceptable reasons for increasing the number of authors

In this section I intend to describe factors that justify increase the number of author (co-authors) and those facts that are not indicated.

Ethically acceptable factors which justify increasing the number of authors

- Forced publishing (publish or perish, publish at any cost): our scientific careers progress largely depends on the number of first author or co-author published articles, kind of journal, its impact factor (IF) and its citation index. There is a significant disadvantage for minor professions (ear-nose-throat, oral surgery, paediatric urology, paediatric manual professions), due to low number of journals, the IF is low and seldom cited in major journals.
- Collaboration with other disciplines: in recent decades, medical science has developed explosively in all branches. As a result, for preparation of a good manuscript, genetic, biochemical, imaging, histology and statistics knowledge are required which can be provided by individual experts who expect to be included as a co-author.
- Study of rare diseases (diagnosis, treatment, follow-up) usually can only be achieved if different institutes within a given country or multi-national institutes in a collaboration participate in a study and publish their results.
- Globalization of science communication will further increase the number of authors. A manuscript prepared in participation of multi-national institute has a greater chance of being accepted and

published as it was produced in a single institute or in one country. However, a multi-national institute published article has a higher citation.

Collective-authorship

Collective-authorship is the result of the multinational, interdisciplinary medical care. In case of a multi-national, multi-institute collaboration (e.g. frequency of Wilms tumor in Europe) in addition to the name of the institute, the name of data provider persons should also be mentioned at the end of the manuscript but not as a co-author. In some cases, it could mean 60–70 names. Therefore, the journal asks for few individual's name as authors who actively took part in data and material collection, data evaluation, analysis and preparation of manuscript.

Unacceptable reasons for increasing the number of authors

- Mutual kindness: means taking colleagues, friends as a co-author who did not, or minimally contributed to the preparation of manuscript. Later these «co-authors» in return take him in their manuscript. So it is possible that someone has several IF publication while just has only one first author article.
- Gift co-authorship: means a person is among the authors who have not participated in the preparation of this article. Often such a person is the head of the department, his name gives value to the article as a known expert among the authors.
- «Salami» policy: the author of a well-written, cohesive study of hope of higher IF and citation breaks it into smaller parts, which reduces its value but increases its IF.
- Dual publication: same manuscript publication with or without changes or in different language.
- Plagiarism: use of shorter or longer text, idea, method and statements of others job as their own without mentioning its source.
- Self-plagiarism: once own former work presented as a new result.

How many authors should an article have?

- The International Committee of Medical Journal Editors (ICMJE) provides guidance and requirements for someone to be co-author, but it does not give guidance, that how many co-authors an article can have. To my knowledge, there is no recommendation (guideline) or ethical decision on the number of author. Among more than 200 journals' instructions for authors, only two make recommendations on the number of authors [9].
- To reduce the number of co-authors, the 4 leading medical journals (British Medical Journal, Lancet, Journal of the American Medical Association, Canadian Medical Association), required a written statement from co-authors for their active participation in the preparation of the article. Despite a written statement requirement in a 10 years period (1995–2005) the number of co-authors did not reduce, and even increased when compared with the control journal (New England Journal of Medicine), which did not require a written statement [10].
- It is generally accepted that the first place of the first author is undisputable. He performs dominant part of the work related to the preparation of the manuscript. The first author is followed in importance order the last author. This is often a senior member of the team who support the manuscript with ideas and advises. Unfortunately, and perhaps not rarely, the senior author («boss») expects that he should be the last author without active involvement in the preparation of the manuscript.

- Frequently asked question, is that how much contribution to the manuscript the large number of co-authors between the first and the last authors have. An article in the Journal of Pediatric Surgery reports that 13 authors published an article on the non-surgical treatment of appendicitis [11]. It is difficult to determine what is the task between the 2nd and 12th co-author's work? In this way it possible that someone is a co-author of «prestigious» journals while not having a first-author publication. Therefore, it is often difficult or even impossible to meaningfully evaluate the work of a co-author (with the exception of the first and last authors).

Number of authors and collaboration relationship

A wide range of collaborations significantly increase the number of authors of a publications. This is obvious, since more professionals involved in the preparation of article, who rightly expect to be in co-authorship, which is at three level:

- In an Institute (universities, hospitals etc.) cooperation within several professions (pathology, imaging, interventional radiology, genetics etc.),
- Several institutions within a country, cooperated in an article,
- International Collaboration: similar to that of b. point, only a larger number of patients from several countries and institutions.

An article produced in a national or multi-national collaboration has a more reliable knowledge. A further advantage of international cooperation is that the manuscripts will tend to be accepted in a journal with high IF and therefore more frequently cited.

Previously I reported, how collaboration can significantly increase the number of authors in the field of paediatric surgery. In a ten-year period (1 January 2003 – 31 December 2012) of the Journal of Pediatric Surgery European 996 articles (666 original articles and 380 case report) published. The distribution is shown in Figure 3, depending on whether the manuscript was prepared without collaboration or two or more institutions have participated. It can be seen that 34.9 % of all publications (348 publications) is from single institution, while 65.1 % (648) of the publications with the cooperation of two or more institutions.

Fig. 3. Total number of publications (996) is shown, depending whether the article produced in single institute (without collaboration) or with collaboration of two or more institutes

Based on the literature and my own observations it is likely that in future the publishing success is greatly facilitated if the manuscript prepared in multi-institute or multi national collaboration [5].

Table 2

Type and number of article produced with collaboration in 10-year period (January 1, 2003 – December 31, 2012), distributing in the first 5-year period (January 1, 2003 – December 31, 2007) and second 5-year period (January 1, 2008 – December 31, 2012)

Type of article	Type of collaboration			
	5-year periods	Within a single institute, n (%)	National multi-institute, n (%)	Multi-national institute, n (%)
Original reports/ original articles	2003–2007	118 (70.2)	32 (19)	18 (10.7)
	2008–2012	119 (50.8)	70 (30.3)	44 (18.8)
Case reports/ case galleries	2003–2007	77 (72)	24 (22.9)	6 (5.6)
	2008–2012	88 (63)	36 (25.9)	15 (10.8)

Final Thoughts about publishing and authorship – what the future holds?

Professional publishing is no longer expectation of the theoretical institutes colleagues, but also from the clinical doctors.

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According to previous ethical, philosophical and scientific concepts, knowledge transfer occurs by knowledge dissemination. This principle is well illustrated by Winston Churchill saying, «If you have knowledge, let others light their candles with it» [12]. This approach is stand still and has not lost its timeliness, only now wider medical science spectrum.

In the past, most medical publications were single authored, but over the past few decades, the number of authors significantly increased. As an example, in The Lancet the average number of authors in an articles is above 6, while in 1950s the number of authors per article were two [13]. There are several reasons for this, mainly the ever-changing higher level of patient care, demanding an interdisciplinary and international cooperation.

Today's research activities, including clinical research, in most cases requires a multidisciplinary cooperation, which results in dramatic increase in the number of authors in an article.

The «publish or perish» or «perish at any cost» principle and practice is most likely to change to «publish or perish together» due to growing number of publication resulted from multi-institute and multi-national collaboration. This along other factors will result in a further increase in the number of authors.