

# Presentation of research in anesthesia: Culmination into publication?

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## Abstract

**Background:** To assess the quality of research presentations made in conferences, its success or failure to be published in a peer-reviewed journal is a well-accepted marker. However, there is no data regarding the publication of research presentations made in Indian conferences of anesthesiology.

**Objective:** The primary objective was to determine publication rate of research presented at the largest and best attended national conference in anesthesiology, the Indian Society of Anaesthesiologists' Conference (ISACON), and also compare it with the rate from an international conference American Society of Anesthesiologists (ASA annual meeting) held in the same year.

**Materials and Methods:** All 363 abstracts presented as poster or podium presentations at the ISACON, and an equal number of randomly selected abstracts presented at ASA annual meeting were searched on *Pubmed* and *Google Scholar* for their full-text publications in peer-reviewed journals using a standardized search strategy. As secondary observations, abstracts were assessed for completeness by noting certain components central to research methodology. Also, changes between abstract of the presentation and published paper were noted with respect to certain components.

**Results:** The publication rate of presentations at ISACON and ASA meetings was 5% and 22%, respectively. The abstracts from ISACON lacked central components of research such as methods and statistical tests. The commonest change in the full-text publications as compared with the original abstract from both conferences was a change in authorship.

**Conclusion:** Steps are required to augment full-text publication of Indian research, including a more rigorous peer review of abstracts submitted to ISACON to ensure their completeness.

**Key words:** Abstract-publication ratio, publication rate, presentations in anesthesia, research

## Introduction

Research is pivotal in the practice and development of medicine. It helps to discover new evidence, provides impetus to further research, draws attention to areas of interest and is instrumental in improving and innovating patient care.<sup>[1,2]</sup> The results obtained from research can be made available to the medical community either through publication in relevant journals or presentation at various forums. Presentation at conferences

can be either in poster or oral format, and aims for a rapid dissemination of the information to a large number of targeted professionals, stimulates discussion, encourages further research by young investigators,<sup>[2]</sup> and is considered an important link between execution of a research protocol and publication of the completed work.<sup>[3,4]</sup> Presentation of research to a wide audience in conferences may lead to a change in clinical practice and opinion affecting the patient care,<sup>[2]</sup> and hence the quality of research presentations should be maintained.

A well-accepted marker of quality of the research that is presented is its success to be published subsequently in a peer-reviewed journal.<sup>[5]</sup> The publication rate of presentations has been used to assess quality of research output in various fields of medicine<sup>[1]</sup> including anesthesia.<sup>[4]</sup> The publication rate varies from 11% to 78%,<sup>[6]</sup> typically hovering around 30-50%.<sup>[7-12]</sup> However, there is no data regarding the publication rate of research presented in anesthesia in an Indian scenario.

The Indian Society of Anaesthesiologists hosts the national annual conference (ISACON) that is the primary conference

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of anesthesia in India. The scientific committee of ISACON selects papers to be presented at each annual conference after review of submitted abstracts. This observational study aimed to assess the publication rate of research presentations made in the ISACON and also compare it with that of the annual meeting of American Society of Anesthesiologists (ASA) held in the same year. As secondary observations, the site and timing of the full-text publication, completeness of the abstracts submitted to the conference, and changes between the abstract as accepted for conference proceedings and its full-text publication were also noted.

## Materials and Methods

The ISACON publishes in print, abstracts of all poster and oral presentations made in the conference. The official website of ASA allows free access to abstracts of all presentations. Using these respective resources we identified abstracts of the presentations made at ISACON and ASA meetings. The mean time to publication after presentation has previously been noted to vary between 1.5 and 3 years, with a median of 18 months.<sup>[1,2,13]</sup> Thus, we conducted the present study using the proceedings of the conferences held in the year 2009.

The total number of abstracts of research presentations made at ISACON and ASA meetings in this year was 363 and over 1700, respectively. The archive of abstracts of ASA meeting allows access to an individual abstract one at a time, making manual sorting of such a large number of abstracts extremely difficult. To allow for comparison with the smaller number of presentations at the ISACON we randomly selected an equal number of abstracts from the ASA 2009 including all specialities, using a computer generated random number table and numbered abstracts.

For calculation of the publication rate, we used a previous strategy to determine whether the presentation finally got published in a journal.<sup>[1]</sup> Herein, key words from the title and names of the first and last authors from the abstract were entered into Pubmed as well as Google Scholar databases. Key words were defined as the main elements in the title, and ranged from one to several in number.<sup>[14]</sup> Names of first and last authors were used, since they are usually the one who have contributed most to the paper and are likely to be the senior ones respectively, and thus named on any final publication.<sup>[1]</sup> To standardize the results of search process for full-text publication, only published papers that were similar with respect to hypothesis, study design, protocol, number of subjects and results of the published abstract were considered as a match.<sup>[2]</sup> If the published paper included the data presented in the abstract, along with additional data, it

was still considered a match. Publications with dissimilar data despite similar protocol were not considered a match. At least two of the authors independently assessed the publications that were considered a match, to arrive at a consensus decision for accepting it as a full-text publication of the abstract. If the initial search did not reveal a full-text publication, all the key words from the title were entered before declaring an abstract unpublished. No effort was made to check for multiple papers stemming from a single abstract.

Once matched as a full-text publication, the time of publication from its presentation was noted. It was also recorded whether the journal, wherein published, was indexed with Pubmed.

All abstracts, as published in the conference proceedings, were assessed for completeness by noting mention of aim, methods, quantitative results, conclusion, study design (its specific mention), sample size (subjects recruited), and statistical tests. Changes between abstract of the presentation and published paper with respect to the title, form (original research/case report/observational), authorship (number, order), number of study subjects, quantitative results, and conclusions were also noted.

## Results

The publication rate of abstracts from ISACON and ASA meetings was 19/363 (5%) and 80/363 (22%), respectively.

Percentage of full-text publications published in journals indexed with Pubmed was 58% and 100% for the ISACON and ASA meetings, respectively. Of the 363 abstracts presented at ISACON while 270 (74.4%) were original research, 81 (22.3%) were case reports, and 12 (3.3%) were personal experiences or narratives. Compared to this, there were no case reports among the ASA meeting abstracts.

The median (range) time to publication as full-text articles was 12 (3-24) months and 14 (1-21) months for ISACON and ASA meetings, respectively. From among the published articles, 26% from ISACON and 0.07% of ASA were published prior to the presentation.

There was a difference in completeness of the abstracts accepted for presentation in the conferences [Table 1]. Abstracts complete with respect to inclusion of aim, statistical tests, quantitative results and conclusion were significantly higher in the ASA meeting as compared with the ISACON ( $P < 0.05$ ; Table 1). In contrast, the percentage of abstracts mentioning study design were greater from ISACON meeting ( $P < 0.05$ ); and those with sample size and methods were similar between the two conferences [Table 1].

A similar percentage of the final full-text publications from ISACON and ASA meetings (84% and 85%, respectively) differed from the initial abstract [Table 2]. With regard to the individual components, significantly higher percentage of publications from ASA meeting had a change in the form, order of authors, results, and conclusions ( $P < 0.05$ , Table 2). The commonest change in the final manuscripts resulting from both conferences was a change in the authorship [Table 2]. The increase in number of authors ranged from 1 to 9 and 1 to 8 in manuscripts originating from presentations of ISACON (68%) and ASA meetings (73%), respectively.

## Discussion

We searched both *Pubmed* and *Google Scholar* for locating full-text publications of the presented abstracts so as to include both indexed as well as nonindexed journals.

Previously, a publication rate of 31-43.6% has been noted from presentations made in international conferences in anesthesia.<sup>[4]</sup> The publication rates noted in our study for both, the Indian ISACON (5%) and international ASA meeting (22%) are lower than the previous figures. For suitable comparison of the rate for ISACON, there is no previous data regarding publication rate from an Indian conference in anesthesia. However, publication rate from Indian conferences

held in other medical specialities note higher publication rates than ISACON; 16.5% in ophthalmology.<sup>[15]</sup> The publication rate of ASA meeting is only for the randomly selected sample of abstracts.

Low publication rates result from authors failing to write the full-text manuscript or its being rejected by a journal during peer review.<sup>[1]</sup> Failure to write the manuscript could be related to several reasons including time constraints, the extra work required to achieve a full text publication,<sup>[16]</sup> or a simple lack of motivation to achieve publication. Also, in a usual Indian scenario, while a presentation may be required to attend and obtain reimbursement of expenses for the conference,<sup>[15]</sup> a publication is not required for the same. Several times the work is presented by students/residents who have changing interests or insufficient time, preventing production of complete manuscript.<sup>[17]</sup>

The inclusion of a large number of case presentations in ISACON (22.3%) may also contribute to the lower publication rate. To publish case reports is currently difficult, with most international journals having uniformly stepped down the space dedicated to case reports. This is because case reports are now relegated to the lowest class of evidence-based research and also affect the journal's impact factor adversely. Although there are certain journals devoted to publishing case reports such as the "Journal of Case Reports," these are internet-based, open-access journals demanding a high publishing fees. Stringent conditions on presentation of case reports in ISACON need to be applied, and only a limited percentage of total presentations should be allocated to them. Case reports that can convey novel management techniques or descriptions need to be considered. Those with a beneficial outcome by applying previously described approaches in uncommon diseases should be specially desisted from.

Other suggestions to increase publication rate from ISACON include introduction of formal training in research methodology and bioethics, as well as scientific paper writing during graduate and post-graduate courses. Faculty members can be allocated structured time for research distinct from academic, clinical, and administrative responsibilities. Better infrastructure or support for research such as free access to journals and secretarial assistance should also be made available. Some of these are affirmative steps that can even be taken at departmental level without necessitating institutional policy decisions, making them feasible and sustainable. To augment the publication of research, ultimately, the will and efforts are to originate from all concerned including the authors.

From among the published articles, 26% from ISACON and 0.07% of ASA were published prior to the presentation. These

**Table 1: Completeness of abstracts of presentations**

Component	ISACON (%)	ASA meeting (%)
Study design	118/270 (44)*	80/363 (22)
Sample size	245/270 (90)	280/315 (89)
Statistical tests	16/270 (6)*	120/363 (33)
Aim	262/270 (97)*	363/363 (100)
Methods	268/270 (99)	363/363 (100)
Quantitative results	93/270 (34)*	358/363 (99)
Conclusions	213/270 (79)*	357/363 (98)

ASA=American Society of Anesthesiologists, ISACON=Indian Society of Anaesthesiologists' Conference, Values are number of abstracts (with presence of component/total), \*  $P < 0.05$  for ISACON vs ASA meeting

**Table 2: Changes in full text publication of the presentation**

Changed component	ISACON (%)	ASA meeting (%)
Change in any component	16/19 (84)	68/80 (85)
Title	7/19 (37)	28/80 (35)
Form	0/19 (0)*	3/80 (4)
Number of authors	13/19 (68)	58/80 (73)
Order of authorship	5/19 (26)*	58/80 (73)
Number of study subjects	4/19 (21)	18/80 (23)
Quantitative results	3/19 (16)*	18/80 (23)
Conclusions	1/19 (5)*	12/80 (15)

ASA=American Society of Anesthesiologists, ISACON=Indian Society of Anaesthesiologists' Conference, Values are number of full text publications (with change in specified component/total), \*  $P < 0.05$  for ISACON vs ASA meeting

could be presentations that were submitted for consideration for publication at the time of the conference, or those already published, the latter being highly undesirable.

A significantly lower percentage of abstracts from ISACON were complete with regard to aim, statistical tests, quantitative results, and conclusions as compared with ASA meeting [Table 1]. Besides this quantitatively higher percentage of ISACON abstracts being incomplete, there are certain qualitative differences. There were a high number of abstracts from ISACON that lacked quantitative results, i.e., 177 of the 270 original research as compared with ASA meeting (2/363 original research). This may be because these studies may not have been completed by the time of submission for presentation. The ASA website includes the precondition of providing quantitative results and conclusions and puts a word limit for each specified section, whereas the guidelines in the ISACON website are less rigorous. It is also worrisome that two abstracts from ISACON were accepted despite lack of aims or methods [Table 1]. These are components of research without which abstracts should not be admitted for presentation. These findings suggest the need for a more rigorous peer review of the abstracts submitted to ISACON for potential presentation. A standardized protocol for screening and selection of abstracts needs to be put in place, that may help reduce any subjective bias on part of the reviewers. Like certain other conferences, submission of a nonrefundable nominal fee may also help improve the quality of research being submitted to ISACON.

A similar percentage of full-text publications from both conferences had changes made in comparison to components of the original abstract. This signifies that presentation indeed leads to constructive discussion of the research. The commonest change between full-text publication and its abstract from conference proceedings was in the authorship, with an increase in authors ranging from 1 to 9 in ISACON and 1 to 8 in ASA meeting publications. Change in authorship between presentation and publication may be due to the inclusion of an additional author if there is further analysis of data involving another investigator, or removal of an author if their involvement in manuscript preparation is below standards set for authorship by peer-reviewed journals. The practice of 'honorary' or 'gift' authorship that is prevalent may also explain the change in number or order of authorship.<sup>[13]</sup>

The limitations of our study include the possibility of some articles still pending for publication, missing articles published in journals not either in *Google Scholar* or *PubMed*, and typographical errors in the proceedings of ISACON or ASA meeting, which may have lead to the article being unavailable on search. Also, since the computerized search for full-text

articles was carried out manually the chances of human error cannot be ruled out.

To conclude, the publication rate from ISACON (5%) is lower than that from ASA meeting (22%). Abstracts submitted to ISACON lack completeness with respect to central aspects of research such as mentioning of methods, statistical methods, quantitative results, and conclusions; necessitating more rigorous guidelines and review prior to their acceptance. Augmenting this quality check will also help to increase the publication rate eventually. Lastly, changes are common in published full-text manuscripts as compared with their presented abstracts, implying that the presentation of research at conferences such as ISACON helps in its improvement and augments publication.

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